

First record of the Grass Anole *Anolis auratus* in Trinidad, West Indies

The diversification of the lizard genus *Anolis* on Caribbean islands stands as one of the most extensively studied instances of adaptive radiation in evolutionary biology (Losos and Thorpe 2004). Within anole assemblages, species distinctly specialize in occupying various niches (Losos and Thorpe 2004) and *Anolis* are the most speciose genus among reptiles (Poe 2004), boasting over 400 described species and counting (Losos and Thorpe 2004; GBIF 2023). On the islands of Trinidad and Tobago, there exist at least nine *Anolis* species, among which *Anolis planiceps* and *Anolis tigrinus* are indigenous; the remaining seven species have been introduced; *A. aeneus*, *A. extremus*, *A. richardii*, *A. sageri*, *A. trinitatis*, *A. watsi* (Murphy *et al.* 2018), *A. cristatellus* (Auguste *et al.* 2018).

Here we present the first documented instance of *Anolis auratus*, the Grass Anole, on southwest Trinidad, Trinidad & Tobago.

Anolis auratus has a wide distribution ranging from Costa Rica in Central America, through northern South America, including Colombia, Venezuela, northern Brazil and the Guianas (Alvila-Pires 1995; Calderón-Espinosa and Barragán-Contreras 2014; Köhler 2008; Moreno-Arias *et al.* 2021; Rivas *et al.* 2012) and now on the island of Trinidad. *Anolis auratus* is predominantly terrestrial and diurnal (Cunha 1981, Vitt and Carvalho 1995, Mesquita *et al.* 2006).

In the Amazonian regions of Brazil, it occupies spaces with open vegetation alongside the Amazon River, as well as natural and perianthropoc pockets of open vegetation in Amapá and Roraima states. In these areas, it frequents the ground, grasses, low vegetation, shrubs, and small trees (Cunha 1981, Vitt and Carvalho 1995, Mesquita *et al.* 2006). In Colombia, its extensive presence across diverse life zones implies an adaptive range across varied environments and microhabitats in different geographic regions. Notably, it seems to favour open spaces, showing a preference for grasslands over denser brushy areas (Calderón-Espinosa and Barragán-Contreras 2014).

According to Fleishman (1988), *A. auratus* shows heightened activity between 0900h and 1200h during the wet season, a pattern observed in Panamanian Grass Anoles. These anoles prefer transient grass habitats, vulnerable to frequent disturbances from human activities or natural processes; if left undisturbed, their habitat can transform into secondary forest within months, rendering it unsuitable for the grass anoles (Fleishman, 1988). Consequently, *A. auratus* exhibits adaptability by relocating to nearby territories, typically waiting for their previous habitat to regrow before returning (Fleishman, 1988).

A. auratus is recognizable by the pale grey-brown

coloration of the upper body, highlighted by a prominent white stripe that extends from below the eye to the middle of the body and curves over the ear. The tibia has a dark area with lighter edges, blackish patches on either side near the hind limb, and white lower parts. The gular appendage is bluish-black with white scales. (Boulenger 1896).

On August 17, 2023, at 1330h, an anole fitting this description was observed in an outstretched posture on a palm leaf stem of an Areca palm *Dypsis lutescens* in a backyard garden near Point Fortin, Trinidad (Figs. 1-3) (UTM 642070.83E, 1123310.20N) (iNaturalist observation 178888870). The photographs were positively identified as *Anolis auratus* by Martha L. Calderón-Espinosa a



Fig.1. *Anolis auratus* resting on a palm leaf stem. Photo by Shaquille E. George.



Fig. 2. *Anolis auratus* stretched out on a leaf of a palm tree. Photo by Shaquille E. George.



Fig. 3. Dorsal view of *Anolis auratus* stretched out on a leaf of a palm tree. Photo by Shaquille E. George.

herpetologist at the National University of Colombia.

After being photographed, an attempt was made to capture the anole for further measurement and recording. However the anole escaped into the palm leaves. Despite intensively searching for an hour after the initial observation, and subsequent searches over the next two days and nights within a 3 m radius of the initial site, no other anole was observed.

The habitat of the site was characterized by young fruiting trees. At the time of the observation the area resembled a slightly open semi-grassland with knee-high grasses in need of trimming. Following the disturbance caused by grass cutting, one anole was spotted on a palm tree which was surrounded by several other plants including guava *Psidium guajava*, an extended lobsterclaw heliconia patch *Heliconia latispatha*, and a small mango tree *Mangifera indica*.

Notably, this was the first time an *Anolis* of any species in the immediate area was observed by the author. Previously, other lizards (Squamata) such as *Gonatodes vittatus*, *Thecadactylus rapicauda*, *Ameiva atrigularis*, *Iguana iguana*, *Tupinambis cryptus* and members of the subfamily Mabuyinae (skinks) had been observed on the site. This does not represent an exhaustive list of lizards present in the area but rather is a note of the author's specific observations. Also previously observed on site is *Oxybelis rutherfordi* (Rutherford's vine snake) which is a potential predator of *A. auratus* as they are known to feed on lizards and are a principal predator of *A. auratus* (Fleishman, 1988; Murphy et al. 2018).

This observation is the first record of this species on Trinidad. Whether it is a very rare native species that has gone unnoticed or a recent introduction is yet to be determined. There are now at least ten extant species of *Anolis* on the island of Trinidad and Tobago.

I would like to thank Dr Martha L. Calderón-Espinosa for positively identifying this anole.

REFERENCE

Avila-Pires, T.C.S. 1995. Lizards of Brazilian Amazonia (Reptilia: Squamata). *Zoologische Verhandelingen* 299: 1-706.

Auguste, R. J., Dass, K. and Baldeo, D. 2018. Discovery of the Puerto Rican crested anole, *Anolis cristatellus* Duméril & bibron, on Trinidad. *Caribbean Herpetology*, 63:1-2.

Boulenger, G.A. 1896. Descriptions of new reptiles and batrachians from Colombia. *The Annals and Magazine of Natural History including Zoology, Botany, and Geology*, 17: 16-21.

Calderón-Espinosa, M.L. and Contreras, L.A.B. 2014. Geographic body size and shape variation in a mainland *Anolis* (Squamata: Dactyloidae) from Northwestern South America (Colombia). *Acta Biológica Colombiana*, 19: 167.

Fleishman, L.J. 1988. The social behavior of *Anolis auratus*, a grass anole from Panama. *Journal of Herpetology*, 22: 13.

GBIF 2023. GBIF Secretariat: GBIF Backbone Taxonomy. [Online] Available at <https://doi.org/10.15468/39omei> Accessed via <https://www.gbif.org/species/9129157> (Accessed 24 October 2023).

Köhler, G. 2008. Reptiles of Central America. 2nd Ed. Herpeton-Verlag, 400 p.

Losos, J. B. and Thorpe, R.S. 2004 Evolutionary diversification of Caribbean *Anolis* lizards. *Adaptive Speciation*, 2004: 322–344.

Moreno Arias, R.Á., Velasco, J.A., Urbina Cardona, J.N., Cárdenas-Arévalo, G., Medina Rangel, G.F., Gutiérrez Cárdenas, P.D.A., Olaya-Rodríguez, M.H. and Cruz-Rodríguez, C. 2021. Atlas de la biodiversidad de Colombia. *Anolis*. Instituto de Investigación de Recursos Biológicos Alexander von Humboldt. Bogotá D. C., Colombia. 72 p.

Murphy J.C., Downie, J.R., Smith, J.M., Livingstone, S.R., Mohammed, R.S., Lehtinen, R.M., Eyre, M., Sewlal, J., Noriega, N., Casper, G.S., Anton, T., Rutherford, M.G., Braswell, A.L. and Jowers, M.J. 2018. A Field Guide to the Amphibians & Reptiles of Trinidad and Tobago. Trinidad and Tobago Field Naturalists Club, Port of Spain, Trinidad and Tobago.

Poe S. 2005. A study of the utility of convergent characters for phylogeny reconstruction: Do ecomorphological characters track evolutionary history in *Anolis* lizards? *Zoology*, 108: 337-343.

Rivas, Gilson A.; César R. Molina, Gabriel N. Ugueto, Tito R. Barros, César L. Bar- Rio-Amorós and Philippe J. R. Kok 2012. Reptiles of Venezuela: an updated and commented checklist. *Zootaxa*, 3211: 1–64.

Shaquille Everod George

West Indian Herping Organisation

georgewildlife@outlook.com