



## Nota científica

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# OCCURRENCE DATA OF THE NEOTROPICAL OTTER *Lontra longicaudis* Olfers, 1818 IN THE MANU BIOSPHERE RESERVE

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## ABSTRACT

*Lontra longicaudis* Olfers, 1818 is a widely distributed species in North, Central and South America. They are categorized as Near Threatened by the IUCN, but they are not under legal protection in Peru, where their documentation has been limited. Here we present occurrence data of this species inside the Manu Learning Centre biological station, in the Manu Biosphere Reserve from the period 2012 – 2022, and a suggestion about how to assess this species in the future, using already existing legal regulations.

**KEY WORDS:** conservation, biodiversity, Peruvian Amazon, deforestation, Manu Biosphere Reserve.

## DATOS SOBRE LA OCURRENCIA DE LA NUTRIA DE RÍO *Lontra longicaudis* Olfers, 1818 EN LA RESERVA DE BIOSFERA DEL MANU

### RESUMEN

*Lontra longicaudis* Olfers, 1818 es una especie ampliamente distribuida en el continente americano. Está categorizada como casi amenazada por la IUCN, pero no tiene protección legal en Perú. Donde ha sido escasamente reportada. Aquí presentamos datos de la ocurrencia de esta especie en la estación biológica Manu Learning Centre, en la Reserva de Biosfera del Manu del periodo 2012 – 2022, así como sugerencias de cómo evaluar esta especie en el futuro, usando las leyes vigentes.

**PALABRAS CLAVE:** conservación, biodiversidad, Amazonía peruana, deforestación, Reserva de Biosfera del Manu.

*Lontra longicaudis* Olfers, 1818 commonly known as the Neotropical Otter, is a mustelid characterized by its elongated medium-sized bodies (smaller than *Pteronura brasiliensis* Zimmermann, 1780), small flat heads, short ears, large vibrissae, dense short dark-brown fur, and the absence of any white fur spot located between its neck and chest (Emmons & Feer, 1997; Reis *et al.*, 2006). This species can be found mostly in freshwater aquatic environments such as lagoons, rivers, streams, and coastal areas (Larivière, 1999; Ribeiro & Miotto, 2010; Rheingantz *et al.*, 2017). We can recognize at least 4 evolutionary lineages in their distribution (Trinca *et al.*, 2012)

The Neotropical Otter is categorized as Near Threatened in the IUCN Red List (IUCN, 2023), likely due to anthropogenic impacts on its population and habitat (Rheingantz *et al.*, 2017). However, it is not considered as such in the Peruvian Wild Fauna Red List, nor is listed in the “Decreto Supremo N° 004-2014-MINAGRI” which is the only Peruvian regulation that lists all the Peruvian wild fauna under any conservation status, even though Rheingantz *et al.* (2017) mentioned that it is protected under Peruvian laws. The main threats that this species faces are: otter-human conflict (mainly with fishers and aqua farmers) and habitat loss caused by deforestation, mining, dam construction, and water pollution (Arellano-Nicolas *et al.*, 2012; Rheingantz *et al.*, 2017; Andrade *et al.*, 2019).

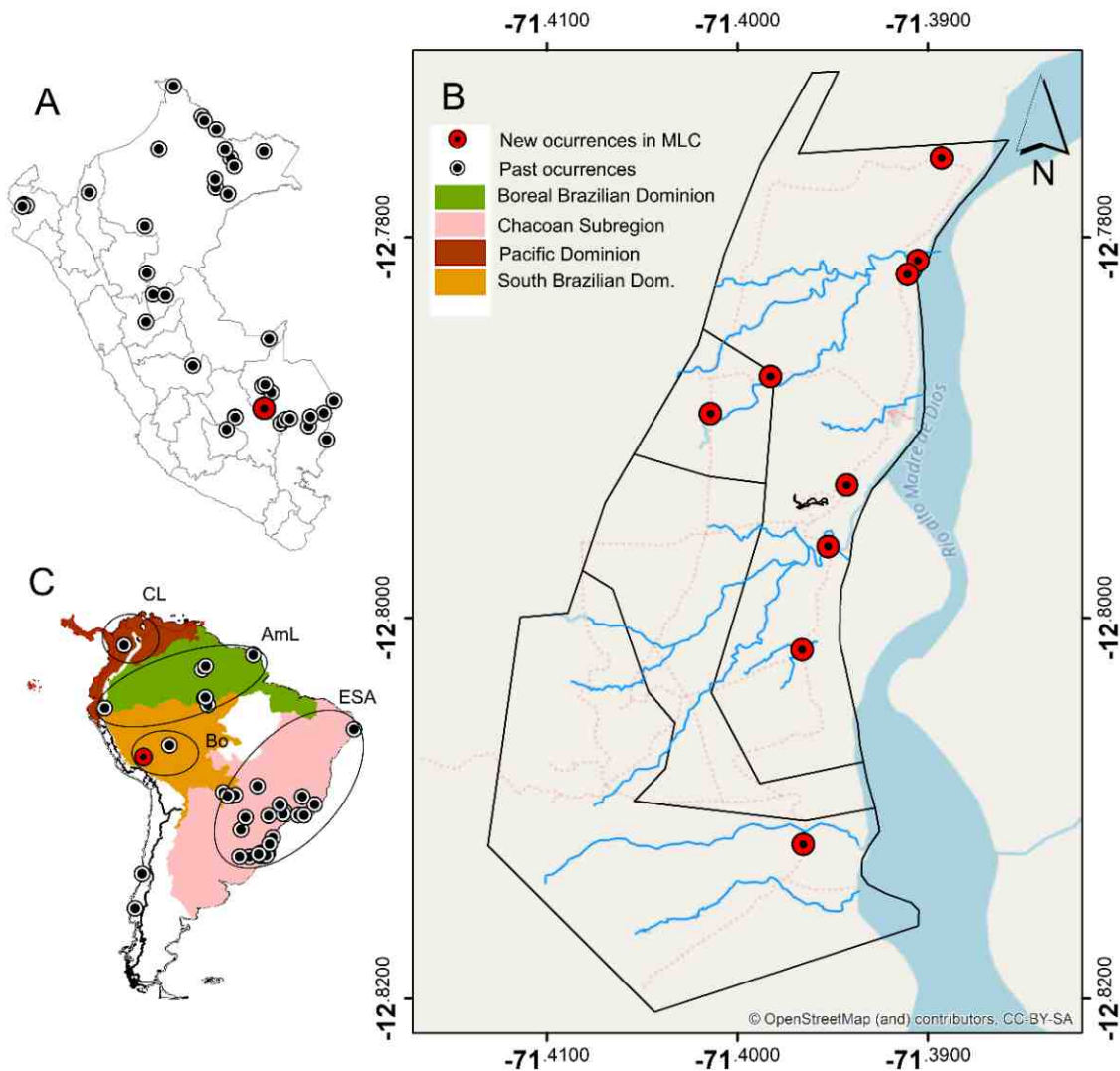
This species is distributed from Mexico to Argentina up to 4000 meters above sea level in the Andean region (Larivière, 1999; Rheingantz *et al.*, 2017). In Peru, there are 51 records occupying 4 Peruvian ecoregions (Figure 1A) (Cossios & Zevallos, 2019; Pacheco *et al.*, 2021; GBIF.org, 2023). Two of these came from the Manu Biosphere Reserve. Despite extensive reviews on this species, there are information gaps in their behavior, niche occupations, line-

ages evolution, distribution, etc. (Andrade *et al.*, 2009; Rheingantz *et al.*, 2014, 2017). The objective of this paper is to describe our most recent record and share our historical records of *Lontra longicaudis*, obtained during fieldwork from 2012 to 2022 at Manu Learning Centre biological station (MLC). Additionally, we discuss its phylogeography in South America and their conservation status.

We took the data of the incidental sightings from the long-term biodiversity monitoring project of Crees Foundation. The long-term biodiversity monitoring project tries to understand the biodiversity recovery in a self-regeneration forest, located in the Manu Learning Centre biological station, inside the Manu Biosphere Reserve. The project focuses on monitoring amphibians, butterflies, birds, mammals, and reptiles using accurate sampling methods (Whitworth, *et al.*, 2016a; Whitworth, *et al.*, 2016b; Whitworth *et al.*, 2018a; Whitworth, *et al.*, 2018b; Whitworth, *et al.*, 2018c).

Until now, there have been 17 recordings of the Neotropical Otter's presence at MLC biological station. Most of them are around Lucumayo and Mascoitania streams, which flow into the Alto Madre de Dios River (Figure 1B). 13 records were direct sightings of otters swimming, and four were footprints (Table 1). Our last record was on May 28, 2022 at 10:00 hours. This sighting was of two individuals on the Mascoitania stream (Figure 2A). Both individuals were seen playing in the stream in a shallow rocky area with a moderate water flow (Figure 2B). We observed the otters for a few minutes, once they noticed our presence; they tried to hide and finally left down in the stream (Figure 2C).

Our recordings of sightings show patterns of activity mainly during the day (Table 1), which can be explained by the fact that *L. longicaudis* is generally considered as a diurnal animal with twilight habits (Larivière, 1999; Arellano-Ni-



**Figure 1.** A. Occurrence map of *Lontra longicaudis* in Peru. B. Occurrence map of *Lontra longicaudis* in the Manu Learning Centre biological station with records since 2012. C. Neotropical Otter evolutionary lineages.

colás *et al.*, 2012; Rheingantz *et al.*, 2017). Furthermore, more frequent sightings would be expected in a conservation zone that is not altered by anthropic activities (Rheingantz *et al.*, 2016). However, a night sighting was reported and could be because of *L. longicaudis* is a generalist predator who can change their prey preference in accordance with the abundance or availability of food resources (Laidre & Jameson, 2006; Rheingantz *et al.*, 2014; Carrasco *et al.*, 2020).

The distribution of this species has a wide range and it is well documented, yet there are some areas that lack information (Rheingantz *et al.*, 2014). Among these areas without information is the Peruvian Amazon that has appropriate conditions for their habitation (Rheingantz *et al.*, 2014). Here, we confirmed the presence of the Neotropical Otter in a secondary forest that is in the process of self-regeneration, and was previously subject to agriculture, logging, and cattle ranching about 50 years ago, showing that

**Table 1.** Occurrence records of *Lontra longicaudis* in the Manu Learning Centre biological station. V. visual; FP. footprint.

Date	Hour	Place	Latitude	Longitude	Observation type	Individuals number
15/09/2012	09:15	T1_890	-12.7873	-71.3983	V	1
13/10/2012	06:00	Choro	-12.8119	-71.3965	V	1
23/10/2012	-	T9 2000	-12.7758	-71.3893	FP	1
25/06/2014	07:04	Wetland	-12.793	-71.3942	V	1
21/08/2014	09:53	Lucumayo	-12.7808	-71.3904	V	1
28/08/2015	10:35	Wetland	-12.793	-71.3942	V	1
19/10/2015	12:15	Olivetti	-12.8140	-71.3991	V	1
31/10/2015	08:22	T4 250	-12.7962	-71.3952	FP	1
08/12/2015	22:25	T4 900	-12.8017	-71.3966	V	1
05/01/2016	14:40	Wetland	-12.793	-71.3942	V	2
05/01/2016	15:40	Wetland	-12.793	-71.3942	V	1
30/01/2016	09:45	Wetland	-12.793	-71.3942	V	1
27/07/2016	11:00	Wetland	-12.793	-71.3942	V	1
22/06/2017	07:32	T9 1000	-12.7812	-71.3905	FP	1
09/10/2018	09:00	T9 900	-12.7819	-71.3911	FP	1
02/01/2019	10:29	T1 1450	-12.7893	-71.4014	V	1
28/05/2022	10:00	Mascoitania	-12.8032	-71.4032	V	2

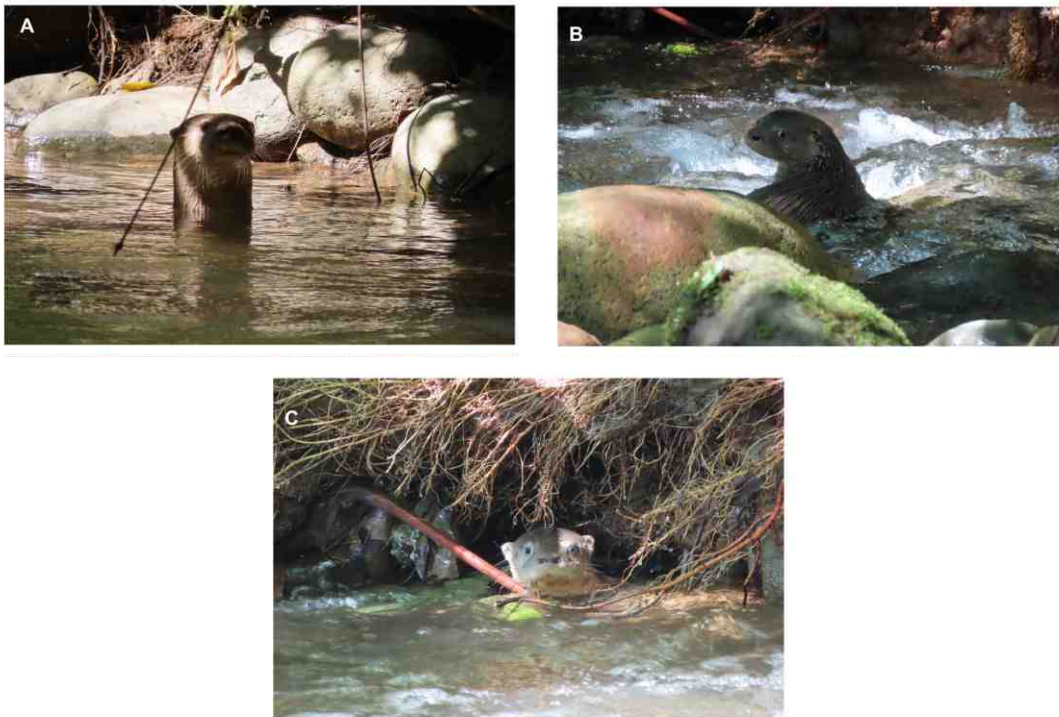
this species can tolerate chemical and organic pollution to some extent, similar to what is shown by Gallo Reynoso (1997) and Rheingantz *et al.* (2017).

The knowledge of the species distribution and their demographic parameters (such as population size, density, mating system, and dispersion) are some of the most important factors for conservation (Rondinini *et al.*, 2011). Carnivores, like *Lontra longicaudis* and *Pteronura brasiliensis* (Giant Otter), play important roles in ecosystems because they are at the top of the food chain (Miller *et al.*, 2001; Roberge & Angelstam, 2004). These species have a similar distributional range in the Amazon and are under similar threats like deforestation, illegal mining, land use change, and infrastructure building (Mendoza *et al.*, 2017; Rheingantz *et al.*, 2014, 2017; Gallice *et al.*, 2019).

The Giant Otter is one of the flagship species

for conservation in the Manu National Park (SERNANP, 2019). For this reason, within the Manu National Park, research is mainly focused on the Giant Otter, rather than the Neotropical Otter. Therefore, information on the Neotropical Otter at the Manu National Park is scarce (Mendoza *et al.*, 2017; Rheingantz *et al.*, 2014, 2017; SERNANP, 2019).

Most of the Neotropical Otter records in Peru, were incidental observations from the wild, not following a monitoring protocol or standard method in contrast to the Giant Otter (Mendoza *et al.*, 2017). The Giant Otter is monitored inside some natural protected areas by the Peruvian government like the Pacaya Samiria National Reserve (Resolución Directoral N° 024-2022-SERNANP-DGNAP) and the Manu National Park (Informe N° 398-2021-SERNANP-DGNAP) under standardized methods. Based on the disproportionality of data available, we suggest applying



**Figure 2.** *Lontra longicaudis* record in the Mascoitania stream at Manu Learning Centre Biological Station on May 22th of 2022.

standardized methods for studying Neotropical Otter considering Andrade *et al.* (2019) assessment experience.

Species that have a wide distribution (such as the Neotropical Otter) usually have differentiated lineages since there are geographical barriers that limit their genetic flow inside their population (Woodruff, 2001). Trinca *et al.* (2012) separated different Neotropical Otter populations into four different evolutionary lineages (Amazonian, East South American, Colombian, and Bolivian), that are related to the subspecies reported by Van Zyll De Jong (1972). These subspecies are differentiated by having variations in the rhinarium and the coloration (Van Zyll De Jong, 1972). These lineages are geographically separated and follow the biogeographical regionalization proposed by Morrone (2014): The East South American Subspecies (or lineage) is found in the Chacoan subregion; the Amazonian Group is in the Bo-

real Brazilian Dominion; the Bolivian Group in the South Brazilian Dominion, and the Colombian in the Pacific Dominion (Morrone, 2014, Trinca *et al.*, 2012). The individuals reported here were in the South Brazilian Dominion so they should be related to the Bolivian lineage (Figure 1C). The Bolivian lineage has only scarce records so it is necessary to have more records that complete the information.

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