ARTICLE

Mammalogy Notes ISSN 2382-3704
https://doi.org/10.47603/mano.vol11n2.490

Distribution and natural history of an overlooked mammal, *Neogale frenata* (Carnivora: Mustelidae), in Honduras

Manfredo A. Turcios-Casco[1,2*], Jorge L. Palma[2], Celeste M, López[2,3]

1 Laboratório de Etnoconservação e Áreas Protegidas, Programa de Pós-Graduação em Zoologia, Universidade Estadual de Santa, Ilhéus, Brazil
2 Asociación para la Sostenibilidad e Investigación Científica en Honduras (ASICH), Comayagüela M.D.C., Francisco Morazán, Honduras
3 AMITIGRA, Parque Nacional La Tigra, Francisco Morazán, Honduras

* Correspondence: matcasco.ppgzoo@uesc.br

Resumen

Neogale frenata, la comadreja de cola larga, tiene la distribución más amplia de cualquier mustélido en el hemisferio occidental; sin embargo, es poco conocida en Centroamérica. Este estudio confirma la presencia de *N. frenata* en tres áreas protegidas de Honduras: la Reserva Biológica El Chile, la Reserva Biológica Misoco y el Parque Nacional La Tigra. Nuestra investigación incluyó el uso de cámaras trampa y una captura ocasional por una trampa Sherman, obteniendo evidencia fotográfica y física de la especie en el Parque Nacional La Tigra. Con base a nuestra revisión, se actualizó la distribución de la comadreja y se confirma su presencia en ocho departamentos de Honduras. Aunque puede ser una especie con una distribución infravalorada debido a su dificultad de identificarla y capturarla por diferentes metodologías, podría ser una especie ampliamente distribuida en el país. Siendo las fotografías presentadas aquí, las primeras evidencias científicas de la especie para Honduras.

Palabras clave: áreas protegidas de Honduras, bosques nublados, comadrejas, comadreja de cola larga, *Mustela frenata*

Abstract

Neogale frenata, the long-tailed weasel, has the widest distribution of any mustelid in the Western Hemisphere; however, it remains poorly known in Central America. This study confirms the presence of *N. frenata* in three protected areas of Honduras: El Chile Biological Reserve, Misoco Biological Reserve, and La Tigra National Park. Our research involved the use of camera traps and an occasional capture using a Sherman trap, resulting in both photographic and physical evidence of the species in La Tigra National Park. Based on our review, the distribution of the weasel has been updated, confirming its presence in eight departments of Honduras. Although it may be a species with an underestimated distribution due to the difficulty of identifying and capturing it through various methodologies, it could be widely distributed throughout the country. The photographs presented here constitute the first scientific evidence of the species in Honduras.

Key words: cloudy forests, Honduran protected areas, Long-tailed weasel, *Mustela frenata*, weasels

1. INTRODUCTION

Neogale frenata is the current scientific name for the Long-tailed weasel (Patterson et al. 2021) and even though there was confusion regarding the taxonomy of weasels, *Neogale* is currently the accepted genus for the Long-tailed weasel (Patterson et al. 2021, 2025). *N. frenata* is the mustelid with the largest distribution on the Western Hemisphere including the Canadian border with the United States all the way to Bolivia, Colombia, Ecuador, Peru, and Venezuela (Sheffield & Howard 1997; Helgen & Reid 2016) from sea level up to 4.200 masl (Escobar-Lasso & Gil-Fernández 2014). Given its wide distribution, significant gaps remain in our understanding of its abundance and ecology (Evans & Mortelliti 2022). Central American populations, which form part of the species northern range (Schiaffini 2022), are likely the least studied.

Information regarding its natural history in Central America is scarce, but is highly documented in other countries such as USA (King 1990), Mexico (Ruiz-Campos et al. 2009; Vaca-León et al. 2019), Colombia (Escobar-Lasso & Gil-Fernández 2014), and Ecuador (Paucar & Tirira 2023; Tirira 2023), but general information is maintained for Central America (e.g., Reid 2009). In the case of Honduras, *Neogale frenata* is likely an overlooked species due to its elusive behavior and the difficulty of identifying it in camera-trap images. Additionally, available information on the species in the country is limited, and there are no officially confirmed documented distribution reports for Honduras. Considering the gaps regarding the natural history of the Long-tailed weasel in the Central American isthmus, we summarize and update the distribution of *N. frenata* in Honduras in addition to our new records and provide comments regarding the conservation, morphometrics and natural history of the species in the country; being this the firs work dedicated to the weasels of Honduras.

2. MATERIALS AND METHODS

2.1. Study area

La Tigra National Park is located in the San Juancito Mountain range, near Tegucigalpa and Valle de Ángeles. Elevation range varies between 1.200 and 2.290 masl, and the park includes diverse forest types, such as highland cloud forests, pine-oak-liquidambar forests, mixed and pure pine forests, and dry forests near the Choluteca River (ICF 2013). El Chile Biological Reserve is situated about 50 km northeast of Tegucigalpa, covers 6.540,55 hectares, divided into a 1.880 has core zone and a 4.660 has buffer zone, with elevations ranging from 1.200 to 1.718 masl; it contains cloud forests and coniferous forests with some agricultural activity, and includes Subtropical Wet Forest and Lower Montane Subtropical Wet Forest ecosystems based on Holdridge's Life Zones (ICF 2012). Misoco Biological Reserve lies approximately 100 km southwest of Tegucigalpa and spans 4.572,36 has across the Misoco Mountain Range, with its highest peak, Cerro El Volcán, reaching 2.143 masl; it features a range of ecosystems including Upper Montane and Altimontane Broadleaf Forests (1.800–2.143 masl), Submontane Needleleaf Forest (700–900 masl), and Lower Montane Needleleaf Forest (900–1.200 masl), with an additional 1.361,58 hectares of agricultural land in its buffer zone (ICF 2015). All the camera-traps and Sherman-traps described in this work were located at core zones of each protected area (Figure 1).

2.2. Sherman traps and morphometry

Sherman traps (23,5 x 9,5 x 9 cm) were set up along linear transects on trails in La Tigra National Park from 21 to 23 September 2022 and from 3 to 7 January 2024. In both cases, each trap was positioned with a 20-meter gap between them and placed five meters perpendicular to the trail. To capture rodents, two types of bait were used interchangeably: one made of oats, peanut butter, and vanilla essence, and the other a blend of canned tuna with oats. An individual of *N. frenata* was captured and standard taxidermical procedures were performed for the conservation of the skull and skin, which were deposited in the zoological collection of the Escuela Agrícola Panamericana Zamorano (EAP) with the catalogue number: CZB MT034. The standard external and cranial measurements were taken from the specimen based on Elasser & Parker (2008): foramen magnum diameter (height and width), palatine to rostrum length, palatine to pterygoid process length, condylobasal length (LCB), basilar length (LB), postglenoidal length (LPG), mastoid width (Ma), cranial width (Bc), bi-zygomatic width (Bz), muzzle width (Ro), and mandibular angular to coronoid process height (ACPH) were measured with a digital caliper to 0.01 precision.

In El Chile Biological Reserve and Misoco Biological Reserve, no Sherman-traps were used for sampling because they were not part of the survey objectives at that time.

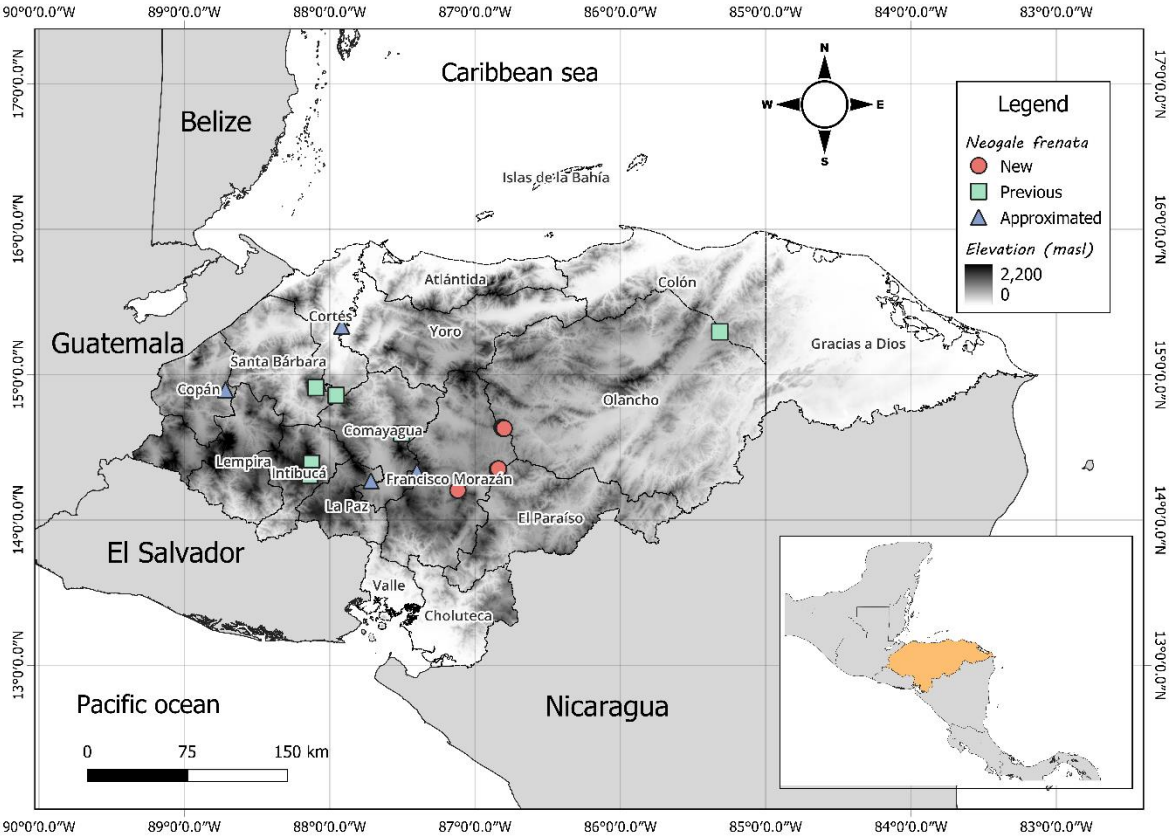

FIGURE 1. Confirmed distribution of *Neogale frenata* for Honduras. Note that those records that were missing their verbatim were approximately located (blue triangles)

2.3. Camera traps

Six Moultrie camera traps were used, placed on trails where evidence of identified animals (e.g., footprints, traces, track or feces) was found, or on trails frequently used by people. The cameras were programmed for 90-120 days, with a minimum separation distance of 500 m. Positioned perpendicular to the trails, the cameras aimed to maximize the likelihood of capturing the entire flank of animals, especially felids. Camera captures were set to take one photo per event with a one-minute interval. To distinguish between separate detections by species, a one-hour interval was used to define independent records and were considered as different individuals. Therefore, individuals presented at Table 1 were considered different.

We followed the guidelines for the use of wild mammals in research as outlined by Sikes et al. 2016. Furthermore, the research permit for this work was issued by Instituto Nacional de Conservación Forestal, Áreas Protegidas y Vida Silvestre (ICF) through resolution DE-MP-055-2023. Additionally, part of these records was made based on the actions done for the Annual Operational Plan of the Francisco Morazán Regional Office of the ICF, and co-managers of the protected areas.

2.4. Distribution

To ascertain the distribution of *N. frenata*, we obtained a database from GBIF.org (2024) and published records in Honduras. For records lacking geographic coordinates, we approximated their location based on the verbatim description (see Figure 1). We reviewed the dataset, and we only used those records in which *N. frenata* was confirmed. However, entries with imprecise localities were excluded from the map. Figure 1 was created using QGIS Desktop 3.28.3. Elevation data for each camera-trap location were extracted using a digital elevation model (DEM) raster layer in QGIS. Geographic coordinates from each record were overlaid on the raster, and elevation values were obtained using the "Point Sampling Tool" plugin, allowing precise association of altitude with each detection point. Table 1 describes the coordinates and the metadata for each known record for *Neogale frenata* in Honduras; the datum is WGS 84.

2.5. Informal interviews

In each protected area, informal interviews were conducted with residents, park rangers, and community members to gather qualitative information regarding wildlife-related conflicts, hunting practices, and issues associated with livestock predation. These conversations aimed to identify local perceptions of species such as *Neogale frenata*, the frequency of encounters, and whether individuals had been killed due to poultry losses or other conflicts. This informal, open-ended approach is commonly used in rapid ecological assessments and community-based conservation research to understand human-wildlife interactions in rural contexts (Newing et al. 2011).

3. RESULTS

We confirmed the presence of *N. frenata* in three protected areas in central Honduras within Francisco Morazán department (Figure 1), El Chile Biological Reserve (ECBR; Figure 2A; 484 trap/nights), Misoco Biological Reserve (MBR; Figure 2B; 730 trap/nights), and La Tigra National Park (LTNP; Figure 2C; 323 trap/nights). These camera traps images are the first scientific-photographic of the species for Honduras and four were photos recorded in ECBR, 11 in MBR, and three in LTNP. In the latter, a photo of a weasel was captured eating

a mouse, although identification through camera trap imagery has limitations, we identified the individual as *Heteromys desmarestianus* based on its body size and pelage coloration and is the only species of the genus reported at the core zone of the LTNP (see López et al. in press). *H. desmarestianus* is known to have a relatively large size, and dark dorsal coloration distinguishes it from other rodents (López et al. in press).

Neogale frenata specimen from La Tigra National Park (CZB MT034) shows notably smaller body and cranial measurements compared to the ranges reported by Elasser & Parker (2008). It's both external and cranial traits, suggest that the individual may be a juvenile rather than a fully grown adult (Table 1).

Additionally, an individual of the Long-tailed weasel was captured in Sherman trap in the core zone of LTNP, the individual was a juvenile male that died during the night. See Table 2 for a comparison of the measurements of the specimen captured in LTNP with ranges reported by Elasser & Parker (2008).

Mammalogy Notes ISSN 2382-3704
https://doi.org/10.47603/mano.vol11n2.490

TABLE 1. Confirmed records of *N. frenata* in Honduras based on different sources. Distribution on Fig. 1 is based on these records.

No.	Latitude	Longitude	Elevation (masl)	Department	Locality	Year of record (collection or camera trap)	Author	Type of record	Catalogue number / reference
1	14.2694	-87.7157	900	La Paz	Cerro Grande	1937	C. F. Underwood	Preserved specimen	AMNH 126587 (Goodwin, 1942)
2	14.3332	-87.4000	1.418	Francisco Morazán	Tegucigalpa	1936	C. F. Underwood	Preserved specimen	AMNH 126121 (Goodwin, 1942)
3	14.3332	-87.4000	1.418	Francisco Morazán	Tegucigalpa, Cerro Cantoral, Alto Cantoral	1934	C. F. Underwood	Preserved specimen	AMNH 123383 (Goodwin, 1942)
4	14.3332	-87.4000	1.418	Francisco Morazán	Tegucigalpa, Cerro Cantoral, Alto Cantoral	1934	C. F. Underwood	Preserved specimen	AMNH 123382 (Goodwin, 1942)
5	15.3333	-87.9167	41	Cortés	La Lima	1998	Ostmark, H.E.; Jarrell, G.H.	Preserved specimen	TCWC 11093
6	14.0922	-87.2286	1.000	Francisco Morazán	Comyagüela	1932	C. F. Underwood	Preserved specimen	MCZ 29017 (Goodwin, 1942)
7	14.0107	-87.00985	799	Francisco Morazán	Escuela Agrícola Panamericana	1945	Archie F. Carr, Jr., Marjorie Carr	Preserved specimen	MCZ 43012

8	14.0099	-87.0113	800	Francisco Morazán	Escuela Agrícola Panamericana	1946	Archie F. Carr, Jr., Marjorie Carr	Preserved specimen	MCZ 43008
9	14.85	-86.9833	1.125	Francisco Morazán	La Flor Archaga	1932	C. F. Underwood	Preserved specimen	MCZ 29016 (Goodwin, 1942)
10	14.0099	-87.0112	800	Francisco Morazán	Escuela Agrícola Panamericana	1946	Archie F. Carr, Jr., Marjorie Carr	Preserved specimen	MCZ 43011
11	-	-	-			1967	Seal, U S	Preserved specimen	MMNH 8049
12	13.8	-85.8166	-	El Paraíso	Arenal	1955	Howell, T. R.	Preserved specimen	UCLA 20613
13	14.8954	-88.7170	799	Copán	San Jose De Copan, Santa Rosa	1987	R. Mclean and S. Ubico	Preserved specimen	USNM 565508
14	14.3918	-88.1242	1.404	Intibucá	Cuenca Trinacional del Rio Lempa, La Esperanza,	2023	https://www.inaturalist.org/observations/165317605	iNaturalist	
15	14.9109	-88.0938	1.700	Santa Bárbara	PANAMOSAB, El Cedral, HN	2019	https://www.inaturalist.org/observations/21168340	iNaturalist	
16	14.5961	-87.5047	1.007	Comayagua	San Jerónimo	2022	https://www.inaturalist.or	iNaturalist	

							g/observations/114492976	
17	14.8573	-87.9552	640	Cortés	Lago de Yojoa	2003	https://www.inaturalist.org/observations/165613273	iNaturalist
18	14.3054	-88.1360	1.800	Intibucá	Cuenca Trinacional del Rio Lempa, La Esperanza,	2023	https://www.inaturalist.org/observations/168820309	iNaturalist
19	15.2946	-85.3159	840	Olancho	Dulce Nombre de Culmí,	2024	https://www.inaturalist.org/observations/248261151	iNaturalist
20	14.3478	-86.8470	1.535	Francisco Morazán	Biological Reserve El Chile	2022	This study	Camera trap
21	14.3463	-86.8466	1.605	Francisco Morazán	Biological Reserve El Chile	2022	This study	Camera trap
22	14.3522	-86.8387	1.444	Francisco Morazán	Biological Reserve El Chile	2022	This study	Camera trap
24	14.6376	-86.8148	1.921	Francisco Morazán	Biological Reserve Misoco	2022	This study	Camera trap

25	14.6359	-86.8109	1.886	Francisco Morazán	Biological Reserve Misoco	2022	This study	Camera trap	
30	14.6309	14.6309	1.886	Francisco Morazán	Biological Reserve Misoco	2022	This study	Camera trap	
33	14.63067	-86.7991	1.928	Francisco Morazán	Biological Reserve Misoco	2022	This study	Camera trap	
35	14.2047	-87.1190	1.910	Francisco Morazán	La Tigra National Park	2023	This study	Camera trap	
36	14.2050	-87.1180	1.700	Francisco Morazán	La Tigra National Park	2024	This study	Preserved specimen	CZB MT034

TABLE 2. External measurements in mm. Elasser & Parker (2008) used 26-28 specimens from Canada.

Measurements	Ranges based on Elasser & Parker (2008)	La Tigra National Park specimen (CZB MT034)
Body Weight (g)	172,14–280,85	81,0
Total Body Length	393–465	317,6
Head and body length	260–295	187,5
Tail length	133–180	130,1
Tail to head and body length ratio	0,50–0,63	0,69
Condylobasal length	46,77–52,21	40,3
Basilar length	42,78–47.90	39
Postglenoidal length	21,57–23,96	21,7
Mastoid width	22,27–25,69	21,2
Cranial width	20,07–23,43	19,8
Bi-zygomatic width	25,24–29,12	22,4
Muzzle width	10,66–13,28	9,6
Angular to coronoid process height	12,20–14,46	10,4

FIGURE 2. New records from A. El Chile Biological Reserve. B. Misoco Biological Reserve. C. La Tigra National Park. D. Picture of *N. frenata* made by a poacher on his rifle.

4. DISCUSSION

Recent camera-trapping studies in other countries have confirmed *Neogale frenata* on several regions within its distribution (e.g., Contreras-Moreno et al. 2015; Jesús-Espinosa et al. 2023; Narasimhan et al. 2023); however, the photographs presented here represent the first confirmed camera-trap records of the species in Honduras, as previous reports—such as Hoskins et al. (2018)—did not include photographic evidence, and the last reports were presented by Goodwin (1942). These new records provide valuable confirmation of the species' presence in the country and contribute to the limited visual records available for *N. frenata* in Central America.

According to local knowledge, "comadrejas"—a common term in many rural areas of Honduras—are known to prey on domestic poultry. This behavior has been documented elsewhere in the species' range (Quick 1944; Sheffield & Howard 1997; Tirira 2023). In Honduras, the term "comadreja" may refer to various small carnivores, including *N. frenata*, *E. barbara*, or even *Urocyon cinereoargenteus*. *Neogale frenata* is likely more widespread than currently documented, but limited research on mustelids in Honduras has hindered our understanding of its natural history and conservation status. In many rural communities, small carnivores are frequently killed due to poultry predation, often without proper identification. This is particularly concerning for *N. frenata*, which tends to tolerate disturbed habitats (King 1990), increasing its exposure to human-wildlife conflict in agricultural areas (Tirira 2023). In some cases, poachers even associate long-tailed weasels

with illegal activities, engraving their image on rifles as symbolic motifs (Figure 2D). Furthermore, these records contribute essential baseline data for monitoring *N. frenata* in both protected and disturbed landscapes. According to the Honduran Red List, *N. frenata* is currently classified as Least Concern (WCS 2021), consistent with broader regional assessments (Helgen & Reid 2016). In contrast, *Eira barbara*, another mustelid detected in the same areas, is listed as Near Threatened in Honduras (WCS 2021). Considering that *N. frenata* is an overlooked mammal in the country, and the review regarding its distribution presented herein, *N. frenata* probably needs a conservational reassessment in the Honduran Red List.

Other lines of evidence also suggest that *N. frenata* is capable of adapting to anthropogenic landscapes. For example, in Ecuador, individuals have been observed swimming in irrigation canals (Paucar & Tirira 2023). This ecological plasticity may support the fact of why 54% of the confirmed Honduran records compiled in this study originate from non-protected or disturbed areas. Such patterns have been associated with prey abundance, ground cover, and slash piles that offer shelter and foraging opportunities (Evans & Mortelliti 2022). Nonetheless, further research is needed to evaluate the true extent of its distribution, especially considering the potential existence of unpublished data or gray literature documenting the species in other regions.

From a conservation standpoint, there are two key observations regarding the distribution of *N. frenata* in Honduras. First, considering all the record, the species has been confirmed in four protected areas: El Chile Biological Reserve (EBCR), Misoco Biological Reserve (MBR), La Tigra National Park (LTNP), and Cusuco National Park in Cortés Department (Hoskins et al. 2018). Notably, all records within these reserves come from core conservation zones. Second, *N. frenata* has also been recorded in three anthropogenic settings, including houses and rural areas (GBIF 2024), suggesting a capacity to persist in human-modified environments. Based on our new records from Francisco Morazán and previous reports, we confirm the presence of the species in the departments of Cortés, Copán, El Paraíso, Intibucá, La Paz, Comayagua, and Santa Bárbara, across an elevational range of 41 to 1,928 masl. Although Helgen & Reid (2016) classified the species as widely distributed in Honduras, verified records remain restricted to central and western regions.

Within protected areas, camera-trap data also revealed potential predators of *N. frenata*, including *Canis latrans*, *Eira barbara*, *Herpailurus yagouaroundi*, *Leopardus pardalis*, *L. wiedii*, *Puma concolor*, and *Urocyon cinereoargenteus*, along with feral cats, dogs, and birds of prey (e.g., Accipitridae, Falconidae and Strigidae). Interspecific competition may also occur with species such as *Didelphis marsupialis*, *D. virginiana*, *Marmosa mexicana*, *Nasua narica*, *Procyon lotor*, and *Spilogale angustifrons*, all of which were detected in the same areas via camera traps.

In conclusion, our study provides the first confirmed photographic records of *Neogale frenata* in Honduras, expanding the known distribution of the species and documenting its presence in both protected and disturbed environments. These findings highlight the urgent need for further ecological research and monitoring of mustelids in Honduras, as well as the importance of environmental education to reduce human-wildlife conflict. Understanding the species' adaptability, threats, and distribution is essential for informing conservation strategies and ensuring the long-term survival of this elusive carnivore in the region.

5. ACKNOWLEDGEMENTS

We dedicate this work to “Don Francisco” (La Tigra National Park), “Don Leonidas” (Misoco Biological Reserve), and “Dovian Soto” (El Chile Biological Reserve), who represent the exceptional park rangers, and who have committed all their lives to protect each protected area. Also, we are thankful to Xiao Bai. We are grateful to AMITIGRA, Alejandro Orellana (ASICH), Cristopher Antúnez, Eric van Der Berghe (Zamorano), Comando de Apoyo y Manejo al Ecosistema y Ambiente (C9), Mario Suarez (Francisco Morazán Regional Office) of ICF, Azucarera Tres Valle, FIPADEH, Jeffrey Canaca, Municipality of Guaimaca, The Big Bat Theory research group, Unidad Humanitaria y de Rescate (UHR), and, Yenifer Coto for their support in fieldwork. To Panthera for their support in providing the camera traps.

6. REFERENCES

Contreras-Moreno FM, Jesús-de la Cruz A, Juárez-López R, Hidalgo-Mihart MG. 2015. First records of the long tailed-weasel (*Mustela frenata*) in the state of Campeche, Mexico. Acta Zoológica Mexicana 31(3):488-490. https://doi.org/10.12933/therya-16-343

Elsasser SC, Parker GH. 2008. Morphometric criteria for distinguishing species and age-cohorts of Ermine (*Mustela erminea*) and long-tailed weasel (*M. frenata*). Acta Zoologica Academiae Scientiarum Hungaricae 54(1):75-88.

Escobar-Lasso S, Gil-Fernández M. 2014. El mayor registro de elevación de *Mustela frenata* (Carnivora: Mustelidae) y distribución en el departamento de Caldas, región andina de Colombia. Mammalogy Notes 1(2):7-9. https://doi.org/10.47603/manovol1n2.7-9

Evans BE, Mortelliti A. 2022. Forest disturbance and occupancy patterns of American ermine (*Mustela richardsonii*) and long-tailed weasel (*Neogale frenata*): results from a large-scale natural experiment in Maine, United States. Journal of Mammalogy 103: 1338-1349. https://doi.org/10.1093/jmammal/gyac079

GBIF.org. 2024. GBIF Occurrence Download https://doi.org/10.15468/dl.dev8ce

Goodwin GG. 1942. Mammals of Honduras. Bulletin of the American Museum of Natural History 79:107-195.

Helgen K, Reid F. 2016. *Mustela frenata*. *The IUCN Red Neogale frenata* e.T41654A45213820. https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T41654A45213820.en. Accessed on 16 May 2024.

Hoskins H, Burdekin O, Dicks K, Slater K, McCann N, Jocque M, Castañeda F, Reid N. 2018. Nonvolant mammal inventory of Cusuco National Park, northwest Honduras: reporting the presence of Jaguar, *Panthera onca* (Linnaeus, 1758), and demonstrating the effects of zonal protection on mammalian abundance. Check List 14(5):877-891. https://doi.org/10.15560/14.5.877

ICF. 2012. Plan de Manejo Reserva Biológica El Chile 2013-2024 Instituto Nacional de Conservación y Desarrollo Forestal Áreas Protegidas y Vida Silvestre. Tegucigalpa: Instituto de Conservación Forestal.

ICF. 2013. Plan de Manejo Parque Nacional La Tigra 2013-2025. Instituto Nacional de Conservación y Desarrollo Forestal Áreas Protegidas y Vida Silvestre. Tegucigalpa: Instituto de Conservación Forestal.

ICF. 2015. Plan de Manejo Reserva Biológica Misoco 2015-2027. Instituto Nacional de Conservación y Desarrollo Forestal Áreas Protegidas y Vida Silvestre. Tegucigalpa: Instituto de Conservación Forestal.

King, CM. 1990. The natural history of weasels and stoats. Christopher Helm and Comstock Publishing Associates, Cornell University Press.

Jesús-Espinosa D, Contreras-Moreno FM, Sánchez-Pinzón K, Méndez-Tun JM, Méndez-SainMartin G, Duque-Moreno VD, Cruz-Romo, L. 2023. Registros Recientes de *Neogale frenata* (Carnivora: Mustelidae) Mediante Fototrampeo En Campeche, México. Mammalogy Notes 9(2):375. https://doi.org/10.47603/mano.v9n2.375.

López C, Ordóñez-Garza N, Ordóñez-Mazier DI, Bautista Alcántara LF, Soler-Orellana JS, Turcios-Casco MA. In press. Distribution, defensive behavior, and natural history notes of the genus *Heteromys* (Rodentia) in Honduras. Mammalia aequatorialis.

Narasimhan K, Karubian J, Tirira DG. 2023. Primer registro confirmado de *Neogale frenata* (Carnivora, Mustelidae) en los bosques húmedos del Chocó. Mammalia aequatorialis 5:79-88. https://doi.org/10.47603/mano.v9n2.373

Newing H, Eagle CM, Puri RK, Watson CW. 2011. Conducting Research in Conservation: Social Science Methods and Practice. London, UK: Routledge.

Patterson BD, Chaves HER, Vilela JF, Soares AE, Vilela JF, Grewe F. 2021. On the nomenclature of the American clade of weasels (Carnivora: Mustelidae). Journal of Animal Diversity 3(2): http://dx.doi.org/10.29252/JAD.2021.3.2.1

Patterson BD, Chaves HER, Vilela JF, Soares AE, Grewe F. 2025. Complete mitochondrial genomes support the composition and rank of the American weasel genus *Neogale* (Carnivora: Mustelidae). Journal of Animal Diversity 7(1): 41–48. http://dx.doi.org/10.22034/JAD.2025.7.1.3

Paucar JP, Tirira DG. 2023. Observation of *Neogale frenata aureoventris* (Carnivora, Mustelidae) swimming in an irrigation canal in Urcuquí, Imbabura, Ecuador. Mammalia aequatorialis 5:89-92.https://doi.org/10.59763/mam.aeq.v5i.75

Quick HF. 1944. Habits and economics of the New York weasel in Michigan. Journal of Wildlife Management 8:71–78. https://doi.org/10.2307/3796198

Reid FA. 2009. A field guide to the Mammals of Southeast Mexico and Central America. 2nd ed. New York: Oxford University Press.

Ruiz-Campos G, Martínez-Gallardo R, González-Guzmán S, Alaníz-García J. 2009. The Long-tailed Weasel *Mustela frenata* (Mammalia: Mustelidae) in Baja California, México. Texas Journal of Science 61(3): 229-232.

Schiaffini MI. 2022. Distribution patterns of South American mustelids (Carnivora: Mustelidae). Journal of Mammalogy 103(4):900-919. https://doi.org/10.1093/jmammal/gyac020

Sheffield SR, Howard, HT. 1997. *Mustela frenata*. Mammalian Species 570(24):1-9. https://doi.org/10.1644/0.570.1

Sikes RS, Animal Care and Use Committee of the American Society of Mammalogists. 2016. Guidelines of the American Society of Mammalogists for the use of wild mammals in research and education. Journal of Mammalogy, *97*(3), 663-688. https://doi.org/10.1093/jmammal/gyw078

Tirira DG. 2023. Reporte del ataque de *Neogale frenata* (Carnivora, Mustelidae) a un gallinero en Cuyuja, Napo, Ecuador. Mammalia aequatorialis 5:93-95. https://doi.org/10.59763/mam.aeq.v5i.66

Vaca-León OIM, Arellano E, López-Medellín X. 2019. Predation of the Mexican deer mouse (*Peromyscus mexicanus*) by long-tailed weasel (*Mustela frenata*) in Laguna Bélgica Educational Park, Ocozocoautla de Espinosa, Chiapas. Western North American Naturalist 79(4):593-596. https://doi.org/10.3398/064.079.0413

WCS. 2021. Lista Roja de especies amenazadas de Honduras. Tegucigalpa, M.D.C., Honduras: WCS, MiAmbiente, UNAH–VS, ICF, IUCN.

Editor: I. Mauricio Vela-Vargas
Received: 2024-12-12
Reviewed: 2025-01-03
Accepted: 2025-07-28
Published: 2025-09-10