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FIRST RECORD OF *Myotis izecksohni* (CHIROPTERA, VESPERTILIONIDAE) FOR THE ATLANTIC FOREST OF MINAS GERAIS, SOUTHEASTERN BRAZIL

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ABSTRACT. *Myotis izecksohni* Moratelli et al., 2011 was recently described from the *Myotis nigricans* (Schinz, 1821) complex, based on samples from four localities above 700 m in the Brazilian Atlantic Forest of south (Paraná) and southeastern (Rio de Janeiro) Brazil. The species is currently known only from these localities and little is known about its distributional limits, ecology and natural history. Here, we present 3 new occurrence records from Minas Gerais, southeastern Brazil. Specimens reported here fit the qualitative and quantitative traits reported in the original description of *M. izecksohni*.

RESUMO. Primeiro registro de *Myotis izecksohni* (Chiroptera, Vespertilionidae) para a Mata Atlântica de Minas Gerais, sudeste do Brasil. *Myotis izecksohni* Moratelli et al., 2011 foi recentemente descrita a partir da revisão do complexo *Myotis nigricans* (Schinz, 1821), com base em amostras de quatro localidades acima de 700 m de altitude na Mata Atlântica do Sul (Paraná) e sudeste (Rio de Janeiro) do Brasil. A espécie está atualmente registrada apenas nessas localidades e sua ecologia, história natural e limites de distribuição são pouco conhecidos. Aqui, são apresentados 3 novos registros de ocorrência para o estado de Minas Gerais, sudeste do Brasil. Os caracteres qualitativos e quantitativos dos espécimes aqui examinados enquadram-se naqueles da descrição original de *M. izecksohni*.

Key words: Atlantic Forest. *Myotis*. Serra da Mantiqueira.

Palavras-chave: Mata Atlântica. *Myotis*. Serra da Mantiqueira.

The Izecksohn's Myotis, *Myotis izecksohni* Moratelli, Peracchi, Dias et Oliveira, 2011 was described from a review of the *Myotis nigricans* (Schinz, 1821) complex, based on analyses of specimens from 4 localities in the Atlantic Forest of south and southeastern Brazil. The species is known only from these localities, 2 of them in Rio de Janeiro state—the type locality (Reserva Biológica do Tinguá) and Parque Nacional da Serra dos Órgãos—and 2 in Paraná state—Parque Estadual de Campinhos and Balsa Nova municipality (Fig. 1). All these localities are between 700 and 1200 m of elevation (Moratelli et al., 2011; Reis et al., 2013).

All the *M. izecksohni* specimens were captured with mist nets placed near abandoned builds, entrance of caves, creeks, rocky crevices and along trails and clearings in forest areas (Moratelli et al., 2011). As many other newly described species, little is known

about its distribution limits, natural history and ecology.

Here, we report new records of *M. izecksohni* for Minas Gerais State, Southeastern Brazil (Fig. 1). Three specimens were collected during rapid bat surveys in three sites in the Serra da Mantiqueira, which contains areas of semideciduous forest, dense rainforest and some Cerrado patches with occurrence of *Araucaria angustifolia* (Araucariaceae). This region is classified as a transition between the Atlantic Forest and Cerrado, with vegetation characteristics of the 2 biomes (Uruahy et al., 1983). The Serra da Mantiqueira is a priority area for conservation due to the high level of species endemism and habitat loss (Becker et al., 2013; Jenkins et al., 2013; Le Saout et al., 2013; Myers et al., 2000).

On 3 May 2011, at 19:30 h (ca.120 minutes after local sunset time, according to Moonphase

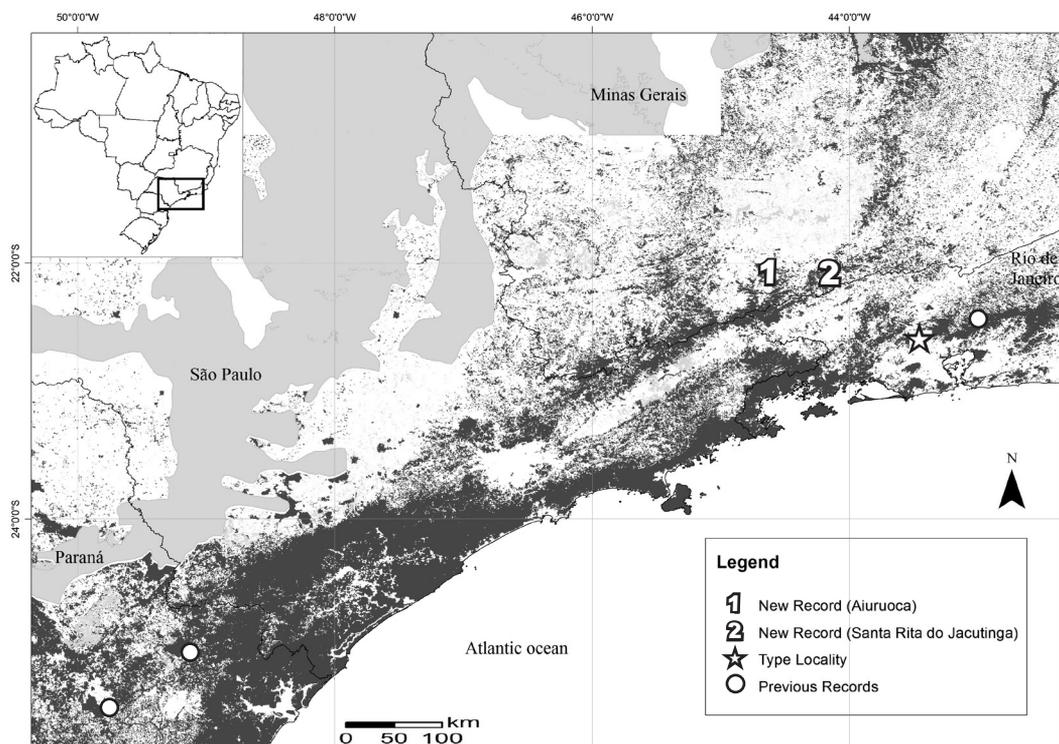


Fig. 1. Recording localities for *Myotis izecksohni*: star = Rio de Janeiro, Reserva Biológica do Tinguá (22°36' S, 43°27' W; type locality); white circles = Rio de Janeiro, Parque Nacional da Serra dos Órgãos (22°26' S, 42°59' W); Paraná, Parque Estadual de Campinhos (25°03' S, 49°07' W), Balsa Nova (25°29' S, 44°49' W); 1. Minas Gerais: Aiuuruoca ("Cachoeirinha", 22°3'57.28" S, 44°36'30.58" W); "Cachoeira das Fadas", 22°4'49.94" S, 44°38'47.81" W); 2. Minas Gerais, Santa Rita do Jacutinga (22°05'26.99" S, 44°09'38.99" W). Biomes: dark grey = Atlantic Forest; white = Cerrado.

Southern Hemisphere program version 3.3), a non-reproductive adult male (Fig. 2A) was collected with mist net in an area of semideciduous forest (22°05'26.99" S, 44°09'38.99" W), 1130 m of elevation, in the Santa Rita do Jacutinga municipality. The specimen is preserved in alcohol 70° and the skull was removed and cleaned. This voucher is deposited in the mammal collection Adriano Lucio Peracchi, Instituto de Biologia, Universidade Federal Rural do Rio de Janeiro (ALP) and catalogued as ALP 9665.

Two additional specimens were collected in 2 Atlantic Rainforest areas in the Aiuruoca municipality. One adult male with testicles descended was collected with a mist net placed above a stream, near the waterfall "Cachoeirinha" (22°3'57.28" S, 44°36'30.58" W), 1118 m of elevation, at 21:00 h (ca. 210 minutes after local sunset time), on 4 August 2013. This site is a small fragment surrounded by well-preserved patches. Other specimen, a non-reproductive subadult female (Fig. 2B), was collected with

mist net above a stream, near the waterfall "Cachoeira das Fadas" (22°4'49.94" S, 44°38'47.81" W), a well-preserved remnant at 1342 m of elevation, at 19:00 h (ca. 15 minutes after local sunset time), on 9 January 2014. This site is located within the Área de Proteção Ambiental da Serra da Mantiqueira, and in the buffer zone of the Parque Estadual da Serra do Papagaio.

These 2 specimens are preserved in alcohol 70° and their skulls were removed and cleaned. Both are deposited in the bat collection of Laboratório de Diversidade de Morcegos (LDM), Instituto de Biologia, Universidade Federal Rural do Rio de Janeiro, catalogued as LDM 5552 (adult male) and LDM 5578 (subadult female).

Forearm length and cranial measurements were obtained using digital calipers accurate to 0.01 mm, according to criteria by López-González et al. (2001). Identifications are based on Moratelli et al. (2011), which also provided useful comparisons among *M. izecksohni* and other South American congeners.

Our specimens conform closely with the combination of characters that distinguishes *M. izecksohni* from all other *Myotis* species. The specimens have plagiopatagium attached to the level of the toes by a broad band of membrane, conspicuously long and silky fur, dorsal fur slightly bicolor with dark bases and dark brown tips, ventral fur bicolor with well-defined banding, dark brown bases and pale grey tips, trailing edge of the interfemoral membrane dark colored and lacking fringe of hairs (only few sparse and short hairs are present), membranes dark brown, braincase long, narrow and flattened, postorbital constriction narrow, breadth across the canines/postorbital breadth ratio greater than 1.00, supraoccipital region rounded and sagittal crest absent. The second upper premolar (P3) is smaller than the



Fig. 2. Individuals of *Myotis izecksohni* from Minas Gerais State, Southeastern Brazil. A. Adult male from Santa Rita do Jacutinga (ALP 9665). B. Subadult female from Aiuruoca (LDM 5578).

first (P2) and is aligned to the toothrow, not displaced to the lingual side. Measurements of adult specimens (**Table 1**) match the range of the type series of *M. izecksohni* (see Moratelli et al., 2011).

Among the Brazilian species of *Myotis*, 5 are recorded in sympatry with *M. izecksohni*: *M. albescens* (É. Geoffroy, 1806), *M. levis* (I. Geoffroy, 1824), *M. nigricans*, *M. riparius* Handley, 1960 and *M. ruber* (É. Geoffroy, 1806). *M. levis* and *M. nigricans* are cryptic with *M. izecksohni* (see Moratelli et al., 2011). However, *M. izecksohni* (forearm length 33.1–38.3 mm; greatest skull length 12.5–14.6 mm) differs from *M. nigricans* (forearm length 30.2–35.2 mm; greatest skull length 12.8–13.9 mm) by its larger general size, darker and longer fur and more narrowed postorbital region. In turn, *M. levis* (forearm length 38.0–41.4 mm; greatest skull length 14.2–15.4 mm), is larger than *M. izecksohni*, has a fringe of hairs along the trailing edge of the interfemoral membrane, larger ears (ear length 14.8–17.0 mm in *M. levis*

and 8.7–13.2 mm in *M. izecksohni*), larger postorbital constriction and more inflated interorbital region (Moratelli et al., 2011).

The records of Aiuruoca and Jacutinga extend northwards the distribution of *M. izecksohni* in ca. 650 km and 695 km, respectively, from the southernmost record in Balsa Nova, Paraná. The distribution is also extended in ca. 170 km and 127 km to the west from the northernmost record in Teresópolis, Rio de Janeiro state (**Fig. 1**). Occurrence records suggest that *M. izecksohni* is apparently restricted to Atlantic Forest mid elevations (600–1200 m), including remnants in the Atlantic Forest/Cerrado ecotone. Since the Atlantic Forest is suffering from an accelerated deforestation rate and possesses a high concentration of endemic species, it is regarded as a biodiversity hotspot for conservation priorities (Myers et al., 2000; Ribeiro et al., 2009).

Due to its recent description, lack of data on its biology and a poorly known distribution, *M. izecksohni* has not yet been assessed for its conservation status. Therefore, more efforts to

Table 1

Measurements (in millimeters) for adult specimens of *Myotis izecksohni* from the Atlantic Forest of south-eastern Brazil.

Specimens	ALP 9665 (♂)	LDM 5552 (♂)	Type series (♂♂♂; ♀♀)
Locality	Santa Rita do Jacutinga, Minas Gerais	Aiuruoca, Minas Gerais	Reserva Biológica do Tinguá, Rio de Janeiro
Forearm length	35.84	36.80	35.20–38.30
Greatest length of the skull (excluding incisors)	14.96	14.40	14.46–14.93
Condylolincisive length	13.82	13.71	13.49–13.77
Maxillary tooththrow length	5.44	5.54	5.41–5.55
Breadth across the cingula of upper canines	3.62	3.60	3.52–3.74
Postorbital breadth	3.50	3.56	3.35–3.52
Breadth across the upper molars	5.68	5.66	5.60–5.81
Braincase breadth	6.76	6.81	6.61–6.79
Zygomatic breadth	8.64	8.82	8.72–8.93
Mastoid breadth	7.06	7.12	7.05–7.11
Mandibular length	10.22	10.04	10.13–10.29
Mandibular tooththrow length	5.90	5.73	5.80–5.96

increase the knowledge on the distribution and natural history of these species, such as critical review of museum specimens and additional bat surveys, including areas of high elevations, are required to achieve this goal and support conservation actions.

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