Identification of Carr's Slender Opossum *Marmosops carri* (Didelphimorphia) from Photographs of Live Specimens in Trinidad and Tobago, W.I.

Carr's Slender Opossum, *Marmosops carri* (Allen and Chapman 1897) was originally described from a specimen collected at Caparo, Trinidad on 20 March 1894. It is also known from Tobago and Venezuela. In Trinidad, records have been made in the forests of Turure, Cedros, Rio Grande, Cumaca, St. Augustine, Caura, Caparo and Chaguaramas (Díaz-Nieto and Voss 2016, Tikasingh 2013). In Tobago, records have been made in the forests near Charlotteville (Díaz-Nieto and Voss 2016). Most of these records are based on specimens collected and deposited in museums. Díaz-Nieto and Voss (2016) described the species' anatomy in detail based on these specimens. However, photographs of live specimens are scarce, and due to their close resemblance to mouse opossums (genus *Marmosa*), are likely to be overlooked and there is a high chance of misidentification.

On 06 March 2021 at 2154h, SEG observed an individual of *Marmosops carri* on top of the buttress roots of an unidentified tree in the Chaguaramas forests (Fig.1 and Fig. 2 Left) (UTM 20N 653972E 1185593N, 140 m above sea level). The opossum remained still, as if startled by his presence and/or headlight, allowing him to photograph it from multiple angles. Once the photographs were taken, SEG left the opossum in the same position. Initially, we assumed it to be a Robinson's mouse opossum *Marmosa robinsoni* (Fig. 2 Right), a species that we have observed on several occasions. However, upon closer inspection, it showed subtle differences from any *Marmosa* we had previously observed. We first noted a difference in dorsal pelage colour, eye-mask intensity and snout vs head-length (nasal length vs condylo-basal length). Using data found in Díaz-Nieto and Voss (2016) *(Marmosops carri)* and Rossi *et al*., (2010) *(Marmosa robinsoni)*, we created a table listing some of the morphological differences between *M. carri* and *M. robinsoni* that are observable in photographs (Table 1). We also included the generic differences in digital proportions of the forefeet found in Voss *et al*., (2004), as well as colour of dorsal pelage of manus found in Díaz-Nieto and Voss (2016). However, these differences are much more difficult to observe in photographs. Although we lack the surety of a genetic analysis of the specimen, we rely on the fact that, based on the identifications of twenty museum specimens from Trinidad & Tobago by Díaz-Nieto and Voss (2016), *Marmosops carri* remains the only species of its genus known from the country.

Fig. 1. *Marmosops carri* on the buttress roots of an unidentified tree in Chaguaramas [iNaturalist 70743502]

Initially, we thought that our photographs were the first photographs of a live *Marmosops carri* from Trinidad & Tobago. However, we have since then encountered a misidentification of *M. carri* in Figure 3 of Nelson and Nelson, 2008. The specimen, which was trapped during a small mammal survey in Spring Estate, Arima Valley, was photographed and identified as a *Marmosa robinsoni* but, features such as its greyish-brown dorsal pelage, lightly contrasting eye-mask and snout verses head-length, strongly suggest that it is instead *M. carri.*

Additionally, after our observation was made, on 01 August 2024 at 2104h, iNaturalist user Evan Williams observed an

Table 1. Morphological differences between *Marmosops carri* and *Marmosa robinsoni* that are potentially observable in photographs

Character	***Marmosops carri***	***Marmosa robinsoni***
Colour of dorsal pelage	Greyish-brown	Brown, reddish brown or yellowish brown
Eye-mask intensity	Almost uniformly dark brown eye-mask that extends down the snout. Low contrast with colour of the head	Black eye-mask immediately around the eyes that lightens as it extends down the snout Sharp contrast with colour of the head
Nasal length (NL) vs condylo-basal length (CBL)	Average NL of 18.1 mm compared to average CBL of 36.7 mm	Average NL of 17.2 mm compared to average CBL of 37 mm
Digital proportions of the forefeet	Digit III longer than all other digits	Digits III and IV are sub-equal
Colour of dorsal pelage of manus	All white	Light to dark brown

Fig. 2. Side by side comparison of *Marmosops carri* (**Left**) [iNaturalist 70743502] and *Marmosa robinsoni* (**Right**) Aripo Savannas Renoir J. Auguste [iNaturalist 58436405] © with permission.

Fig. 3. Photograph taken from Nelson and Nelson (2008) of a *Marmosops carri* individual from Spring Estate, Arima Valley that was misidentified as *Marmosa robinsoni* at the time.

opossum on the thin branch of a small tree in the Main Ridge Forest Reserve near the Gilpin Trail head (UTM 20N 761240E 1248450N, elevation approximately 500 m above sea level) (Fig. 4). He uploaded it to iNaturalist with an initial suggestion that it belonged to the genus *Marmosa* (Williams 2024). However, similarly to the two aforementioned individuals in this note, the first three differentiating characteristics mentioned in Table 1 could be observed in the photograph. In this instance, the individual could be seen with a brown object in or near its mouth, which could be food, nesting materials (Diego Astúa *et al*. 2015) or its forelimb.

We hope that this note can be used to improve the identification of live and in-situ individuals of *M. carri*, given

Fig. 4. Photograph of a *Marmosops carri* observed at night, Gilpin Trail, Main Ridge, Forest Reserve Tobago, 1 Aug 2024 (Williams, 2024).

their sympatry with the more commonly observed *M. robinsoni* in Trinidad and with both *M. robinsoni* and *M. murina*, in Tobago (Rossi *et al*. 2010, Voss *et al*. 2014).

We also hope that this note encourages and promotes more ethical forms of data collection, such as the use of in-situ

photography and citizen science apps such as iNaturalist by researchers and citizen scientists alike, since research on small mammals usually involves trapping and sometimes euthanasia (Allen and Chapman 1897, Nelson and Nelson 2008).

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