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# PHELSUMA LATICAUDA (Gold Dust Day Gecko) and PHELSUMA BORBONICA (Reunion Day Gecko). DISPERSAL BY MOTOR VEHICLE

Article in *Herpetological Review* · June 2022

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snail shells likely contributes to replacing the calcium used in the production of eggshells and growth and bone reinforcement during embryonic skeletal development (Stewart and Ecay 2010. Herpetol. Conserv. Biol. 5:341–359; Ineich et al. 2018. Bull. Soc. Herpetol. Fr. 168:1–14).

We are grateful to the European Union and the Réunion Region for financial support.

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**PHELSUMA LATICAUDA (Gold Dust Day Gecko) and PHELSUMA BORBONICA (Reunion Day Gecko). DISPERSAL BY MOTOR VEHICLE.** Dispersal of reptiles by motor vehicles has been described for several genera of geckos: *Hemidactylus* (Norval et al. 2012. Herpetol. Notes 5:451–452; Hecnar and Hecnar 2018. Herpetol. Rev. 49:742), *Lygodactylus* (Rebelo et al. 2019. Herpetol. Notes 12:643–650), and *Phelsuma* (Deso 2001. Bull. Phaeth. 13:56). Small-bodied geckos are ideal candidates for motor vehicle dispersal because of their secretive behavior, small size, and ability to hide into small spaces (Norval et al. 2012, *op. cit.*; Rebelo et al. 2019, *op. cit.*). As such, vehicle dispersal can promote spread of both native and non-native species to new areas (see Davis and Thompson 2000. Bull. Ecol. Soc. Am. 81:226–230) and understanding the frequency of such occurrences may have implications for the management and mitigation of the spread of invasive species (Hulme 2009. J. Appl. Ecol. 46:10–18). Herein, we report two instances of motor vehicle dispersal (i.e., vehicular rafting) in two *Phelsuma* species: the native *P. borbonica* and the non-native *P. laticauda* on Reunion Island, which was introduced from Madagascar (Sanchez and Probst 2016. Bull. Soc. Herp. Fr. 160:49–78). *Phelsuma* day geckos are naturally distributed on most islands in the western Indian Ocean (Rocha et al. 2010. Zootaxa 2429:1–28).

We have two observations of vehicle dispersal of the non-native *P. laticauda*, the first being on February 2010, when an unsexed adult *P. laticauda* (ca. 12 cm total length) emerged from the hood of the 4×4 vehicle just after a 1.5 h drive covering 89 rd km. The vehicle left the University de La Réunion, Sainte-Clotilde (20.9021°S, 55.4833°E; WGS 84; 96 m elev.) and it arrived on the Mare Longue Forest, near Saint-Philippe (21.3551°S, 55.7407°E; WGS 84; 210 m elev.), transporting this lizard from an urban environment to a natural one. The second observation

occurred on 29 August 2021 when an unsexed adult *P. laticauda* (ca. 12 cm total length) emerged from the left exterior mirror housing of a car after a 10 min drive, covering 1 rd km, from Saint-Denis (20.8955°S, 55.4565°E; WGS 84; 38 m elev.). The same gecko (identified by a characteristic tail break and color pattern) was observed during the next four days, until 1 September 2021. During this period and despite daily journeys of about 2.5 km, the gecko was already observed in the same place, as well when the vehicle was travelled (Fig. 1A) and was parked (Fig. 1B), both on and inside the exterior mirror.

We have one observation of vehicular rafting in an adult *P. borbonica* (ca. 13 cm total length) from 2007, which emerged from inside a car just after it arrived at the town of Saint-Denis (20.8937°S, 55.5006°E; WGS 84; 35 m elev.) from Grand Etang (21.0965°S, 55.6536°E; WGS 84; 515 m elev.), a distance of 42 rd km. We presume the lizard originated from Grand Etang, and after catching the lizard, we returned it to its site of origin the next day. The car was parked with open windows while at Grand Etang, which is how we suspect the lizard entered the car. To our knowledge, this is the first documented record of vehicular rafting for *P. borbonica* and *P. laticauda* and it appears vehicular rafting may be a viable method of dispersal for both species. This could be especially problematic for facilitating the spread of invasive *Phelsuma* species, like *P. laticauda*, into new areas.

We are grateful to Jacques Fournel for the transmission of his observation.

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**PHRYNOSOMA MODESTUM (Round-tailed Horned Lizard). DEFENSIVE BEHAVIOR.** *Phrynosoma modestum* has a variety of predators and its defensive behaviors vary according to the type of predator being faced (Sherbrooke 1991. Amer. Midl. Nat. 15:187–195). Sherbrooke (1991, *op. cit.*) described in detail the defensive strategy used by *P. modestum* and by *P. cornutum* when confronted by the predatory *Onychomys torridus* (Southern Grasshopper Mouse) inside glass terraria. When attacked by this mouse species, the lizards defended themselves by raising and inflating their bodies, opened their mouths, hissed and charged the mice, with 43% of the encounters being fatal to the lizards (Sherbrooke 1991, *op. cit.*). Herein, we report an instance of defensive behavior for *P. modestum* in the field against a potential human threat on The University of Texas at El Paso Indio Mountains Research Station (IMRS) located in the northern Chihuahuan Desert Trans-Pecos region, Texas.

On 13 July 2018 at 1700 h, we observed an adult female *P. modestum* (Fig. 1) active next to a dirt road situated ca. 1.5 km southwest of the IMRS Headquarters (30.77026°N, 105.03039°W; WGS 84; 1207 m elev.) in a plant community dominated by *Larrea tridentata*, *Bouteloua eriopoda*, and *Fouquieria splendens*. Initially, the lizard remained motionless, but as we proceeded to pick up the lizard it inflated its body, stood erect on its legs for a few seconds and began to open and close its mouth in an apparent threatening or defensive behavior. After a short time, we repeatedly pretended to grab the lizard for ca. 1 min, and each time it repeated the same behavior until we captured it for measuring. While being measured, the lizard flattened its body, stuck out its tongue, and aimed its horns against the processor's hand, presumably as a remaining defense effort.

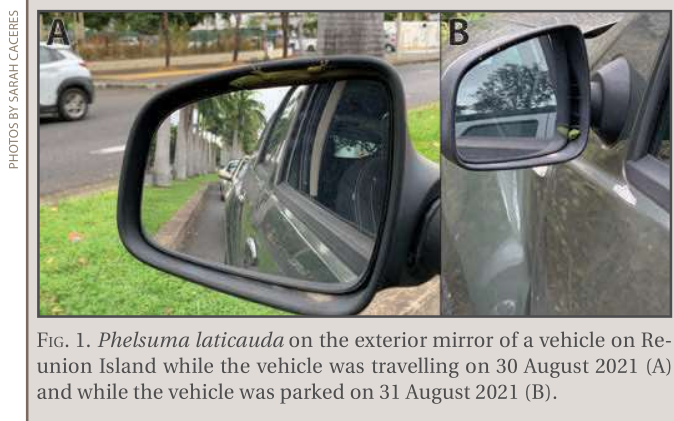


FIG. 1. *Phelsuma laticauda* on the exterior mirror of a vehicle on Reunion Island while the vehicle was travelling on 30 August 2021 (A) and while the vehicle was parked on 31 August 2021 (B).

PHOTOS BY SARAH CACERES