






New Record of the Brown Sac-Wing Bat, *Balantiopteryx infusca* (Chiroptera, Emballonuridae) in Colombia

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Abstract

Balantiopteryx infusca is a small bat endemic to southwestern Colombia and northwestern Ecuador. We present a new locality for *B. infusca* on the western slope of the Cordillera Occidental, Valle del Cauca, Colombia. The species is poorly known and there are scarce records of it in the country. This new record is noteworthy because it is the first one inside a National Natural Park for the country.

Keywords: *Balantiopteryx infusca*, PNN Farallones de Cali, southwestern Colombia.

Resumen

Balantiopteryx infusca es un murciélago pequeño endémico del suroeste de Colombia y el noroeste de Ecuador. Se presenta una nueva localidad para *B. infusca* en la vertiente occidental de la Cordillera Occidental, Valle del Cauca, Colombia. La especie es pobremente conocida y hay escasos registros de ésta en el país. Este nuevo registro es relevante porque es el primero en un Parque Nacional Natural para el país.

Palabras clave: *Balantiopteryx infusca*, PNN Farallones de Cali, suroeste de Colombia.

Species of the genus *Balantiopteryx* Peters, 1867 (Chiroptera: Emballonuridae) are easily distinguishable from other emballonurids by the anteriorly bulbous rostrum with lateral inflations extending forward over roots of the canines, premaxilla displaced laterally, no sagittal crest, and paraoccipital processes small, not projecting ventrally (Hood & Gardner 2007). *Balantiopteryx* includes three species (Simmons & Cirranello 2020): *B. io* Thomas, 1904, *B. plicata* Peters, 1867, and *B. infusca* (Thomas, 1897), of which the latter is characterized by its medium size among the three species of the genus, length of forearm 37.5 to 40.5 mm, inner margin of ear slightly concave, braincase posteriorly elongate, moderate frontal depression, rostrum inflated both anteriorly and posteriorly, and narrow

mesopterygoid fossa. Moreover, the geographic ranges of *Balantiopteryx* species do not overlap (Hill 1987; Arroyo-Cabral & Jones 1988).

Balantiopteryx infusca is restricted to the rainforest of northwestern Ecuador, and southwestern Colombia, where it has been reported from two localities in Ecuador (Romero et al. 2018) and four localities in Colombia at elevations between 393 and 1200 m above sea level (Mantilla-Meluk et al. 2014, Castaño-Salazar & Cárdenas Mosquera 2020). The species is listed as Vulnerable (VU) by the IUCN (Tirira 2015) due to continuous human activity (logging). So far, it is unknown whether the species occurs in national protected areas within its distribution range in Colombia (Castaño-Salazar & Cárdenas-Mosquera 2020). Here, we present a new locality record of *B. infusca* in the Valle del Cauca, which represents the first record within a national protected area for Colombia.

On 21st and 22nd January 2010 we visited two artificial tunnels in the daylight hours: “Murrupal tunnel” and “La Riqueza tunnel” (3°33’9” N, 76°52’57” W, 570 m), located in the “Alto Anchicayá” area, the boundary between Dagua and Buenaventura municipalities, “Parque Nacional Natural Farallones de Cali”, in the western slope of the Cordillera Occidental, Valle del Cauca Department. The tunnels were built in the 1970s when a dam started to operate, however, they are no longer used. In these tunnels, groups of 20-30 individuals were perched at a height of about 3-4 m, about 10 m from the main entrance of the tunnels. Mist nets were placed at the entrance of the tunnels between 17:30 and 23:30 h, and five individuals of *B. infusca* were captured, three in “Murrupal” and two in “La Riqueza” (Figure 1). The specimens were collected under the permit of Parques Nacionales Naturales de Colombia (Permit number PIDB DTPA 002-11) and housed in the mammal collection of the Universidad del Valle, Cali, Colombia.



FIGURE 1. Dorsal(A) and lateral(B) views of the skull, and dorsal view of the skin (C) of *Balantiopteryx infusca* (UV 14351) collected at “Parque Nacional Natural Farallones de Cali” in Colombia (Photos by E.A. Soto).

All specimens had their skulls extracted for examination. External and craniodental measurements were taken using a digital caliper to the nearest 0.1 mm (McCarthy et al. (2000); specimen UV-14348’s skull was fractured thus cranial measurements could not be taken (Table 1). The external and craniodental measurements of our specimens are within

the ranges reported previously for the species (Arroyo-Cabral & Jones 1988, McCarthy et al. 2000). The reproductive activity was documented by examining females' mammary glands and abdominal palpation, whereas in males it was observed whether the testicles had descended to the scrotum or not (Racey 1982). The individuals exhibited the typical coloration of the species, dark brown dorsal fur with a light banding pattern exhibiting darker tips, a middle band less dark, and bases pale brown whereas the ventral hair was lighter; the membranes were black and presented some hair on the dorsal surface of the uropatagium.

TABLE 1. Craniodental and body measurements (mm) of the five specimens of *Balantiopteryx infusca* collected at “Parque Nacional Natural Farallones de Cali” in Colombia.

Measurement type	Characters	Description	Specimens				
			UV 14348	UV 14349	UV 14351	UV 14386	UV 14387
Cranial	GLS	Greatest skull length	-	13.41	12.57	13.30	14.07
Cranial	CON INCI	Condylolincisive length	-	11.10	11.70	11.51	13.83
Cranial	ROST LEN	Rostral length	-	2.31	2.50	3.97	3.53
Cranial	PALATE	Palatal length	-	3.83	3.83	5.40	5.93
Cranial	ZYGO BR	Width taken across zygomatic arches at the widest point near the posterior junction with the braincase	-	8.30	8.20	8.67	8.57
Corporal	HB	Length head and body	47.00	48.00	43.00	43.00	49.00
Corporal	TAIL	Tail length	16.00	17.00	17.00	13.00	14.00
Corporal	EAR	Ear length	12.00	11.00	12.00	13.00	11.00
Corporal	HF	Hindfoot	8.00	7.00	7.00	7.00	7.00
Corporal	TIBIA	Tibia	14.27	14.53	13.85	14.75	14.41
Corporal	FA	Forearm	38.77	41.24	39.20	41.48	41.70

The locality where we collected these specimens is within a protected area that encompasses 15,000 ha of different ecological zones including Tropical rainforest, Subtropical cloud forest, and Paramo. In particular, the “Anchicayá” area is on the western slope of the Andes with elevations between 5000–1200 m asl, relative humidity of 85%, rainfall 3,000 mm, and mainly covered by native forest. Logging and deforestation are the main threats to biodiversity within the zone due to illicit crops and expansion of the agricultural frontier added to illegal mining (UAESPNN 2005; PMSC 2013). Nevertheless, the areas subjacent to our occurrence record are well preserved as they are part of the buffer zone of the “Alto Anchicaya Dam” and are regularly patrolled by security personnel from the Pacific Energy Company – EPSA which limits human activity within the area. The closest human settlement to the sampled tunnels is “Corregimiento El Queremal” located about 20 Km east of the locality.

Balantiopteryx infusca is a rare species with few locality records, and in Colombia has been scarcely recorded in the last decades (Castaño-Salazar & Cárdenas-Mosquera 2020). The species is threatened due to deforestation, and a resulting reduction of available habitat (Tirira 2015) which makes our discovery remarkable given that the populations of *B. infusca* in this locality are presumably not very exposed to habitat loss and human activity, being this the first country record of the species in a national protected area. However, populational assessments and natural history studies are needed to evaluate the current state of the populations in this area and determine the existing threats that this species is facing both within and outside protected areas.

In particular, the few occurrences of the species suggest that it prefers wet cave-like habitats as roosts (McCarthy et al. 2000). Therefore, an initial step could be to evaluate the availability of these roost types within the potential habitat areas of the species. In any case, recent records of the species, such as ours and Castaño-Salazar & Cárdenas-Mosquera (2020), are noteworthy because they extend the distribution of the species and confirm that *B. infusca* still occurs in the forests of the Chocó region (Figure 2).

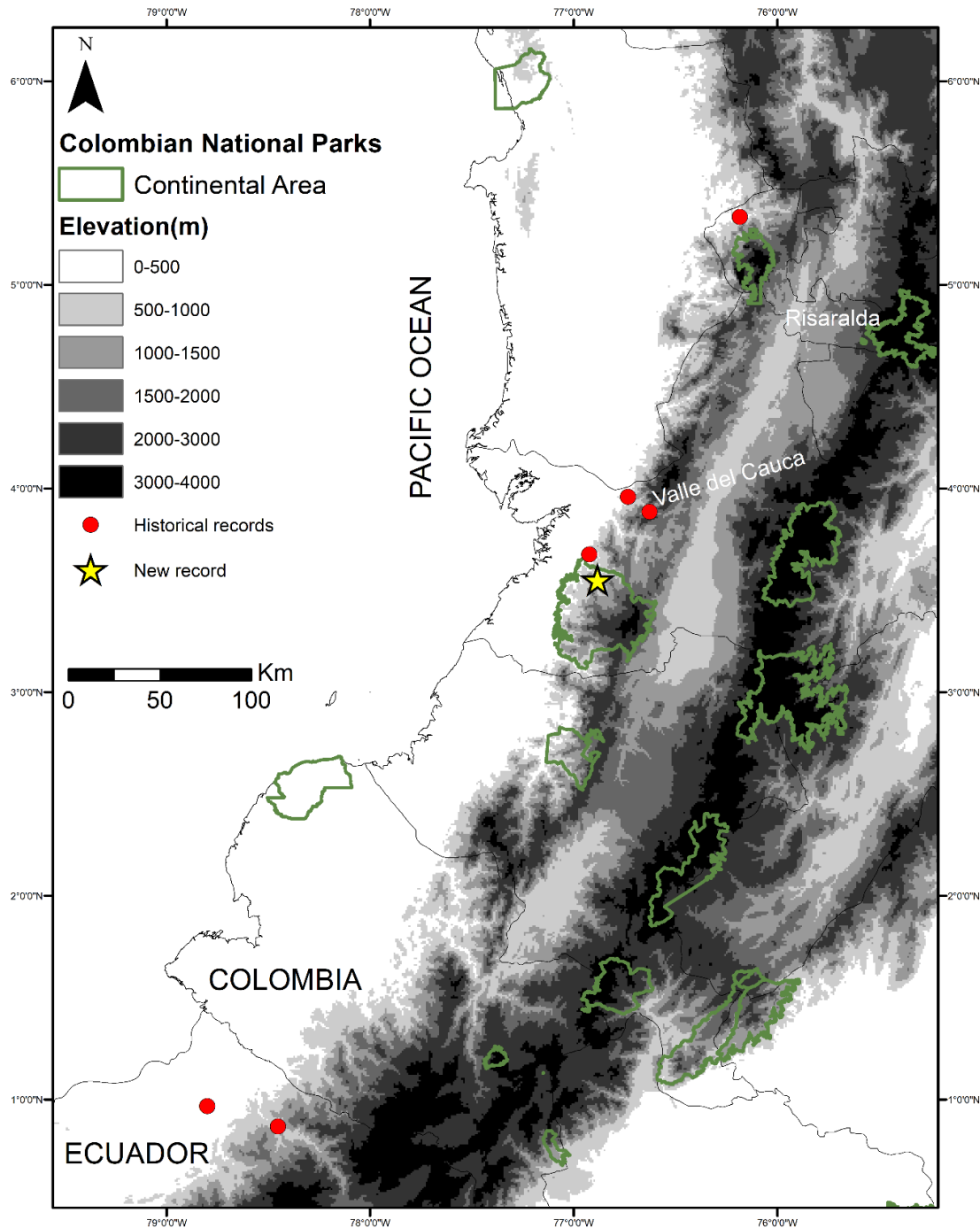


FIGURE 2. Map of western Colombia and northwest Ecuador, showing locality records for *Balantioperyx infusca*. New locality (yellow star) and historical locations (red dots).

The relatively few records of *B. infusca* may be due to the difficulty of capturing them by conventional methods. Most existing specimens have been collected directly from their shelters, although its detectability could be improved by using alternative methods like acoustic monitoring. There has also been a paucity of sampling overtime at locations within the species' known range which highlights the importance of conducting further research to establish the species' actual distribution. The discovery of colonies of this and other species provides an opportunity for further studies to understand different aspects of the biology and natural history of the region's chiropterofauna, so far poorly known, and within a region that is threatened by the rapid intervention of their natural habitats. Thus, it is imperative to improve our knowledge about the population status and geographic distribution of this species, to assure the occurrences of viable populations within natural protected areas.

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