



First record of the Amazon Weasel *Neogale africana* in Madre de Dios, Peru

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Abstract

The Amazon Weasel *Neogale africana* is a cryptic and rare small carnivore with fewer than 25 verified records throughout the Amazon basin from Ecuador, Colombia, Peru, Bolivia, and Brazil. Here, we report a new observation of the Amazon Weasel from eight camera-trap photographs taken at Finca Las Piedras research station in Madre de Dios, Peru. This new record fills a major gap in the global distribution of this species, specifically within the trinational area spanning Madre de Dios in Peru, Acre in Brazil, and Pando in Bolivia – a region known as the MAP frontier – where rapid land use change along the Interoceanic Highway is driving deforestation and habitat fragmentation. Furthermore, this new record is the first documented observation of the Amazon Weasel within a terra firme forest managed for the growth of the Brazil Nut Tree *Bertholletia excelsa* and harvest of Brazil nuts.

Keywords: Brazil Nut Tree, Interoceanic Highway, MAP region, Peruvian Amazon, terra firme forest

Introduction

Many mammal species in Amazonia still lack occurrence data necessary to estimate their geographic ranges, which strongly predict extinction risk (Gaston 2003, Gaston & Fuller 2009). Collecting these data on elusive or rare species is challenging, particularly for those that inhabit remote regions within the Amazon rainforest. Although significant effort has been devoted to understanding the distributions of large charismatic predators across South America (Monsarrat & Kerley 2018, Tensen 2018), less is known about elusive small predators, particularly mustelids such as weasels (Oliveira 2009, Schiaffini 2022).

The Amazon Weasel *Neogale africana* (formerly *Mustela africana*; Patterson et al. 2021) is a small mustelid and one of the rarest small carnivores in the Amazon rainforest (Oliveira 2009). This species is known from about 24 verified and anecdotal records from Peru, Ecuador, Bolivia, and Brazil (Ramírez-Chaves et al. 2014, Schiaffini 2022, Bernal-Hoverud et al. 2024; Fig. 1), with an evident gap in observations between eastern Brazil and the western Peruvian Amazon (Bernal-Hoverud et al. 2024). The IUCN Red List of Threatened Species lists the Amazon Weasel as of Least Concern (Emmons & Helgen 2016). However, very little is known regarding its distribution, ecology, and threats (Emmons & Helgen 2016).

Record description

An Amazon Weasel was camera-trapped at Finca Las Piedras research station (12°13'34"S, 69°06'45" W, 269.4 m asl), in the Department of Madre de Dios,

Peru (Fig. 2). The research station encompasses 75 hectares of terra firme forest, defined as forests that grow in well-drained soils in areas that do not flood (Duivenvoorden & Lips 1995, Zuleta et al. 2020), palm swamps known as *Aguajales*, dominated by the palm *Mauritia flexuosa*, and reforestation plots. The land uses surrounding the research station include agricultural lands and Brazil nut concessions that extend into the Reserva Nacional de Vida Silvestre Amazónica Manuripi in Bolivia.

A Browning Strike Force Pro X 1080 camera-trap detected an individual Amazon Weasel at 10h00 on 13 April 2025 at the Finca Las Piedras research station. This camera-trap was one of five deployed to monitor mammal and bird biodiversity within five microhabitats found throughout the research station. The microhabitat surrounding the camera-trap was a dense, primary terra firme forest characterised by the presence of approximately 50 Brazil Nut Trees and a walking trail, close to the research station's main housing.

The camera-trap was positioned approximately 30–40 cm off the ground, facing north with a detection range of 24 m and a 30-second capture delay. The camera-trap remained active for nearly six months prior to the detection of the Amazon Weasel. The weasel was photographed in a sequence of eight photographs; these photographs were subsequently uploaded to Wildlife Insights, an open-access platform where users can upload camera-trap photographs and identify species using artificial intelligence (Wildlife Insights 2025). This platform detected the individual and placed it in a bounding box for clear visualisation; however, it could not confidently identify it past the class level. The series of images was

reviewed by species experts, and the species was identified as an Amazon Weasel on 26 August 2025. The camera-trap methods used to monitor biodiversity across five microhabitats (dense forest, open forest, trail, stream, and wetland) followed the guidance of the Organization of Biological Field Stations (2026; Supplementary Material).

Species identification

The identity of the Amazon Weasel was confirmed by multiple citizen scientist contributions on iNaturalist, a “crowdsourced species identification system” (iNaturalist 2025), and further verified by Dr. Bruce Patterson at the Negaunee Integrative Research Center, Field Museum of Natural History in Chicago, IL, USA. The morphological characteristics were compared with photographs taken by Dr. Bruce Patterson of the voucher specimen from the Museu Paraense Emílio Goeldi (MPEG.MAM 000293) and the voucher from the Museum and Institute of Zoology of the Polish Academy of Sciences in Warsaw (MIZ 83480), illustrated by Piechnik et al. (2017). Notably, the individual we observed exhibits darker pelage than the voucher from Ramal do Pinheiro, Brazil (MPEG.MAM 000293), while its phenotype matches that of the

voucher from Yurimaguas, Loreto, Peru (MIZ 83480), and the observation reported by Bernal-Hoverud et al. (2024) in Bolivia.

Although the ventral dark stripe of the Amazon Weasel is not visible because of the camera’s lateral view of the animal, the entire dorsal region is glossy blackish brown, with the pelage clearly demarcated by whitish colouration on the throat and ventral region. In addition, the individual’s tail is neither long nor slender like that of the Long-tailed Weasel *Neogale frenata* (Hall 1951, Ramírez-Chaves et al. 2014, Bernal-Hoverud et al. 2024). While the Long-tailed Weasel is found in Peru and is known to occupy inland wetlands, its South American range follows the Andes mountains to central Bolivia and does not extend East of the Madre de Dios River, where the Amazon Weasel was recorded (Emmons & Helgen 2016, Schiaffini 2022).

Discussion

This observation fills a major gap in the global distribution of this species and represents the first official record for the Amazon Weasel in Madre de Dios, Peru, where rapid land use change along the Interoceanic Highway is driving habitat loss. This

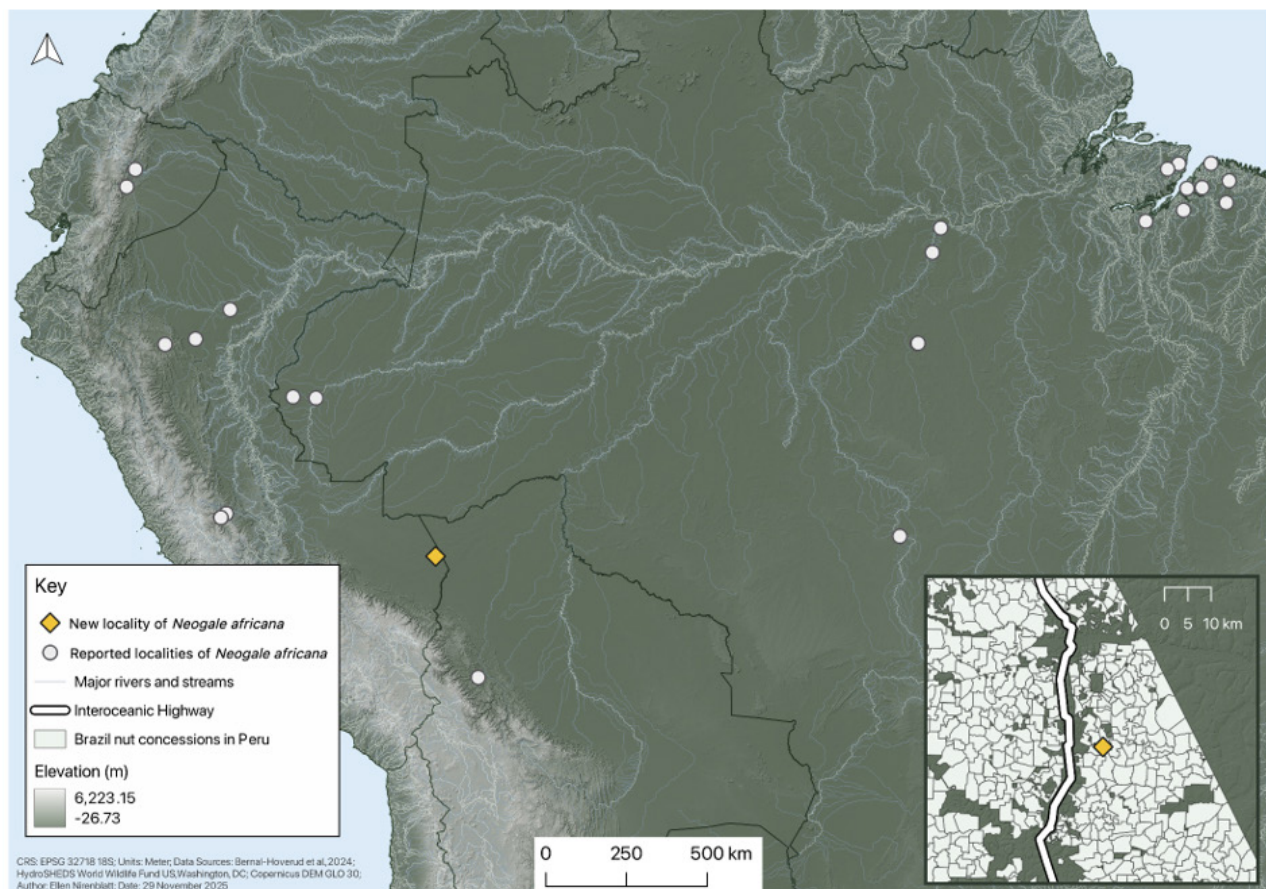


Fig. 1. Global distribution of Amazon Weasel *Neogale africana*, updated from Bernal-Hoverud et al. (2024) to include the new observation from Finca Las Piedras, Madre de Dios, Peru.

observation is also the first verifiable record of this species occupying a terra firme habitat managed for the harvest of Brazil nuts. While previous literature has reported the presence of the Amazon Weasel in terra firme forests (Oliveira 2009, Rodrigues 2013, Nagy-Reis et al. 2020), none of the literature, to the best of our knowledge, has explicitly documented the presence of the Amazon Weasel in association with forests managed for the growth of Brazil Nut Trees.

Because of its elusive nature, the Amazon Weasel is likely more widespread than currently reported. Anecdotal reports of this species from Jesús Cieza, a professional naturalist and CEO of South Birding Peru, support this interpretation: although extremely rare, the species is known within the Madre de Dios region. He reported two sightings over the past decade, both in terra firme forests near water bodies in the Department of Madre de Dios (Jesús Cieza, pers. comm. 25 November 2025). The first occurred along the Pariamanu River, and the second along the Madre de Dios River near the Bolivian border within the ancestral territory of the Ese Eja indigenous group. He noted that the second individual appeared wet.

These observations align with prior reports and speculation that the Amazon Weasel may be semi-aquatic. Evidence includes interdigital webbing on its feet and observed swimming behaviour in Brazil (Ramírez-Chaves et al. 2014). This new camera-trap record supports these observations that the Amazon Weasel may rely on habitats characterised by the presence of water. While the detection site

does not flood, it is between two seasonally flooded palm swamps and is about 500 m from an intermittent stream. This record may signal that this species utilises various habitat types, potentially based on the seasonal availability of water in the region.

This new record within the trinational boundary of Peru, Brazil, and Bolivia, where various environmental governance structures (Padovezi et al. 2025) and land management practices (Bottazzi & Dao 2013) converge, raises questions about the habitats and land uses the Amazon Weasel may tolerate amid rapid land use change and habitat fragmentation in the region (Perz et al. 2012). Furthermore, the detection of this cryptic species within a forest managed for the harvest of Brazil nuts demonstrates the importance of Brazil nut concessions, which serve as critical sources of biological diversity in a rapidly fragmenting landscape and provide sustainable income to local communities (Kalliola & Flores 2011, Willem et al. 2019).

Citizen science platforms such as iNaturalist have become important tools to increase public involvement in biodiversity conservation (Niemiller et al. 2021, Mason et al. 2025). However, expert verification of species identities remains critical, as variability in participants' expertise may result in misidentifications (Hochmair et al. 2020, McMullin & Allen 2022, Campbell et al. 2023). While iNaturalist and other citizen-science platforms are limited by spatial, taxonomic, and user biases (Hochmair et al. 2020, Campbell et al. 2023, Geurts et al. 2023), publishing records on these platforms can facilitate collabora-



Fig. 2. Camera-trap photographs of Amazon Weasel *Neogale africana* captured on 13 April 2025 at Finca Las Piedras in Madre de Dios, Peru.



tion with diverse audiences, including those with local expertise, ultimately improving our understanding of elusive species such as small carnivores and supporting more informed conservation efforts.

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Data availability

The series of eight camera-trap images of the Amazon Weasel are available on the Wildlife Insights platform. The clearest photograph (Fig. 2) is available at iNaturalist (<https://www.inaturalist.org/observations/308242706>). The map was created using location data available in the appendix and supplementary materials of Bernal-Hoverud et al. (2024) and Schiaffini (2022).

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