

# LIVING WORLD

Journal of the Trinidad and Tobago  
Field Naturalists' Club

[admin@tffnc.org](mailto:admin@tffnc.org)

ISSN 1029-3299



## **Terrestrial Herpetofauna of Some Satellite Islands North-east of Tobago with Preliminary Biogeographical Comparisons with Some Satellite Islands North-west of Trinidad**

Stevland P. Charles, Stephen Smith and Jantina M. A. de Jonge

Charles, S.P., Smith, S., de Jonge, J.M.A. 2011. Terrestrial Herpetofauna of Some Satellite Islands North-east of Tobago with Preliminary Biogeographical Comparisons with Some Satellite Islands North-west of Trinidad . *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2011, 54-59.

# Terrestrial Herpetofauna of Some Satellite Islands North-east of Tobago with Preliminary Biogeographical Comparisons with Some Satellite Islands North-west of Trinidad

Stevland P. Charles<sup>1</sup>, Stephen Smith<sup>2</sup> and Jantina M. A. de Jonge<sup>3</sup>

1. Department of Biology, Howard University, Washington D.C. 20059, U.S.A.

*stevlandcharles@gmail.com*

2. 8 Park Avenue, Queen's Park East, Port of Spain, Trinidad and Tobago.

*cascabeldormillon@yahoo.com*

3. Achterdiep NZ 15a, 9611BS Sappemeer, The Netherlands.

*eastman.tina@gmail.com*

## ABSTRACT

Prior to this study, the only satellite island off Tobago surveyed for herpetofauna was the largest of these islands, Little Tobago Island. We conducted brief herpetological surveys on three satellite islands off Tobago's northeastern coast (Little Tobago Island, St. Giles Island and Goat Island). Here, we review the recorded observations of herpetofauna for Little Tobago Island in the literature and present nine new locality records for reptiles on St. Giles Island and Goat Island. The implications of these results for continued studies on the biogeography of the satellite islands of Trinidad and Tobago are discussed.

**Key words:** Tobago, satellite islands, Little Tobago Island, Goat Island, St. Giles Island, biogeography, herpetofauna, reptiles, amphibians, lizard, snake, frog, *Rhinella*, *Leptodactylus*, *Gonatodes*, *Hemidactylus*, *Thecadactylus*, *Sphaerodactylus*, *Iguana*, *Bachia*, *Anolis*, *Ameiva*, *Cnemidophorus*, *Mabuia*, *Leptophis*, *Mastigodryas*.

## INTRODUCTION

The herpetofauna of the satellite islands off Trinidad is fairly well-known. The seminal work on this subject was produced by Boos (1984a) in his account of the terrestrial reptile fauna of the islands off the northwestern peninsula of Trinidad, in which he gave a comprehensive account of records made by previous workers, as well as a number of new records. Boos (1984a) also began a very interesting consideration of the biogeography of these islands. Several authors have contributed additions to the herpetofauna of these islands (Boos 1990; Boos and Quesnel 1994; Temple 1996; Lall and Hayes 2000; Hayes and Eitnienar 2002; Charles 2007; Charles and Smith 2008; Charles and Smith 2009) as well as that found on Soldado Rock (Boos 1984b; French 1990) off Trinidad's southwestern peninsula. By comparison, the herpetofauna of the satellite islands of Tobago is less well-known, with the main treatment being that on the reptiles of Little Tobago Island by Dinsmore (1970a). James J. Dinsmore resided on Little Tobago Island from 23 September, 1965 to 4 July, 1966, primarily conducting research on the dwindling (now extinct) population of introduced Greater Birds of Paradise (*Paradisaea apoda apoda*) (Dinsmore 1970b). During his stay there, he observed and collected a series of reptiles, including eight species of lizards and one species of snake (Dinsmore

1970a). Subsequently, references to one other snake and two species of frogs from Little Tobago were made in Murphy (1997) with no mention of the original observers. Until now, no other works have detailed the reptiles and amphibians of the satellite islands of Tobago.

In order to address this paucity of knowledge, the authors visited the second and third largest satellites of Tobago, namely St. Giles Island and Goat Island, to search for herpetofauna. This paper documents the findings of those brief searches and includes records for reptiles and amphibians on Little Tobago Island from Dinsmore (1970a) and Murphy (1997) which were reinforced by our own opportunistic observations during past visits to that island.

Goat Island, Little Tobago Island and St. Giles Island are all administered by the Tobago House of Assembly (T.H.A.) with the last two being categorized as game sanctuaries. Brief visits of only a few hours to each of the islands were made by the authors and searches were conducted for reptiles and amphibians. Microhabitats including leaf litter, tree trunks, under rocks, bark and logs, crevices in rocks, and anthropogenic locations including walls, ceilings and crawl spaces under buildings and piles of rubble that may serve as refuges for herpetofauna were searched.

**OBSERVATIONS****Goat Island**

Goat Island, located at 11° 18' N, 60° 31' W, is just over 0.7 km off the northeastern coast of Tobago. It is quite small, at about four hectares in area, and rises only to about 45 m above sea level. There is a very low sandy isthmus in the middle of the island where there exists a small landing jetty and a small complex of very recently abandoned buildings. For the majority of the 20<sup>th</sup> century, these buildings were part of a private holiday home. A few ornamental cultivated plants remain around the buildings. The rest of the island is covered by vegetation that is characteristic of dry tropical deciduous forest, with *Bursera simaruba* (Bursuraceae), *Coccothrinax barbadensis* (Arecaceae) and *Anthurium hookeri* (Araceae) being common. Apart from rainfall, no natural source of surface freshwater exists on the island.

We (S.P.C. and S.S.) visited the island on 28 February, 2010 from 0830 h to 1220 h and noted the species recorded below.

***Thecadactylus rapicauda***

(Houttuyn) (Reptilia: Sauria: Gekkonidae): Chec-a-chec.

One adult was seen about 3 m up on a wooden beam under the awning of the house. This is a new locality record.

***Iguana iguana***

(Linnaeus) (Reptilia: Sauria: Iguanidae): Green Iguana.

This is a new locality record. We observed a juvenile basking on the concrete floor of the yard at the house. Approximately eight other individuals (including neonates, juveniles and adults) were seen basking in vegetation on the southwestern end of the island. These lizards appear to be abundant on the island, but recent abandonment by the former occupants of the holiday home as the island has been transferred to State ownership may leave the unguarded population subject to poaching due to relative ease of access to the site.

***Anolis richardii***

(Duméril and Bibron) (Reptilia: Sauria: Polychrotidae): Gumangala.

This is a new locality record. Several of these lizards were seen on the rocks, walls and trees around the house. A few dead desiccated individuals were observed around the house (possible victims of the severe drought of 2010). The forested knoll on the southwestern end of the island was densely populated by these anoles. It is interesting that this species, so ubiquitous on Tobago, is not known from Little Tobago Island and this might be suggestive of anthropogenic introduction on Goat Island,

possibly via building material or transplanted plants. However, the possibility of a natural colonization event via over-water rafting cannot be ruled out.

***Cnemidophorus lemniscatus***

(Linnaeus) (Reptilia: Sauria: Teiidae): Foot-shaker Lizard.

This is a new locality record. One young male and two adult females were seen on the scrub covered slope behind the house to the northeastern side of the island. A sub-adult female was caught on the sandy beach near the house. It was taken as a voucher specimen and will eventually be deposited in the Zoology Museum of the St. Augustine Campus of the University of the West Indies.

**Little Tobago Island**

Little Tobago Island is situated at 11° 18' N, 60° 30' W and is approximately 1.6 km off the northeastern coast of Tobago. At about 100 hectares, it is the largest of Tobago's satellite islands. It is somewhat steep sloped and attains a maximum elevation of 137 m above sea level. The island receives an annual average rainfall of 1520 mm and apart from this, the only natural source of surface freshwater is a small ephemeral seepage present only during the rainy season. As such, the island is quite dry and is covered largely by dry tropical deciduous forest (Beard 1944; Oatham and Boodram 2006). During the 18<sup>th</sup> and 19<sup>th</sup> centuries, parts of the island were cultivated with sea-island cotton (*Gossypium barbadense*), but abandoned early in the 20<sup>th</sup> century, allowing full recovery to the natural dry forest regime (Beard 1944). Although frequently visited, the island is uninhabited and the small concrete landing jetty and the dilapidated ruins of two small cabins are the only major edificarian structures remnant on the island.

Dinsmore (1970) spent nine months on Little Tobago and produced the first list of nine reptiles for the island while Murphy (1997) lists one other reptile and two amphibians for the island. We make use of the most recent taxonomy to recount their records below, as well as state our own observations made during visits to the island from 1000 h to 1500 h on 24 May, 2003 (S.S.) and from 0835 h to 1400 h on 19 July, 2007 (S.P.C.).

***Rhinella marina* (= *Bufo marinus*)**

(Linnaeus) (Amphibia: Anura: Bufonidae): Crapaud.

Murphy (1997) notes this toad as being recorded on Little Tobago, but does not give details regarding who made the original observation. This species is very hardy and tolerant of dry conditions and has been known to occur on Monos Island (Boos 1990) and Soldado Rock (French 1990) in habitats similar to those found on Little Tobago Island. As such, its presence (at least at one time)

on Little Tobago is completely plausible.

***Leptodactylus fuscus***

(Schneider) (Amphibia: Anura: Leptodactylidae): Whistling Frog.

This frog is also noted by Murphy (1997) as recorded for Little Tobago with no details on the original observer. *L. fuscus* is less tolerant of dry conditions and it seems highly unlikely that a breeding population could survive on Little Tobago under natural circumstances. Perhaps vagrants inadvertently transported by boats from mainland Tobago might have at one time landed on the island, where water troughs provided for birds by human caretakers might provide some refuge from the otherwise predominantly dry conditions.

***Gonatodes ocellatus***

(Gray) (Reptilia: Sauria: Gekkonidae): Ocellated Gecko.

This gecko was first recorded on the island by Dinsmore (1970). In 2007, one of us (S.P.C.) observed nine adult females and five adult males. Each of these males was of the rust-coloured head morph.

***Hemidactylus palaichthus***

(Kluge) (Reptilia: Sauria: Gekkonidae): Spiny Gecko.

Dinsmore (1970) collected this gecko on Little Tobago, but misidentified it as *H. mabouia* (Moreau de Jonès). Tuck (1972) corrected this error.

***Sphaerodactylus molei***

(Boettger) (Reptilia: Sauria: Gekkonidae): Mole's Gecko.

These tiny geckos were first noted on the island by Dinsmore (1970).

***Thecadactylus rapicauda***

(Houttuyn) (Reptilia: Sauria: Gekkonidae): Chec-a-chec.

This large gecko was first recorded on Little Tobago by Dinsmore (1970).

***Bachia heteropa alleni***

(Barbour) (Reptilia: Sauria: Gymnophthalmidae): Ground Puppy.

Dinsmore (1970) using Underwood (1962), misidentified this subspecies as *Scolecocaurus trinitatis* (= *Bachia heteropa trinitatis* Barbour). He based his record on the observation (via binoculars from some distance away) of a dead lizard that fit the gross description of the species, which was being fed by an adult Blue-crowned Motmot (*Momotus momota*) to its young, as well as several fleeting glimpses of 'worm-like animals' that quickly burrowed away upon turning over rotten logs. Dixon (1973) settled the taxonomy of the subspecies on Tobago as it is

currently recognized.

***Ameiva ameiva***

(Linnaeus) (Reptilia: Sauria: Teiidae): Zandolie.

This large terrestrial lizard was first noted on the island by Dinsmore (1970). We agree with Murphy's (1997) assertion that individuals on Little Tobago Island are notably large. One of us (S.S.) noted at least two adults in 2003 and S.P.C. observed several individuals including adults of both sexes and juveniles in 2007.

***Cnemidophorus lemniscatus***

(Linnaeus) (Reptilia: Sauria: Teiidae): Foot-shaker Lizard.

Dinsmore (1970) observed and collected these lizards on the island. One of us (S.S.) noted two individuals on a trip to the island in 2003.

***Iguana iguana***

(Linnaeus) (Reptilia: Sauria: Iguanidae): Green Iguana.

Dinsmore (1970) observed this large lizard on the island and expressed concerns that it might be subject to poaching there despite the island's status as a game sanctuary.

***Leptophis ahaetulla coeruleodorus***

(Oliver) (Reptilia: Serpentes: Colubridae): Green Lora.

Murphy (1997) lists this snake as present on Little Tobago based on the American Museum of Natural History specimen AMNH 84279. Dinsmore (1970) did not observe this species during his nine-month stay on the island. The island provides suitable habitat and potential prey for this snake in the form of small lizards and small fledgling birds and so its presence there is plausible. Future workers should keep a keen eye open and a quick hand ready to confirm this record.

***Mastigodryas boddaerti dunnii***

(Stuart) (Reptilia: Serpentes: Colubridae): Machete Couesse.

Dinsmore (1970) observed and collected this species on the island. The taxonomy of the subspecies on Tobago has a long confused history. Dinsmore (1970) records it as *Drymobius boddaerti*. The taxonomy as it is currently understood was settled by Peters and Orejas-Miranda (1970).

**St. Giles Island**

St. Giles Island is located at 11° 21' N, 60° 31' W, about 0.8 km off the northeastern coast of Tobago. The island is about 30 hectares in extent and is the largest of a group of islands known collectively as St. Giles Islands or Meville Islands. With its highest point just about 115 m above sea level, the island is exceptionally precipitous on

all sides. This coupled with its rocky coastline and rough waters make the island difficult to access. The island is particularly dry with no sources of surface freshwater. It is dominated by scrubby vegetation in tropical deciduous and wind-swept littoral forest formations. Very little trace is left of any human built structures on the island.

We (S.P.C., S.S. and J.M.A. de J.) visited St. Giles Island on 27 February, 2010 from 0830 h to 1230 h and noted the species recorded below.

***Gonatodes ocellatus***

(Gray) (Reptilia: Sauria: Gekkonidae): Ocellated Gecko.

This is a new locality record. Two adult males, one sub-adult male and two females were observed, all on the lower parts of tree trunks near the top of the ridge on the western side of the island. The head colour pattern of the adult males was not observed and that of the sub-adult male was not yet discernable. Only the two females were captured and taken as voucher specimens and will eventually be deposited in the Zoology Museum at the St. Augustine Campus of the University of the West Indies.

***Thecadactylus rapicauda***

(Houttuyn) (Reptilia: Sauria: Gekkonidae): Chec-a-chec.

This is a new locality record. One adult specimen was found under the bark of a dead but still standing tree trunk about 1.7 m above ground near the top of the ridge on the western side of the island. It was taken as a voucher specimen and will eventually be deposited in the Zoology Museum at the St. Augustine Campus of the University of the West Indies.

***Iguana iguana***

(Linnaeus) (Reptilia: Sauria: Iguanidae): Green Iguana.

This is a new locality record. A sub-adult was found dead and rotting on the forest floor on the southern slope of the western portion of the island. Pieces of shed skin assumed to be from this species were found on the forest floor near the top of the ridge on the western portion of the island. Iguanas as well as large sea birds may be vulnerable to poaching on the island. [Evidence of human visitors to the island included piles of plastic trash as well as a pile of the remains of about four dead Red-footed Boobies (*Sula sula*) assumed to have been poached].

***Mabuya* sp.**

(Reptilia: Sauria: Scincidae): Bronze Skink.

This is a new locality record. One adult skink was seen basking on the ground near the top of the ridge on the western portion of the island. John C. Murphy (pers. comm.) states that recent evidence suggests that more than one species of the genus *Mabuya* may be present

on both Trinidad and Tobago and that careful scrutiny of scale morphology and genetic testing may be the only way to determine the species identities of various populations. Systematic collections must be carried out to this end. Unfortunately, we failed to secure the observed specimen.

***Mastigodryas boddaerti dunni***

(Stuart) (Reptilia: Serpentes: Colubridae): Machete Couesse.

This is a new locality record. One specimen resembling this species was seen foraging on the forest floor along the ridge towards the western end of the island. It was approximately a metre in total length and of a light olive-brown shade. The specimen was not secured. Three separate partial snake skin casts were found on the southern slope of the western portion of the island. One of these was almost completely intact, with 180+ ventrals, a divided anal plate, divided subcaudals and 17 scale rows at mid-dorsum. No other species on Tobago fits this combination of characteristics.

**DISCUSSION**

The satellite islands of Tobago, like those of Trinidad, provide an exciting opportunity to examine biogeographical processes in a natural ecological and evolutionary laboratory. Temple (1996), utilizing the Five-Islands satellite group off Trinidad's northwestern peninsula, predicted that based on the biodiversity, island size and habitat diversity of these comparatively tiny islands, the nearby larger and more habitat diverse Bocas Islands would probably yield more unrecorded species of reptiles with continued sampling. His predictions were correct and confirmed by the combined observations of several workers (Lall and Hayes 2000; Hayes and Eitniear 2002; Charles 2007; Charles and Smith 2008; Charles and Smith 2009). Added to these, our findings present an interesting starting point for comparative studies of the island biogeography of the herpetofauna on the satellite islands of Trinidad and Tobago.

Lizards appear to be the dominant non-avian vertebrate fauna on the satellite islands of both Trinidad (Lall and Hayes 2000) and Tobago. The relatively high abundance of lizards on these islands and fair degree of simplicity involved in sampling lizard assemblages make them ideal candidates for making biogeographical comparisons among these satellites and between the satellites and the larger main islands. If one excludes all lizards that are suspected of having been introduced to Trinidad and Tobago and their satellites via anthropogenic actions (i.e. *Hemidactylus mabouia* and all *Anolis* spp. save *A. chrysolepis*), then one might begin to make some interesting comparisons. The four largest satellites of Trini-

dad (Monos, Chacachacare, Gaspar Grande and Huevos) as a group play host to a recorded seventeen native species (two, *H. palaichthus* and *Gymnophthalmus speciosus*, not confirmed on Trinidad proper) while Trinidad is home to eighteen confirmed native species. By contrast, the three largest satellites of Tobago (Little Tobago, St. Giles and Goat) host a recorded nine native lizard species (with only one, *H. palaichthus*, not being recorded from Tobago proper) while Tobago is known to host twelve confirmed native species.

Excluding the species which do not occur on the 'mainland' islands, Trinidad's satellites host 83.33% of its lizards, while Tobago's satellites host 66.67% of its lizard species. In both cases, given the relatively small total areas of the satellite islands versus the main islands, these are fairly large percentages of the main island lizard faunas. The basic concepts of the theory of island biogeography suggest that the larger the island, the closer it is to a source of colonization and the more varied its habitat structure, the greater the number of species that may be accommodated (MacArthur and Wilson 1967). Most of the species of herpetofauna on the satellites off Trinidad's northwestern peninsula are considered relicts of populations present on the larger continental land-bridge area that existed before the satellites were last formed after the last glacial maximum (Boos 1984a). The same may be assumed for the herpetofauna of Tobago's satellites and so, distance from the colonization source probably played less of an important role in determining their non-volant terrestrial faunal composition in the relatively short time since the isolation of the satellites from the main islands. As such, given the greater total area and greater average maximal altitude (= greater habitat complexity) of the four largest satellites of Trinidad (1041 ha and 210.9 m respectively) versus that of the three largest satellites of Tobago (134 ha and 99.45 m respectively), it is not surprising that a smaller percentage of Tobago's lizards are found on its satellite islands than is the case for Trinidad.

To even the playing field, a comparison of islands similar in size and elevation should be made. Gaspar Grande and Little Tobago are fairly similar in vegetation, microclimate, size (134 ha and 100 ha respectively) and elevation (103.7 m and 137.7 m respectively). Each of these islands has been fairly well surveyed and Gaspar Grande's native lizard fauna (exclusive of human introduced species) totals nine species whilst that of Little Tobago totals eight species; fairly similar species richness figures. With this particular example in mind, taken in this limited context of continental islands that were subject to alternating periods of isolation and reconnection through land-bridges as sea levels fluctuated over geo-

logical history (Murphy 1997), we may surmise that the island size and habitat complexity may play a larger role in determining species richness in relict species assemblages on satellite islands than does the number of species present before isolation from the source land masses (satellite islands playing host to somewhat depauperate relict faunas of the larger land masses, with localized extinctions and perhaps a few over-sea colonizations occurring over time).

Determining the species that reached the islands via over-sea dispersal may be a matter of conjecture, but the general distribution patterns of a few species do present some interesting clues. In particular, the somewhat disjunct populations of the lizard *Cnemidophorus lemniscatus* throughout Trinidad and Tobago are of interest. Boos (1984a) suggested that *C. lemniscatus* might be a recent over-water immigrant to Trinidad and Tobago, noting its disjunct distribution pattern, with populations occurring where prevailing sea currents abut the land (including two of Trinidad's satellites: Chacachacare and Huevos) and with notable absence from suitable habitat that lie outside of the path of these currents. A similar phenomenon seems to apply on Tobago, where populations exist in coastal areas of the southwestern end of the island and are absent from suitable habitat on the northeastern end of the island with the exception of the satellite islands of Little Tobago and Goat Island.

This discussion only briefly touches on aspects of the biogeography of the satellite islands of Tobago (and by extension Trinidad), and it is hoped that it will generate interest in continued ecological exploration of these islands. Our very brief surveys resulted in nine new locality records for reptiles on satellite islands off northeastern Tobago. It is quite probable that with greater future sampling efforts, more species may be added to the list of reptiles (and possibly amphibians) on the islands treated, as well as on a number of the other satellite islands of Tobago. We call on the policy makers of the Department of Natural Resources and the Environment of the T.H. A. to continue to encourage and facilitate surveys of the biodiversity of Tobago, and particularly, its satellite islands. These islands should be carefully managed to protect their tropical dry forest ecosystems of conservation significance (Oatham and Boodram 2006) and the small and somewhat isolated populations of species they harbour; populations which themselves may prove to harbour unique genetic traits not present, or rare, in mainland populations. In addition to their value as subjects of academic inquiry, if managed, utilizing sustainable approaches to conservation, these satellite islands can yield even greater economic value than they do at present as destinations for ecotourism.

## ACKNOWLEDGEMENTS

We thank the Department of Natural Resources and the Environment of the Tobago House of Assembly for granting permission to conduct wildlife research on Tobago's offshore islands. We are also grateful to Mr. D. Eastman for providing transportation and to our respective families for their great moral and logistical support. Thanks also to H.E.A. Boos for providing literature and for the anonymous reviewers and Dr. G.A. Middendorf for useful comments on the manuscript.

## REFERENCES

- Beard, J. S.** 1944. The natural vegetation of the island of Tobago, British West Indies. *Ecological Monographs*, 14: 135-163.
- Boos, H. E. A.** 1984a. A consideration of the terrestrial reptile fauna on some offshore islands north-west of Trinidad. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 1983-1984: 19-26.
- Boos, H. E. A.** 1984b. Reptiles of Soldado Rock. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 1983-84: 12.
- Boos, H. E. A.** 1990. Additions to the terrestrial fauna of the offshore islands north-west of Trinidad. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 1989-1990: 9.
- Boos, H. E. A. and Quesnel, V. C.** 1994. Additional notes on the fauna recorded for the offshore islands north-west of Trinidad. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 1993-1994: 6-7.
- Charles, S. P.** 2007. A first record of the gecko *Gonatodes ceciliae* for the island of Gaspar Grande, Trinidad and Tobago. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2007: 88.
- Charles, S. P. and Smith, S.** 2008. Observations of reptiles on Huevos Island, Trinidad, with five lizard species newly recorded for the island. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2008: 28-32.
- Charles, S. P. and Smith, S.** 2009. A new locality record for the coral snake *Micrurus circinalis* (Reptilia: Serpentes: Elapidae) on Monos Island, Trinidad and Tobago. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2009: 41.
- Dinsmore, J. J.** 1970a. Reptiles of Little Tobago Island, West Indies. *Quarterly Journal of the Florida Academy of Sciences*, 32 (1969): 307-309.
- Dinsmore, J. J.** 1970b. History and natural history of *Paradisaea apoda* on Little Tobago Island. *Caribbean Journal of Science*, 10: 93-104.
- Dixon, J. R.** 1973. A systematic review of the teiid lizards, genus *Bachia*, with remarks on *Heterodactylus* and *Anotosaura*. University of Kansas Museum of Natural History Miscellaneous Publication (57): 1-47.
- French, R.** 1990. The birds and other vertebrates of Soldado Rock, Trinidad. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 1989-90: 16-20.
- Hayes, F. E. and Eitniear, J. C.** 2002. First record of the spectacled caiman *Caiman c. crocodilus* for Chacachacare, Bocas Islands, Trinidad and Tobago. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 2000: 57-58.
- Lall, S. A. and Hayes, F.** 2000. Observations on the reptiles and mammals of Chacachacare, Bocas Islands, with notes on five species new to the island. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 1999-2000: 46-48.
- MacArthur, R. H. and Wilson, E. O.** 1967. The Theory of Island Biogeography. Princeton, New Jersey: Princeton University Press. 203 p.
- Murphy, J. C.** 1997. Amphibians and Reptiles of Trinidad and Tobago. Florida: Krieger. 245 p.
- Oatham, M. P. and Boodram, N.** 2006. The dry forest vegetation communities of Little Tobago Island, West Indies: floristic affinities. *Tropical Ecology*, 47: 211-228.
- Peters, J. A. and Orejas-Miranda, B.** 1970. Catalogue of the Neotropical Squamata. Part I. Snakes. *Bulletin of the United States National Museum*, 297: 1-347.
- Tuck, R. G.** 1972. New record: *Hemidactylus palaichthus*. *Herpetological Review*, 4(3): 93.
- Temple, S. A.** 1996. Distributional ecology of selected plants and animals on Trinidad's Five-Islands Archipelago. *Living World, Journal of The Trinidad and Tobago Field Naturalists' Club*, 1995-1996: 22-26.
- Underwood, G.** 1962. Reptiles of the Eastern Caribbean. *Caribbean Affairs (New Series)*, No. 1, Dept. of Extra-Mural Studies, University of the West Indies, Trinidad. 192 p.