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CAPTURES OF THE TOME'S SWORD-NOSED BAT, *Lonchorhina aurita* (CHIROPTERA, PHYLLOSTOMIDAE), FROM OMETEPE ISLAND, NICARAGUA, AND RANGE IMPLICATIONS FOR THIS SPECIES

Phillip N. Jordan¹, Patrick R. Moore¹, Evan L. Pannkuk²,
and Thomas S. Risch¹

¹ Department of Biological Sciences, Arkansas State University, State University, AR 72467, USA [Correspondence: Thomas S. Risch <trisch@astate.edu>].

² Graduate Program of Environmental Science, Arkansas State University, State University, AR 72467, USA.

ABSTRACT. *Lonchorhina aurita* (Tome's sword-nosed bat) is a locally rare/restricted bat species distributed from the northerly ranges of Veracruz, Mexico to the South American countries of Brazil and Peru. Prior to our study on Ometepe Island, Nicaragua, this species was documented from a single individual from 1 location in Nicaragua (Matiguás, Matagalpa). During 2010-2013, a total of 9 *L. aurita* were captured in tropical interior forests and agricultural forests with dense upper and midstory vegetation. *L. aurita* were captured from several locations on Ometepe Island and included reproductive adults and juveniles. Our data suggest that a persistent *L. aurita* population is established on Ometepe Island.

RESUMEN. Capturas del murciélago nariz de sable de Tomes, *Lonchorhina aurita* (Chiroptera, Phyllostomidae), en la isla de Ometepe, Nicaragua, e implicaciones para la distribución de esta especie. *Lonchorhina aurita* (murciélago nariz de sable de Tomes) es una especie rara de murciélagos, restringida a localidades y distribuida desde el norte de Veracruz, en México, hasta Brasil y Perú. Antes de nuestro estudio en la Isla Ometepe de Nicaragua, esta especie solo había sido reportada en 1 localidad de Nicaragua (Matiguás, Matagalpa). Entre 2010 y 2013, se capturaron 9 *L. aurita* en bosques tropicales del interior y en estratos altos y medios de bosques agrícolas con vegetación densa. Los *L. aurita* fueron capturados en varios lugares de la Isla Ometepe, e incluyeron adultos en etapa reproductiva e individuos juveniles. Nuestros datos sugieren que una población persistente de *L. aurita* se ha establecido en la Isla Ometepe.

Key words: Bat fauna. Central America. Maderas. Nicaragua. Ometepe Island.

Palabras clave: América Central. Isla de Ometepe. Maderas. Murciélagos. Nicaragua.

Tome's sword-nosed bat, *Lonchorhina aurita* (Tomes, 1863, is an insectivorous bat (Chiroptera: Phyllostomidae) found in mature forests and agricultural areas (Emmons and Feer, 1997; Lord, 2007; Reid, 2009; **Fig. 1**). It is medium sized (~18 g) for the *Lonchorhina* genus, as it is smaller than *L. marinkellei* Hernández-Camacho and Cadena-G., 1978, yet larger than *L. orinocensis* Linares and Ojasti, 1971 and *L. fernandesi* Ochoa and Ibáñez, 1984 (Lassieur and Wilson, 1989; Simmons, 2005). *L. aurita* gets its name from the striking lance-shaped nose leaf with a conspicuous longitudinal ridge. *L. aurita* ranges as far north as Chiapas, Mexico, through El Salvador, Costa Rica, Panama, Guyana, the islands of Tobago and Trinidad, Colombia, and Venezuela, and as far south as Bolivia, and southeastern Brazil (Williams and Genoways, 2008; Reid, 2009). One *L. aurita* was captured in the Bahamas, but was identified as an accidental occurrence (Buden, 1986). *L. aurita* is listed as Least Concern (Sampaio et al., 2008), and is uncommonly reported in Nicaragua (Medina et al., 2007). Colonies of up to 500 *L. aurita* have been reported in a single location (Bloedel, 1955), the first reported capture in Nicaragua was in 2003–2004 from one specimen (Medina et al., 2007; **Fig. 2**).

In this study, we captured bats on Ometepe Island, Nicaragua during the periods of late

May-early June (2-week trips) in the years 2010–2013 (**Table 1**). Capture and releases were performed with assistance from the Ometepe Biological Research Station, which is a part of the Maderas Rainforest Conservancy (www.maderasrhc.org). Ometepe Island is ~276 km² and includes 2 volcanos, Maderas and Concepción. Netting occurred primarily on Maderas, which is ~1400 m in elevation and provides bat habitats from lowland dry forests, orchard mid-level forests, open waterfalls, and tropical interior forests with dense upper and mid-story vegetation. Netting also occurred on the isthmus between Maderas and Concepción.

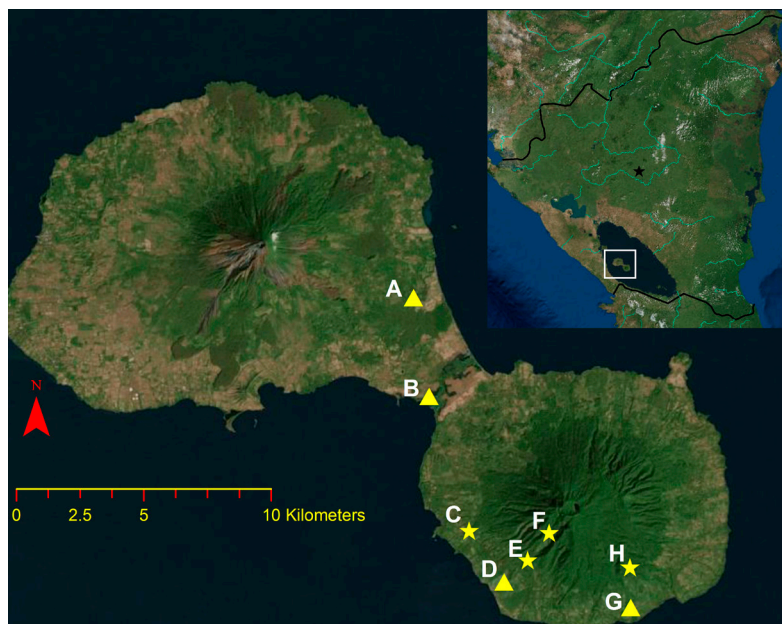
Lonchorhina aurita was captured in 4 separate locations (**Fig. 2**) using mist nets (open waterfall/rock [9 x 8 m], tropical interior forest [6 x 3 m], footpath in mature tropical forest [9 x 8 m], and mid-level forests [4 x 8 m]). One capture was at an elevation of 852 m, 50 m from San Ramon Waterfall. Four were captured on private property 50 m to the north of a water-powered electric plant at an elevation of 453 m, over a foot path. A juvenile was captured over a trail with elevation of 135 m. One bat caught in 2013 was released from the net to minimize distress to the animal due to heavy rains, inhibiting morphological data collection. The elevations (135-852 m) of bat captures are consistent with previous reports of *L. aurita* being

captured at 375 m in Ecuador (Anthony, 1923) and specimens reported from 25-1537 m from the mammal collection at the National Museum of Natural History Collection (Lassieur and Wilson, 1989). All bats were captured in old-growth or secondary-growth



Fig. 1. *Lonchorhina aurita* (Tome's sword-nosed bat) captured on Ometepe Island, Nicaragua (28-May-11; Photo Credit: Thomas Risch).

Fig. 2. Map of Ometepe Island capture locations of *Lonchorhina aurita* (Tome's sword-nosed bat) from 2010–2013. Stars represent successful *L. aurita* capture sites. Triangles indicate unsuccessful *L. aurita* capture sites. Inset, approximate location of country record (after Medina et al., 2007).



forests. We netted orchards in the same manner resulting in no *L. aurita* captures. Reproduction has been reported to occur between the months of February–July (Lassieur and Wilson, 1989) within described range

(Reid, 2009). We captured 2 lactating females, 2 scrotal males, 1 juvenile female, and 1 non-reproductive male. Our findings are consistent with previously reported reproductive seasons for *L. aurita*. These captures confirm that breeding populations of *L. aurita* are in southern Nicaragua during times stated by Lassieur and Wilson (1989).

Lonchorhina aurita is reported to be common in areas with high cave concentrations (Sampaio et al., 2008; Reid, 2009). Due to our captures of several reproductive adults and a juvenile *L. aurita* from different locations, our data suggest that a persistent population is established on Ometepe Island. Our data are consistent with the reported range of this

Table 1

Captures of Tome's sword-nosed bats, *Lonchorhina aurita*, on Ometepe Island, Nicaragua. FAL = forearm length, Repro = reproductive condition, LAC = lactating, NR = non-reproductive, SCR = scrotal; sites correspond to letters on Fig. 4.

| Site | Sex | Repro | Age | Elevation (m) | Mass (g) | FAL (mm) | Date |
|------|-----|-------|-----|-----------------|----------|----------|-----------|
| F | F | LAC | A | 852 | 20 | 51.87 | 29-May-10 |
| C | M | NR | J | 135 | 17 | 49.45 | 2-Jun-10 |
| C | M | NR | J | 135 | 16 | 50.52 | 2-Jun-10 |
| H | M | NR | A | 453 | 24 | 52.45 | 28-May-11 |
| H | F | LAC | A | 453 | 18 | 53.36 | 28-May-11 |
| H | M | SCR | A | 453 | 17 | 49.19 | 29-May-12 |
| H | M | SCR | A | 453 | 14.5 | 50.77 | 29-May-12 |
| E | F | NR | J | 489 | 17 | 51.32 | 25-May-13 |
| H | | | | Released at net | | | 25-May-13 |

species in Nicaragua (Martinez-Sánchez et al., 2000; Medina-Fitoria and Saldaña, 2012) and suggest that the range of this species may be more continuous in Central America than previously believed (Sampaio et al., 2008; Reid, 2009).

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