

|   |                                  |
|---|----------------------------------|
| little hermit, Longuemare's<br>hermit – | <i>Phaethornis longuemareus</i>  |
| brown violet-ear –                      | <i>Colibri delphinae</i>         |
| long-billed starthroat,<br>starthroat – | <i>Helio master longirostris</i> |

## ASPECTS OF THE ECOLOGY OF THE LIZARD

### *TUPINAMBIS NIGROPUNCTATUS*

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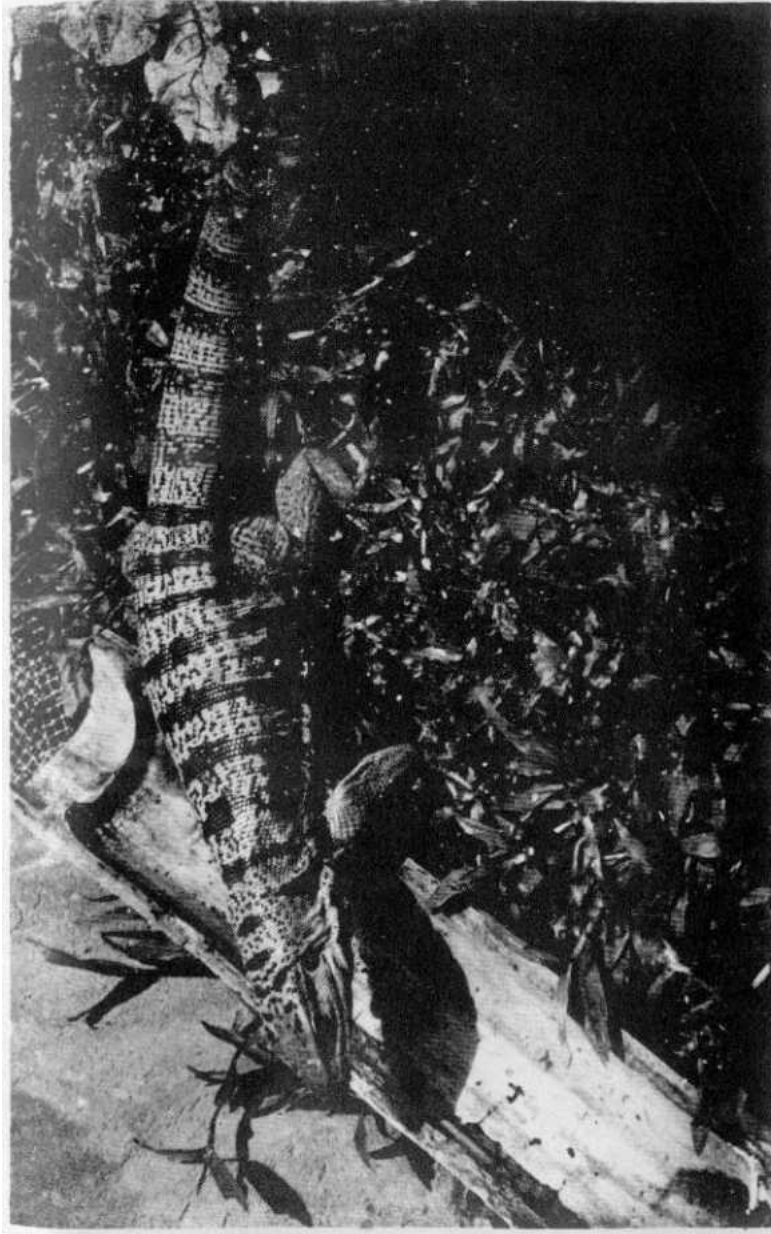
#### INTRODUCTION

The large diurnal terrestrial lizard *Tupinambis nigropunctatus* Spix. (*nigropunctatus* = black-spotted) belonging to the family teiidae is well enough known in Trinidad to be given two local names "Matte or Tegu". This animal is found on both Trinidad and Tobago (commonly known as "Salempenta" on Tobago) and ranges through northern South America mainly east of the Andes. Underwood (1962) gives the snout to vent measurement as 30 cm, and tail 60 cm; he describes the lizard as yellowish-brown in general colouration with black bands of irregular outline across the neck, trunk and tail. There is a black line behind the eye, and the limbs have dark irregular speckling. Da Cunha (1961) gives a more detailed anatomical description of *Tupinambis nigropunctatus*.

*Tupinambis* are relatively easy to catch alive and have been kept at the Trinidad Regional Virus Laboratory (TRVL) for several months. During the course of ecological studies on the mongoose, *Herpestes auro-punctatus*, at the abandoned Waller Field air base, *Tupinambis* were noted frequently. Most of our field observations and trappings of these lizards were undertaken in this area. In addition, we have trapped *Tupinambis* at Chaguaramas, Aripo/Cumuto, Turure Forest (Guaico Valencia Forest Reserve), and Bush Bush Forest (Nariva Swamp) in northern Trinidad within the past 6 years.

#### MATERIALS AND METHODS

Within the period 20 October 1970 to 14 April 1972, trapping was conducted in different localities at the Waller Field base. Part of the trapping included a grid of 72 traps (8 rows of 9 traps per row) which



*Tupinambis nigropunctatus*

was set on the northern side of the main runway and covered approximately 257 acres of woodland, secondary forest and derived savannah vegetation. The system of parallel roads at the old airbase was used to advantage in servicing the numbered traps which were plotted on a 1:2,500 airphotograph; the distances between the traps were measured on the photographic scale. Wooden box traps were baited with chicken heads at the beginning of each week, and rebaited at mid-week except when a mongoose or Matte was caught, in which event the bait was usually eaten and was then replaced immediately. Trapping was undertaken on Mondays through Fridays. Each newly caught lizard was given a toe clipping for future recognition and, after examination, was released at the site of capture. Using the Schumacher-Eschmeyer method of population summation (Davis, 1963 and Seber, 1973) we could estimate the number of *Tupinambis* in the area sampled. Recaptured animals provided some information on the movements of these lizards.

#### OBSERVATIONS AND RESULTS

*Tupinambis* can be caught in any suitably sized mammal trap (Havahart or National Live Trap) baited with meat, chicken heads or offal. We have also caught them in wooden box traps normally used to catch mongooses. Care should be exercised in handling *Tupinambis* as they are both agile and powerful and can inflict a nasty bite. They should be coaxied into a stout canvas bag from the trap and then released directly into a cage or handled as follows: with both hands, the animal is held horizontally away from the body at the neck and base of the tail, so that the claws and tail cannot touch the handler. It is prudent to use thick elbow-length leather gloves for this procedure.

The Matte is easy to keep in captivity if it is provided with a suitably large cage (45 x 60 x 90 cm), and fed on a variety of uncooked meats. We have maintained these animals on a mixed diet of surplus laboratory white mice, chicken heads, and meat 'sawdust' containing discarded scraps. Fresh clean water should be provided in a shallow bowl that is not easily knocked over.

At Waller Field, *Tupinambis* shares its habitat with 3 or possibly 4 other teiids. The "Zandolie", *Ameiva ameiva tobagana* Cope, is often seen running across the old roads into the bushes, and *Cnemidophorus lemniscatus lemniscatus* (Linn.) makes its burrows in the clumps of grass that have grown in the seams of the asphalt roads and concrete runways. *Gymnophthalmus underwoodi* Grant and almost certainly *Bachia alleni trinitatis* (Barbour) are found in the leaf litter and loose earth of this area. Our observations indicate that the Tegu inhabits the derived savannah areas of the airbase with its greensward of grasses,

sedges and *Heliconia parviflora*, and the emergent guava and *Byrsonima* trees (Richardson, 1962). In addition, *Tupinambis* have been seen, heard and trapped, particularly along the forest margins in the localities mentioned.

Fifty-six *Tupinambis* were trapped on the Waller Field base between 1970 and 1972. During the 23 weeks between 20 October 1970 and 26 March 1971, 40 *Tupinambis* were trapped, marked and released, at the grid site; 10 were subsequently recaptured on 1 to 3 occasions giving a total of 15 recaptures. The time interval between 1 recapture and the next varied between 1 and 87 days (mean 27.2), while the distance travelled between successive recaptures ranged between 0 and 1,246 meters (mean 404 meters). It was estimated that  $79.9 \text{ SE} \pm 36.4$  (range 116.3 to 43.5) *Tupinambis nigropunctatus* were contained within the 257 acre grid sampling area. Estimating further, there would be approximately 1 lizard per 3.2 acres (range 1 lizard to 2.2 acres: 1 lizard to 5.9 acres).

Little is known of the mating behaviour of *Tupinambis*, but it is probably similar to that of *Ameiva*. Matings have been observed in Guiana in April, May, June and August (Beebe, 1945). Their nesting habits are known and climbing ability is also recorded by Beebe. The female burrows into a termite's nest located in a tree and lays as many as 12 eggs. The termites repair and seal up the hole enclosing the eggs completely. After hatching the young lizards eat termites within the nest and thus survive, until they can burrow out using their claws and a powerful digging motion of the head. Their escape is often facilitated by heavy rain which softens and cracks the termite's nest. A folklore tale in Trinidad maintains that the young only hatch "when thunder rolls". It is easy to see how such a story originated with a hunter observing the emergence of a young Tegu from a termite's nest in the middle of a crashing thunder storm — thus are legends born.

If these animals are disturbed or their attention aroused, one of the initial responses is protrusion of the long forked tongue which acts as an extremely sensitive sensory organ used in detecting external stimuli. Inflating the body with air accompanied by a stiff-legged stance and a "huffing" or hissing of air through the glottis is a common defence tactic. If this fails, *Tupinambis* will resort to swift flight running low through the under-scrub to its burrow; if it is near to water it will take to this readily instead. In an emergency, the tail can be dropped to distract a predator.

Although recognised as a carnivore, *Tupinambis* is probably omnivorous and will certainly feed on carrion and most animals that it

can catch and overpower. The lizards co-habiting with *Tupinambis* at Waller Field possibly form part of its food. Ground-nesting birds, their young and eggs, are probably included in the diet and they have been known to catch domestic chicks. Snakes and turtle eggs are also taken; tracks on Matura beach near the nesting sites of the leathery turtle *Dermochelys coriacea* (Linn.) could have been made by *Tupinambis*. We have not observed the Tegu to take plant material. Other than mongooses and *Didelphis* opossums (Manicou), we have not trapped any small mammals on the derived savannah areas of the Waller Field base. However, in the adjacent areas of secondary forest small rodents and marsupials are usually present, but mongooses are absent

#### DISCUSSION

Urich (1931) lists some of the changes in the fauna of Trinidad due to the introduction of the mongoose and the opening of new estates; the period reviewed is between 1890 and 1923, during which time he visited most parts of the island. Whether directly attributable to the mongoose or not, Urich reported that *Tupinambis* seemed to be extinct or very rare. Fortunately, this situation has now changed so that these lizards are relatively common at the present time.

Greenhall (1959) believes that in Trinidad where the Tegu is found in any numbers, mongooses will not be present; he thinks that this lizard is quite capable of keeping the mongoose population in check, especially young mongooses. Our data, which show that both mongooses and *Tupinambis* co-exist on the Waller Field base, do not support the first contention. That adult lizards can overpower immature mongooses is almost certainly true provided the mother is absent; the converse would also be probably true.

While in Kartabo, British Guiana, and Caripito, Venezuela, Beebe (1945) examined the stomach contents of 12 *Tupinambis* and found vegetable matter in 6 of them. Da Cunha (1961) mentions that they will feed on insects, worms, frogs and toads, small snakes, and small mammals like rats. He also believes that at times they may take plant material as a supplement to the normal diet. The fact that these lizards get caught in traps baited with chicken heads would indicate that smell may play an important part in food detection in addition to sight. Besides mongooses which have already been suggested, other predators of *Tupinambis* probably include hawks, snakes and *Tayra barbara*. The three predators, mongooses, *Didelphis* and *Tupinambis*, together are responsible for the removal of small mammals in the Waller Field area, though probably most of this can be attributed to the mongoose and the latter has almost certainly prevented re-invasion.

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