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ECOLOGICAL OBSERVATIONS ON A LITTLE KNOWN SOUTH AMERICAN ANOLE: *TROPIDODACTYLUS ONCA*

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ABSTRACT. The little known anole *Tropidodactylus onca* on the island of Margarita is typically restricted to belts of low xerophytic vegetation adjacent to the open sandy area of natural beaches. Most animals are found on the ground or in low bushes and occur up to a height of 30.0 cm. They are poor climbers and will occasionally escape into holes made by ghost crabs.

INTRODUCTION

A brief visit (from July 8 to July 21, 1968) to the Fundacion La Salle on Margarita Island, Venezuela, afforded me an opportunity to collect and observe a little known anole, *Tropidodactylus onca*. Margarita is a continental island approximately twenty-one miles off the district of Sucre on the northern coast of Venezuela. It is approximately two hundred air miles northeast of Caracas.

Tropidodactylus onca is a specialized derivative of *Anolis* but with keeled scales underneath the digits instead of the expanded digital pads with adhesive lamellae so characteristic of the latter primarily arboreal genus. The difference in morphology should be reflected in ecology, but there have been no detailed reports on the habits, habitat, or even color in life of *T. onca*. This paper attempts to remedy this gap in information.

Description and color in life. *Tropidodactylus onca* is a relatively large anole. The largest of the specimens collected is 75 mm snout-vent length. The tail is round with no dorsal crest and is approximately equal to the snout-vent length of the animal.

The most distinctive specialization of the anoles in general, the dewlap, is extremely well developed in this genus. It has a bright yellow ground color in which individual red scales are embedded.

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The dorsal color of the lizard varies from a very light ashy-gray to a dark gray-brown with a disruptive pattern of black and white longitudinal markings. These vary from barely visible to very prominent. The ventral surface of the lizard is white. The species is not sexually dichromatic and is very difficult to sex externally. The cryptic coloration of the species is perfect. In the field the animals are indistinguishable from their surroundings. In fact, an animal can usually be located only when the collector inadvertently frightens it into movement.

Habits and habitat. *Tropidodactylus onca* is a beach anole. Its distribution is typically restricted to the belt of low xerophytic vegetation adjacent to the open sandy area of a natural beach. The exact width of this belt and its continuity varies according to the geological and ecological factors of the particular locality. The animal was never observed in the open sandy areas devoid of vegetation, and penetrates only slightly into the more landward areas where the vegetation is higher than 0.75 to 1.00 m.

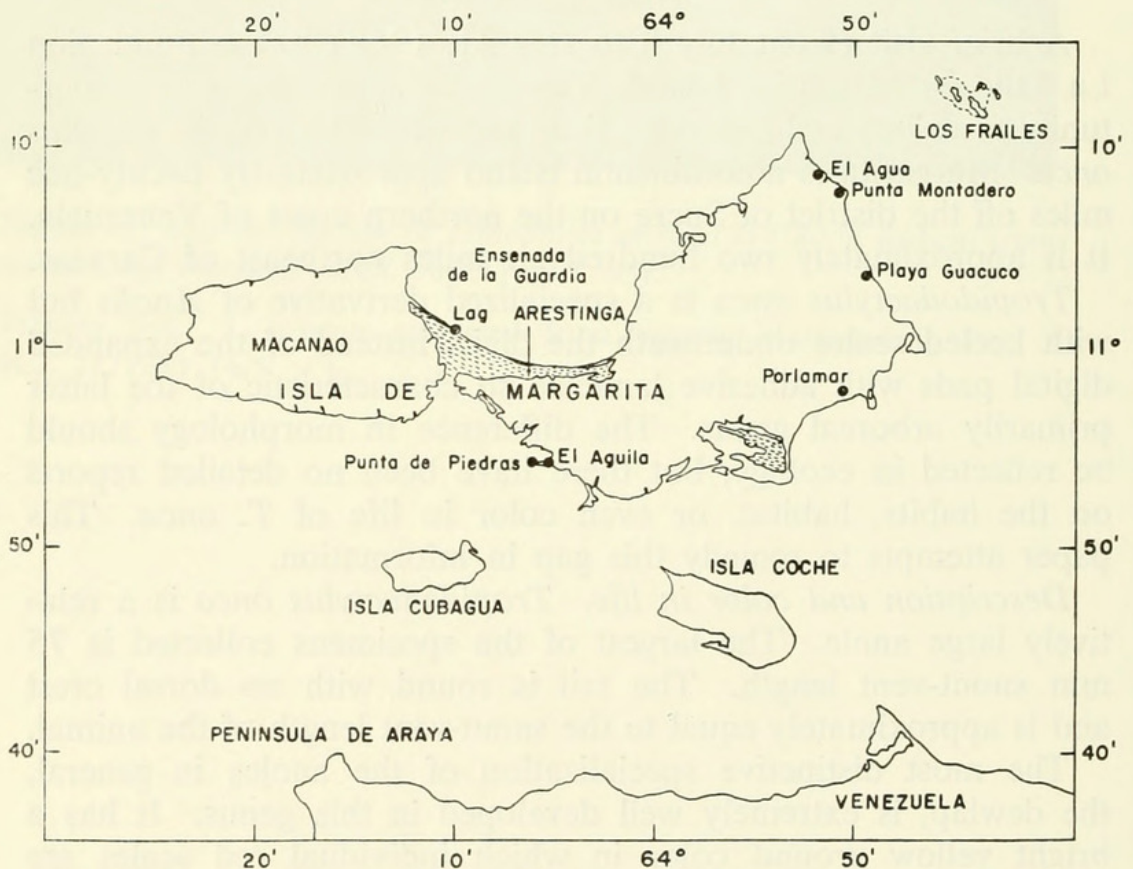


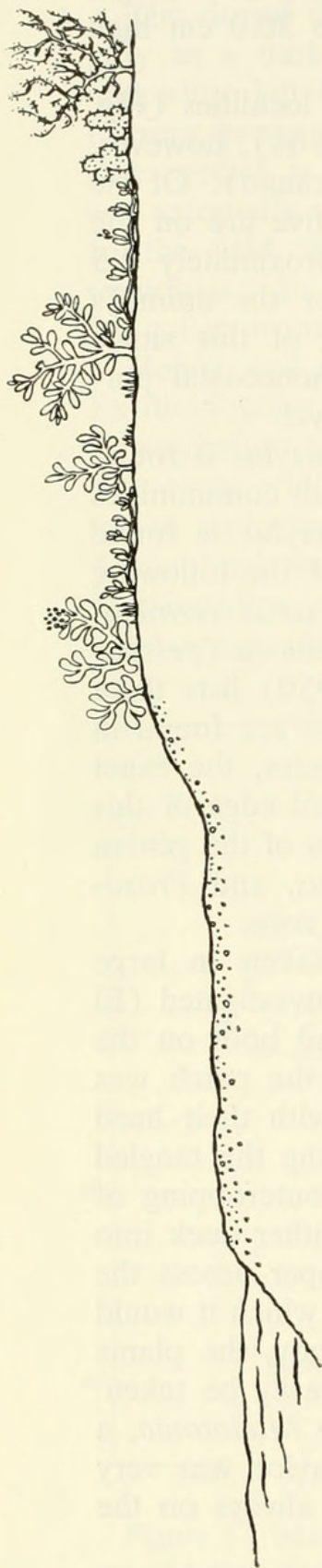
Figure 1. Margarita Island. Localities at which *Tropidodactylus onca* was observed or collected are shown as solid circles.

All the specimens, with the exception of one taken at a height of 1.25 m, were collected on the ground or up to 30.0 cm high on low bushes, vines, etc.

Observation and collecting was restricted to six localities (Fig. 1), all on the eastern half of the island. Roze (1964), however, has reported the lizard from the western half (Macanao). Of the six localities in which the species was observed, five are on the coast. The exception, El Aguila, is a town approximately 2.5 km from Punta de Piedras. Possible reasons for the animal's appearance here will be discussed later. Outside of this single exception, no specimens were ever observed in noncoastal portions of the island and all were collected at sea level.

The vegetation of the zone in which *Tropidodactylus* is found consists of only low ground growth. The sand-shrub communities of the five coastal localities in which *Tropidodactylus* is found each contain at least two and as many as four of the following species of plant: *Sesuvium portulacastrum*, *Philoxerus vermicularis*, *Batis maritima*, *Sporobolus* (*virginicus*?), *Ipomoea* (*pescaprae*?), and *Mallotonia gnaphalodes*. Howard (1950) lists these six species as pan-Caribbean in distribution. These are found in association with less abundant and restricted species, the exact taxa varying from locality to locality. The landward edge of this coastal community typically contains representatives of the genera *Opuntia*, *Melocactus*, *Lemairocereus*, *Philoxocereus*, and *Prosophis*. *Tropidodactylus* penetrates slightly into this zone.

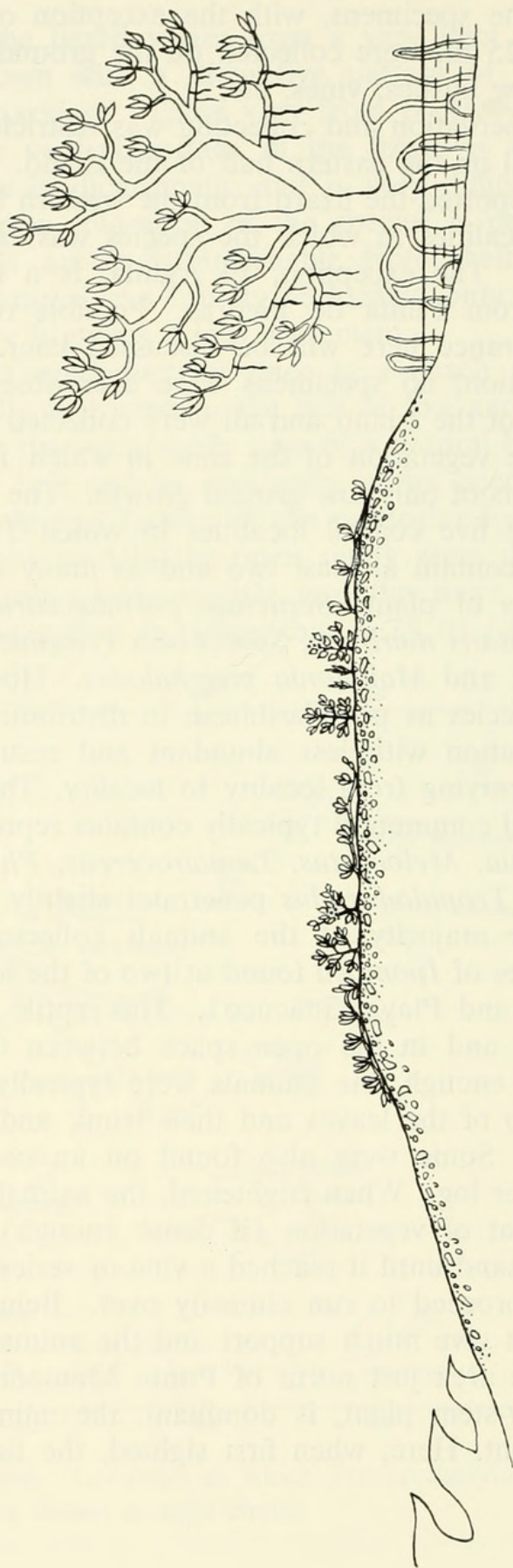
The majority of the animals collected were taken in large patches of *Ipomoea* found at two of the localities investigated (El Agua and Playa Guacuco). The reptile was found both on the plants and in the open space between them. If the patch was dense enough, the animals were typically found with their head on top of the leaves and their trunk and tail among the tangled vines. Some were also found on an occasional outcropping of rock or log. When frightened, the animal would either duck into the mat of vegetation (if dense enough) or scamper across the open sand until it reached a vine or series of vines which it would then proceed to run clumsily over. Being nonwoody, the plants do not give much support and the animal could easily be taken. In the area just north of Punta Montadero where *Mallotonia*, a woody-stem plant, is dominant, the animal's behavior was very different. Here, when first sighted, the lizard was always on the



xerophytic beach vegetation
Tropidodactylus

sand

water



mangroves

xerophytic belt, and broken
shells and sand

broken shells
and sand

water
(surf)

Figure 2. Two characteristic habitats for *Tropidodactylus onca*.

ground. When pursued, the majority of animals observed would merely run among the ground cover. A few specimens, however, were observed to climb the *Mallotonia*, some to a height of 30.0 cm. Their climbing was clumsy and ineffective. The toe structure of this genus is not well adapted for tree climbing. Unlike most anoles, *T. onca* is not arboreal.

Another means of retreat should also be pointed out. At times, a specimen, being pursued, would run into a large hole in the sand opening into a tunnel. Ruthven (1922) also reports this species as escaping into holes. It should be noted, however, that these holes are resting places made by ghost crabs (*Ocypode*) and are not dug by *Tropidodactylus*. It should also be noted that this was a rather infrequent means of escape, used by the lizard only when almost completely exhausted.

At each of the six localities, *T. onca* is found sympatric with *Cnemidophorus lemniscatus lemniscatus*. In those localities (El Agua and Punta los Cocos) where the landward border of the coastal area is occupied by a semi-desertic community, the territory of *Tropidodactylus* partially overlaps that of *Tropidurus torquatus hispidus*. The *Tropidodactylus* penetrate this zone for only a very small distance. In some areas, two other organisms also found sympatric with *Tropidodactylus* are the gecko *Gonatodes vitatus vitatus* and the microteiid *Gymnophthalmus laevicauda*.

Roze (1964) has the following note concerning the diet of *Tropidodactylus*: "The stomach contents examined in various specimens of this species revealed the remains of grasshoppers (Grillidae), Coleoptera, spiders, and various species of Diptera, as well as the remains of other unidentifiable arthropods." *Tropidodactylus* then, like most anoles, is insectivorous. Similarly, like most anoles, the animal is diurnal in its activity. All but one of the twenty-five specimens were captured during the day. The single exception was collected alongside the road near the town El Aguila approximately 2.5 km from Punta de Piedras. It was on a branch of a low bush, *Jatropha gossypifolia*, in the cleared margin alongside the road. The animal was in typical anole sleeping posture, snout toward the main stem, but with its eyes open. Just prior to being seized, the animal moved its head but did not attempt to flee. This single exception to the otherwise complete coastal distribution of the animals on the island most probably migrated to this inland area along the corridor of low vegetation bordering either side of the roadway. This habitat is ecologically similar to that of the coastal zone.

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