



THE FIELD NATURALIST

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Guide to Identifying the common lizard species in Trinidad & Tobago

Jo-Anne Nina Sewlal¹ and Victor C. Quesnel²

¹Dept of Life Sciences, University of the West Indies

²P .O. Box 47, Port of Spain

Lizards, together with snakes, belong to the order Squamata. Worldwide there are 16 families, 390 genera and 3800 species (Murphy 1997). The habitats occupied by lizards include, terrestrial, aquatic and even the forest canopy (Murphy 1997). The diversity of this order of animals like many others is greatest in the tropics. Trinidad and Tobago is home to 27 species belonging to five families (Murphy 1997). It is also home to two of the largest lizard species in the Western Hemisphere (Murphy 1997).

The common name (where one exists) is given in parenthesis after the scientific name for each species. The length given is total body length and is used more as an indication of relative body size rather than an accurate maximum size. All the species found in Trinidad & Tobago are listed in the table but some are omitted from the following account because of their rarity or secretive habits.

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Family Gekkonidae (the Geckos): Small lizards with delicate sometimes transparent skin. They have depressed bodies and their legs spread outwards which enable them to run low on the ground or flat against walls. They possess large bulging eyes without moveable eyelids (Underwood 1962). They are typically nocturnal with a few diurnal species. The pupil constricts to form a vertical slit in the nocturnal species, with maximum constriction letting the pupil take on the appearance of 4 pinholes (Underwood 1962). However, the pupils of diurnal species constrict to form a broad vertical oval or circle. Most species climb, but a few are terrestrial. Climbing species have expanded pads covered with fine hairs at the ends of their digits (Underwood 1962), the purpose of which is to

fit into any irregularity on the substrate, thus ensuring a secure grip. Terrestrial species however have simple digits, minus the pads. At high temperatures they turn dark and get pale at low temperatures. Many species of this family here are found in and around houses.

Gonatodes vittatus (Streak Lizard). Body length 7.0 cm (♀ = 6.6 cm) (♂ = 6.4 cm). The male has a white stripe running down the centre of its back, edged with black (Boos & Quesnel 1968). General body colouration is greyish brown. The females are tan, the stripe is present but indistinct rows as a size of brown and grey spots.

Hemidactylus mabouia (Mabouia). Body length 12 cm (♀/♂). Greyish tan sometimes with a tinge of pink. The skin is bumpy with several dark brown bands across the back and tail. It is almost transparent and the internal organs and the eggs in the female can be seen, often in buildings. Its call is a soft pik..., pik..., pik..., pik...

Sphaerodactylus molei (Black-and-white headed gecko). Body length 5.5 cm (♀/♂). Females are usually beige with a pair of indistinct stripes along the back. Colour of males is variable. In Trinidad populations the back is spotted with red-brown, the tail is salmon or reddish and there may be black and white longitudinal stripes on the head. Tobago populations have dark stripes on the back fading into spots near the tail. Often found in buildings.

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Editor.....Jo-Anne Nina Sewlal and
Reg Potter
Assistant Editor..... Christopher Starr
Contributors..... Jo-Anne Nina Sewlal,
Christopher Starr, Victor Quesnel, Patrick Gregory, John E.
Cooper, Collin Boyle, John Lum Young
Photographs.....Jo-Anne Nina Sewlal,
Margaret E. Cooper
Design & Layout..... Jo-Anne Nina Sewlal
Technical Support Nolan Craigwell, Jerome
Ramsoondar, Nigel Austin, Enid Nobbee

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Website: <http://www.wow.net/ttfn>

Contact: The Secretary, TTFNC c/o P.O. Box 642, Port of
Spain. **Email:** ttfn@wow.net

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MISSION STATEMENT

**To foster education and knowledge on natural history and
to encourage and promote activities that lead to the
appreciation, preservation and conservation of our natural
heritage.**

Thecadactylus rapicauda (Woodslave).
Body length 12 cm (♀/♂). It makes a sound
like the rapid tapping of a small hammer,
“Kek Kek Kek Kek”. Colour varies from pale
grey to brown with darker markings but can
change match the background (Boos &
Quesnel 1968). Distinguished from *H.
mahouia* by its tail, which is often thick and
fleshy at the base. Often found in buildings.

Family Gymnophthalmidae:

Gymnophthalmus underwoodi. Body length
11.5 cm (♀/♂). Light stripe ends mid body.
Occupies leaf litter in open sunny areas like
savanna, lawns and gardens.

Proctoporus shrevei (Luminous lizard). Body
length 11 cm (♀/♂). Colour is red-brown but
males have a series of white spots along their
sides surrounded by dark rings. The white is
very reflective and could suggest luminosity
in some conditions (A. Hailey pers. comm.).
It is terrestrial and prefers the stream edge
habitat in primary and lower montane forest.

Family Iguanidae: Members of this family
display sexual dimorphism. The males tend
to be larger and with a crest or throat pouch
(Underwood 1962), and more brightly
coloured than the females (Underwood
1962).

Anolis aeneus (Grey anole) Body length (♀ =
12 cm) (♂ = 16 cm). A grey lizard mottled
with darkened hues. Abundant in gardens in
built-up areas.

Anolis trinitatus (Green anole). Body length

(♀ = 11 cm) (♂ = 15 cm). A bright green with blue around the eyes. It likes shadier areas than does *A. aeneus*. Common in some parts of San Fernando and St. Augustine.

Anolis watsi. Body length (♀ = 11 cm) (♂ = 13 cm). Colour variable but mostly orange-brown. Spends most of its time on the ground and slightly elevated perches. Recently introduced from Antigua and common only in the Waterloo-Carapichaima area but spreading rapidly.

Iguana iguana (Iguana). Body length 180 cm (♀/♂). They are green and easily recognised by a crest of spines which run from its neck along its back to its tail. Lives in the canopy and feeds on leaves and flowers (Boos and Quesnel 1968).

Polycrus marmoratus (Twenty-four hours): Body length 46 cm (♀/♂) (Boos and Quesnel 1968). The males are smaller than the females. Usually green but can have yellowish or purple markings. Found in forest and forest edge habitats.

Tropidurus plica (Spiny tree Lizard). Body length 40 cm (♀/♂). Greenish or sometimes greyish tan with red-brown bands across the body. Tuft of spiny scales around ear opening. Crest extending from the neck to the tail. Tail is laterally compressed. Arboreal and prefers forest habitats, tree trunks and rock faces.

Family Scincidae (the Skinks): These are smooth scaled lizards where the head, neck, trunk and tail merge with the absence of sharp boundaries (Underwood 1962). Most species give birth to live young (Underwood 1962).

Mabuya nigropunctata (Trinidad skink; Bronze skink). Body length 26 cm (♀/♂). Only one species is found in Trinidad (Murphy 1997). Bronze above with a dark stripe on each side (Underwood 1962). Found in forest and forest edge habitats. Mostly terrestrial.

Family Teiidae: Typically diurnal and terrestrial by nature. They have long forked tongues which they flick out when foraging. Most species are insectivorous, but the larger species, like *Tupinambis teguixin* will eat larger animals, including other lizards, small birds or mammals (Underwood 1962). They prefer forest, savanna, and sandy beaches (Underwood 1962).

Ameiva ameiva (Zandolie). Body length (♀ = 49 cm) (♂ = 59 cm). Males are larger than females. The top of the head and back is bright green in juveniles and khaki-brown in adults. They are swift runners and use only their hind legs at fast speeds (Boos & Quesnel 1968). They dig burrows.

Cnemidophorus lemniscatus (Striped runner, Foot shaker). Body length (♀ = 24 cm) (♂ = 26 cm). The males are bright bluish green. The females are brown with ten whitish stripes running down the back. All juveniles are in female garb. The habit of shaking a front leg every few minutes positively identifies the species. Mostly found on beaches and savannas, but will enter the forest and occupy open area (Murphy 1997).

Kentropyx striatus (Rain lizard). Body length (♀ = 25 cm) (♂ = 39 cm). Back is bronze becoming green on pelvis, with a dark brown border. Blue-white spots on sides. Much of its range overlaps with sugarcane fields and natural savanna. It occupies streamside trees and shrubs and seeks refuge in canals and ditches (Murphy 1997).

Tupinambis teguixin (Matte [Trinidad] or Salipenter [Tobago]). Body length (♀ = 100 cm) (♂ = 76 cm). Largest species of ground lizard in Trinidad and Tobago. Dirty yellow body and tail with black inconsistent cross bands. It is quite dangerous with its sharp teeth and claws and powerful jaws and tail (Boos & Quesnel 1968). It lives in burrows.

Family	Species	
	Trinidad	Tobago
Gekkonidae	<i>Gonatodes vittatus vittatus</i>	<i>Gonatodes vittatus vittatus</i>
	<i>G. ceciliae</i>	<i>Gonatodes ocelatus</i>
	<i>G. humeralis</i>	
	<i>Hemidactylus mabouia</i>	<i>Hemidactylus palaichthus</i>
	<i>H. palaichthus</i>	
	<i>Spaerodactylus molei</i>	<i>Spaerodactylus molei</i>
Gymnophthalmidae	<i>Thecadactylus rapicauda</i>	<i>Thecadactylus rapicauda</i>
	<i>Bachia heteropa trinitatis</i>	<i>Bachia flavescens</i>
		<i>B. heteropa alleni</i>
	<i>Gymnophthalmus underwoodi</i>	
	<i>G. speciosus</i>	
	<i>Proctoporus shrevei</i>	
Iguanidae	<i>Anolis trinitatus</i>	<i>Anolis richardii</i>
	<i>A. extremus</i>	
	<i>A. aeneus</i>	
	<i>A. watsi</i>	
	<i>A. chrysolepis</i>	
	<i>Iguana iguana</i>	<i>Iguana iguana</i>
	<i>Polychrus marmoratus</i>	<i>Polychrus marmoratus</i>
Scincidae	<i>Tropidurus plica</i>	
	<i>Mabuya nigropunctata</i>	<i>Mabuya nigropunctata</i>
Teiidae	<i>Ameiva ameiva</i>	<i>Ameiva ameiva</i>
	<i>Cnemidophorus lemniscatus</i>	<i>Cnemidophorus lemniscatus</i>
	<i>Kentropyx striatus</i>	
	<i>Tupinambis teguixin</i>	<i>Tupinambis teguixin</i>

Table showing lizard fauna of Trinidad and Tobago

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- Boos, H. and Quesnel, V.** 1968. Reptiles of Trinidad and Tobago. Publications Branch, Min. of Education and Culture. Trinidad and Tobago.
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- Underwood, G.** 1962. Reptiles of the Eastern Caribbean. Caribbean Affairs (New Series) No. 1. Dept. Extra-Mural Studies UWI. POS. Trinidad.



IN MEMORIAM - Dr. Earle Kirby**John E. Cooper¹ and Collin Boyle²****¹ School of Veterinary Medicine, Mt. Hope, University of the West Indies****² Commonwealth Veterinary Association, P.O. Box 1135, Kingstown, St. Vincent**

Ian Ayrtton Earle Kirby, OBE, DICTA, DVM, DTVM, died on his native St. Vincent on 7th September 2005.

Earle Kirby had a veterinary background and training but was best known in the Caribbean and overseas for his work and writings on geology, prehistory, animals and plants.

Born on 16th December 1921, Earle Kirby had a life-long interest in the Caribbean islands, in wildlife and in the natural world. He attended the St. Vincent Grammar School from where he gained a scholarship to the Imperial College of Tropical Agriculture (ICTA), Trinidad & Tobago. He studied here from 1942 to 1945 - a very stimulating period of his life, especially when the boat on which he was travelling encountered a surfacing German submarine. Three years later he received another scholarship that enabled him to go to Canada, to pursue further studies at Ontario Veterinary College.

When he returned to St. Vincent, Dr. Kirby became a Veterinary Officer in the Ministry of Agriculture and was able to combine these duties with his growing passion for natural history and archaeology. In his own words "Wherever I went and whatever I had to do I always kept my eyes open, whether it was animals or plants or artefacts". This constant enquiring mind led to a lifetime of research on the history, archaeology, geology and biology of the Caribbean and further afield. He published on these subjects, taught and enthused others and promoted interest at a national and regional level by serving on organisations such as the Caribbean Archaeological Society, the Caribbean Conservation Society and the (St. Vincent) National Trust. Throughout his life he campaigned for the conservation of natural resources and "wild" places and he deeply lamented governmental moves and the pressures of big business which so often put such places at risk. At the same time, he cared for human artefacts, such as national monuments and churches, and fought hard for their protection and proper maintenance.

Some indication of the respect and affection in which Dr. Kirby was held by his fellow Vincentians may be gleaned from the pages of the newspaper "Search Light" of 16th September 2005, soon after Dr. Kirby's death. Page after page was devoted to tributes from his countrymen, ranging from the Prime Minister to local companies and shop-owners.

Further afield, he will be remembered for his contributions to St. Vincent and to the wider Caribbean. His work, his enthusiasm, his generosity to others was legendary and influenced many people in different parts of the world. One particularly pertinent example concerns his own national bird, the St. Vincent parrot (*Amazona guildingii*), which in the 1980s was saved from possible extinction by a conservation programme co-ordinated by the Jersey Wildlife Preservation Trust (now the Durrell Wildlife Conservation Trust), based in the British Channel Isles. Earle Kirby was a key St. Vincentian participant, without whom the project would undoubtedly have foundered.

On account of this work - and his friendly collaboration with visiting conservationists - Dr. Kirby is still remembered with affection and respect by staff at Jersey. Elsewhere in the world there are countless others who are aware of Dr. Kirby's contributions and who would want to be associated with tributes to the life and memory of this great St. Vincentian.



Butterfly wings – not just another pretty sight
Jo-Anne Nina Sewlal
Dept of Life Sciences, University of the West Indies

The evolution of wings in insects has been accredited (should this be ‘credited’?) with their success in invading many terrestrial niches in particular. One such order of winged insects is Lepidoptera the members of which are known by their common names of moths and butterflies. The latter group is characterised by their brightly coloured wings and as a result have received more attention. Besides providing these insects with locomotion, in terms of speed and manoeuvrability, wings also provide defence in the form of mimicry and enable them to avoid predation even when captured.

Each pair of wings is mostly independent of the other. However, when taking off, both pairs are connected by a row of spines called the fraenum. This is located along the top margin of the hindwing, and hooks onto tufts of hairs on the bottom margin of the forewing, called the retinaculum.

Butterfly wings come in two shape categories; 1) broad and short and 2) narrow and long. Wings belonging to the first category can be compared to those of a jet fighter plane. The set back nature of the wings in comparison to the body gives the body an overall streamlined shape. Therefore, it experiences less air resistance and is able to fly faster. However, because of this they cannot make very quick and complex aerial moves. Butterflies in the second category have wings that can be compared to a commercial passenger plane. Their wings are directly at the sides of the body of the plane so that it does not have a very aerodynamic shape. These butterflies are slow fliers, but, they are able to make very sharp manoeuvres, such as changes in direction.

In addition to speed and manoeuvrability, the colour of their wings provides much in the line of defence. The colour of butterfly wings can be produced by two methods; physical and pigmentation. Physical colouration is produced by the reflection of light of certain colours, mostly iridescent blues and greens. This is dependent on the surface structure of the individual scales which cover the wing. So when a physically coloured wing is wet the refractive index of the scales are changed, which in turn changes the colours of the wing. But, it returns to its original colour on drying. Colour produced by pigmentation occurs by a deposition of chemicals on the wings that reflect only a narrow part of the visible spectrum of light.

Butterflies have scales? Is that a typo? No, lepidopterans have scales, just like the overlapping scales of a fish. Maybe your parents or grandparents, like mine, warned you of not letting butterflies fly too close to your eyes, because they let out a dust as they fly. Well they were right, but it is not dust, but the minute scales which cover the wing membrane.

These colours aid the butterfly in avoiding detection. An example of this is in the presence of eyespots, usually on the underside of the hind wings, but it can also be found on the forewings. The function of these eyespots is to deceive predators into thinking that it is a large animal. Butterflies rest holding their wings together, revealing either eyespots or a dull colour, allowing them to blend it with the substrate they land on, for instance, bark, leaf litter or rocks. In the presence of a predator the sudden opening of the wings and revelation of the colourful upperside, startles the predator and gives the butterfly enough time to escape. This is a secondary defence mechanism which helps prevent capture by a predator after the prey has been detected.

Butterflies also use colour to mimic another butterfly which is unpalatable to the same predators. The palatable species it is known as the mimic and the unpalatable species is called the model. There are two types of mimicry; Mullerian and Batesian. In the first type, both the model and the mimic are unpalatable. But, in Batesian mimicry, the model is unpalatable and the mimic is palatable. In Trinidad, Sweet Oil (*Mechanitis isthmia*) acts as the model for both forms of mimicry.

In Mullerian mimicry, the mimics are two rarer species of *Mechanitis*, while in Batesian mimicry; the mimic is the Isabella Tiger (*Eneides isabella*) (Stiling 1986). In both forms of mimicry, the yellow and black striped wing markings of the *M. isthmia* are imitated.

The shape of the wing also gives the butterfly some protection. Some species have small projections on their hindwings which resemble antennae. Therefore, if a predator, for example, a lizard, bites off this part of the wing, the flying capabilities of the wing are not affected.

So as we can see, wings not only make butterflies pretty to look at or collect but are much more complex in their structure and function.

Reference

Stiling P.D. 1986. Butterflies and other insects of the Eastern Caribbean. Macmillan Education Ltd. London. 76p.



GRASSES, PIONEERS IN ECOLOGY

Jo-Anne Nina Sewlal

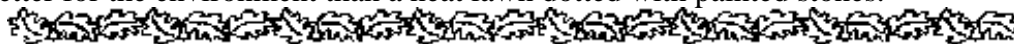
Dep't of Life Sciences, University of the West Indies

Most people consider grasses to be weeds which serve no purpose unless they are part of our lawn, where their hardiness and year-round presence is appreciated. But grasses should not be considered to be worthless vegetation, especially when it comes to reclaiming barren land from which the top soil has been removed. Grasses are usually the first to arrive on land that has been cleared. Because of this they are regarded as pioneers and termed "primary successors". Grasses are designed to be pioneers; firstly they produce lightweight seeds which could be dispersed by means of the wind. They also produce numerous seeds because that mode of dispersal most will not land in a hospitable spot, like streams.

Also when they decompose they provide the essential organic material needed for other types of vegetation. With time the accumulation of this organic matter reaches a point where it can sustain larger vegetation like shrubs and small trees. So with time not only the size of the vegetation increases but the diversity as well. The competition for light and nutrients with the larger vegetation will eventually prove too much for the grasses and their numbers will decrease.

Grasses also perform the same jobs as larger vegetation like shrubs and trees but on a smaller scale. Their roots hold the soil together and prevent erosion while their leaves intercept the rain and lessen the amount of surface run off.

Remember that some vegetation cover is better than none at all. So perhaps a vacant plot of grass is better for the environment than a neat lawn dotted with painted stones.



Outreach Students Working at the SVM

Margaret E Cooper and John E Cooper

School of Veterinary Medicine, Mt. Hope, University of the West Indies

Email: ngagi@vetaid.net

Six young Trinidadians are working at the School of Veterinary Medicine of the University of the West Indies during July and August. They are participating in the SVM' Outreach Programme, gaining work experience and assisting in projects in the Pathology Unit under the supervision of Professor John Cooper. This is a new venture aimed at providing an opportunity, especially, but not exclusively, for school leavers, to learn more about biomedical research in an academic setting and to contribute towards the conservation of wildlife.

Six students have joined the Outreach Programme. They are:

- Denver Dindial
- Claire-Marie Hosein
- Stacy Ann Low
- Shakti Ramharrack
- Luke Telfer
- Lee Anne Williams



Induction Day – Prof. Cooper introduces the Outreach Programme
Photo by Margaret E. Cooper

Between them they are hoping to follow careers in cardiology, architecture, engineering, psychiatry and veterinary medicine.

In the course of the Outreach Programme the students are taking part in several projects, including studies on:

- hatchling leatherback turtles, *Dermatochelys coriacea*. Probably the most exciting project, the group is helping to find out why so many

newly-hatched turtles die before they reach the sea. The students are weighing and measuring the hatchlings, making an external examination, looking for abnormalities

and recording their findings. They have also been dissecting eggs that failed to hatch

- the plumage of the rare Pawi or Trinidadian Piping-Guan, *Pipile pipile* and other species to see what these can tell us about the health of the bird. Feathers are being sorted, identified and prepared for display and research
- health surveys on local amphibians. The group are helping in research on skin diseases of the crapaud (the marine toad, *Bufo marinus*)
- water quality and its effect on tadpoles. Under the guidance of Mrs Alva Stewart-Johnson of the SVM's Department of Public Health water samples have been taken for bacteriology to ascertain whether a build-up of bacteria might contribute to poor growth.
- the structure and biological properties of birds nests (taken after the birds had left them). Nests have been weighed and measured and then examined for parasites and the materials used in their construction

All the activities relating to the animals used in these projects have been carried out under appropriate permits from the Wildlife Section of the Forestry Division of the Ministry of Public Utilities and the Environment.

The group is also assisting in certain routine laboratory and paperwork duties as their contribution to the smooth running of the Pathology Unit..



Students release toad after simple skin tests
Photo by Margaret E. Cooper

The students have met a variety of people who are associated with the SVM. Nadrea Sookhoo, Dental Veterinary Medicine (DVM), gave an illustrated talk on veterinary work with wildlife based on her recent visit to South Africa. A UWI veterinary student from Botswana told them about his country and its languages as well as his project on skin parasites in sheep. Two British veterinary students assisted them in the early days as they started their projects. Trinidad vet students have also joined in. James Sukhu described his visit to the Netherlands Veterinary School at Utrecht and his passion for snakes. Adana Mahase talked about turtles in Trinidad. The group also visited the Medical Sciences Library where there is currently an exhibition of veterinary literature and posters on wildlife conservation.

Other ongoing activities, with Mrs. Margaret Cooper, include maintaining a notice board with articles of environmental interest and photos of the students in action as well as keeping a record of the Programme's daily activities. They also helped her with the preparation of this article.



Students in front of wildlife exhibit
Photo by Margaret E. Cooper

When asked for their comments on the Outreach Programme so far, the students said: "it is very interesting, it has taught us to work together and we have made new friends; it is an opportunity to get in touch with animals again"; "it is satisfying to know more about turtles than other people" and "we have extended our vocabulary and learned about other cultures and countries from the people who have talked to us". We are looking forward to more activities during August and wish the A-level students in the group well for their results when they are announced.

If the Student Outreach Programme proves successful, it might make a good model for similar activities in 2007 and could perhaps be expanded to provide opportunities for school leavers from a wider range of backgrounds.



The Backyard Naturalist
Jo-Anne Nina Sewlal
Dep't of Life Sciences, University of the West Indies

At one point or another we have all spent a few minutes admiring the wildlife that visit our backyards, and wish more would come or just a select few. We cannot dictate who visits but we do have a say in the matter. Here are just a few tips on how to attract some of the popular ones and those you thought that you could not.

Before we get started there are certain rules that should be remembered when setting up deliberate places to attract wildlife. One of these is that the area should provide predator guards, that is, places like, bushes or shrubs where an animal can seek refuge from a predator. Another rule to observe is to limit the use of pesticides. Chemicals such as Sevin and diazinon are fatal to some birds as well as insects. For instance a decrease in the number of small insects could result in

starvation of other animals that depend on them for food, for example birds. Therefore you should learn to identify both beneficial and harmful species of insects. Insects such as bees, butterflies and some wasps are useful pollinators of flowering plants. Other insects like ladybeetles eat aphids and mealybugs, parasitic wasps lay their eggs in other insects. You should also have a clear idea of what type of wildlife you want to attract to your backyard because some of the species you attract will be food for some of the others. However you can attract birds to control pest populations¹.

Finally, if you own pets especially cats you must keep them indoors. Domestic cats whether pets or strays kill birds, small mammals, reptiles, amphibians and invertebrates every year¹. All cats even if domesticated possess an inborn predatory instinct, and will hunt wildlife if the opportunity presents itself. After all they hunt mice inside our houses and were domesticated for this purpose. If you must allow your cat outdoors keep it on a cat leash. Cat bells do not work since wildlife does not associate the sound of a bell with the presence of a predator¹. Discourage visits to your yard from the neighbourhood cats. Loud noises or some water make quite a lasting impression on the most predatory cat.

Birds

Bits of dry bread or fruit like bananas or pawpaw, even rice or brown sugar will work in attracting birds to your backyard. You could invest in a bird feeder or simply suspend a shallow saucer filled with sugar solution in a sheltered spot in your garden. Whether you decide to use a bird feeder or not be sure to change the solution regularly. Honey solutions should not be used as they are a medium for a fungus that is fatal to birds. A solution of one part sugar to one part water, brought to a boil, then cooled can be used. The added advantage is that it can be stored in the refrigerator for future use. You can also put out water. Birds may use this to drink or as a bird bath. This almost guarantees to attract them during the dry season. Again as with the sugar solution you must change it regularly.

It is a good idea to locate your feeding station or bird bath close to a bush or a group of plants so that the birds will have a place to hide in the event of a predator¹. Remember that the number of birds that visit your garden will gradually increase, as it will take a while for the word to spread in the bird community that there are goodies in your garden.

A nesting box is another way of attracting birds to your backyard, especially if you have dense foliage or trees there, both of which can provide the perfect spot for nesting birds. But if your yard lacks both, don't despair as you can either build or invest in a bird house or construct a nesting box (think of it as a ground level bird house). The referenced website has more detailed information on the construction, placement, cleaning and monitoring of nesting boxes.

Hummingbirds

Hummingbirds are very interesting if not for their colourful appearance, their energetic lifestyle. They not only sip nectar but feed on small insects and spiders. Since their diet is diverse, by providing both you stand a greater chance of attracting these tiny creatures. For nectar hummingbirds seem to prefer red tubular flowers¹. Birdfeeders should be hung in the shade, cleaned and refilled every 1-1 days. The honey solution described earlier can also be used.

Lizards

Lizards are widespread reptiles with a worldwide distribution. No matter where you live you will most likely have at least one species of lizard in your backyard¹ or for us in the tropics inside our homes as well. Like all reptiles lizards are cold-blooded or ectothermic, meaning that they cannot internally regulate their body temperature like humans. Rather they have to rely or

outside sources of heat. As a consequence they need places to bask in the sun such as rock piles or rock walls. Concrete is the building material of choice in this country rather than wood so that would explain why most of us will see lizards in our backyard. But if we want to make additional spots for them we can fill a large clay pot (10-10 cm wide) with various sizes of rocks leaving lots of spaces, or have piles of leaf litter. The lizards can go into these crevices to hide from predators and cool down if they get over-heated.

Frogs and Toads

Frogs and toads are different. Frogs have moist smooth skin and spend all their time in or near water, whereas toads have dry, bumpy skin and do not constantly have to be near a source of water¹. A popular but false belief is that frogs give you warts. Warts are caused by a virus¹.

It is easy to attract toads since they do not depend on water by making a toad abode with a medium sized clay pot and saucer. Fill the saucer with water and place on the ground. Put the pot upside down with an edge propped up on a rock. This acts as a doorway for the toad or toads. A broken pot with a chunk missing at the rim will do. In this case there is no need to prop it up. Now you are all set to receive your amphibian visitors.

Butterflies

Butterflies are fascinating to watch, especially their colourful wings which are usually of solid colours but may sometimes be iridescent. Adult butterflies are in search of nectar so having lots of flowers around is a sure bet if you want to attract butterflies to your backyard. They are particularly attracted to flowers that are red, yellow, orange, pink or purple. They also have a preference for flat-topped or clustered flowers as well as varieties that have short tubes¹. Zinnias and marigolds also work well¹. Butterflies rarely feed in the shade¹, so try to plant your flowers in areas where they are exposed to the sun for most of the day or, you can trim some of the overhanging or surrounding vegetation to “advertise” the flowers that you do have to the butterflies.

We should remember that caterpillars are actually “baby butterflies”, so we should encourage them in our garden. Butterfly caterpillars feed on a very limited variety of plants¹. Therefore more of the damage that we associate with caterpillars are caused by moth caterpillars rather than butterfly caterpillars.

Dragonflies

Most species of dragonflies and damselflies rely on water throughout their life cycle. These insects are quite colourful and easy to identify by their patterns using a pair of binoculars. They can be distinguished from each other by the position of their wings when at rest. Dragonflies hold their wings horizontally at their sides while damselflies bring them together above their backs.

A way of attracting these insects to your property is to set up a pond¹. Half a wooden barrel or a large plastic tub will do as a simple water feature in your garden. Place the pond where it will be exposed to the midday sun but protected from the wind. The ideal pond should have varying depths to accommodate the plants as well as to provide a place for nymphs to hide from predators¹. It is a good idea to plant aquatic plants inside the tub to provide a place for the nymphs (young dragonflies) to hide from predators as well as for resting and hunting for food (for example, mosquito larvae). These insects are strictly carnivores. These plants also provide a means for the nymphs to crawl up when they emerge, and make the transition from water-dweller to free-flying adult. While you are waiting for the aquatic plants to get established you can insert sticks. Flat rocks around the edges of the pond are a good idea as many adults use it to bask in the sun¹. You

should locate the pond near bushes or shrubs or let the grass around the edges grown. This provides more perching sites for the adults. It is a good idea to discourage frogs and toads from your garden if you primarily want to attract dragonflies, since tadpoles feed on the larvae of both dragonflies and damselflies.

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¹<http://www.nwf.org/backyardwildlifehabitat.cfm>



Another New Island

Jo-Anne Nina Sewlal and Christopher K. Starr
Dept of Life Sciences, University of the West Indies

In August, the opportunity presented itself again for us to expand the knowledge of arachnids in the Lesser Antilles, with a visit to Anguilla. The invitation came from Keith David who regular readers would remember co-authored an article on the butterfly families of Trinidad and Tobago.



One of the many old houses on the island
Photo by Jo-Anne Sewlal

Anguilla means “eel” in Spanish. This is quite an appropriate name considering its long and narrow shape. It is the most northerly of the Leeward Islands in the Lesser Antilles, with coordinates (18°15’N 63°10’W). Initially, Anguilla was part of a single British dependency with St. Kitts and Nevis. However, two years after a revolt in 1969, Anguilla was given separate British dependency.

Located in the north eastern section of the hurricane zone, Anguilla has had many devastating experiences with hurricanes, which included the relocation of the capital city. The current location of the capital – The

Valley is the third such relocation. The previous two kept being washed away by hurricanes. In addition, many of the homes have concrete roofs as a result. The most recent one being Hurricane Luis in 1995 which did much damage to the natural vegetation, already recovering from years of cultivation.

Almost all of the land except the beaches is privately owned. Land ownership is taken very seriously in Anguilla so one had to be very cautious when sampling. Like Nevis which we visited earlier this year, Anguilla too has swales, which are very shallow angular dips in the road which serves for drainage. But, in contrast to Nevis, Anguilla is quite flat with a maximum elevation of 66 m. A result of this is that there are less habitats. The climate is very dry with little humidity, as a result, much of the vegetation on the island is adapted to dry conditions, such as cacti and thorny shrubs and very little grassland.



Windward Point – Turk's cap (*Melocactus intortus*) in foreground and Doodle doo (*Pilosocereus royeri*) cacti in background.

Photo by Jo-Anne Sewlal

There are even two offshore islands named Scrub and Cacti Island for this same reason. Such plants include, the cacti Turk's cap (*Melocactus intortus*), which are common in areas like Windward Point. These globose cacti can reach up to 1 m in height and 30-60 cm in diameter. They are so named because of the cephalium (woody top). It is covered with a white wool and slender reddish brown bristles. Small rose-pink flowers are found between the bristles (Walker et al. 2005).

Coastal plants like Manchineel (*Hippomane mancinella*) were very

common along the coast mostly at Katouche Bay where we stayed. The smallest amount of sap from this tree is quite caustic and causes skin irritation. Another common coastal plant was sea

grapes (*Coccoloba uvifera*) however; it was not confined to the coast. This species is edible and although sweet has a tart flavour.

On a broad shrub in our spider study site we found a huge resting aggregation of male bees (*Centris* sp.) much larger than any we have seen elsewhere in the West Indies. The bees gathered every evening and dispersed for the day each morning. It was really very impressive when we disturbed them and they rose in a dense, buzzing cloud around our heads.

Typical of an oceanic island, Anguilla has few species of fauna, for instance there are seven native species of lizards. There is only one native snake species on the island which is not poisonous.

The turtle or zenaida dove (*Zenaida aurita*) is the island's national bird, which is brown with a mottled pink breast. Its long pointed tail is black with white tips (Carty & Petty 2000). Its numbers are increasing to the point that most of them almost get hit by cars. The second species of dove on the island is the common ground dove (*Columbina passerina*), one of the smallest members of the pigeon family (Barlowe 1993).

The island is littered with ponds with water with varying degrees of brackishness around which are red (*Rhizophora mangle*), white (*Laguncularia racemosa*) and black (*Avicennia germinans*) mangroves as well as buttonwood (*Conocarpus erectus*), which is not a typical mangrove species. Out of these salt ponds, some were used for salt production. The earliest report of salt production was in 1769 (Carty & Petty 2000). Trinidad and Tobago was one of the largest importers of Anguillian salt until 1985, when the devaluation of the Trinidad and Tobago dollar made it uneconomical (Carty and Petty 2000).

There is no source of freshwater on the island – no rivers or streams. The island is dependent on groundwater and rainwater to fill the cisterns. The Cuban treefrog (*Osteopilus septentrionalis*) is one of the largest species of treefrogs, with males measuring 9 cm and females 14 cm in length. These voracious predators attack insects with larger individuals consuming small vertebrates like birds, mice and other species of frog (Hodge et al. 2003). They vary in colour and have clusters of skin glands which can be mistaken for warts. They have a distinct fold of skin which runs the entire length of the lower legs. They secrete an irritant to discourage potential predators.

It is most likely that this species of frog has been present on the island since the late 1980's or early 1990's. This species was most likely introduced to Anguilla with imported plants from Florida. However, it became abundant after a period of consecutive wet seasons during the late 1990's following Hurricane Luis. In the past year this species has become a problem in that they use cisterns as breeding territories and the toxins from their skin gets in the water supply making it unsafe for drinking.

Some of the rock on the island is quite porous and has red deposits of iron like that seen at Windward Point. However, most of the rock consists of limestone thus leading to the formation of caves. It was in these caves, some of which have extensive networks. Here we found spiders of the family Pholcidae which is quite larger than those found in the surrounding dry forest and may be unique to caves.

The local NGO is the Anguilla National Trust which was established in 1993 and its motto is "Preservation for Generations". Its goal is to oversee the preservation and management of Anguilla's cultural heritage, including historical buildings, wetlands and places of natural interest or beauty. It is a statutory body which the preservation of documents, pictures, furniture and artifacts of national, historical, artistic or cultural interest.

Anguilla – another island full of charm and we encourage anyone to visit.

Acknowledgments

This project was also made possible through funding from the Department of Environment, Government of Anguilla. Thanks to Keith and Rishica David for hosting us, and for the warm welcome to the island. Thanks also goes out to Don Mitchell and Karim Hodge for sharing their knowledge on the natural history of the island and again to Karim for his assistance in the field.

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FIELD TRIP REPORTS

North Manzanilla – June 25th 2006 John Lum Young

A farmer's sign in North Manzanilla set the light-hearted, easy-going mood for the outing; the sign read "Get in the habit, eat rabbit". In spite of the presence of a number of strong walkers - Bobby, Oumdash, Dianne Reynold, Gerard Schipp, Glenroy William and Kay Hinkson - the pace was gentle with frequent stops to examine the flora and fauna.

At the trail briefing Jallaludin Khan explained that the Manzanilla Peninsula was a multi-faceted place of interest. It was of geological interest due to fossil beds that could be readily examined

and studied. Its dry coastline forest was of ecological interest in spite of the historical modification to the vegetation. The Peninsula was initially settled by Amerindians and the study of middens revealed both shellfish and ceramic cultures. The area remained wild and inaccessible until 1822 when Manzanilla became one of the "Company Villages" in which black soldiers of the disbanded Third West India Regiment were each given 6.57 ha of land to make their livelihood (Anthony 1988). Manzanilla remained largely an agricultural and fishing community.

Gerard added that Manzanilla was also a US military base where troops were trained and sent to combat against the Japanese in Burma. North Manzanilla had swamp and dense forest and was a good representation of the terrain the soldiers could expect in the Far East. Soldiers trained with "live" ammo and several died in mishaps. The training camp was aptly called "The Road to Hell". This base was also used as a transition area for troops on their back to the USA following the end of WWII.

North Manzanilla was the southern end of the Manzanilla Windbelt Reserve so we trekked north into the Reserve along Camp Road. Manzanilla Windbelt Reserve (2296.6 ha) was established in 1922 and extended northwards in 1955 with the proclamation of Manzanilla Windbelt Extension (383.2 ha). The Windbelt was necessary to breakdown the strong Atlantic breeze. However an area immediately south of the Oropuche River (514.37 ha) was removed from the Reserve (Proclamation No. 12/1963).

At the edge of an agricultural clearing stood a large, unidentified tree with about 15 nests of the crested oropendola or cornbird (*Psarocolius decumanus*) hanging from the branches. The nests were about 1.5 m long, slender and widening out at the base resembling an elongated bulb. The entrance to the nest is near the top. *P. decumanus* usually nest in groups with Drury (1962) recording 43 nests hanging from a single tree.

After the clearing we stopped in the shade of the sandbox (*Hura crepitans*), a large deciduous tree up to 40 m in height and 5 m in girth (Quesnel and Farrell 2005), to point out some characteristics of this plant. The bark was greyish and covered with numerous sturdy prickles, about 2 cm in diameter at the base and drawn out into a curved spine at the tip. The tree had male and female flowers on separate inflorescences. The male inflorescence was cone-shaped 3-6 cm long and 2-2.5 cm across at the base, on a long stalk. The flower had an inconspicuous calyx, no petals, and stamens fused into a short column with the crimson anthers in 2-5 whorls around the column. The flowers were crowded together forming a structure resembling a crimson pineapple (Quesnel and Farrell 2005). The female flowers, formed singly in the axils of leaves, had no petals or stamens either. The calyx enclosed the pistil which consisted of a small ovary, a style 5 cm long and a stigma 2 cm in diameter. The fruit resembled a flattened globe about 7 cm in diameter with about 18 compartments each of which contained a single seed (Quesnel and Farrell 2005). Some tasted the dried seed which was pleasant enough but were reminded to eat only a small piece as the seed contained poisonous oil that caused intestinal cramps and diarrhoea. Ripe fruits explode with a loud crack flinging the seeds away from the parent. The septa of the fruit resembled a dolphin and was used in local craft and cosmetic jewellery.

This southern section with the Atlantic Ocean on its eastern border rose relatively gently from sea level to a maximum 38.1 m. Low lying areas were swampy. The soil in this area consisted mainly of clay or clay loam with sandy patches (Bell 1980).

The forest we strolled through was steadily recovering and the foundations of the army buildings though visible had been reclaimed by the environs. In 1971 Bell identified species of trees in the area. These included balata (*Manilkara bidentata*), poui (*Tabebuia serratifolia*), cypre (*Cordia alliodora*), angelin (*Andira inermis*), guatecare (*Eschweilera subglandulosa*), laurier mattack, purpleheart (*Peltogyne floribunda*), incense (*Protium guianense*), redwood, mal balata, milkwood (*Sapium glandulosum*), copperhoop (*Brownea coccinea*), white mangue (*Laguncularia racemosa*), gatia, carat (*Sabal mauritiiformis*), blackheart (*Clathrotropis brachypetala*), wild guava, pois doux (*Inga sp.*), wild coffee, hog plum (*Spondias mombin*), cocorite (*Attalea maripa*), palmiste (*Roystonea oleracea*), bois pois (*Swartzia pinnata*), maraquil, penny piece (*Pouteria multiflora*), groundnut, bois carrot, mammee apple, wild orange, wild grape, cojon de burro, bois tattoo (*Rudgea hostmanniana*), matapal (*Clusia rosea*), jumbie bead (*Erythrina pallida*), argalie, bois lissette, series, wild cherry, silk cotton (*Ceiba pentandra*) and cutlet.

Another tree seen was the white fiddlewood (*Citharexylum fruticosum*). Its pale tan bark peeled off in fibrous strips and gave it a ripped and split appearance, probably an interesting specimen for bonsai enthusiasts.

At Tramar Beach some inspected the exposed fossil beds with the trapped remains of creatures from a bygone age. The high tide had also washed away part of a turtle nest revealing eggs 51 cm below the surface. Scampering among the leaf litter away from the shoreline was a lizard with a unique habit. The striped runner (*Cnemidophorus lemniscatus*) would lift one of its front limbs and move it in a waving action whenever it stopped after a quick burst.

From Tramar Beach we skirted a swampy area to Outpost, the next beach north. At this point a few decided to accompany Glenroy further north. Twenty-five years ago he spent many a day camping there with his wife and children. We wound our way through the roots of the red mangrove (*Rhizophora mangle*) which was gradually losing its habitat. On the landward side the black mangrove (*Avicennia germinans*) was advancing to the sea and on the opposite end the high tide was depositing sand in the swampy environment. This was all very different to when Glenroy last camped on this beach.

Glenroy took us into the lagoon which though swampy on the seaward side used to be always cultivated further inland with neat rows of watermelons and other short crops. Now only crab catchers frequented the lagoon.

We went up the coast as far north as the Burning Rock, a lignite seam embedded in sedimentary sandstone that had been burning underground for years, giving off a sulphurous odour and baking the surrounding clays. The heat given off at the surface used to be quite intense and combined with the toxicity of the sulphur inhibited vegetation growth in the immediate vicinity (Comeau et al. 2006). The headland with the burning rock had been completely eroded and overran by the aggressive sea (circa 2003) and the lignite seam was likely under the water. Having noted the changes to the environment we returned to the vehicles.

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BOOK REVIEWS

Reviewing “Reviewing the Reviews of *The Snakes of Trinidad and Tobago*” – Are Parotoid and Paratid Synonyms?

Patrick T. Gregory

Department of Biology, University of Victoria,
Victoria, BC, Canada V8W 3N5

At the risk of getting myself into a whirlpool from which I cannot escape, I write in response to Hans Boos' (2005) recent evaluation of reviews of his book about the snakes of Trinidad and Tobago (Boos 2001). I must admit at the outset that I found his review a most peculiar sort of

exercise, made doubly odd by the fact that his list of references did not actually include the reviews themselves. Although the periodical in which a particular review appeared was mentioned in the text in most cases, this was not universally true (for example, Gregory 2004).

In his article, Boos (2005) mentions several reviews of his book, but has the most to say about mine (or at least about a point I raised). Given the length and detail of my review, I was surprised by his focus on the typographical errors I mentioned in my last paragraph (by the way, I did not describe the term “ovoviviparous” as “archaic”, but as “outmoded”). Then again, one of the errors that I pointed out apparently was not typographical. Boos (2005) says that he scratched his head over my comment that the poison gland on toads is a “parotoid” gland, rather than a “parotid” gland. Well, in turn, his comment made me scratch my head – he cites sources in which “parotid” is used as a synonym for “parotoid”, an apparently new term to him; by contrast, until then, I had not recalled encountering “parotid” as anything other than the name of a salivary gland in mammals. I have since found “parotid” used to describe the poison glands of toads in Halliday and Adler (1986) and Murphy (1997). However, this usage seems to be the minority one and I consider it potentially confusing (and wrong – see below). Thus, I respond to Boos’ list of usage citations with a list of my own.

First, what terminology do relatively recent books on the biology of amphibians use to describe the glands in question? Duellman & Trueb (1986), Zug (1993), Stebbins & Cohen (1995), Savage (2002) and Pough et al. (2004) all use “parotoid”. I then consulted a few field guides: Smith (1978), Nussbaum et al. (1983), Stebbins (1985), Leonard et al. (1993), and MacCulloch (2002) also use “parotoid”. Beebee and Griffiths (2000) employ the variant “paratoid”, which was new to me, but not to Boos (2005), and which he thinks may be an error; however, Cogger (1979) and Leenders (2001) also use this spelling. Head-scratching aside, though, “paro(a?)toid” is a well-established adjective in herpetology to describe the poison glands behind the eyes in toads.

What do references on general vertebrate anatomy say? Kardong (2006) distinguishes between parotoid glands (...“large raised granular glands behind the eyes [of toads]...”) and parotid glands (“...salivary glands [of mammals]...”). Linzey (2001) makes the same distinction, as do Kent and Carr (2001), although their reference to “parotid” in the index leads to “parotoid” (poison) glands, perhaps highlighting the confusion best of all. Liem et al. (2001) use both “parotoid” and “parotid” to describe the poison glands of toads, but also use the latter for a salivary gland in mammals. Hildebrand and Goslow (2001) use only “granular” in reference to poison glands of amphibians, but apply “parotid” to salivary glands (apparently for tetrapods in general, and not just mammals). I could not find reference to either term in Pough et al. (2002); they simply refer generically to salivary glands and poison glands (perhaps they are on to a good thing here).

Finally, what do dictionaries say? Boos found both “parotid” and “parotoid” in his Oxford English Dictionary, but I could find only the former in my concise Oxford Dictionary (McIntosh, 1952), Canadian Oxford Dictionary (Barber, 1998) and Canadian edition of Webster’s Dictionary (Bolander et al., 1988).

- 1 The concise Oxford defines “parotid” as: “situated near the ear, especially [parotid] *gland* (in front of ear, with [parotid] *duct* opening into mouth)”. Thus, in this case, the parotid gland apparently is a salivary gland, not a toad’s poison gland.
- 2 The Canadian Oxford has the following definition of “parotid”: “*adj.* 1. situated near the ear. 2. of or pertaining to the parotid glands or the surrounding region. *n.* (in full **parotid gland**) a salivary gland in front of the ear”. Again, no mention of poison gland here.
- 3 According to Webster, “parotid” means: “1. *adj.* of or designating a salivary gland in front of and below each ear 2. *n.* this gland”. This definition also admits only the salivary gland.

What to make of all this? “Parotoid” and “parotid” obviously are closely related terms, but are they synonyms? Both refer to structures near (“para”) the ear (“otos”), but do the slightly

different suffixes indicate any distinction? My Canadian Oxford (and concise Oxford) defines “-id” as “*suffix forming adjectives*” (two separate definitions cover “-id” as a suffix for nouns) and “-oid” as “*suffix forming adjectives and nouns, denoting form or resemblance*”. Thus, the latter apparently is more specific. It also provides the solution to this dilemma. According to The Free Dictionary (www.thefreedictionary.com), “parotoid” means “resembling the parotid gland – applied especially to cutaneous glandular elevations above the ear in many toads and frogs”.

So, there is a distinction to be made here after all. The parotoid gland is so-named not simply because it is near the ear, but also because it supposedly resembles a salivary gland called the parotid gland. Boos (2005) concludes (in reference to poison glands of toads) “...that the use of either word would be understood by any professional herpetologist or herpetologically inclined reader.” Maybe so, but what about mammalogists or oral surgeons? It’s likely not to be understood by them. Furthermore, usage does not make these two words synonyms. They mean different things and I favour avoiding confusion by maintaining that distinction. I do not know the origin of “parotid” as an adjective describing poison glands of toads, but I suspect that it is an error, unknowingly perpetuated by various herpetologists. Certainly, neither my old-fashioned dictionaries nor my more modern electronic searches using “Google” suggest otherwise.

As a bit of a postscript, after looking at all these references, I discovered that all that I had done was re-invent the wheel. Tyler et al. (2001) cover the same ground as I do, but do it much better. They also conclude that “parotid” should be applied only to salivary glands of mammals and that “parotoid” to the hypertrophied poison glands of toads (and some other anurans), although they note that the latter is a misnomer in any case because the parotoid gland does not actually resemble the parotid. They also clarify “paratoid”, which refers to glands seen in some salamanders.

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TIME, IN ALL HIS TUNEFUL TURNING

Mikhail Prishvin 1951. *The Lake and the Woods*. London: Routledge & Kegan Paul 258 pp. Wood engravings by Brian Hope-Taylor.
[Sixth in a series of "naturalist-in" books.]

The author is a nature writer, not a researcher, and his book is mainly a series of small observations, not extended studies. One can read this engaging book much as one would a volume of short stories, one chapter at a time, not necessarily in sequence.

The Lake and the Woods is about nature in Russia. Nature books on cold-temperate and polar regions tend to focus on two things, landscape and big animals, and this is no exception. The close attention is almost entirely on mammals and birds.

The reason for this is not obscure. Prishvin is a keen hunter and repeatedly describes things seen and heard while in search of game. He is no sentimentalist (something of a rarity among Russians, I believe). In one episode, he carefully stalks a flock of sleeping birds in the forest before dawn and settles down to watch them awaken, a process that he describes in awestruck detail. And then, just as one is sure he is going to steal away in the western manner of a heart melted by nature, *blam!*, he shoots his bird clean through the head. And his view of large predators is distinctly old-fashioned. In particular, he knows no peace with wolves, and the right to kill any wolf that one can is taken for granted.

As seen in the subtitle, *Nature's Calendar*, Prishvin's focus is on the seasons, and most of his observations are bound up with seasonal changes. Many of these are triggered by the first appearances or events in the life of plants and animals as markers in the annual cycle. "Every day I noticed something fresh an characteristic, and taught myself to realize the continual progress of the seasons, which, in their passing, never come back again in precisely the same form." This attention to the cycle of the seasons is a key feature in much temperate-zone nature writing, and it is something that we never quite see in the tropics.



Mikhail Prishvin

As this is Russia, there is a fair amount of attention to coping with winter, but spring is the season that really brings on the prose and emotion. About half of the book is devoted to spring, the time of year in cold-temperate regions when the world is in a mad rush to become itself again. "It was one of those wonderful days of spring when everything for which we had borne so many gloomy, frosty, windy days began to show itself; and all that had been necessary to create such a day as this."

Summer, too, can be so exciting as to confuse the ardent naturalist: "And one day that summer -- what a day it was! -- there were so many riddles cropping up all at once that I ended by cursing a perfectly innocent old woman."

A rather wonderful part of Prishvin's nature consciousness is his attention to sound, and not just the tweets, warbles and honks of birds. The whole outdoors has its song, as seen in this passage about autumn:

"As it almost always does in our part of the world, the west wind dropped a little before sunset. The rays of the setting sun shone through the branches. I curved my hand behind my ear and through the slight rustle of the aspen leaves I could hear the sound of a leaf being torn away, a sound much louder and sharper than the dull plop of falling water."

One flabbergasting feature of this book merits mention. Prishvin never exactly tells us where all this exploration and observation takes place. To be sure, he tells us very early that he was based in the town of Pereslavl on Lake Pleshcheyevo, and he names a host of villages, hills and rivers as he goes along, and the book jacket makes plain that we are somewhere in Russia. The trouble is that Pereslavl and all of the other places and landmarks do not loom large on a world scale, and I could not definitely identify any of them in even the big *Times Atlas of the World*. It is rather as if you were to write about nature in the West Indies, with observations drawn from Bush Bush, the Tamana Caves and Aripo Village, but with no explicit mention of Trinidad. However, sifting through the evidence, it seems likely that all of this takes place to the northeast of Moscow, far enough away to be in the wilds, but close enough that a Moscow readership would not require the geographic explanation that we do.

Let me end with a quotation that illustrates Prishvin's close engagement with his subject:

"It is impossible to describe in words the feeling of being in the deep forest at night, when you know that over your head the great birds are sleeping, the last survivors of an age of great creatures. And this sleep was not always peaceful -- now and again one would stir and another preens itself. Not that there was anything terrifying about being alone at night; on the contrary, I was as comfortable as if I were visiting family friends during a holiday. If it had not been so cold and wet I might have slept with the birds."

Christopher K. Starr

Dep't of Life Sciences,
University of the West Indies
ckstarr99@hotmail.com



EDITOR'S NOTE

The field trip reports for May and June were not submitted within the deadline so were not published in this issue..

CONDOLENCES

The members of the TTFNC wish to express their sincere condolences to the family of Mr. George Joseph Abdulla who passed away peacefully on August 28, 2006. George regularly attended our monthly meetings and field trips and was a avid photographer. He was the supplier from whom we purchased the last set of T-shirts for the Club.



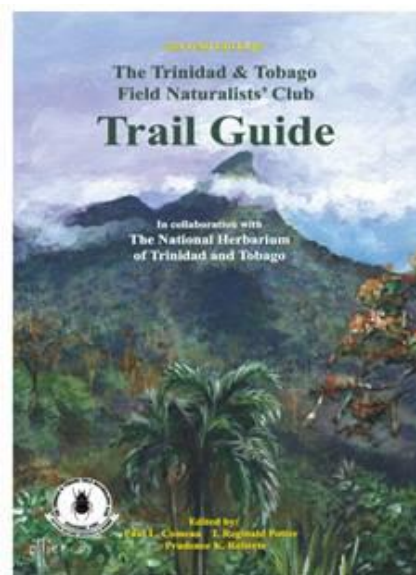
BOOK RELEASES

Trinidad and Tobago Field Naturalists' Club – Trail Guide. **Edited by Paul L. Comeau, I. Reginald Potter and Prudence K. Roberts**

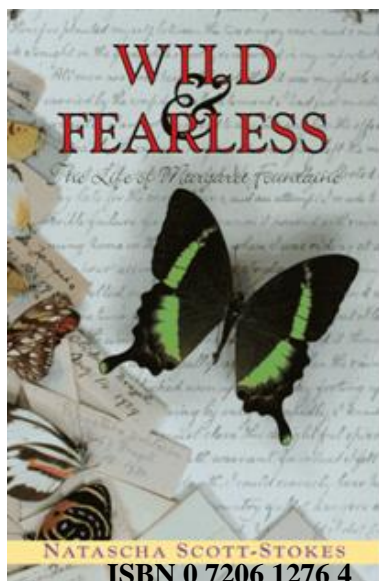
The 2nd Edition of the Trail Guide is available directly from the Club or at the following stores:

- Ishmael M. Khan & Sons Ltd.
- Nigel R. Khan Booksellers
- Mohammed's Bookstore Associates Ltd.
- Metropolitan Book Suppliers Ltd.
- R.I.K Services Ltd.
- The Book Specialists
- A Different View
- Paper Based

Cost: \$TT200.00 per copy for members.
 \$US48.00/ £28.00 includes postage



Wild and Fearless: the Life of Margaret Fountaine by Natascha Scott Stokes



Biography, 272pp, cased, £19.95
 September 2006

The appearance of Margaret Fountaine's diaries in 1978 led to a publishing sensation. Love, Among the Butterflies recorded the activities and private passions of a Victorian vicar's daughter from Norfolk who became one of the foremost entomologists of her day. Although the public was captivated by Fountaine's unorthodox private life, she has never been given serious consideration for her work, nor has a biography ever been written of her until now. Natascha Scot-Stokes draws on a wealth of new material to tell Fountaine's remarkable story. A passionate lover and fearless spirit, Margaret Fountaine was a true individualist whose life was founded upon her idiosyncratic determination to pursue her work. Tempestuous love affairs with men from around the world aside, Fountaine can be counted as a pioneering traveller who considered the effects of tourism on native populations before anyone else and developed ideas of sustainable research whilst others were culling species for the world's museums. Time will tell whether Margaret Fountaine is to be ranked among the world's finest naturalists, but readers will find it as easy as always to fall under the spell of this great English Eccentric.

- First ever biography of Margaret Fountaine

- Uncovers substantial new source material never before published.
- Contains never before published photographs and artwork
- Margaret Fountaine is a rapidly emerging figure in feminist studies
- Her diaries *Love Among the Butterflies* have sold 100,000's around the world
- Natascha Scott-Stokes is a renowned adventurer and travel writer. She also became the first woman to travel the length of the Amazon River alone in 1989.

Reprinted with the permission of Natascha Scott-Stokes.



CONFERENCES



The University of the West Indies
Faculty of Social Sciences, Department of Economics
(for Small and Island Developing States (SIDS))
10TH ANNIVERSARY CONFERENCE
October 16th - 17th 2006

*“Rising to the Challenge of Sustainable Development in Small & Island Developing States:
 Retrospect and Prospect”*

&

The Inauguration of the John Cropper Memorial Lecture

Macro Issues	Sector/Issue Specific
<ul style="list-style-type: none"> • Ensuring we are on the same page: What is Sustainable Development? • Evaluating experiences in promoting Sustainable Development; • Policy Implications of Sustainable Development; • Indicators of Sustainable Development; • Stakeholder participation in Sustainable Development processes. 	<ul style="list-style-type: none"> • Regional, national or sectoral level: tourism, agriculture, manufacturing, other sectors; • Natural Capital/Resource Management; • Environmental management; • Natural Disaster and Climate Change; • Policy Instruments/Valuation; • Waste Management; • Social Capital, Poverty eradication/sustainable livelihoods; • Trade and the environment; • Watersheds, coral reefs, other environmentally sensitive areas.

For further information, please call 868-662-2002 exts. 2018, 2257, 3231, and 2630.



MANAGEMENT NOTICES

SPECIAL THANKS

The Library has received 2 publications:

- Glasgow Naturalist Vol 24 Part 3 2005
- Status of Tropical Forest Management 2005 Summary Report from International Tropical Timber Organization

Thanks to the **Historical & Archaeological Society Museum of Antigua & Barbuda** for:

- The Geology of Antigua, Barbuda and Redonda by John Tomblin 2005

We finally have Polo Jerseys!

Sizes: small, medium, large and extra
large

Colours: khaki and green

Cost \$TT50.00

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 & Tobago.

Full details about the Trust are available at
their website:

<http://www235.pair.com/greenhal/home.htm>

EACH ONE, BRING ONE

Members are encouraged to bring a friend or two to be part of our Club – their knowledge, talents and skills would be most welcome.

A HOME FOR THE TTFNC

We are seeking a permanent location to conduct our business and house our historic records and materials. Please contact the Management Committee if you can be of assistance.

**WELCOME
NEW MEMBERS**

Stevland Charles
Susan Singh Renton
John Renton
Paul Budgen
Shivana Beharry
Janine Seetahal

PUBLICATIONS

- The 2005 issue of the Living World Journal has been published. Please collect your copy at the next monthly meeting.
- The 2nd Edition of the Native Trees of Trinidad and Tobago is available at \$TT100.00 per copy for members
- Issues of the Living World Journal from 1892-1896 are now available on CD.
- The Trinidad and Tobago Field Naturalists Club Trail Guide is available at \$200 per copy for members – see book review above.

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



MANAGEMENT NOTICES (cont'd)

TTFNC'S RESPONSIBILITY TO THE NATION'S STEWARDSHIP OF THE ENVIRONMENT

Letters issued by the Club on its position on various environmental issues can be viewed on the Club's website: www.wow.net/ttfnc on the "ENVIRONMENT PAGE".

Missing copies of Naturalist Magazine needed for library

- 1976 Vol. 1 No. 5
- 1981 Vol. 3 No. 9
- 1987 Vol. 6 No. 12

Your 2006 Annual Membership Fees are Due!!

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

Volunteers needed... to type index for period 1986 to 1988 – 16 issues



NOTES TO CONTRIBUTORS

Guidelines for Articles and Field trip reports:

Font Type: Times New Roman

Font Size: 12 point

Maximum Length: 1,750 words (approx. 3 pages unformatted)

Photos: JPEG files only

Submit to any of the following: 1) rjpotter@opus.co.tt 2) tfnc@wow.net.tt, or any member of the Management Committee.

Deadline for submission of articles for the 4th Quarter 2006 issue of the Bulletin is December 1st, 2006. Please note that all field trip reports for this quarter must be in by the deadline, with the exception of the November report.