THE FIELD NATURALIST

Quarterly Bulletin of the Trinidad and Tobago Field Naturalists' Club

October – December 2014 **Issue No: 4/2014**

NARIVA SWAMP BIOBLITZ 2014

Saturday 18th - Sunday 19th October

GENERAL REPORT

by Mike G. Rutherford

The third annual Trinidad & Tobago Bioblitz took place in mid October 2014. This time we focused on the amazing diversity of habitats in the Nariva Swamp. The Forestry Division kindly allowed the Nariva Swamp Field Station in Kernahan to be used as the basecamp.

The event was organized by members of The University of the West Indies (UWI) Department of Life Sciences and supported by the TTFNC.

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Mantis, *Stagmomantis carolina*, along the boatline *Photo: A. Deacon*

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Editor's note :
Many thanks to all who contributed and assisted with articles and photographs.

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October - December 2014

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NARIVA SWAMP BIOBLITZ 2014

(Continued from page 1)

Experts and volunteers, including a bus load of students from UWI, started to assemble at the basecamp on Saturday morning. Participants pitched their tents and got their equipment ready and after a short briefing the Bioblitz officially began at noon. At this point the teams assembled and then headed out on foot and in trucks to their survey sites. Kayaks and boats were also used to get into the heart of the swamp and along the Nariva River.

Briefing at the Nariva Swamp Field Station basecamp

Photo: E. Rutherford

The birds provided some interesting sightings early on with the visiting jabiru storks being seen near Kernahan by bird group leader Feroze Omardeen. Many other birders, including members of the TTFNC Bird Group, spread out from the beach to the forest and recorded an impressive number of species. For details see report on page 11.

As well as searching for birds with binoculars there were a few mist nets put up to trap birds for closer examination. Qualified bird handlers Darshan Narang and Carl Fitzjames with several helpers trapped over 20 birds during the weekend allowing a close study of their condition before the birds were banded and released. See page 13 for details.

Several staff members and guests from the Asa Wright Nature Centre also joined in the surveying and had a great time. Some focused on the birds whilst others helped out with the bat group in the evening.

The plant group was led by Mike Oatham from UWI with help from experts Doreen Jodhan and Winston Johnston along with a large group of students and graduates. They surveyed several different habitats including the forests in Bush Bush, along the cocal, around Kernahan and parts of the swamp. The last proved to be the hardest, with some areas being described as "impenetrable". For more details see the report on page 21.

The surveying of the aquatic habitats (swamp, ditches, streams, rivers and coastline) was split between a marine group and a freshwater group, however the nature of the swamp meant that there was significant overlap and the teams often combined their efforts.

The surveying of the marine habitats was organized by Mark Charran from Fisheries Division. With the help of members of the Trinidad & Tobago Eco Divers Club and many students from UWI they searched the mouth of the Nariva River and along the beach for species. To begin with they used one of the most labour-intensive methods of surveying utilized during the Bioblitz; a beach seine net was swum out across the mouth of the river and then hauled back in, capturing a variety of fish. They also surveyed the beach for invertebrates by sieving sand samples and collecting shells. In the evening, line fishing and fish traps were used.

The freshwater group was led by Amy Deacon from St Andrews University and Ryan Mohammed from UWI. They used hand seines and dip nets as well as pot traps, which allowed a wide range of fish to be sampled. They also recorded freshwater insects, crustaceans and molluscs and several members kayaked along the boatline into Bush Bush. Other nets were put out across some tributaries to the Nariva River by Guy Marley from UWI. See page 14 for the combined aquatic report.

The mammals were surveyed using different trapping methods. Nine camera traps were set up in Bush Bush, Kernahan and the mangrove forest, but apart from a few agouti and one manicou the only other mammals they recorded were the human surveyors! See page 20 more details. Several baited Sherman traps were placed in Bush Bush to attract rodents but none were activated. Many other groups observed forest mammals such as squirrels and couldn't help hearing and seeing the curious red howler monkeys while doing their own surveys and several small mice and rats were seen whilst people walked at night. The tracks of deer were seen in several muddy patches on the trails and the presence of the tree porcupine was evident from the musty smell in one area of Bush Bush, thus adding a few more records. The largest number of mammal species came from the bat group, led by Luke Rostant. A dedicated team of experienced handlers set up six mist nets along the trails in Bush Bush and spent several hours from dusk till late at night removing and identifying the bats from the nets. See page 8 for more information.

There were many different groups and individuals looking for the huge variety of invertebrates in the swamp, using an assortment of surveying techniques. Jo-Anne Sewlal looked for spiders, mainly by eye but occasionally using a sweep net (see page 19) and Chris Starr from UWI searched for ants, wasps and termites (see page 23). Imran Khan and his team set up butterfly nets baited with rotten fruit throughout the forest. They also used long-handled nets to catch insects on the wing - including dragonflies and damselflies, which are very abundant in the swamp. As well as searching for butterflies during the day, Kris Sookdeo, president of the TTFNC, along with David Lawrie and other helpers, set up a light trap in Bush Bush to attract moths and other insects active during the night. They braved the biting mosquitos until their batteries ran out and managed to record a wide range of nocturnal species. See page 17 for details.

A large group of volunteers armed with UV torches walked along a track heading from Kernahan and then onto the trails of Bush Bush to look for scorpions during the night. Scorpions fluoresce a bright green-yellow colour under UV light, making them easy to find. The group found over 30 specimens but amongst them there were only five different species - including the potentially deadly *Tityus trinitatis*. See page 25 for details.

A first this year was having a team focusing on mosquitoes and other biting insects. Nariva Swamp was certainly full of these so having expert Raymond Martinez and his group of helpers along meant they could identify them this year rather than just getting bitten. Using themselves as bait alongside a variety of other collecting methods the group found an impressive 20 different species including several that are potential vectors for various diseases.

Members of the mosquito team in Bush Bush Sanctuary

Photo: C. Seepersad

Once again, Jeffrey Wong-Sang focused on the fungi, he walked all over Bush Bush photographing every fungus he came across and found an estimated 15 species including a beautiful veiled lady mushroom. With the help of Julian Duncan from UWI these will be identified to a more accurate level after the event. See page 10 for the report.

The herpetology team was led by John Murphy, from the Field Museum in Chicago, with help from a large team of visitors and local experts, including Saiyaad Ali from the Serpentarium, this team

searched for reptiles and amphibians. In the daytime they walked the trails of Bush Bush and found many frogs and lizards but the most interesting surveying was at night when the snakes came out. These included an adult mapepire balsain, one of Trinidad's most dangerous snakes, which was captured by Saiyaad and put on display at the basecamp on the Sunday. The really exciting find, however, was a potentially new species of frog for Trinidad. See page 6 for more details.

On Sunday morning many members of the public came along to join in with the event. A large group hiked into Bush Bush whilst others went kayaking on the Nariva River with local wildlife guide Kayman Sagar hoping to spot monkeys or manatees from the water. Many visitors explored the basecamp where there were informative displays by the UWI Zoology Museum, the TTFNC, the T&T Marine Mammal Stranding Network and the Forestry Division, as well as displays of live animals by the Serpentarium and the El Socorro Centre for Wildlife Conservation. People could watch pond-dipping and bird-netting in action, and kids took part in a colouring competition to design a new species of macaw.

At noon of the Sunday the surveying stopped after an intense 24 hours. The final count was announced by Mike Rutherford with help from his daughter Zoe. In total 215 vertebrates (123 birds, 28 mammals, 23 reptiles, 16 amphibians and 25 fish), 266 invertebrates (106 butterflies and moths, 15 ants, bees and wasps, 20 mosquitos, 3 mantids, 11 dragonflies, 30 other insects, 40 spiders and scorpions, 20 molluscs, 15 crabs, shrimps and woodlice, 2 millipedes, 3 worms, 1 echinoderm), 15 fungi, 15 diatoms and 231 plants were found giving a grand total of 742 species. This number will go up in the coming weeks as specimens that were collected are more closely studied and as participants sort through their photographs for any missed records.

The event would not have been possible without the generous sponsorship of First Citizens and the cooperation of the Forestry Division in allowing the use of their field station. Many others also contributed to the event: Caribbean Bottlers Ltd. kindly donated drinks (which were much appreciated in the hot conditions); The UWI Student Guild provided the maxi which transported students to and from the event; the Bovell family allowed access to Belle Piece for surveying; Judith Gobin allowed use of her family beach house for accommodation; Eileen Rutherford took care of the catering; the UWI Department of Life Sciences provided vehicles and equipment.

Mike and Zoe Rutherford announcing the final results!

Photo: E. Rutherford

Plans for next year's Bioblitz are already forming, with a distinct possibility of heading to Tobago!

For more information about the Bioblitz see www.facebook.com/TandTBioblitz and http://sta.uwi.edu/fst/lifesciences/BioBlitzHome.asp.

AMPHIBIAN AND REPTILE GROUP REPORT

by John C. Murphy

The Amphibian and Reptile Group used several methods for finding specimens, this included actively searching the vegetation along trails, turning cover objects such as logs, rocks, palm fronds, etc. We also drove the roads, looking for roadkill, and searched the margins of ponds and ditches.

Black-headed snake
Tantilla melanocephala
Photo: J. C. Murphy

Perhaps the most interesting find was the discovery of the endemic Trinidad thin-toed frog, *Leptodactylus nesiotus* in Bush Bush. The species was present in good numbers in almost dry leaf litter in a swale in almost closed canopy forest, and it was living alongside *Leptodactylus hylaedactylus*. Both relatively poorly known species. The Trinidad thin-toed frog was first described in 1994 from Icacos in the south-west Peninsula by Ron Heyer of the USNM. This finding suggests the species is more widespread than previously thought and a forest species, as opposed to the open marshes of the south-west.

Other species observed included an unusually large (0.8 m) water snake, *Helicops angulatus*, a species usually about a 0.5 m long; the centipede feeding, *Tantilla melanocephala*, a hard to find but probably common species; an exceptionally nice green colour morph of the usually black *Erythrolamprus cobellus*; and the minute, hard to find gecko S*phaerodactylus molei*.

The group also discovered a frog not previously reported from Trinidad. The long-snouted thin-toed frog, *Leptodactylus longirostris* was found living in the Bush Bush Sanctuary. The species was originally described in 1882 by George A. Boulenger based on a specimen from Brazil. The species is also known from the Guianas, Venezuela, Colombia, and Brazilian Amazonia.

Adult frogs range in size from 35 to 50 mm and they live in a variety of habitats ranging from grassy swamps to forests. Like many other *Leptodactylus* frogs it builds floating foam nests to protect its eggs during development. The name 'longirostris' (or long snout) comes from the fact that the snout projects well beyond the mouth and the nostrils appear to be set back away from the tip of the snout. This is a character that will separate this frog from all other Trinidad and Tobago thin-toed frogs *(Leptodactylus*).

Long-snouted thin-toe frog
Leptodactylus longirostrus
Photo: R. Auguste

Trinidad has exceptionally rich frog fauna for the size of the island, when Julian Kenny published his 1969 study of Trinidad amphibians he listed 25 species on the island; today there are 34 species including the new species found during the Bioblitz. This is an increase of more than 40% in the last 45 years and a reminder that there is still much to learn about the Trinidad and Tobago fauna. Two of these frog species are known only from museum specimens and they may already have become extinct on the island in the early 20th century.

During the 24 hour Bioblitz a total of 18 species of frogs were found (more than 50% of the frog species found on the island). During the 24 hour study period the team also found 11 species of lizard and 12 species of snake, as well as the spectacled caiman.

Mangrove snake
Erythrolamprus cobellus
Photo: J. C. Murphy

Frogs, lizards and snakes may seem unimportant to most people, but they provide ecosystem services, they control pests that carry diseases to crops, animals and humans, and provide science with new sources of pharmaceutical products that improve human lives. The current Ebola outbreak in West Africa can be directly traced to lost biodiversity and is an important lesson in why animals, plants and entire ecosystems need to be studied and protected.

L to R: **Tom Anton, Gary Caspar and John Murphy**
Photo: E. Rutherford

The Amphibian and Reptile Bioblitz team was composed of herpetologists from Trinidadian and USA, and included: Daryl Abraham, Renoir Aguste, Saiyaad Ali, Siddeeq Ali, Tom Anton, Darius Baldeo, Gary Caspar, Kester Dass, John C. Murphy, Nalini Rampersad, Ryne Rutherford, and Vijay Singh.

Saiyaad Ali showing specimens to visitors at the basecamp
Photo: E. Rutherford

BAT GROUP REPORT

by Luke Rostant

The bat survey group sampled by capturing bats in ground and triple high mist nets. At about 4:30 pm on Saturday 18th October, the group set off on the Bush Bush Sanctuary trail. On this occasion, we had sufficient numbers to split up into two groups, one which deployed 4, 12 metre ground mist nets, while the other deployed 2, 12 metre ground mist nets, and the 3, 9 metre mist nets on the triple high. All nets were set at about 6pm, and were left up until about 10pm.

During this time, 48 bats from 17 different species were captured. Bats were removed from the net then carefully identified, weighed and measured before being released again. The species ranged from the more common ones , such as Seba's short-tailed fruit bat, *Carollia perspicilata* a generalist frugivore, to rarer species, such as the stripe-headed round-eared bat, *Tonatia saurophila,* a gleaning animalivore which prefers mature forest habitat. The herpetology group also observed the greater white-lined bat in, *Saccopteryx bilineata,* hanging off of the buttress roots of a large tree, thus increasing the count to 18 species in total.

Members of the bat group included Luke Rostant, Alesha Naranjit, Frazer Higgins, Rachel Campbell, Rondell Hamilton, Danielle Morong, Lauren Ali, Christian Persad, Arianne Ali, Liz Anesty, Carl Fitzjames, Karl Phillip, Darshan Narang and Robyn Bath.

Species	Numbers mistnetted
Artibeus cinereus	2
Artibeus jamaicensis	5
Artibeus lituratus	2
Carollia perspicillata	16
Glossophaga soricina	1
Micronycteris megalotis	1
Mimon crenulatum	1
Phylloderma stenops	1
Phyllostomus hastatus	2
Pteronotus davyi	3
Pteronotus parnelli	3
Pteronotus personatus	1
Rhynchonycteris naso	1
Saccopteryx bilineata	
Sturnira tildae	1
Tonatia saurophila	4
Uroderma biolobatum	3
Vampyrodes caraccioli	1
Total Individuals	48
Total Species	18

The complete list of bats captured or observed:

Some of the bat group members

Photos: M.G. Rutherford

Left: The relatively rare **stripe-headed round-eared bat, *Tonatia saurophila*** is a gleaning animalivore, picking up insects, arachnids and lizards off the forest floor.

Photo: L. Rostant

Right: The **Jamaican fruit-eating bat, *Artibeus jamaicensis,*** spreads the seeds of many important trees in Trinidad and Tobago, including royal palm, and seaside almond.

Photo: L. Rostant

Left: A **common long-tongued bat, *Glossophaga soricina,*** captured from the net. As a nectivore, this species plays a vital role in pollinating many of the plants and trees we cherish.

Photo: L. Rostant

Right: The **common tent-making bat**, ***Uroderma bilobatum***, makes its home on the undersides of various palm leaves by biting on their mid-ribs causing them to collapse. Whilst under these leaves, the white-facial stripes help to disguise the bats from predators.

Photo: L. Rostant

FUNGUS GROUP REPORT

by Jeffrey Wong-Sang

This year's group consisted of myself and my wife, Roma Wong Sang.

Because of the geography of the area that had been chosen for Bioblitz 2014, I realized that our philandering would be defined to the Bush Bush Wildlife Sanctuary. I opted for an early start Sunday morning and after working out timings with Mike Rutherford; Roma and I left home at 4:15am from Diego Martin to be in Manzanilla for the sunrise at the Navet River mouth at 5:30am. We were not disappointed. After a short photo session we moved on.

Above: **Parasol fungus**
Photo: J. Wong-Sang

In Kernahan village the lilies in the canals were also in full bloom and begged to be photographed. After exchanging pleasantries with several villagers we reached base camp at the Forest ranger station for 6:15am.

After a slight delay, as the planned guide was ill, Mike Rutherford decided to lead a miscellaneous group into Bush Bush himself as he had to retrieve his trail cameras anyway. We left at about 7:30am.

We were spared the walk for a little over half mile, and then completed the rest of the way to the entrance of the sanctuary. We had a briefing before we entered with what to expect and the usual warnings for this type of area. The mosquitos greeted us with glee even though we smelt like a moving people mass of citronella.

Conditions were humid but not damp, so unfavorable for fungi. You could tell rain had not fallen recently on the trail. This year I was asked to include mosses and lichens on my list, as well as fungi.

We followed a moderate winding trail through the forest, counting Mike's cameras until we came to the last one about a mile and a half into the forest. Along the way, scanning the forest floor and looking for fallen trees and any damp areas, we turned around here and retrieved the cameras on the reverse return route. Nothing eventful, a few bird sightings and no fauna. Final list was about a count of 19 miscellaneous specimens.

We were back at base camp by 10am.

Above: **Veiled lady fungus**
Photo: J. Wong-Sang

BIRD GROUP REPORT

by Feroze Omardeen

When the first bird you see after turning into Kernahan is a jabiru stork, you can be forgiven for thinking it's going to be a great day. As it turned out, a great 24 hours! We collected an impressively long list of bird species. Perhaps it was because of the proximity of the different habitats, seaside, marsh, scrubland and forest, with the consequent species diversity. Or perhaps it was because we had so many good birders fanning out into all the different areas.

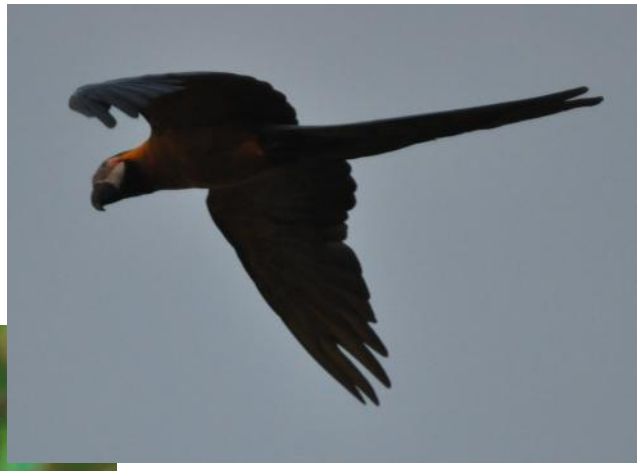
Many thanks to all the participants for the great sightings….like the aplomado (Kris Sookdeo), glossy ibis (Paul and Vicky), double toothed kite (Faraaz Abdool), barn owl (Renoir Auguste), azure gallinule (Sanjiv Parasram), plain-breasted ground dove (Darshan Narang and the mist netting crew) and so many other great birds. Wish I could have seen them too.

But I didn't see those, because I was busy with 78 other species. Minutes after the jabiru beginning, there was a pond full of ducks (black-bellied whistling, and blue-winged teals), with a nearby pinnated bittern and several sandpipers. And it didn't stop till the next day. Between us all, we got almost all the expected wetland-type birds: the masked yellowthroat, the white-tailed goldenthroat, etc. I hung on with a small group going into the forest on Sunday morning. Thanks to the awesome birding skill of Sanjiv Parasram, we documented all three of the Morichal habitat specialists, i.e. the moriche oriole, the sulphury flycatcher, and of course the red-bellied macaw. Seeing a flock of six blue and yellow macaws left us optimistic about the progress of this re-introduced bird, and we shared a moment of gratitude for the hard work that many people must have put into this.

Walking into the forest, Sanjiv was able to identify the call of the plain antvireo, a bird he had never seen, and use playback to call it out and photograph it. Calls also helped distinguish the dusky-capped

Above:
Crested caracara,
Caracara cheriway
Photo: F. Omardeen

Below:
Brown crested flycatcher,
Myiarchus tyrannulus
Photo: F.Abdool



Above:
Blue and yellow macaw,
Ara ararauna
Photo: K. Phillip

flycatcher from the closely related brown-crested flycatcher, apparently sympatric species of the tricky genus *Myiarchus*.

Many IDs were by sound rather than sight. Such as some of the night birds encountered by those who overnighted at the Forestry Station. But the calls of the tropical screech owl and the common potoo were quite diagnostic and unambiguous. We may have been able to find a few more shorebird species if we had the time and the tide in our favour.

Crested caracaras seem well established in the area, they have been regularly there for years now. (There may well have been a sighting of another rarity known from the area, the white-tailed hawk.) Both the light and dark morphs of the long-winged harrier, the "hard working raptor" were very evident around the Forestry Station.

As with the previous Bioblitzes, it was a great experience. The >100 mosquito bites I got while overnighting in Mayaro were worth it!

Above: **Tropical screech owl *Megascops choliba***
Photo: M.G. Rutherford

Below: **Black-bellied plover, *Pluvialis squatarola***
Photo: K. Mahabir

Above: **Wattled jacana, *Jacana jacana***
Photo: K. Phillip

Below: **Limpkin, *Aramus guarauna***
Photo: K. Mahabir

Carl Fitzjames at the bird banding station, sexing, measuring and banding birds.
Photo: C. Seepersad

BIRD BANDING GROUP REPORT

by Darshan Narang

On October 18 and 19, at the Nariva Swamp 2014 Bioblitz, the bird banding team set up mist nets and caught birds which they identified, banded, measured and eventually released back into the wild. The team comprised of Carl Fitzjames, Darshan Narang, Kareena Anderson, Vishnu Debie, Richard Smith and Robyn Bath. Assistance was provided by numerous volunteers.

Bird banding is a method used to study the biology and ecology of birds in a particular area. It is a hands on approach where the birds have to be caught in mist nets, so called because of the fine mesh used to make the nets almost invisible for birds (and bats). The mist nets used for this survey were each 12m long by 2.7m tall with a mesh size of 27mm, and they contain five trammels which are folds in the net that allow the birds to fall into them when they hit the nets. The birds are then extracted by experienced handlers and placed into cotton bags until they are processed.

A total of six 12m nets were set up at Bush Bush Game Sanctuary along existing trails for four hours from 13:30hrs to 17:30hrs on October 18. A total of five birds were caught, representing three species: three American pygmy kingfishers, *Chloroceryle aenea*, one golden-headed manakin, *Pipra erythrocephala*, and one little hermit, *Phaetornis longuemareus*. The kingfishers and little hermit were not banded because their tarsus is too short for our metal bands and thus they require specialized bands.

On October 19, six 12 m nets were set up in the orchard behind the Forestry Division's office in Kernahan for four hours as well from 06:00hrs to 10:00hrs. This site was much more productive and we caught 36 individuals of 17 species including the tanagers: palm, *Thraupis palmarum melanoptera*, and turquoise, *Tangara mexicana vieillioti*; the hummingbirds: white-tailed goldenthroat, *Polytmus guainumbi guainumbi* and white-chested emerald, *Amazilia brevirostris*; and even two migratory warbler species: yellow warbler, *Dendroica petechia aestiva*, and northern waterthrush, *Seirus noveboracensis*. Of interest were the two plain-breasted ground doves, *Columbina minuta minuta*, as this species is listed as a scarce Trinidad resident.

Some of the measurements and data recorded include the band number, mass, wing length, sex, age, breeding status, body fat, body molt, wing molt and whether there was juvenile plumage present. The breeding status of the birds is important because it gives an indication of the time of year when birds are breeding and the status of the population while the plumage characteristics help us understand the different molting strategies a bird may have. Banding the bird with an inscribed metal ring is important since each banded bird has a unique identification number and if recaptured at a later date, it can provide us with data on how the bird's physiology has changed over time. If sufficient number of birds are banded and recaptured over a long period of time, this can data can be analyzed to provide information on the survivability of different species.

The two sites were remarkably different in the number of birds and the diversity of species caught. These differences can be attributed to time of day, weather conditions, habitat diversity and food availability. Mist netting and bird banding are important tools in ornithological studies, since they allow a more detailed study of the biology of birds.

Turquoise tanager, *Tangara mexicana vieillioti*

Photo: K. Phillip

AQUATIC GROUPS REPORT

by Amy Deacon and Ryan Mohammed

Seine netting at the mouth of the Nariva River *Photo: M.G. Rutherford*

As a coastal swamp, Nariva has no shortage of aquatic habitats; estuarine rivers, brackish ditches, freshwater ponds, not to mention the sea itself. These blurred lines invited the marine and freshwater groups to join forces during much of this year's Bioblitz, combining expertise, equipment and manpower.

The freshwater group started sampling at the boatline site, where most kayak tours to Bush Bush begin. Here we matched our freshwater fish total for the 2012 Tucker Valley Bioblitz in a matter of minutes, using a seine and dipnet to capture catfish, *Sciades herzbergii*, snook or 'bochet', *Centropomus undecimilalis*, a small goby and hundreds of swamp guppies, *Micropoecilia picta*. Also present were several decapod species: small prawns, *Macrobrachium jelskii*, a swimming crab, *Callinectes* sp., mangrove crabs, *Aratus pisonii,* and fiddler crabs, *Uca rapax*.

Having got off to a promising start here, we caught up with the marine team, who were already untangling the 100ft seine on the Bell Piece peninsula, in preparation for what appeared at first to be a rather ambitious plan to drag the seine across the river mouth. However, thanks to the enthusiasm of those involved and the extra hands on deck, it was carried out with great success – reaping rewards in the form of cavalli jack, *Caranx hippos*, catfish, *Sciades herzbergii,* two species of puffer fish, *Sphoeroides testudineus* and *Colomesus psittacus*, and mullet, *Mugil* sp.

The marine team had decided that neither the sea or river conditions were favourable for scuba or snorkelling, both in terms of safety and visibility. However, there was plenty to see on the beach aside from the main seine haul, and a variety of mollusc shells and crustaceans were noted or collected.

At 3.30pm, Amy Deacon and Guy Marley joined 6 others on Kayman Sagar's kayaking survey up the boatline to Bush Bush. It rained heavily as we were about to head out, delaying our trip somewhat. An eternal optimist, Kayman assured us that this would only serve to entice the wildlife out and we would likely see more not fewer species as a result. Hap-

Catfish, *Sciades herzbergii*
Photo: A. Naranjit

pily, he was right! As we paddled along the mangrove-lined canal, we saw the usual crabs among the roots, but also saw many bird species that are specific to mangrove habitats – including the silvered antwren, the yellow-crowned night heron and a stunning yellow male prothonotary warbler.

As we emerged from the thick mangrove into the brighter swamp grassland habitat, we saw three grass-green iguanas covered in water droplets, drying themselves by basking on the vegetation. The equally-camouflaged praying mantids, *Stagmomantis carolina*, seemed to have had the same idea, and we saw several as we paddled along. By now we could also spot red-bellied macaws, yellow-crowned parrots and orange-winged amazons flying overhead and resting in the nearby stand of moriche palms. Black bellied whistling ducks and limpkins also made an appearance. When we finally reached Bush Bush it was getting late, but we were lucky enough to encounter a troop of red howlers right by the forestry hut, and after watching them for a while we embarked on our return.

Meanwhile, Ryan S. Mohammed led the remaining freshwater volunteers in sampling the many ditches and streams around Kernahan village. These were teaming with a high diversity of freshwater and estuarine species, including guppies, *Poecilia reticulata*, swamp guppies, *Micropoecilia picta*, several of the 'sardine' species (Characins), cascade, *Hoplosternum littorale*, leaf fish or king coscorob, *Polycentrus schomburgkii*, mullet, *Mugil* sp., and tarpon, *Megalops atlanticus*, During night time surveys, spectacled caimans, *Caiman crocodilus*, were noted at two of the seven freshwater sites around Kernahan Village and Cascadu trace.

We set up two types of fish traps in these ditches, deployed in the late afternoon on Saturday and recovered on Sunday morning. These successfully caught a zangee, *Synbranchus marmoratus*, a guabine, *Hoplias malabaricus*, freshwater crabs. *Dilocarcinus dentatus*, and a large *Pseudis paradoxa* tadpole as well as several other species.

Tadpole of paradoxical frog, *Pseudis paradoxa*
Photo: E. Mangal

Guy and Devan had set up additional fyke nets near the mouth of the river (with the help of Bobby and his boat) and left them overnight. These captured literally hundreds of fish and were extremely labour-intensive to sort through; Luke, Kerresha and Ryan helped them complete this tedious (and at times treacherous) task on Sunday morning. Devan was unlucky enough to get one of the mildly venomous spines in his hand, but it was all in the name of increasing the species count. The sorting revealed 3 different species of catfish, *Cathorops spixii, Hypostomus robinii* and *Pseudauchenipterus nodosus*, alongside more snook and mullet, the majority of which were

Cathorops spixii and *Pseudauchenipterus nodosus*.
On Sunday we surveyed the pond behind the station with the public in tow. It was too dense in vegetation to seine, but Amy and Danielle waded in with dip nets while Erin and Kiel sifted through sediment samples for invertebrates. Children also enjoyed some pond-dipping, emptying their nets into white trays. The pond was teeming with both swamp guppies, *M. picta*, and common guppies, *Poecilia reticulata*. Also revealed in the pond-dipping were leaf fish, a small frog and several invertebrates: damselfly and dragonfly larvae, diving beetles and their larvae, *Daphnia* sp., a water mite, *Hydracarina* sp., the fearsome-looking water bugs *Curicta* sp. and *Belastoma* sp., and at least three different gastropods.

Amy Deacon pond-dipping with the public on Sunday *Photo: E. Baptiste*

Dragonflies and damselflies were abundant at the pond and at all sites – notably the dainty 'forktail damsel', *Ischnura capreolus*, the spectacular 'flame-tailed pond-hawk', *Erythemis peruviana*, and the 'band-winged dragonlet', *Erythrodiplax umbrata*. Butterfly nets proved effective at catching a few specimens for identification; females tended to be much more cryptically-coloured than males.

In addition to the weekend's sampling, water samples had been taken from the ditches in Kernahan at the reconnaissance visit and Amy used the inverted microscope (x600) at UWI to compile a list of diatoms and other phytoplankton. 15 different species were recorded: 11 diatoms, 3 desmids and 1 rotifer.

Drawings of some of the plankton found in the ditches around Nariva (x600)
by A. Deacon

All in all, the teamwork displayed by both aquatic groups as well as numerous volunteers other groups who lent a hand where they could, made this an extremely productive Bioblitz in terms of aquatic species – it was an excellent opportunity to explore both marine and freshwater habitats in the same area and fascinating to see the mixture of species present in the brackish locations. However, it was of some concern that the once plentiful cascadu were surprisingly scarce within the sample area, which is historically their prime habitat.

Group Coordinators were Amy Deacon, Ryan S. Mohammed and Mark Charran.

Group members included Alan Chan, Aidan Farrell, Micah Gaston, Devan Inderlall, Kerresha Khan, Erin Mangal, Guy Marley, Danielle Morong, Luke Rostant, Kiel Sooklalsingh, Bradley Sutherland, Elizabeth Tudor, Virmal Arjoonsingh and Rakesh Bhukal, Stacey Ballyram, Chitralekah Deopersad, Amit Seeram, Nathaniel Dinzey, Candace Lynn Mahabir, Osmond Jack and Shari Wellington

LEPIDOPTERA GROUP REPORT

by Kris Sookdeo

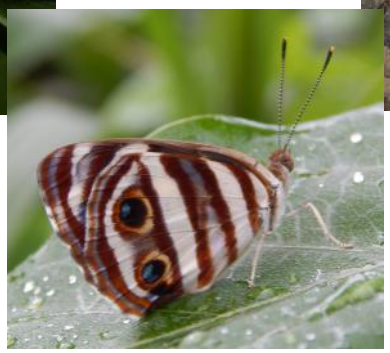
For this year's BioBlitz, the Lepidoptera group consisted of six members – Pauline Geerah, David Lawrie, Christopher Kalloo, Imran Khan, Richard Smith, and Kris Sookdeo. Our strategy this year was similar to that used in 2013 – observing species while walking, fruit bait traps and light traps.

We started the survey in the small orchard at back of the forestry station compound where a few common species were noted. From there we walked along the gravel track to the start of Bush Bush, surveying the open country and marsh edge species as we went along. The great southern white, *Ascia monuste,* and four-spotted sailor, *Dynamine postverta,* were particularly abundant on the clumps of vegetation scattered about the agricultural plots. Similarly, the cracker, *Hamadryas feronia,* was common on the isolated clumps of trees. Interestingly, there was one patch of blacksage on which several individuals of the beautiful lycaenid *Chlorostrymon simaethis* were found but were not seen elsewhere.

As we entered Bush Bush, Imran, Christopher and Richard started setting up fruit baited traps off the main trail, up to a distance of 20 feet into the forest. We continued surveying along the trail, up to the boat house as this would give us a chance to find *Helicopis cupido,* which frequents the *Montrichardia* that grows in this area. We were successful and several were seen in the area. The circuit was then repeated in reverse. We all agreed that the forest was especially quiet in terms of butterfly activity.

After a short rest back at base camp, David, Kris and Eddison Baptiste set off to begin the moth trapping sessions. With the light fading, two traps were erected along the trail a short distance into the Bush Bush sanctuary - one with a mercury vapour bulb and the other with a combination of regular and UV compact fluorescent bulbs. The productivity of both traps was disappointing both in terms of the diversity species and the numbers attracted. This, David speculated, might be attributed to the recent spate of dry weather as he noted that several of the moths at the lights were rather worn, suggesting that these were the remainders of an old brood and that a new brood had not yet emerged. Further disappointment came when one battery failed prematurely, leaving us with only one light trap. Notwithstanding these issues, a respectable number of moths were found in this manner. It was a long and tiring walk back to base camp with two car batteries in tow but back at the station we were able to add several new moths that were attracted to the facility's lights.

Above: ***Helicopis cupido***
Photo: K. Sookdeo



Below:
Dynamine postverta
Photo: P. Geerah

Above:
***Automeris* sp.**
Photo: K. Sookdeo

Below:
Eueides isabella
Photo: P. Geerah

Come morning we repeated the circuit, this time checking the bait traps as we went along. Success here was also limited but it was expecting a lot for bait traps to do more in just one night. David and Kris did not proceed much further into Bush Bush, but Imran, Christopher and Richard went the full length retrieving traps as they went along. In the meantime, David and Kris decided to do some surveying just on the edge of Bush Bush, to look for forest edge species. Proceeding past the trail entrance to the sanctuary they found a large patch of blacksage next to an agricultural field. Several new species were found but even here, at a highly attractive nectar source, the count was low. All that was left was to look for any additional species we could find on the walk back and we were rewarded with the curious sight of a *Morpho helenor* crossing the ploughed agricultural fields – unusual for a shade loving species. In all, the Lepidoptera group recorded a total of 107 species: 45 butterflies and 62 moths. Perhaps the most notable observation of this year's survey was the absence of one of the commonest species of butterfly in T&T – the scarlet peacock, *Anartia amathea* of which not a single individual was recorded.

L to R: **Christopher Kalloo, Imran Khan and Richard Smith netting in Bush Bush**

Photo: A. Ouditt

L to R: **David Lawrie, Robyn Bath, Eddy Baptiste and Kris Sookdeo at the light trap in Bush Bush**

Photo: M. G. Rutherford

ARACHNID REPORT

by Jo-Anne N. Sewlal

Specimens were collected along the trail to the Bush Bush Sanctuary and along the main trail in the Sanctuary. Collecting was also carried out along the roadside in Kernahan. Specimens collected in the Sanctuary were identified in the field and released in compliance with the agreement with the Forestry Division that no collecting could be done in the Sanctuary. Two sampling methods were used; sweep -netting and visual search. The first involved brushing the understory vegetation with a heavy canvas net which served to dislodge any species both diurnal and nocturnal that are on or making their retreats in the vegetation. Visual searching involved walking and collecting specimens that can be seen with the naked eye. Collecting was supplemented by observations and photos taken by members of other specialist groups.

Golden orb weaver
Nephila clavipes
photo: P. Geerah

This year 33 species belonging to 16 families were collected. Two species of opilionids *Prionostemma* cf *insulare* (Sclerosomatidae) and *Santinezia serratotibialis* (Cranaidae) were also collected. Both species provided two new distribution records for this group of arachnids. Some highlights of this year's collection include the presence of *Deinopis* sp. of the family Deinopidae. Members of this family construct small, highly modified, orb webs which are held by the first two pairs of legs. These tiny webs are flung over prey within striking distance. The action of the spider is similar to that of a fisherman casting their net. Hence the common name for the family which is 'net casting spiders', The sub-social tarantula *Ischnothele caudata* was also found. Out of the 44,906 documented spider species only a few dozen exhibit differing degrees of sociality.

Some expected species included *Nephila clavipes* also commonly called the 'golden orb weaver' due to the colour of its silk. Huge aggregations of this species were observed in Kernahan in 2012 during another survey.

A marked difference in the species composition was also found between the forested areas of the Sanctuary and the grassland outside, with generalist species occupying the area outside. This is to be expected as very few trees present and therefore there would be little protection from the elements and predators. There were also a few specialist species present in terms of the niche they occupied such as *Dolomedes* sp and *Tetragnatha* sp which occupied riparian habitats.

Fishing spider - *Dolomedes* sp.
photo: F. Abdool

CAMERA TRAPPING REPORT

by Mike G. Rutherford

A total of nine camera traps were set up for the Bioblitz. All of the cameras had infra-red flash and were set to take between 3 and 5 photos per triggering. Three cameras were put in place on the 10th October, two around the outside of the Forestry Division compound in Kernahan and one in a forested area just off the main road before the bridge over the Nariva River. Six other cameras were placed on the 16th October along trails in Bush Bush Sanctuary; they were positioned approximately 200 metres apart. All cameras were collected on 19th October.

Overall three different species of animal were recorded. Red-rumped agouti, *Dasyprocta leporina*, were seen by four cameras, at two sites in Bush Bush and two sites in Kernahan, All of the15 separate incidents were recorded between sunrise and sunset, i.e. all showing diurnal (daytime) activity. One interesting photo appeared to show a family group with two adults and one juvenile foraging together.

One common opossum, *Didelphis marsupialis*, was seen in Kernahan just after midnight and two tegus, *Tupinambis teguixin*, were seen again in Kernahan but during the day.

It was disappointing that there was not a wider diversity of species but this was most likely due to the short time period over which the cameras were active and the presence of so many people in Bush Bush Sanctuary overnight on the 18th would have scared away many species as well.

Right: **Family of red-rumped agouti, *Dasyprocta leporina***
Photo: Camera 5

Left: **Common opossum / manicou, *Didelphis marsupialis***
Photo: Camera 5

BOTANY GROUP REPORT

by La Daana K. Kanhai and Mike Oatham

Moriche palms *Mauritia flexuosa* *Photo: V. Blanchard*

From the moment our group reached Manzanilla on the morning of Saturday October 18th 2014, we were literally bombarded with specimens! We had not even reached the base camp as yet and already our mental lists began to be populated with some of the characteristic vegetation of the area; tall stately coconut trees, *Cocos nucifera*, lining the shoreline, clumps of red mangrove, *Rhizophora mangle*, along the rivers and water channels, lotus plants, *Nelumbo nucifera*, nymphaea water lilies, *Nelumbo pubescens*, and water hyacinths, *Eichhornia crassipes*, in the drains at Kernahan village, majestic moriche palms, *Mauritia flexuosa*, for which Nariva Swamp was well-known.

Upon arriving at the base camp in Kernahan, the members of the plant group gathered for a brief meeting with the group leader, Mike Oatham, regarding the plan of action for the afternoon. Following that, our group joined the other animal groups for an official briefing by the coordinator of the Bioblitz (Mike Rutherford). Once the start of the Bioblitz had officially been declared, our group split into two sub-groups. The first sub-group, led by Doreen Jodhan and Winston Johnson, headed off into Bush Bush Sanctuary and surveyed along the main forest trails. The second sub-group, led by Mike Oatham, surveyed along the road that led to the Bush Bush Sanctuary. Although the second sub-group intended to cross the floating mats of grass that would eventually lead to a stand of royal palm, *Roystonea oleracea*, trees in a particular area of the Nariva Swamp, this could not be accomplished primarily due to time constraints. For both sub-groups, once specimens could be identified on sight, collection was unnecessary. However, if positive identifi-

Group members examining grasses at the roadside

Photo: M.G. Rutherford

Plant group members walking through Bush Bush Sanctuary
Photo: E. Seebaran

cation could not be made of a particular plant, a specimen was collected, labelled and bagged for subsequent identification. After surveying for approximately three hours, both groups returned to the base camp and the plant experts commenced the task of identifying unknown specimens.

Later that evening, a few members of the plant group returned to the field and conducted a survey of beach vegetation in the Cocal area. Most of the unknown plant identifications were done upon returning to the base camp later that night. The following morning, one sub-group of the plant group remained at the base camp to complete plant identifications while another drove through Kernahan village and recorded vegetation in the area. In cases where positive identification could not be made on sight, photographs were taken and these were later used for identification of the unknown specimens upon returning to the base camp.

By 12 pm on Sunday 19th October, a total of 224 species had been recorded by the plant group. Of these species 154 were found in disturbed areas along the sides of agricultural traces in Kernahan and on the trace to Bush Bush, 62 species were found in the natural ecosystems in Bush Bush and along the boat line and 8 species were found on the coast. The geographical realities of the Bioblitz this year meant that surveying in the most species diverse localities in Bush Bush was not as comprehensive as it could have been due to the long walk to reach Bush Bush.

Other constraints continue to be lack of identification personnel for unknown specimens gathered in the field and bought back for identification. Plant identification is a long and laborious task which cannot be completed within the 24 hours of the Bioblitz without a much greater team of experienced plant identification personnel. Even sorting to morpho-species takes a long time especially with inexperienced people who need to learn the difference between such basic identification characteristics such as a compound leaf and a simple leaf. Because not much time was spent in the natural ecosystems, few species of interest were observed apart from the Moriche palm, *Mauritia flexuosa*.

Plant Group members included Mike Oatham, Doreen Jodhan, Jarah Oatham, Kahani Oatham, Sarah Evelyn, Veynu Siewrattan, Winston Johnson, Linton Arneaud, Nandani Bridglal, Adanna Alexander, Chernell Crooks, Mia Avril, La Daana Kanhai, Nigel Austin, Edmund Charles

L to R: **Mike Oatham, Doreen Jodhan and Winston Johnson identifying plants at basecamp**
Photo: M.G. Rutherford

SOCIAL INSECTS REPORT

by Christopher K. Starr

These notes arise from the recent third annual Bioblitz, conducted in the Bush Bush reserve and environs.

I was especially interested to make comparisons among the social insects of this forest and the Arena Forest Reserve in north-central Trinidad. The two are moderately dense, closed-canopy lowland forests on very sandy soil. Bush Bush is flatter and less extensive than Arena and has no notable streams, versus Arena's many streams. The outstanding vegetative difference seems to be a paucity of *Pentaclethra macroloba* in Bush Bush. This leguminous tree is abundant in Arena, in some areas a dominant.

I concentrated on ants and higher termites. Social wasps are not abundant in Bush Bush, and I have never noticed a colony of stingless bees or the introduced honey bee, *Apis mellifera.*

The common forest understory plants *Costus scaber* (Zingiberaceae) and *Heliconia hirsuta* (Heliconiacea) commonly have ants on their inflorescences, attracted by extrafloral nectaries. Almost without exception, only one species of ants is found on a given inflorescence, an indication that each plant is under the exclusive control of one ant colony. One *Costus* and one *Heliconia* infloresence were possessed by *Ectatomma ruidum*, a pugnacious reddish ant that is prominent on above-ground vegetation. It would have been surprising not to find it in Bush Bush, as in Arena and many other places.

On the other hand, I found a very small *Pachycondyla sp*. on several *Heliconia* inflorescences and (apparently the same species) on other vegetation. I do not recall seeing it on *Heliconia* in Arena.

There was also at least one other, larger *Pachycondyla sp*. in evidence. However, *P. crassinoda* was conspicuous by its absence. This robust black species is Trinidad & Tobago's largest ant, easily recognized from all others in the field. It is common in Arena, where it is always found on the forest floor, never climbing on plants.

Tac-tac ants of the genus *Odontomachus* are reasonably common at both sites. Members of the genus *Anochetus* could also be called tac-tacs, as they have the same trap-jaws. They are slimmer than *Odontomachus*, but otherwise very similar. *Odontomachus* always nest at ground level, in my experience, while I have only found *Anochetus emarginatus* nesting on above-ground vegetation, often in small tree hollows. This ant is fairly abundant in Arena, where it almost invariably closes the next cavity with a sheet of *Pentaclethra* leaflets. I have only once found a colony in Bush Bush (not this time). It is thinkable – although improbable, it seems to me – that the paucity of *Pentaclathra* makes it decisively difficult for *A. emarginatus* to maintain effective nests in Bush Bush.

I did not notice the turtle ant, *Cephalotes atratus*, in Bush Bush, although one is guaranteed to see it during an ordinary nature walk in Arena. Army ants are occasionally encountered in both forests.

In both forests the most conspicuous termites by far are *Nasutitermes corniger* and *Microcerotermes arboreus*. Their arboreal nests are so distinctive that one can identify them with confidence at a fair distance. There are many colonies of each of these species for every one of *N. ephratae*, the other notable arboreal termite in Trinidad. A peculiar feature of these two *Nasutitermes* is that they can easily be told apart through external features of their nests, while the termites, themselves, are virtually identical, a good example of *ethospecies*. What has never received comment, as far as I know, is the fact that *N. corniger* builds its nests on stout trunks and branches of trees, or on buildings, while *N. ephratae* often builds its nests around the trunks of quite slender trees, sometimes little more than saplings. The irony is that *N. ephratae* nests can reach markedly greater size than those of any other T&T termite. As a result, I have occasionally seen a slender tree bent double through the weight of a large *N. ephratae* nest. As far as I know, no one has sought to account for this very odd nesting habit.

We have two *Termes* species in T&T, of which the commoner is the widespread *T. hispaniolae*. It is fairly common in both forests. In Arena its lumpy-surfaced, near-black nests are almost always found against tree trunks at the base, extending as much as a metre up the trunk. In Bush Bush I noted 16 nests of known (by examination of specimens) or supposed *Termes*, most presumably *T. hispaniolae*. Only six of these were at the bases of trunks, while the other 10 were on the ground surface away from any tree. It will require more rigorous sampling to determine whether this apparent intraspecific variation in nesting habits is real.

Unlike the social wasps of the family Vespidae, members of the huge family Sphecidae (broad sense) are almost all solitary. As one of the very few exceptions, *Microstigmus comes* of Central America is known to be social, and a similar habit is suspected in some other members of the genus. *M. theridii* nests exclusively under leaves of *Coccoloba latifola*, an understory plant in much of Trinidad. Preliminary observations indicate that nests commonly have several adult females, and it is possible that this species, too, is truly social. (This could make a very nice thesis topic).

Nest of the social wasp, *Polybia rejecta*
Photo: M.G. Rutherford

The few *Coccoloba* plants I examined in Bush Bush harboured no *Microstigmus*. The plant appears much less common than in Arena. It may be that *M. theridii* cannot maintain a population where its obligate nesting plant is uncommon, regardless of other conditions.

Other species seen:
In Bush Bush
Hymenoptera
Pepsis sp. (Pompilidae), solitary, tarantula-hunting wasp
Odontomachus prob. *bauri* (Formicidae)
Odontomachus sp. (Formicidae), smaller and darker than O. bauri
Neivamyrmex sp. (Formicidae), small black army ant
Angiopolybia pallens (Vespidae) Trinidad's commonest social wasp in forest, drinks sweat
Agelaia multipicta (Vespidae), social wasp
Polybia rejecta (Eumenidae) social wasp

Isoptera
Unknown higher termite nesting on soil surface, possibly one of several workerless spp.

At Forestry Station and in Kernahan
Hymenoptera
Polybia occidentalis (Eumenidae) commonest social wasp in open areas of both Trinidad and Tobago
Sceliphron prob. *fistularium* (Sphecidae), solitary wasp, mud nests on buildings
Zeta canaliculatus (Vespidae), solitary wasp, mud nests on buildings
Apoica pallens (Vespidae), nocturnal social wasp, coming to lights at night
A. pallida (Vespidae), smaller and less common than *A. pallens*, also at lights

The population crash of *Polistes lanio* (social wasps) that the Bug Group recorded in the village, starting in December and continuing at least through May, appears to be recovering. On the other hand, there appears to be a crash of *Mischocyttarus rotundicollis*, another social wasp that commonly nests on buildings.

SCORPION GROUP REPORT

by Rakesh Bhukal

The scorpion group consisting of UWI students and other naturalists, assembled at the basecamp at 7:30pm on Saturday night for a much anticipated survey. Scorpions are nocturnal creatures, therefore surveys are best conducted at night when their activity is greatest. Scorpions fluoresce under illumination from ultraviolet (UV) light which makes finding specimens relatively easy in the darkness. A safety and specimen collection briefing was given as special care was required for the night's activities. There always exists some danger when collecting a potentially lethal species such as this.

The scorpion group Assembling at basecamp

Photo: A. Deacon

With UV lights in hand we took to the path leading into the Bush Bush Wildlife Sanctuary. The trails, the shrubs along the edges, trunks of trees and microhabitats such as epiphytes and under bark were searched. Specimens were collected by gently clasping the tail of the scorpion with forceps and placing it in a vial.

Two interesting observations were made during the survey: the first was an unusually high density of specimens in one particular area along the trail leading into Bush Bush. This area was vegetated by grasses approximately eight feet in height and was surrounded by shorter grasses of approximately two feet in height. Many juvenile grasshoppers were also present at this site which could have served as a food source and hence may be a likely reason for the high scorpion density. The majority of scorpions seen on the grass were motionless, had open pedipalps and an upright stinger which is indicative of feeding behavior as these creatures are known as "sit and wait" predators. The second observation took place inside Bush Bush, where many of the specimens collected were actually feeding. These were found just off the ground on broad leaved vegetation along the trail edge. This observation is consistent with literature that suggests that ground dwelling scorpions take prey items on vegetation just above the ground.

After several hours of searching, around 80 specimens were taken to base camp and identified using a dissecting microscope. One particular species, *Tityus trinitatis,* dominated the forest habitat. This endemic species is of significant medical importance as it is amongst the most deadliest and venomous in the whole of the West Indies and the most dominant scorpion of both Trinidad and Tobago, accounting for most deaths by scorpion sting. The species with the lowest numbers were the *Broteochactas nitidus* and *Ananteris cussinii* with just one specimen each being collected.

The entire survey lasted for four hours and five species were identified: *Tityus discrepans*, *T. trinitatis, T. melanostictus, Broteochactas nitidus* and *Ananteris cussinii.*

Scorpion. *Tityus* sp., feeding on cricket

Photo: M.G. Rutherford

Volunteers and visitors during the Bioblitz. Big thanks to all who joined in!

The Trinidad and Tobago Field Naturalists' Club thanks

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For generously supporting the Club in the form of sponsorship of our Nariva Swamp Bioblitz 2014 and our 2015 Annual Calendar

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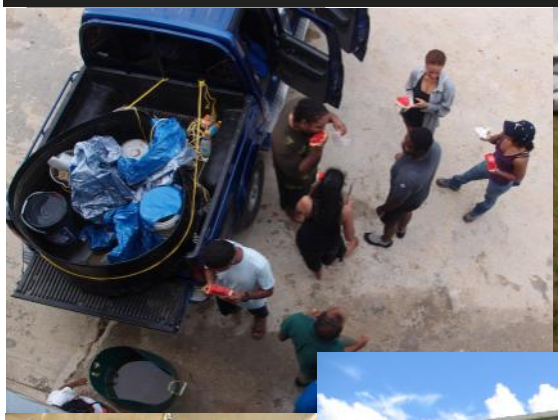






Photos:
E. Rutherford
M.G. Rutherford
E. Mangal
E. Baptiste
S. Ali
A. Deacon

TTFNC QUARTERLY BULLETINS & INDEX ONLINE LINK :
http://ttfnc.org/publication/field-naturalist/

Management Notices

New members; Volunteers; Publications

New Members

The Club warmly welcomes the following new members:

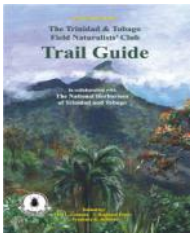
Ordinary members : **Adesh Ramnanansingh, Ayodhya Ouditt, Dhaatrie Rampersad**
New life members :
Family members : **Vijai Ramnarine**

NOTICE FROM THE EDITORS: ***Do you have any natural history articles, anecdotes or trip reports that could be published in The Field Naturalist? We welcome contributions from members. Please email your ideas or finished pieces to admin@ttfnc.org. We look forward to hearing from you!***

Trinidad and Tobago Field Naturalists' Club
P.O. Box 642, Port of Spain, Trinidad and Tobago

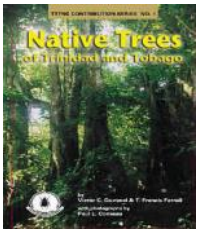
PUBLICATIONS

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



The TTFNC Trail Guide

Members : TT$160.00



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Living World Journal 1892-1896 CD

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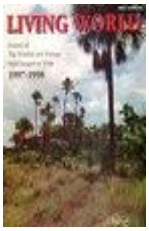

Living World Journal 2008
Living World Journal back issues
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Living World 2012 supplement

Due to limited supply Living World 2012 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 the 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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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 the code QB2015 in the email subject label.**