

Insomniacs: displays of nocturnal activity by three predominantly diurnal snake species in Trinidad, Trinidad & Tobago, W.I.

Erythrolamprus melanotus nesos, *Erythrolamprus zweifeli* and *Phrynonax sexcarinatus*, previously known as *P. polylepis*, are all described as being diurnal with *P. sexcarinatus* also being described as crepuscular (Murphy *et al.* 2018; Boos 2001). However, De Gregorio *et al.* (2014) and Abom *et al.* (2012) demonstrated that some species of snakes show plasticity in their diel activity based on factors such as temperatures and seasonality. Furthermore, Dutta *et al.* (2017) and Ghosh *et al.* (2020) reported instances of snakes, generally considered to be diurnal, showing foraging activity at night after rainfall while Mukherjee and Mohan (2022) reported nocturnal activity of seven snakes in proximity to artificial light. Here, I report similar cases of nocturnal activity in the species mentioned above.

Erythrolamprus melanotus nesos

The Trinidad Black-backed Snake (*E. m. nesos*), locally known as the “beauty of the road” (Beh Belle Chemin) or the “doctor snake” is a small (604 mm) black and yellow or black and orange snake with a large and distinctive black stripe going along the dorsal length of its body. It’s known to prey on small vertebrates including frogs (eggs and tadpoles), lizards and other snakes (Murphy *et al.* 2018; George, 2023). It has a wide distribution throughout Trinidad and Tobago and amongst the three species mentioned in this note, is the species that I have encountered the most with over 20 observations being made during the day. These include a predation attempt on a *Leptodactylus fuscus* and being predated on by a Western Cattle Egret (*Bubulcus ibis*). However, I have only ever encountered one at night. On 4 July 2019, at approximately 2243 h, a group of fellow naturalists and I encountered an *E. m. nesos* (Fig. 1.) on the edge of a dirt road in Caura Valley, (approximate location UTM 20P 680122E, 1184671N). The snake assumed a defensive coil and remained still as if attempting to avoid detection by us. The dirt road had puddles of water due to prior heavy rainfall and Tungara Frogs (*Engystomops pustulosus*) were heard calling. The frogs, which are known prey items for *E. m. nesos* (Murphy *et al.* 2018), were also observed in amplexus and building their foam nests in the puddles. It is presumed that the snake was active on the road due to the heightened activity of the Tungara Frogs following the rainfall.

Erythrolamprus zweifeli

The High Woods Snake (*E. zweifeli*) is a small (800 mm) snake that can be found in two colour morphs in Trinidad: the highly contrasting salt and pepper morph and the olive or brown morph. Both morphs have orange inter-scales and

a bright red and black venter. Its diet is similar to *E. m. nesos* with the inclusion of birds, however, species of frogs vary due to their preference of montane and heavily forested habitats (Murphy *et al.* 2018). I have encountered three individuals during the day and equally as much at night. All night observations were made within the flooded forests in the Inniss Fields, Moruga (approximate location UTM 20P 690408E 1124191N) over the course of two nights. On 14 November 2020, at approximately 2345 h, a salt and pepper morphed *E. zweifeli* was found active on the forest floor. The specimen was photographed and released. Almost exactly a year later on 11 December 2021, at approximately 2211 h, two other salt and pepper morphed specimens were found active. However, only one was photographed (Fig. 2.) as the first one observed, quickly escaped under a rotting log. Conditions were similar on both nights; lower parts of the undulating forest floor were flooded and frog activity was heightened due to the occasional rainfall in the area. All three specimens were found in the forest only less than 10 m away from a dirt road. Frogs on the road included the Tungara Frog and Amazon River Frog (*Lithobates palmipes*) and frogs in the forest were mainly *Leptodactylus validus*. Species of *Leptodactylus* are known prey items for *E. zweifeli* (Murphy *et al.* 2018) and it is suspected that their large numbers and heightened activity prompted the snakes to also become active. Given that these observations were made a year apart but around the same date suggests that *E. zweifeli* at this location frequently become active at night during the period in which the conditions are favorable.

Phrynonax sexcarinatus

The Cutlah (*P. sexcarinatus*) locally known as the Dos cocorite, is a medium sized snake (2135 mm) that is cryptically colored in light browns, greens, and grays, and patterned in brown, crescent-shaped blotches that may form irregular cross bands on the dorsum, as a juvenile and uniformly olive-green as an adult. Considered a possible bird nest specialist, it mostly forages for eggs and nestlings but will also prey on mammals and lizards (Murphy *et al.* 2018). It has a wide distribution throughout the heavily forested areas in Trinidad. I have observed three specimens active during the day. All three adapted their defensive kinking or liana behaviour. This is a behaviour that some believe is used as a form of cryptic camouflage (Abuys, 1986) and others as a form of predator signaling display (Duarte, 2012). At night I observed four specimens in a coiled resting position on plants and small trees, all more than 3 m above ground level and one that was active for more than 1 h. On 7 June, 2024 at approximately 2015 h, I

observed a *P. sexcarinatus* approximately 1600 mm in length on a fruiting Pommerac Tree (*Syzygium malaccense*) near Madamas ext. Rd. (approximate location UTM 20P 690586E 1187708N)). Initially, I thought the snake had been disturbed by falling fruit, but it was consistently on the move until 2100 h, frequently flicking its tongue, exploring bromeliads, and even displaying kinking behaviour as I got near. It made its way from the Pommerac Tree to a Cacao Tree (*Theobroma cacao*) and finally disappeared in the canopy of a Ceries Tree (*Flacourtia indica*). The only possible prey item observed were bats feeding on the Pommerac fruit, however the snake's foraging behaviour didn't suggest that it was hunting for bats but more likely searching for resting birds, their nests or eggs. The observation was made near two houses with artificial light sources but it's difficult to determine if this factor influenced the snake's activity.

This note reports that all three species may be observed active at night even though they are described as being primarily active during the day, along with evidence to suggest that *E. zweifeli* becomes seasonally nocturnal. It is



Fig. 1. *Erythrolamprus melanotus nesos* observed active at night in Trinidad, Caura Valley, 4 July 2019 at 2243 h. Photo R. N. Deo [iNaturalist observation 29108953]



Fig. 2. *Erythrolamprus zweifeli* observed active at night in Trinidad, Moruga, Inniss Fields, 11 December 2021 at 2211 h. Photo by Hukaymah T. Ali [iNaturalist observation 102938097 with permission].

important to monitor and report these seemingly abnormal activity patterns as these could be in response to increased anthropogenic activity and possibly climate change.

REFERENCES

- Abom, R., Bell, K., Hodgson, L. and Schwarzkopf, L.,** 2012. Moving Day and Night: Highly Labile Diel Activity Patterns in a Tropical Snake. *Biotropica*, 44: 554-559.
- Abuys, A.,**1986. The snakes of Surinam, part XIII: Subfamily Xenodontinae (genera *Pseudoeryx*, *Pseustes* and *Rhadinaea*). *Litt. Serp*, 6: 19-30.
- Boos, H. E. A.,** 2001. The Snakes of Trinidad and Tobago. College Station, Texas: Texas A & M University Press. 270 p.
- DeGregorio, B.A., Sperry J.H., Valente D.P., and Weatherhead P.J.,** 2014. Facultative nocturnal behaviour in snakes: experimental examination of why and how with Ratsnakes (*Elaphe obsoleta*) and Racers (*Coluber constrictor*). *Canadian Journal of Zoology*, 92: 229-237.
- Duarte, M.R.,**2012. The intriguing "Liana-mimicry" or "Body bending" behaviour in snakes: Cryptic or signalling behaviour? *Herpetology Notes*, 5: 303-304.
- Dutta, A., Chowdhury, S. and Chaudhuri, A.,** 2017. Nocturnal Foraging by Buff-striped Keelbacks, *Amphiesma stolatum* (Linnaeus 1758) (Reptilia: Squamata: Natricidae). *Reptiles & Amphibians*, 24: 175-176.
- George, S.E.,** 2023. Predation of a Three-lined Snake *Atractus trilineatus* by a Trinidad Black-backed Snake *Erythrolamprus melanotus nesos*. *Living World, Journal of the Trinidad and Tobago Field Naturalists' Club*, 2023: 172-173.
- Ghosh, A., Madgulkar, S., and Banerjee, K.,** 2020. Opportunistic Nocturnal Predation by a Diurnal Snake: An Indian Ratsnake, *Ptyas mucosa* (Linnaeus 1758), Preying on Marbled Balloon Frogs (*Uperodon systoma*). *Reptiles & Amphibians*, 27: 245-246.
- Mukherjee, S., and Mohan, R.,** 2022. Observations of nocturnal activity in diurnal Indian snakes. *Reptiles & Amphibians*, 29: 146-147.
- Murphy, J.C., Downie, J.R., Smith, J.M., Livingstone, S.M., Mohammed, R.S., Lehtinen, R.M., Eyre, M., Sewlal, J-A.N., 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 & Tobago. Trinidad & Tobago Field Naturalists' Club, Port of Spain, Trinidad. 336 p.

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