A clutch of *Polychrus marmoratus* (Linnaeus, 1758) from the Atlantic Forest of southeastern Brazil

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The description of life tables for many organisms has been hampered by the unavailability of data on natural history, clutch size in natural conditions, and hatchling size. The Neotropical lizard *Polychrus marmoratus* (Linnaeus, 1758) (Iguania, Polychrotidae) is an arboreal species widely distributed along the Brazilian Atlantic Forest and Amazonia (e.g., Ribeiro-Junior, 2015; Torres-Carvajal et al., 2017). However, available reproductive information for this species is scarce, especially in natural environments (O'Shea, 1989; Rand, 1982; Carvalho-Junior & Campello, 2008; Vitt et al., 2008; Arteaga et al., 2021). Herein, we provide information on nest site, clutch size, egg size, incubation duration, hatchling size and mass, and hatchling behavior of Polychrus marmoratus from an Atlantic Forest fragment in the state of Rio de Janeiro, Brazil.

Serra do Mendanha is a portion of the Gerinó-Mendanha mountain range, in the metropolitan region of the state of Rio de Janeiro, southeastern Brazil. This area corresponds to a large forest fragment of 3,300 ha. Annual rainfall ranges from 1,200–2,000 mm, and mean monthly temperatures range from 18–24 °C. The rainy season occurs from October to March and the dry season from April to September.

The vegetation is composed of a matrix of secondary dense ombrophilous forest in different stages of regeneration, anthropic areas, and banana monocultures (Pontes & Rocha, 2008; Pontes et al., 2009; Pontes et al., 2015) (Fig. 1).

On 21 May 2008, during a herpetofaunal survey, we found a clutch of ten squamate eggs 63 mm below the leaf litter (Fig. 2A), at the edge of a trail in a secondary ombrophilous forest (22°49′51.1″S, 43°30′02.2″ W ca. 180 m elevation). The eggs were ellipsoid, light cream-colored, and hydrated. We measured (mean length = 26.0 ± 0.7 mm; mean width = 12.9 ± 0.4 mm), collected, and placed the eggs horizontally in a box with moist vermiculite, where they were kept at a humidity of approximately 90% and temperature of 28 °C, controlled using a thermohygrometer, water spray and keeping the box closed (Fig. 2B).

After 241 days of incubation, eight *Polychrus marmoratus* hatched from the eggs. One of the remaining eggs became desiccated, and the other failed to develop to term. Clutch size and egg size were similar to those described for *P. acutirostris* and other populations of *P. marmoratus* (Garda et al., 2012; Winck & Rocha, 2012; Arteaga et al., 2021), although eggs from this Atlantic Forest clutch were larger than those from Amazonia (Vitt et al., 2008). Hatchling snout-vent length (SVL) averaged 51.8 ± 6.2 mm and hatchling mass 1.4 ± 0.1 g, R^2 = 0.3414 and p = 0.128 (Fig. 3). One hatchling was euthanized, preserved, and deposited in the reptile collection of the Museu Nacional, Universidade Federal do Rio de Janeiro (voucher MNRJ 17837). The other hatchlings were released two months after hatching, on a tree trunk near the site where the eggs were found (Fig. 2C). As they climbed the tree, all juveniles used their prehensile tails as support. They also exhibited a variety of movements and changes in color patterns, possibly as defense. Our observations improve the knowledge of the natural history of *P. marmoratus*, show the importance of leaf litter for the reproduction of this species, and contribute to a broader comprehension of the reproductive habits of Neotropical lizards.

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REFERENCES

Arteaga A., Bustamente L, Guyasamin. 2021. Common Bush-Anole (*Polychrus marmoratus*), in Reptiles of Ecuador. Universidad Tecnológica Indoamereica, Quito. DOI: *10.47051/HNOJ7209*

Carvalho-Junior E.A.R.; Campello M.L.C.B. 2008. Natural history notes: *Polychrus marmoratus* (NCN). *Mating*. *Herpetological Review* 39:93.

Garda A.A., Costa G.C., França F.G.R., Giugliano L.G., Leite G.S., Mesquita D.O., ... Colli G.R. 2012. Reproduction, body size, and diet of *Polychrus acutirostris* (Squamata: Polychrotidae) in two contrasting environments in Brazil. *Journal of Herpetology* 46: 2–8. DOI: *10.1670/10-288*

O'Shea M. 1989. The herpetofauna of Ilha de Maracá, State of Roraima, Northern Brazil. Pp. 51-72, in Coote J. (Ed) Reptiles: Proceedings of the 1988. U.K. Herpetological Societies Symposium on Captive Breeding. British Herpetological Society, London.

Pontes J.A.L., Rocha C.F.D. 2008. Serpentes da Serra do Mendanha, Rio de Janeiro, RJ: Ecologia e conservação. Technical Books Editora, Rio de Janeiro.

Pontes J.A.L., Pontes R.C., Rocha C.F.D. 2009. The snake community of Serra do Mendanha, in Rio de Janeiro state, southeastern Brazil: composition, abundance, richness and diversity in areas with different conservation degrees. *Brazilian Journal of Biology* 3:795–804. DOI: *10.1590/S1519-69842009000400006*

Pontes J.A.L., Pontes R.C., Rocha R.F., Lindenberg P.M., Silva K.P., Santos W.A., ... Rocha C.F.D. 2015. Unidades de conservação da Cidade do Rio de Janeiro: Hotspots da herpetofauna carioca. Pp. 176–194, in Pontes J.A.L. (Org). Biodiversidade carioca: segredos revelados. Technical Books, Rio de Janeiro

Rand A.S. 1982. Clutch and egg size in Brazilian iguanid lizards. *Herpetologica* 38: 171–178.

Ribeiro-Junior M.A., 2015. Catalogue of distribution of lizards (Reptilia: Squamata) from the Brazilian Amazonia. I. Dactyloidae, Hoplocercidae, Iguanidae, Leiosauridae, Polychrotidae, Tropiduridae. *Zootaxa*, 3983: 1–110. DOI: *10.11646/zootaxa.3983.1.1*

Torres-Carvajal O., Koch C., Venegas P.J., Poe S. 2017. Phylogeny and diversity of neotropical monkey lizards

(Iguanidae: *Polychrus* Cuvier, 1817). *PLOS ONE* 12: e0178139. DOI: *10.1371/journal.pone.0178139*

Vitt L., Magnusson W.E., Ávila-Pires T.C., Lima A.P. 2008. Guia de Lagartos da Reserva Adolpho Ducke, Amazônia Central. Áttema Design Editorial, Manaus.

Winck G.R., Rocha C.F.D. 2012. Reproductive trends of Brazilian lizards (Reptilia, Squamata): The relationship between clutch size and body size in females. *North-Western Journal of Zoology* 8:57–62.

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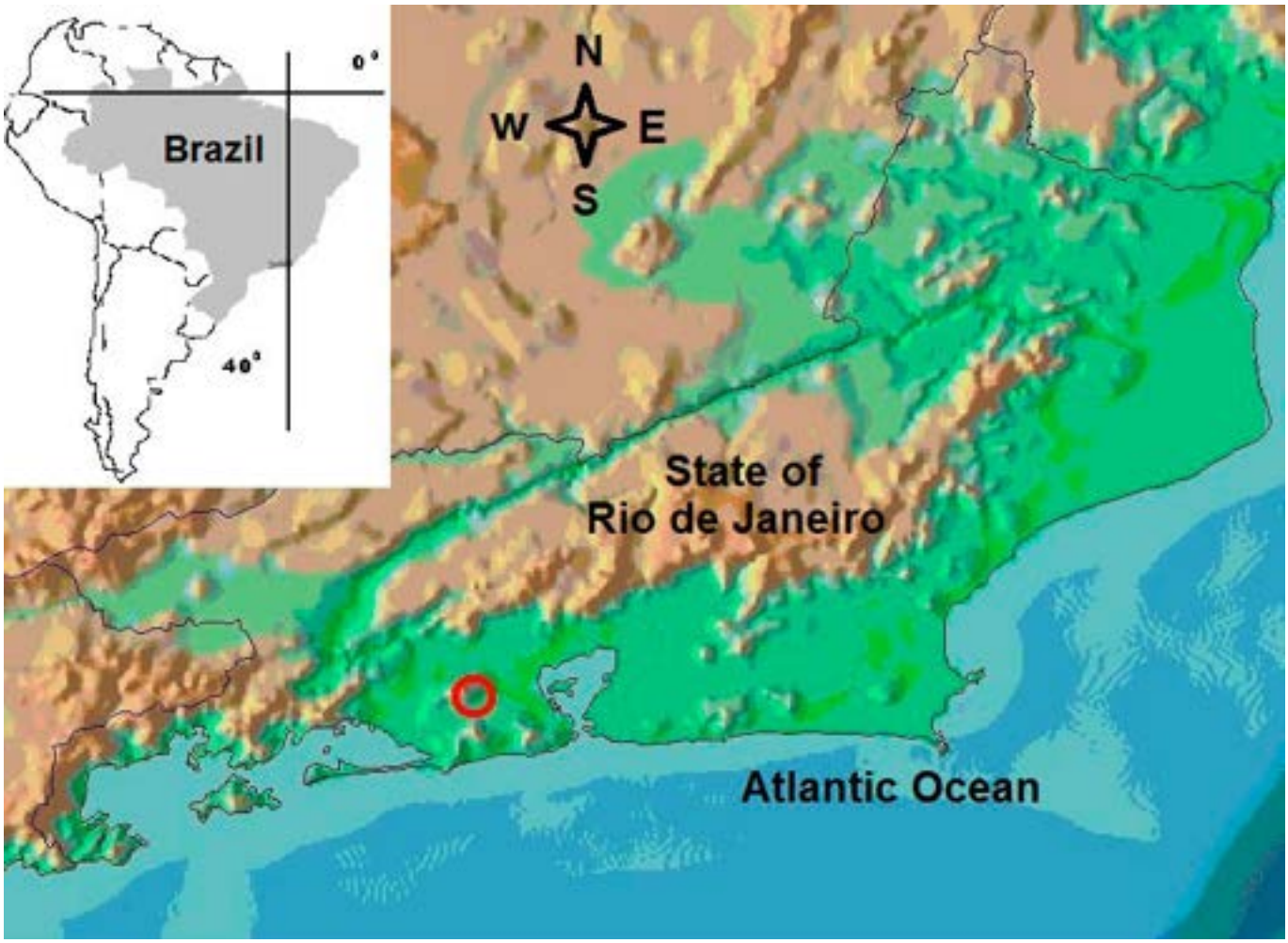


Figure 1. Location map of Serra do Mendanha (red circle), in Rio de Janeiro state, southeastern Brazil.

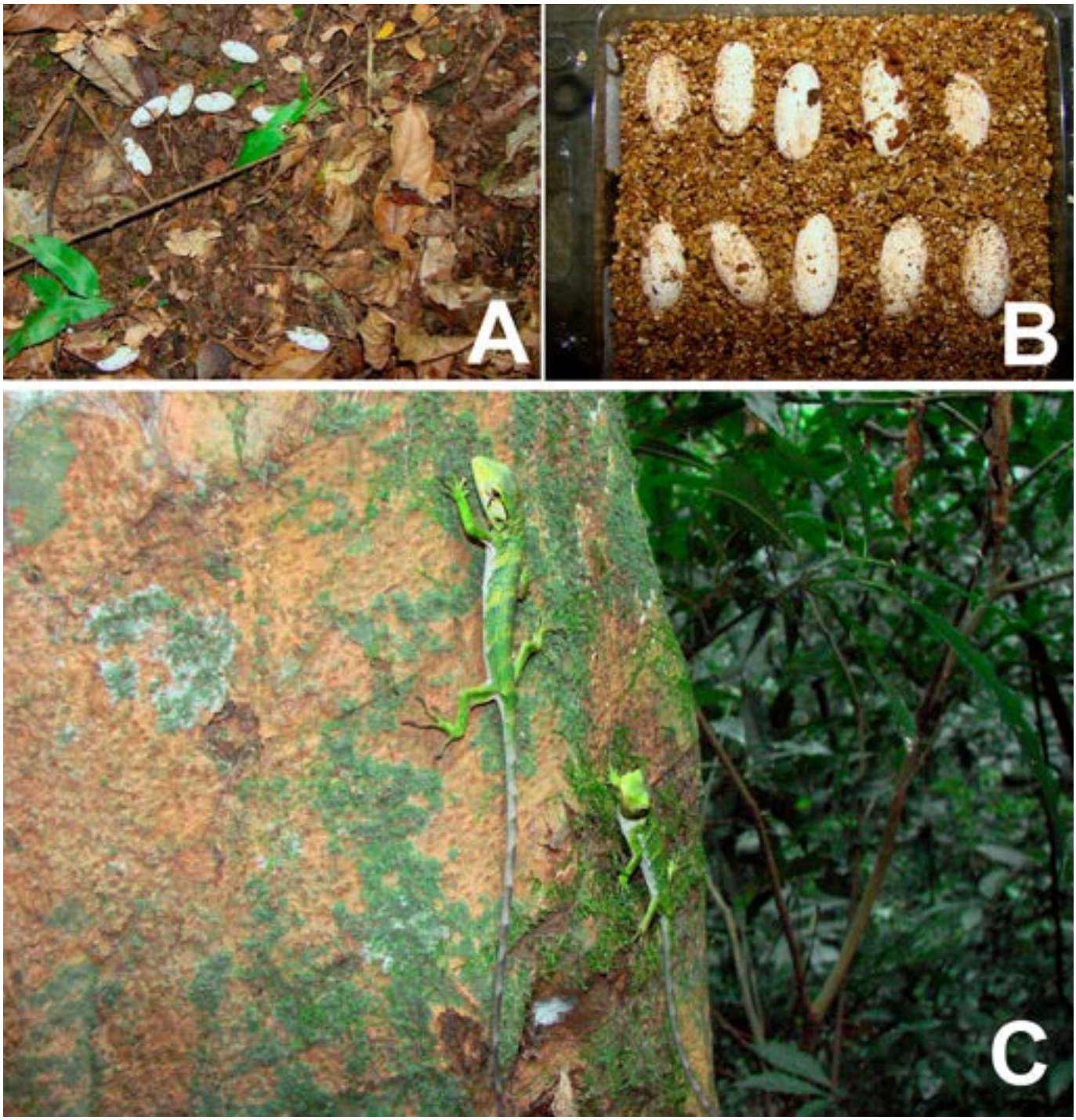


Figure 2. Eggs of *Polychrus marmoratus* (Linnaeus, 1758) on the forest floor of Serra do Mendanha **(A)**. Eggs placed in a box with vermiculite for incubation **(B)**. Hatchling *P. marmoratus* released at Serra do Mendanha, Rio de Janeiro state, southeastern Brazil **(C)**. Photos: Jorge Pontes.

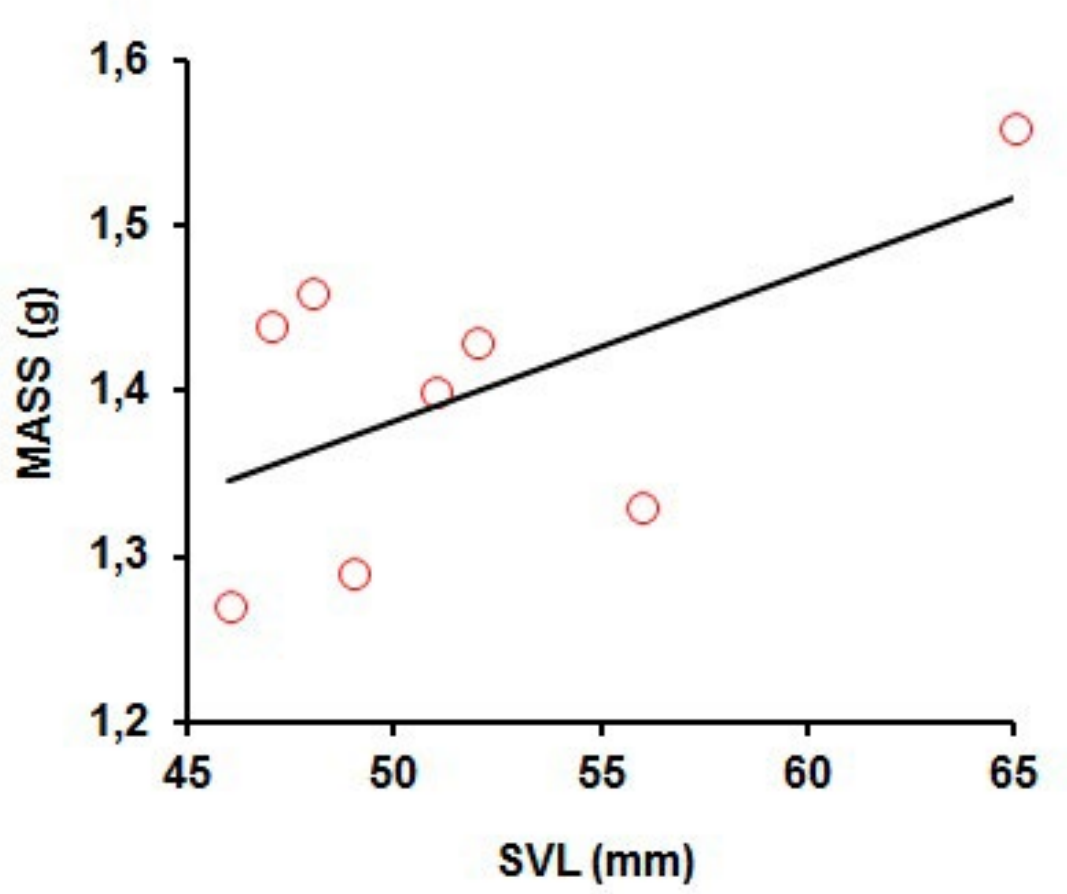


Figure 3. Relationship between snout-vent length (SVL) and body mass of hatchling *Polychrus marmoratus* (R^2 = 0.3414, p = 0.128) from Serra do Mendanha, Rio de Janeiro state, southeastern Brazil.