

## SHORT COMMUNICATION

### An offspring from the northernmost population of *Myrmecophaga tridactyla* (Xenarthra: Myrmecophagidae)

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**Abstract** During a November 2021 to January 2022 camera trap survey in the core zone of Río Plátano Biosphere Reserve, Honduras, we detected the first instance of verified reproduction of a giant anteater (*Myrmecophaga tridactyla*) for northern Central America. As part of a permanent monitoring program using camera stations, an adult female giant anteater with an offspring was recorded at the Wuarska site in Colón department (northern Honduras). Our detection represents the northernmost record of reproduction in giant anteaters and provides evidence of the importance of the Wuarska site, which is the northernmost extension of its regional distribution, for the conservation of this species in Honduras. We hypothesize that there is a high loss of connectivity among populations of giant anteaters in Honduras due to illegal deforestation. In addition, illegal poaching with dogs is among the main threats for the species in Honduras.

**Keywords:** camera traps, giant anteater, Honduras, reproduction, Río Plátano Biosphere Reserve

#### Una cría de la población más septentrional de *Myrmecophaga tridactyla* (Xenarthra: Myrmecophagidae)

**Resumen** Durante un estudio con trampas cámara de noviembre de 2021 a enero de 2022 en la zona núcleo de la Reserva del Hombre y la Biosfera de Río Plátano, Honduras, detectamos el primer caso de reproducción verificada de un hormiguero gigante (*Myrmecophaga tridactyla*) para el norte de Centroamérica. Como parte de un programa de monitoreo permanente con estaciones de trampas cámara, se registró a una hembra adulta de *M. tridactyla* con su cría en el sitio de Wuarska, departamento de Colón (norte de Honduras). Esta detección representa el registro más septentrional de reproducción en hormigueros gigantes y proporciona evidencia de la importancia del sitio de Wuarska, que es la extensión más norteña de su distribución regional, para la conservación de esta especie en Honduras y en la región. Nuestra hipótesis es que existe una gran pérdida de conectividad entre las poblaciones de hormigueros gigantes en Honduras debido a la deforestación ilegal. Además, la caza furtiva ilegal con perros se encuentra entre las principales amenazas para la especie en Honduras.

**Palabras clave:** Honduras, hormiguero gigante, reproducción, Reserva del Hombre y la Biosfera de Río Plátano, trampas cámara

The giant anteater (*Myrmecophaga tridactyla*; Xenarthra: Myrmecophagidae) has three extant subspecies: 1) *M. t. centralis*, occurring in Central America, Colombia, and Ecuador (west of the Andean mountains); 2) *M. t. artata*, including populations in northeastern Colombia and northwestern Venezuela; and 3) *M. t. tridactyla*, in the remainder of the species distribution (Miranda *et al.*, 2014). The species as a whole occurs from Honduras in Central America south into South America, extending from Venezuela to Brazil and Argentina. Historical records suggest that *M. tridactyla* once ranged into Guatemala and potentially Belize, but current evidence suggests the species has been extirpated from those countries (see Gaudin *et al.*, 2018 for further discussion).

In September of 1996, McCain (2001) photographed the first evidence of *M. tridactyla* in Honduras, whose presence had previously been speculated by Goodwin (1942). This specimen was allegedly intended for the illegal trade to Asia. Recently, Turcios-Casco *et al.* (2020) reviewed the geographic distribution of xenarthrans in Honduras, including the giant anteater or *wingku tara* (as it is known in eastern Honduras; Jones Jr., 1965). In their review, Turcios-Casco *et al.* (2020) asserted that *M. tridactyla* only occurs in Colón, Gracias a Dios, and Olancho departments, from 3 to 598 m asl, in subtropical to tropical moist and wet forests.

The giant anteater is usually a solitary animal except for the association between a mother and her offspring, which lasts approximately a year (del Valle Jerez & Halloy, 2003; Gaudin *et al.*, 2018). Data related to reproductive rates of free-ranging animals are scarce (Alberici *et al.*, 2020). In fact, there have been no records of reproductive activity in the wild for *M. tridactyla* in northern Central America (Belize, Guatemala, Honduras, Nicaragua or El Salvador). Here, we report the first such evidence, obtained from a site in northern Honduras.

The results presented herein stemmed from the recommendations of Martínez *et al.* (2020), who suggested that more sampling efforts are needed in the region of Wuarska, which is within the municipality of Iriona, department of Colón. Wuarska includes medium mountainous formations, with elevations that vary from 400–1000 m asl, and is part of the drainage of the Río Plátano basin, which lies within the core zone of the Río Plátano Biosphere Reserve (RPBR). It is characterized by an annual rainfall of 2800 mm, an average temperature of 23°C (Escuela Nacional de Ciencias Forestales, 2013), and consists of very humid subtropical forest (Martínez *et al.*, 2020). As a consequence of Martínez *et al.*'s (2020) proposal, the first permanent monitoring stations for wildlife were established using camera traps within the core zones

of the RPBR, specifically to record *M. tridactyla* and other species of management concern.

Sites for camera traps were selected along likely wildlife movement corridors by searching for animal signs (*e.g.*, tracks, feces, and claw marks) along tree trunks, ravines, and river banks. The distance from one camera station to another was approximately 1 km, and a camera station consisted of two cameras facing one another. A total of six camera stations (12 cameras) were deployed from 12 November 2021 to 30 January 2022 (Martínez *et al.*, 2020). These stations were checked after 78 days in the field, representing a sampling effort of 936 trap/nights.

Among 850 detections, we recorded *M. tridactyla* nine times (detections were considered independent if separated by  $\geq 24$  h). These nine detections represented at least three distinct individuals: one detection of an adult female with an offspring on its back (detected 18 January 2022; **FIG. 1**), and eight independent detections of a solitary adult (which may or may not have been the same individual) on 23 and 26 November 2021 (15°20'01"N, 85°15'43"W, 470 m asl); 26 November 2021 (15°20'14"N, 85°15'40"W, 425 m asl); and 26 November 2021, 03 January 2022, and 23 January 2022 (15°20'01"N, 85°15'45"W, 475 m asl). Dates were not available for two records at the following stations: 15°20'17"N, 85°15'48"W (411 m asl), and 15°19'33"N, 85°15'33"W (450 m asl).

Photographs of the adult female with an offspring were taken between 09:04–15:54 h, at ambient temperatures of 17.2–22.2°C. Other mammals and birds of conservation interest are listed in **TABLE 1**. Additionally, the cameras detected domestic dogs ( $n=25$ ) and humans ( $n=16$ ), the latter of which were probably hunters.

To our knowledge, our records are the first evidence of giant anteater reproduction in northern Central America and represent the northernmost reproductive population that has been documented. Reproductive activity and behavior are poorly known for giant anteaters in the wild (Rodrigues *et al.*, 2008; Gaudin *et al.*, 2018). Available evidence suggests *M. tridactyla* usually has one offspring every nine months (Gardner, 2008; Rodrigues *et al.*, 2008; Gaudin *et al.*, 2018). Considering that many females are believed to return to their natal area to breed (Collevatti *et al.*, 2007), we urgently recommend protecting the Wuarska site through control and surveillance actions. Wuarska represents one of the most important sites for the conservation of *M. tridactyla* in Honduras (Martínez *et al.*, 2020), as well as for other species of mammals (*e.g.*, *Mimon cozumelae*, Cozumelan golden bat [Ávila-Palma *et al.*, 2019]) and reptiles (*e.g.*, *Polychrus gutturosus*, Berthold's bush anole [Antúnez-Fonseca *et al.*, 2022]).





**FIGURE 1.** Two consecutive photographs of the offspring with its mother recorded in Wuarska, Colón.

Considering our records, those of Martínez *et al.* (2020), and the data reviewed by Turcios-Casco *et al.* (2020), we suspect that there are currently two populations of *M. tridactyla* in Honduras. One is within Wuarska, in northeastern Honduras, and includes the departments of Colón, northern Olancho, and northeastern Gracias a Dios. The other is in southern La Mosquitia and includes southern Gracias a Dios and southeastern Olancho departments. However, most of the surrounding protected areas and

buffer zones of the RPBR have experienced rapid and recent habitat fragmentation due to extensive cattle ranching, illegal poaching, and deforestation (Olsoy *et al.*, 2016; Ordoñez-Mazier *et al.*, 2020; Chinchilla *et al.*, 2022). Thus, it seems likely that there has been a loss of forest connectivity in the corridor of La Mosquitia. Therefore, any potential connection between the populations of *M. tridactyla* in Honduras is becoming less probable and increasingly at risk.

**TABLE 1.** Species and number of independent events that were recorded from the 12 camera traps in Wuarska, Honduras, along with conservation status as assessed globally by the IUCN Red List of Threatened Species (IUCN, 2022), and for Honduras by WCS (2021). Relevant appendices for international trade in each species, as assessed by CITES (2022) are also included. Blank entries are because some species were not, or could not, be assessed (*i.e.*, they were identified only to genus or family).

Family/species		Events	IUCN (2022)	WCS (2021)	CITES (2022)	
	Atelidae	<i>Ateles geoffroyi</i>	1	EN	EN	II
	Cervidae	<i>Mazama temama</i>	56	DD	CR	–
	Cuniculidae	<i>Cuniculus paca</i>	115	LC	VU	III
	Dasypodidae	<i>Dasypus novemcinctus</i>	8	LC	–	–
	Dasyproctidae	<i>Dasyprocta punctata</i>	450	LC	–	III
		<i>Chironectes minimus</i>	1	LC	–	–
	Didelphidae	<i>Didelphis marsupialis</i>	1	LC	–	–
		<i>Philander opossum</i>	1	LC	–	–
		<i>Leopardus pardalis</i>	24	LC	VU	II
		<i>Leopardus wiedii</i>	16	NT	VU	II
<b>Mammals</b>	Felidae	<i>Panthera onca</i>	1	NT	CR	I
		<i>Puma concolor</i>	11	LC	EN	II
		<i>Herpailurus yagouaroundi</i>	3	LC	–	II
	Mephitidae	<i>Conepatus semistriatus</i>	10	LC	–	–
	Mustelidae	<i>Eira barbara</i>	4	LC	–	III
	Myrmecophagidae	<i>Myrmecophaga tridactyla</i>	9	VU	CR	II
		<i>Tamandua mexicana</i>	1	LC	–	–
	Procyonidae	<i>Procyon lotor</i>	1	LC	–	–
	Sciuridae	<i>Sciurus</i> sp.	1	–	–	–
	Tapiridae	<i>Tapirella bairdii</i>	22	EN	CR	I
Tayassuidae	<i>Dicotyles tajacu</i>	5	LC	VU	II	
	<i>Tayassu pecari</i>	1	VU	CR	II	
	Columbidae		2	–	–	–
	Cracidae	<i>Crax rubra</i>	50	VU	VU	III
<b>Birds</b>	Momotidae	<i>Baryphthengus martii</i>	1	LC	–	–
	Tinamidae	<i>Crypturellus soui</i>	11	LC	–	–
		<i>Tinamus major</i>	2	NT	–	–
<b>Other</b>	Dogs		25			
	Humans		16			
<b>Total</b>			<b>850</b>			

Acronyms for IUCN (2022) and WCS (2021) are: **CR**=Critically Endangered, **DD**=Data Deficient, **EN**=Endangered, **LC**=Least Concern, **NT**=Near Threatened, **VU**=Vulnerable. Appendices for CITES (2022): **I**=No international trade, **II**=trade is closely controlled, and **III**=trade is permitted with appropriate permits.



The conservation outlook for the Wuarska population of *M. tridactyla* is relatively poor. If the northernmost population of *M. tridactyla* becomes isolated, genetic variability is unlikely to be maintained, and overall population viability may well be at risk. Considering that 4.8% of our camera detections included people and/or dogs, illegal poaching, coupled with increasing deforestation (Turcios-Casco *et al.*, 2020), means that both the habitats of giant anteaters and the individual animals themselves are at considerable risk. Hunting with dogs is a phenomenon that has been reported in other countries (*e.g.*, Nicaragua [Koster, 2008] and Brazil [de Matos-Dias *et al.*, 2019]). Therefore, hunting policies in Honduras must be thoroughly reviewed because hunters are threatening many species in the country. Hunters have often stated that they kill any anteater (including tamanduas, *Tamandua mexicana*) they encounter in Honduras to prevent the high cost of replacing one of their dogs (the cost of a hunting-trained dog in Honduras is approximately US\$ 250–300) should it be killed by an anteater.

Globally, *M. tridactyla* is currently listed as Vulnerable in the Red List of Threatened Species of the IUCN (2022), and its populations are likely decreasing (Miranda *et al.*, 2014). However, in Honduras, *M. tridactyla* is considered Critically Endangered according to the Honduran Red List of Threatened Species (WCS, 2021). We strongly recommend studying the home range of *M. tridactyla* with a larger camera trapping effort, complemented by radiotelemetry, in the region of Wuarska to determine a specific area for its conservation in the La Mosquitia region. In addition, military patrols must increase in this protected area, not only because it represents an important corridor for biodiversity in northeastern Central America, but because illegal poaching is increasing every year. Additionally, threats that lead to habitat fragmentation and loss for this species are increasing daily, especially in the La Mosquitia region (Ordoñez-Mazier *et al.*, 2020; Chinchilla *et al.*, 2022). Thus, immediate action is required if we are to maintain this northernmost population of *M. tridactyla*.

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