

First occurrence of the recently described Patricia's Disk-winged bat *Thyroptera wynneae* (Chiroptera: Thyropteridae) in Espírito Santo, southeastern Brazil

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ABSTRACT: We report the first confirmed record of the family Thyropteridae and the recently described species *Thyroptera wynneae* Velazco *et al.* 2014 to the Espírito Santo state, southeastern Brazil, representing a range extension eastward of about 250 km for the species. The specimen was collected on a highway (BR-101), run over by a vehicle, in the Reserva Biológica de Sooretama, on October 25th, 2010.

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Thyropteridae Miller, 1907 is a monotypic family of insectivorous bats, represented by five extant species distributed from southern Mexico to southeastern Brazil: *Thyroptera devivoi* Gregorin *et al.*, 2006, *T. discifera* (Lichtenstein & Peters, 1854), *T. lavalii* Pine, 1993, *T. tricolor* Spix, 1823 and *T. wynneae* Velazco *et al.*, 2014 (Wilson 2008; Velazco *et al.* 2014). They can easily be distinguished from other Neotropical bats by the presence of circular or oval adhesive disks at the base of the thumbs and soles of the feet, which gives them their popular name of Disk-winged bats or New World Sucker-footed bats, after the Old World Sucker-footed bats from the family Myzopodidae that have adhesive disks similar in appearance, however with different anatomical and evolutionary origins (*i.e.*, they evolved convergently) (Riskin and Fenton 2001; Boada *et al.* 2010; Schliemann and Goodman 2011). Furthermore, thyropterids have an elongated, slender muzzle; circular and well-separated nares; small size (forearm length = 31–41 mm); funnel-shaped ears; and the third and fourth toes, including the claws, are fused (Wilson 2008).

The Patricia's Disk-winged bat *Thyroptera wynneae* was recently described by Velazco *et al.* (2014) from material collected in northeastern Peru and southeastern Brazil, and is one of the smallest members of the genus (forearm length = 33.0–34.2 mm). *Thyroptera wynneae* and *T. discifera* overlap in size, but can be separated by the tricolored ventral pelage of the former, unique within the genus, as *T. discifera* and *T. tricolor* have unicolored ventral pelage, and *T. devivoi* and *T. lavalii*, bicolored ventral pelage (Wilson 1978; Velazco *et al.* 2014). The overall coloration of the pelage is grayish brown in *T. devivoi*, yellowish brown in *T. discifera*, medium brown in *T. lavalii*, white or whitish in *T. tricolor*, and light brown in *T. wynneae*. Unique to *T. wynneae* is the rostrum considerably shorter than the braincase; and the height of the lower incisors, which are subequal compared to differently sized lower incisors in the remaining thyropterids (Velazco *et al.* 2014).

Moreover, *T. wynneae* can be diagnosed by the number of lappets in the calcar shaft and by the shape of the thumb's adhesive disk. *Thyroptera devivoi* has no obvious lappets, or if present, they are incipient and difficult to define. *Thyroptera discifera* and *T. lavalii* have one well defined lappet, and only *T. tricolor* and *T. wynneae* have two conspicuous lappets (Wilson 1978; Gregorin *et al.* 2006; Velazco *et al.* 2014). Among the two-lappet Thyropteridae there is a clear distinctive condition related to the shape of the adhesive disk from the base of thumb; which is flat and circular in *T. tricolor*, and deep and oblong in *T. wynneae*.

In October 25th, 2010, during inventory work in Reserva Biológica de Sooretama, northern Espírito Santo (coordinates: 18°59'58.82" S, 40°00'17.55" W, altitude: 55 m), we collected an individual (Figure 1) on a highway (BR-101) that had been run over by a vehicle. The individual suffered heavy damage to the skull and the remaining pelage was discolored, but we were able to unambiguously identify it by the following diagnostic characters as a *T. wynneae*: small size (forearm length = 34.10 mm); oblong,



FIGURE 1. Ventral view of *Thyroptera wynneae* (AD 1907), showing heavy damage suffered due to collision with a vehicle in a highway in Reserva Biológica de Sooretama, Espírito Santo. Photo: Ricardo Kawada.

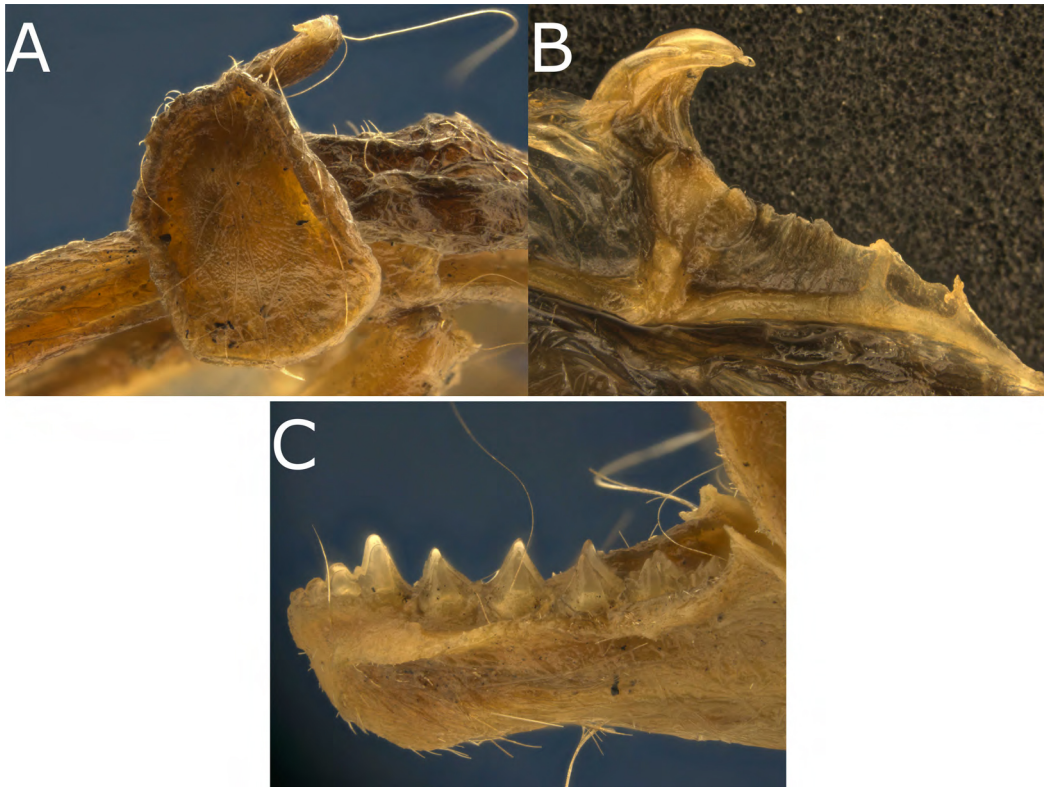


FIGURE 2. Right wrist and adhesive disk (A), left hind limb (B), and lateral view of the lower jaw (C) of *Thyroptera wynneae* (AD 1097). Notice the deep and oblong shape of the adhesive disk, the presence of two lappets in the calcar shaft, and subequal inner incisors. Photos: Bruno Cancian de Araujo.

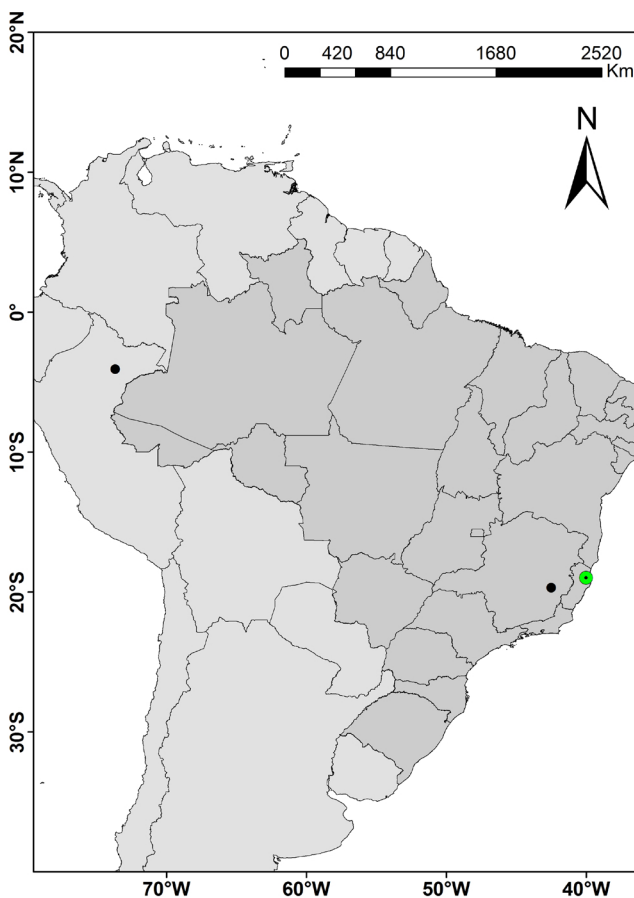


FIGURE 3. Current distribution of *Thyroptera wynneae*. Peru – Loreto: Requena, Jenaro Herrera, Centro de Investigaciones Jenaro Herrera (04°55' S, 73°40' W) (Velazco et al. 2014). Brazil – Minas Gerais: Campolina, about 25 km E Marliéria, Parque Estadual do Rio Doce (19°42' S, 42°30' W) (Velazco et al. 2014). The new record, Brazil – Espírito Santo, Reserva Biológica de Sooretama (AD 1907) (18°59'58.82" S, 40°00'17.55" W).

deep adhesive disk in the base of the thumb (Figure 2A); calcar with two well defined lappets (Figure 2B); rostrum noticeable shorter than the braincase; and all lower incisors subequal in height (Figure 2C). The specimen was first fixed in formaldehyde and then preserved in alcohol 70%, and has been deposited at the bat collection at the Laboratório de Estudos em Quirópteros, Universidade Federal do Espírito Santo (AD 1097). Previously *T. wynneae* was known only from the type series: the holotype (CEBIOMAS 237) caught in Loreto, Peru, and two paratypes (CMUFLA 694, 1160), collected in eastern Minas Gerais, Brazil. This study reports the fourth known specimen of *T. wynneae*, and also amplifies the range extension of the species about 250 km eastward (Figure 3).

There is a record of Thyropteridae for the Espírito Santo (*Thyroptera tricolor*) attributed to Ruschi (1954) by Tavares et al. (2008), and also mentioned by Marinho-Filho (1996) and Lima and Gregorin (2007). However, looking at Ruschi's publications we could not find any references for the presence of *T. tricolor* or any thyropterid. Mendes et al. (2010) reviewed more than 50 papers (including the majority of Ruschi publications) and 14 unpublished works and did not find a record either. Therefore, this new record represents the first documented occurrence of the family Thyropteridae and *Thyroptera wynneae* for Espírito Santo state. The species richness for the state is now 77 species, distributed in eight families and 47 genera (Lorenzutti and Almeida 2006; Lira et al. 2009; Mendes et al. 2010; Pimenta et al. 2010; Peracchi et al. 2011; Hoppe et al. 2014; Pimenta et al. 2014).

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