Short Note

Galemys, 37: xx-, 2025
ISSN 1137-8700
e-ISSN 2254-8408
DOI: 10.7325/Galemys.2025.N3

New evidence of ferret (*Mustela putorius furo* Linnaeus, 1758) naturalisation on La Palma (Canary Islands): a threat to island biodiversity

Nuevos indicios de la naturalización del hurón (*Mustela putorius furo* Linnaeus, 1758) en La Palma (Islas Canarias): una amenaza para la biodiversidad insular

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Invasive alien species are one of the main causes of biodiversity loss (Spatz *et al*. 2017, Pyšek *et al*. 2020), especially on islands, where isolation-driven evolution has resulted in a high proportion of endemic species (Myers *et al*. 2000, Kier *et al*. 2009).

Among alien species, carnivores are considered some of the most damaging, responsible for the extinction and decline of numerous species on islands (Courchamp *et al*. 2003, Doherty *et al*. 2016). Among these, one of the species that has experienced increasing interest in its role as an invasive alien species and its impact on the natural environment is the ferret (*Mustela putorius furo* Linnaeus, 1758) (Clapperton 2001, Courchamp *et al*. 2003, Doherty *et al*. 2016). The ferret is a domesticated mustelid, derived from the western European polecat (*Mustela putorius* Linnaeus, 1758). It has been introduced worldwide, initially for hunting purposes and the fur industry. However, it has gained popularity as a pet species across the globe (Long 2003). As a result of escapes from captivity, abandonment or lost during hunting activities, ferrets have become feral in the wild (Medina & Martín 2010). Ferrets rarely establish stable wild populations due to roadkill, starvation, and their domesticated nature, which makes them less aggressive and more vulnerable to predation and competition (Umbach 1997). On islands where predators are usually absent or scarce, and food and shelter are readily available, ferrets can naturalize and establish stable populations (Ragg & Moller 2000, Morley 2002, Soto *et al.* 2024). In places where ferrets have become established, this species has been recorded as posing a serious conservation problem for native and protected species (Clapperton 2001, Courchamp *et al*. 2003, Pino *et al*. 2021, Soto *et al*. 2024).

In the Canary Islands, feral ferrets have been observed on the islands of Tenerife, Gran Canaria, La Palma, La Gomera and El Hierro (BIOTA 2024). La Palma is the most northwestern island of the Canary archipelago and has a high biodiversity characterized by a large number of endemic species. In La Palma, 18% of the species are endemic to the Canary Islands and 5% are endemic to the island itself; however, almost 15% of the total number of species present on the island are introduced, figures that include the totality of the island's biota (BIOTA 2024). Particularly, all mammals in La Palma, except bats, are introduced species (Medina 2018). Medina & Martín (2010) reported knowledge data on the presence and distribution of feral ferrets in La Palma from 1998 to 2007. However, no new data has been collected on their presence on this island since these dates. Therefore, the main objective of this work is to collect and update the existing data to determine the current situation of the species on

La Palma and its potential impact on the natural environment.

Data were obtained through two different approaches. On the one hand, observations made between 2010 and 2025 were collected from personal communications from field practitioners and institutions. Secondly, a camera trapping survey was performed in the northwest of La Palma. Five camera-traps (Coolife H953 940NM) were installed near trails and mammal passage areas, water access sites, possible burrows, and areas where tracks or droppings were observed (Fig. 1). Cameras were placed in areas with different vegetation and habitat type: monteverde vegetation, pine forest, thicket, laurel forest, crops, xerophytic scrub vegetation. They remained active for two days and then they were moved to the following sites. Cameras were programmed to take three photographs when movement was detected. Camera stations were baited with liver soaked in frying oil, and placed one meter away. Bait was placed in perforated plastic containers to release the scent while preventing consumption. Finally, an active search for traces was conducted, including footprints, possible burrows, and droppings. This sampling was conducted over 11 days, from 28 April to 9 May 2024, mainly on the north-eastern side of the island.

Between 2010 and 2025, 23 cases of feral ferrets have been detected across seven different locations on the island (Fig. 1, Table 1). The highest number of new ferret encounters occurred in Barlovento, Los Llanos de Aridane and San Andrés y Sauces, with six, four and four individuals, respectively. Additionally, the first feral ferret sightings were documented in the southwest and south of the island, specifically in Mazo and Fuencaliente de La Palma (Fig. 1). Each observation consisted of a single specimen, except for July 2023 and April 2024, when five and two specimens were reported, respectively. The number of ferrets observed in the field has increased over the last four years (Table 1).

From 55 camera-trap days, three ferret detections were recorded (Fig. 2). Their presence was confirmed in the Barranco de la Fuente area (San Andrés y Sauces) (Fig. 1), characterized by a laurel forest area. Finally, as a result of the search for traces and signs left by these introduced mammals, their traces were detected in one locality, Barlovento (Fig. 1).

Of all the data collected, the majority of the detections were located in anthropised areas, urban

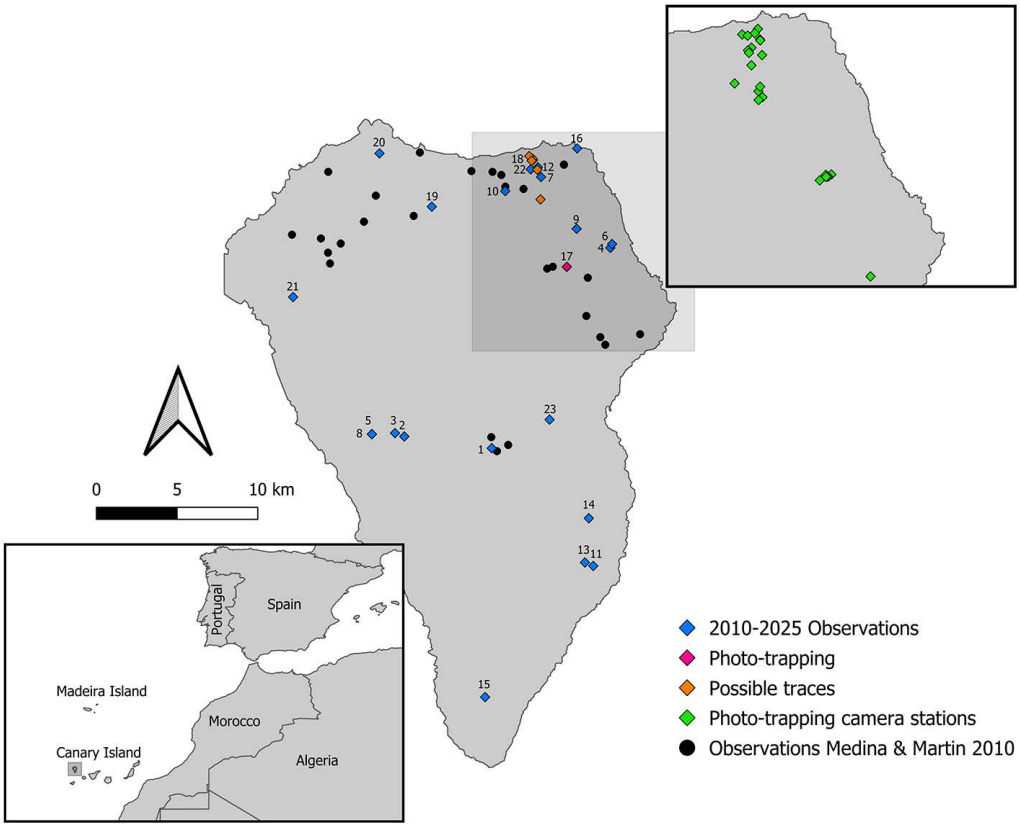

Figure 1. Map of La Palma island with the locations of all ferret (*Mustela putorius furo*) sightings recorded and the location of camera stations. The numbers correspond to locations in Table 1.

and rural areas or crops, which is consistent with previous observations (Medina & Martín 2010). However, we report new ferret observations in wetlands, indicating a potential range expansion of this species to new habitats on La Palma, similar to those inhabited by polecats in continental environments (Arija 2017).

The generalist and opportunistic feeding behaviour of ferrets (Clapperton 2001, Arija 2017, Soto *et al*. 2024), allows them to survive in the wild and potentially establish new populations (Morley 2002, Medina & Martín 2010, Soto *et al*. 2024). The main areas where ferrets have been sighted during this study are characterised by coinciding with humid habitats where rabbits *Oryctolagus cuniculus* (Linnaeus, 1758), the ferret's usual prey, are practically absent (Cabrera-Rodríguez 1997). However, this is the habitat of two endemic bird species such as the Bolle's pigeon (*Columba bollii* Godman, 1872) and the laurel pigeon (*Columba junoniae* Hartert, 1916), which could be a potential prey for this introduced predator as they already

Table 1. Locations (see numbers in Fig. 1), dates and numbers of ferrets (*Mustela putorius furo*) observed on La Palma during the period 2010-2025, with aspects related to the observers. CRFS: Wild Fauna Rehabilitation Center, Cabildo Insular de La Palma. Gob. Canarias: Canary Island Government.

Id Map	Location (Municipality)	Date (month, year)	Nº	Observer	Comments
1	El Paso	Oct, 2010	1	Andrés Rodríguez	Alive
2	Los Llanos de Aridane	Dec, 2013	1	Game reserve	Alive
3	Los Llanos de Aridane	Dec, 2014	1	Game reserve	Death
4	Los Galguitos (San Andrés y Sauces)	Oct, 2020	1	CRFS	Road casualty
5	Los Llanos de Aridane	Mar, 2021	1	CRFS	Pet (Albino)
6	Los Galguitos (S/A y Sauces)	Apr, 2021	1	Pedro J. Tamés	Road casualty
7	Barlovento	Jun, 2021	1	CRFS	Undetermined
8	Los Llanos de Aridane	Jun, 2021	1	CRFS	Undetermined
9	Marcos y Cordero (S/A y Sauces)	Jun, 2023	1	Gob. Canarias	Alive
10	Gallegos (Barlovento)	Jul, 2023	1	Gob. Canarias	Alive
11	Lomo Oscuro (Mazo)	Jul, 2023	3	Gob. Canarias	Alive
12	La Tosca (Barlovento)	Jul, 2023	2	Gob. Canarias	Trapped
13	La Sabina (Mazo)	Aug, 2023	1	Gob. Canarias	Road casualty
14	Mazo	Sep, 2023	1	CRFS	Alive
15	Fuencaliente	Nov, 2023	1	CRFS	Undetermined
16	La Fajana (Barlovento)	Mar, 2024	1	Pedro J. Tamés	Alive
17	Barranco de La Fuente (S/A y Sauces)	May, 2024	2	Sebastián B. Cubas	Alive
18	Barlovento	Jun, 2024	1	Gob. Canarias	Alive
19	Roque Faro (Garafía)	Jul, 2024	1	Gob. Canarias	Alive
20	Garafía	Sep, 2024	1	Gob. Canarias	Pet
21	Tinizara (Tijarafe)	Sep, 2024	1	Gob. Canarias	Alive
22	Barlovento	Jan, 2025	1	Noelia Guerra	Road casualty
23	Botazo (Breña Alta)	Feb, 2025	1	Noelia Guerra	Road casualty

Figure 2. Images of feral ferrets (*Mustela putorius furo*) obtained by camera trap. Both detections are located in the locality of Barranco de la Fuente, in the municipality of San Andrés y Sauces (La Palma).

are for rats or feral cats (Martín *et al*. 2000). Other native species, such as La Gomera's endemic lizard (*Gallotia caesaris gomerae* Boettger & Muller, 1914), are part of the diet of ferrets in the Canary Islands (Pino *et al*. 2021). Additionally, other taxa, such as seabirds, may also be potentially affected by ferrets (Soto *et al*. 2024). Therefore, the presence of this species in the island's natural environment represents a real threat to La Palma's endemic species and compromises their conservation, as occurs on other islands where it has been introduced (Bodey *et al*. 2010, Soto *et al*. 2024). The establishment of a population of this introduced predator in the wild would not only represent a threat to the conservation of native species but could also have a negative impact on hunting activities, affecting species such as rabbits or partridges.

In light of the ferrets observed during this project in the northeastern and southern parts of La Palma, it is important to conduct a more extensive survey covering the entire island. This would enable a more accurate estimate of the true population of this feral species to be made. This would provide a more precise count of the current feral population and help to assess the potential for establishing a wild population. The presence of this invasive species poses a serious threat not only to the conservation of native fauna, but also to hunting activities, particularly those involving species such as rabbits and partridges. In light of the invasive behaviour of ferrets on other islands, such as Madeira (Decreto Legislativo Regional n.º 17/2023/M, 2023), and the results obtained in this study, there is an urgent need to implement an effective control programme. This could be based on live traps, which are commonly used for medium-sized mammals. It is also crucial to develop an outreach strategy to raise public awareness of the risks associated with introducing and releasing ferrets, the importance of immediately reporting escapes, and the need to comply with the current prohibition on releasing them into the wild. Surveillance during the hunting season should also be reinforced to ensure the proper use of ferrets, such as the use of muzzles, as established by law. As La Palma is recognised as a World Biosphere Reserve, preserving its rich biodiversity must be a priority, and addressing this situation through coordinated efforts is essential.

Acknowledgements

This work has been possible thanks to the Master's Degree in Biodiversity in Tropical Areas and its Conservation UIMP-CSIC, the professors José Manuel Serrano, Jesús Muñoz, Mario García, Diego Gil, Paula Ortega and María Martínez, and all our fellow students, especially Baldomero Sebastián Cubas for detecting the presence of the ferret. To the staff of Cabildo Insular de La Palma, Andrés Rodríguez-Cáceres and Pedro J. Tamés for providing new data on the location of this species on the island. Data from the Government of the Canary Islands has been kindly provided within the Order Nº62/2022 from the Consejería de Transición Ecológica, Lucha contra el Cambio Climático y Planificación Territorial commissioning GESPLAN to carry out the service called: "Actuaciones para la

conservación de especies amenazadas por herbivoría o depredación en las islas canarias con cargo al mecanismo de recuperación y resiliencia. Componente 4 inversión 2". (Next generation UE). Javier Diéguez-Uribeondo was supported by project PID2020-16115GB115.

References

Arija C.M. 2017. Turón - *Mustela putorius*. En: Enciclopedia Virtual de los Vertebrados Españoles. A. Salvador & I. Barja (eds.). Museo Nacional de Ciencias Naturales, Madrid. <http://www.vertebradosibericos.org/>. Consultado el 6 de diciembre 2024.

BIOTA 2024. *Banco de Datos de Biodiversidad de Canarias*. Gobierno de Canarias. <https://www.biodiversidadcanarias.es/biota>. Consultado el 6 de diciembre de 2024.

Bodey T.W., Bearhop S. & McDonald R.A. 2010. The diet of an invasive nonnative predator, the feral ferret, and implications for the conservation of ground-nesting birds. *European Journal of Wildlife Research*, 57:107-117. DOI: 10.1007/s10344-010-0404-y

Cabrera-Rodríguez F. 1997. Variaciones de la abundancia del conejo (*Oryctolagus cuniculus* Linneo, 1758) en La Palma, Islas Canarias (Lagomorpha, Leporidae). *Vieraea*, 26: 133-137.

Clapperton B.K. 2001. Advances in New Zealand mammalogy 1990-2000: feral ferret. *Journal of the Royal Society of New Zealand*, 31: 185-203. DOI: 10.1080/03014223.2001.9517647

Courchamp F., Chapuis J.L. & Pascal M. 2003. Mammal invaders on islands: impact, control and control impact. *Biological Review*, 78: 347-383. DOI: 10.1017/S1464793102006061

Doherty T.S., Glen A.S., Nimmo D.G., Ritchie E.G. & Dickman C.R. 2016. Invasive predators and global biodiversity loss. *Proceedings of the National Academy of Science*, 113: 11261-11265. DOI: 10.1073/pnas.1602480113

Long L.L. 2003. *Introduced Mammals of the World*. CABI. Publishing, Wallingford, UK.

Kier G., Kreft H., Lee T.M., Jetz W., Ibisch P.L., Nowicki C. … & Barthlott W. 2009. A global assessment of endemism and species richness across island and mainland regions. *Proceedings of the National Academy of Sciences*, 106: 9322-9327. DOI: 10.1073/pnas.0810306106

Martín A., Hernández M.A., Lorenzo J.A., Nogales M. & González C. 2000. *Las palomas endémicas de Canarias*. Consejería de Política Territorial y Medio Ambiente del Gobierno de Canarias y SEO/BirdLife. Tenerife. 191 pp.

Medina F.M. 2018. Fauna vertebrada en la isla de La Palma: estado de conservación y gestión. Pp. 165-193. In: J. Afonso-Carrillo (ed.). *La Palma: agua, tierra, fuego y cielo*. Actas XIII Semana Científica Telesforo Bravo, Instituto de Estudios Hispánicos de Canarias, Puerto de la Cruz.

Medina F.M. & Martín A. 2010. A new invasive species in the Canary Islands: a naturalized population of ferrets *Mustela furo* in La Palma Biosphere Reserve. *Oryx*, 44: 41-44. DOI: 10.1017/S0030605309990743

Morley C.G. 2002. Ferret (*Mustela furo*) abundance, survival and recruitment on farmland in North Canterbury, New Zealand. *New Zealand Journal of Zoology*, 29: 23-31. DOI: 10.1080/03014223.2002.9518286

Myers N., Mittermeier R.A., Mittermeier C.G., da Fonseca G.A. & Kent J. 2000. Biodiversity hotspots for conservation priorities. *Nature*, 403: 853-858. DOI: 10.1038/35002501

Pino R., Izquierdo E., Rodríguez J.L. & Foronda P. 2021. Los lagartos endémicos en la dieta de los hurones asilvestrados en Canarias: impacto en la conservación. *Boletín de la Asociación Herpetológica Española*, 32: 159-160.

Pyšek P., Hulme P.E., Simberloff D., Bacher S., Blackburn T.M., Carlton J.T. … & Richardson D.M. 2020. Scientists' warning on invasive alien species. *Biological Reviews*, 95: 1511-1534. DOI: 10.1111/brv.12627

Ragg J.R. & Moller H. 2000. Microhabitat selection by feral ferrets (*Mustela furo*) in a pastoral habitat, East Otago, New Zealand. *New Zealand Journal of Ecology*, 24: 39-46.

Soto E.J., Nóbrega E., Nascimento P., Abrahams E., Powell K., Bellmunt Ribas A. … & Rocha R. 2024. Widespread population of invasive ferrets *Mustela furo* (Carnivora: Mustelidae) on the island of Madeira, Macaronesia. *Mammalia*, 88: 311-315. DOI: 10.1515/mammalia-2023-0073

Spatz D.R., Zilliacus K.M., Holmes N.D., Butchart S.H., Genovesi P., Ceballos G. … & Croll D.A. 2017. Globally threatened vertebrates on islands with invasive species. *Science advances*, 3: e1603080. DOI: 10.1126/sciadv.1603080

Umbach K.W. 1997. *Ferrets: A Selective Overview of Issues and Options*. CRB Note Vol. 4 No. 3, 30 May 1997. California Research Bureau, California State Library, Sacramento, USA. 9 pp.

Submitted: 26 March 2025
Accepted: 5 May 2025

Associate editor was L. Javier Palomo