==========

CORRIGENDUM

==========

Corrigendum to: "Breeding records of the Persian leopard from the Kurdistan Region of Iraq"

Published in: Cat News 86, pp. 14–16.

Change: Removal of 2011 record as the authors learned that the source and timelime were erroneous.

SORAN H. AHMED[1*] AND SOMA I. MAJEED[1]

Breeding record of the Persian leopard from the Kurdistan Region of Iraq

The Persian leopard *Panthera pardus tulliana* persists in small, fragmented populations in the mountainous areas of the Kurdistan Region of Iraq, with confirmed breeding records remaining extremely rare. Bamo Mountain is one of the most important habitats for the subspecies in the country, supporting a small breeding population. Here, we report an additional reproduction record of the Persian leopard from Bamo Mountain based on camera trap observations on 31 October 2025. It included a known female with two cubs, one male and one female. These findings highlight the critical conservation value of this transboundary landscape for the recovery of the Persian leopard in its western range.

The Persian leopard is an elusive feline that is distributed across almost all mountainous areas of the Kurdistan Region of Iraq, albeit with small and fragmented populations (Ghoddousi et al. 2022). Many records come from kill reports (Avgan et al. 2016) and citizen science data; for example, recent videos of the Persian leopard from Hostan village in the Barzan area and Zarun village in the Mawat area. Systematic surveys of Persian leopard distribution and population status have never been conducted across the entire region; however, in the Bamo and Khoshk Mountains and the Qaradagh area, several studies have been carried out using camera traps and monitoring from 2011 to the present. These efforts have recorded more than 10 individuals, including males, females, and a family (Raza et al. 2012, Ahmed & Majeed 2020, Horeni et al. 2022a, 2022b, Ahmed & Majeed 2023).

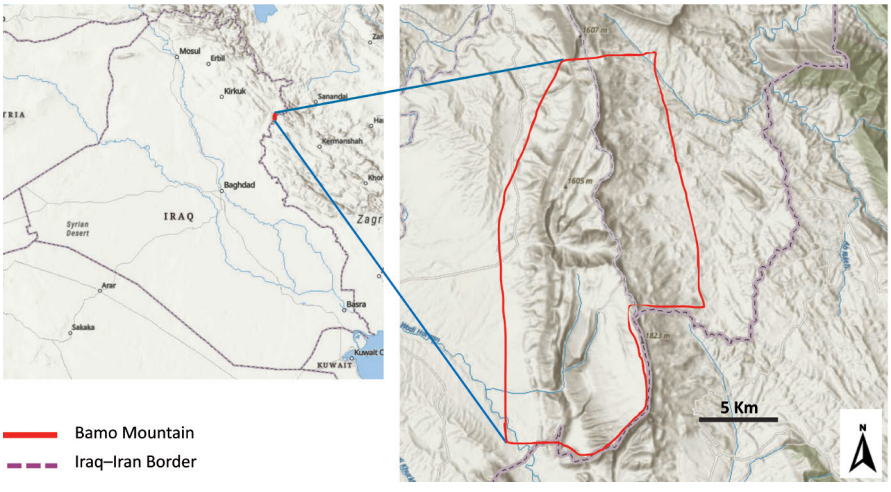


Fig. 1. Map of Bamo Mountain, extracted from ArcGIS Online Map.

Study area

Bamo Mountain is part of the extensive Zagros Mountains steppe ecoregion and the Zagros mixed oak forest. It is located east of Darbandikhan District, between 34°49'48" – 35°03'00" N / 45°43'12" – 45°48'36" E (Fig. 1). Its altitude ranges from as low as ca. 400 m near the Hawasan River to ca. 1,835 m at Tropi Arzhngan, the highest peak of Bamo Mountain, and it occupies a total area of ca. 250 km². It is a transboundary mountainous habitat that mainly consists of rocky cliffs and mountain slopes with deciduous mixed oak forest dominated by oak trees *Quercus aegilops* and *Q. brantii*, Montpellier maple *Acer monspessulanum*, pistachio *Pistacia eu-ricarpa* and *P. khinjuk*, and hawthorn *Crataegus azarolus* (Ahmed & Majeed 2020, 2023; Fig. 2).

Persian leopard status in Bamo Mountain

Based on local stories and citizen science data, the Persian leopard was recorded in Bamo Mountain ca. 75 years ago, when locals reported seeing or killing them. For example, a Persian leopard was killed in the 1950s after it attacked a hunter during dog-assisted hunting, and another was killed in the 1970s in response to livestock predation (unpublished records based on interviews with local people). The presence of the Persian leopard remained unconfirmed in Bamo Mountain until 2019, when a live individual was recorded by a local photographer (Khalid Sdiq) and during monitoring of the wild mammal fauna of the area using camera traps (Ahmed & Majeed 2020). Although the leopard's sex could not be identified at that time, further studies were conducted in Bamo Mountain, and these efforts successfully recorded a small population of at least seven individuals, including the first confirmed live female and a family in 2021 and 2022, respectively (Horeni

et al. 2022a, 2022b, Ahmed & Majeed 2023). Rugged mountain slopes with mixed oak forest and close proximity to the borderline, with landmines and limited human activities, might provide a suitable area with hidden cover and rich prey species to support the breeding of the Persian leopard in Bamo Mountain (Ghoddousi et al. 2022, Horeni et al. 2022a, 2022b, Ahmed & Majeed 2023, Majeed et al. 2023). This small population of Persian leopards relies on bezoar goats *Capra aegagrus* and wild boars *Sus scrofa* as key prey species. Poaching and wildlife trafficking, water scarcity, livestock overgrazing, human wildlife conflicts, minefields, and forest fires are key threats to their population and prey species in the area (Ahmed & Majeed 2023). Recent construction of border fencing along the Iraq–Iran border, extending ca. 250 km from the Garmian area to Penjween (including the Bamo Mountain area), could have negative impacts on Persian leopard habitat connectivity, genetic diversity, transboundary conservation practices, and prey abundance.



Fig. 2. Persian leopard habitat of the Bamo Mountain (Photo Soran H. Ahmed).

Recent reproduction record

In Iraq, there is only one confirmed reproduction record of the Persian leopard, recorded from Bamo Mountain in 2022 (Horeni et al. 2022b, Ahmed & Majeed 2023). In this note, we report an additional reproduction record in Bamo Mountain, in the Kurdistan Region of Iraq, based on camera trap footage of a family recorded on 31 October 2025 (Fig. 2A, B & C). We set three camera traps at a water source and along known Persian leopard paths for 53 trap nights. The camera traps were visited once for data collection. A female leopard with two cubs, one male and one female, appeared in front of two camera traps positioned about 30 m apart along the same trail. Based on the comparison of the spot and rosette patterns on her flanks and limbs, the mother is indeed the same female named "Kurdistan," recorded in June 2021 (Ahmed & Majeed 2023) and February 2022 (Horeni et al. 2022a) as the first confirmed live female for the country. This female was observed and photographed with two cubs (one male and one female) in 2022, marking the first confirmed breeding record of the Persian leopard in the country (Horeni et al. 2022b, Ahmed & Majeed 2023). Based on the size of the cubs and the slender appearance of their tails, their age is suspected to be around 6–8 months (T. Rosen & M.S. Farhadinia, pers. comm.; Fig. 2A, B & C). Based on the age of the cubs, they could have been born in March, and the mother may have conceived in December (see also Horeni et al. 2022b). This timing is slightly earlier than the reported mating peak between January and March (Farhadinia et al. 2009). The family's swollen bellies indicate they had recently fed, most likely preying on a bezoar goat, as approximately five hours earlier, a golden jackal was observed passing through the same trail carrying a partially defleshed limb of a bezoar goat.

There are several breeding records of the Persian leopard in the western range, such as the confirmed record in Iraq from Bamo Mountain (Horeni et al. 2022b, Ahmed & Majeed 2023), Dena Protected Area, Arjan and Parishan Protected Area, and Bamou National Park in Iran, about 660 km, 820 km, and 865 km away from our records, respectively (Ghoddousi et al. 2010, Ghoddousi et al. 2022). Recently, footage of a Persian leopard family preying on a bezoar goat went viral on social media. It was recorded on 4 September 2025 in the Bozin and Markhel Protected Area of Iran, ca. 30 km from our site. In addition to these confirmed records, there are several unconfirmed reproduction records in the Kurdistan Region where locals reported seeing mothers with cubs in different localities, such as the Qaradagh area and Sara Mountain in Sulaimanyah Governorate (Majeed et al. 2023; see also Horeni et al. 2022b). Although these reports need verification, they may indicate that reproduction occurs more widely in the country than currently documented and suggest the possible presence of a small but breeding population. Systematic camera trapping efforts have been conducted in a small part of the country (only in Bamo Mountain and Qaradagh area). Therefore, more extensive field surveys and targeted conservation actions are needed to accurately assess and confirm the breeding status of the species in the Kurdistan Region. The Persian leopard is an Endangered subspecies according to the IUCN Red List of Threatened Species™ (Ghoddousi & Khorozyan 2025), and the recent Green Status of Species assessment considered it as Largely Depleted (LD; Khorozyan & Ghoddousi 2025). However, the Green Status assessment highlights that despite the Endangered and Largely Depleted status of the subspecies, it could recover in the future with long-term conservation efforts (Khorozyan & Ghoddousi 2025). Therefore, reproduction records of the Persian leopard in Bamo Mountain are crucial for the persistence of the subspecies in the country and in the western range. Further studies are necessary to evaluate this breeding population in the Bamo Mountain, alongside intensified feasible conservation practices to minimize the key threats they face.

Acknowledgements

We extend our gratitude to Tanya Rosen for her valuable insights on the early draft of the manuscript and the age of the cubs. We thank Mohammad S. Farhadinia for reviewing the manuscript and providing insights on the age of the cubs. Special thanks to the local people and local governmental authorities from the Bamo Mountain

area for their assistance during our fieldwork in the study area.

References

Ahmed SH & Majeed SI. 2020. Monitoring of the wild mammal fauna in Bamo mountain in northern Iraq (Kurdistan) for the first time using camera trap method and raising awareness for its conservation. Bulletin Iraq Nat Hist Museum 16, 161–172.

Ahmed SH & Majeed SI. 2023. Population estimate and conservation status of the Persian Leopard, *Panthera pardus tulliana*, in the Bamo and Khoshk Mountains in Kurdistan Region, northern Iraq. Zool Middle East 69, 79–86.

Avgan B, Raza H, Barzani MS & Breitenmoser U. 2016. Do recent leopard *Panthera pardus* records from northern Iraq and south-eastern Turkey reveal an unknown population nucleus in the region? Zool Middle East 62, 95–104.

Farhadinia M, Mahdavi A & Hosseini-Zavarei F. 2009. Reproductive ecology of the Persian Leopard, *Panthera pardus saxicolor*, in Sarigol National Park, northeastern Iran: (Mammalia: Felidae). Zool Middle East 48, 13–16.

Ghoddousi A, Abolghasemi H, Arinejad M, Mozafari GM, Joolaey L, Musavi M, Nayeri D, Chahartaghi NR, Raza H & Sepahvand P. 2022. Distribution and status of the Persian leopard in its western range. Cat News SI 15, 36–41.

Ghoddousi A, Hamidi AK, Ghadirian T, Ashayeri D & Khorozyan I. 2010. The status of the Endangered Persian leopard *Panthera pardus saxicolor* in Bamu National Park, Iran. Oryx 44, 551–557.

Ghoddousi A & Khorozyan I. 2025. *Panthera pardus* ssp. *tulliana* (amended version of 2025 assessment). The IUCN Red List of Threatened Species 2025: e.T15961A286174097. Accessed on 12 March 2026.

Horeni N, Faruq B & Raza H. 2022a. The first record of a female Persian leopard from the Kurdistan Region of Iraq. Cat News 76, 12–16.

Horeni N, Faruq B, Rzgar B & Raza H. 2022b. The first reproduction record of the Persian leopard from the Kurdistan Region of Iraq. Cat News 76, 28–29.

Kaboodvandpour S, Almasieh K & Zamani N. 2021. Habitat suitability and connectivity implications for the conservation of the Persian Leopard along the Iran-Iraq border. Ecol Evol 11, 13464–13474.

Khorozyan I & Ghoddousi A. 2025. *Panthera pardus* ssp. *tulliana* (Green Status assessment). The IUCN Red List of Threatened Species 2025: e.T15961A1596120252. Accessed on 28 December 2025.

Majeed KA, Khwarahm NR & Ahmed SH. 2023. Predicting the geographical distribution of the Persian leopard, *Panthera pardus tulliana*, a rare and endangered species. J Nature Conserv 76, 126505.

Raza HA, Ahmad SA, Hassan NA, Ararat K, Qadir M & Ali L. 2012. First photographic record of the Persian leopard in Kurdistan, northern Iraq. Cat News 56, 34–35.

[1] Department of Biology, College of Science, University of Sulaimani, Sulaymaniyah, Iraq
*<soran.ahmed@univsul.edu.iq>

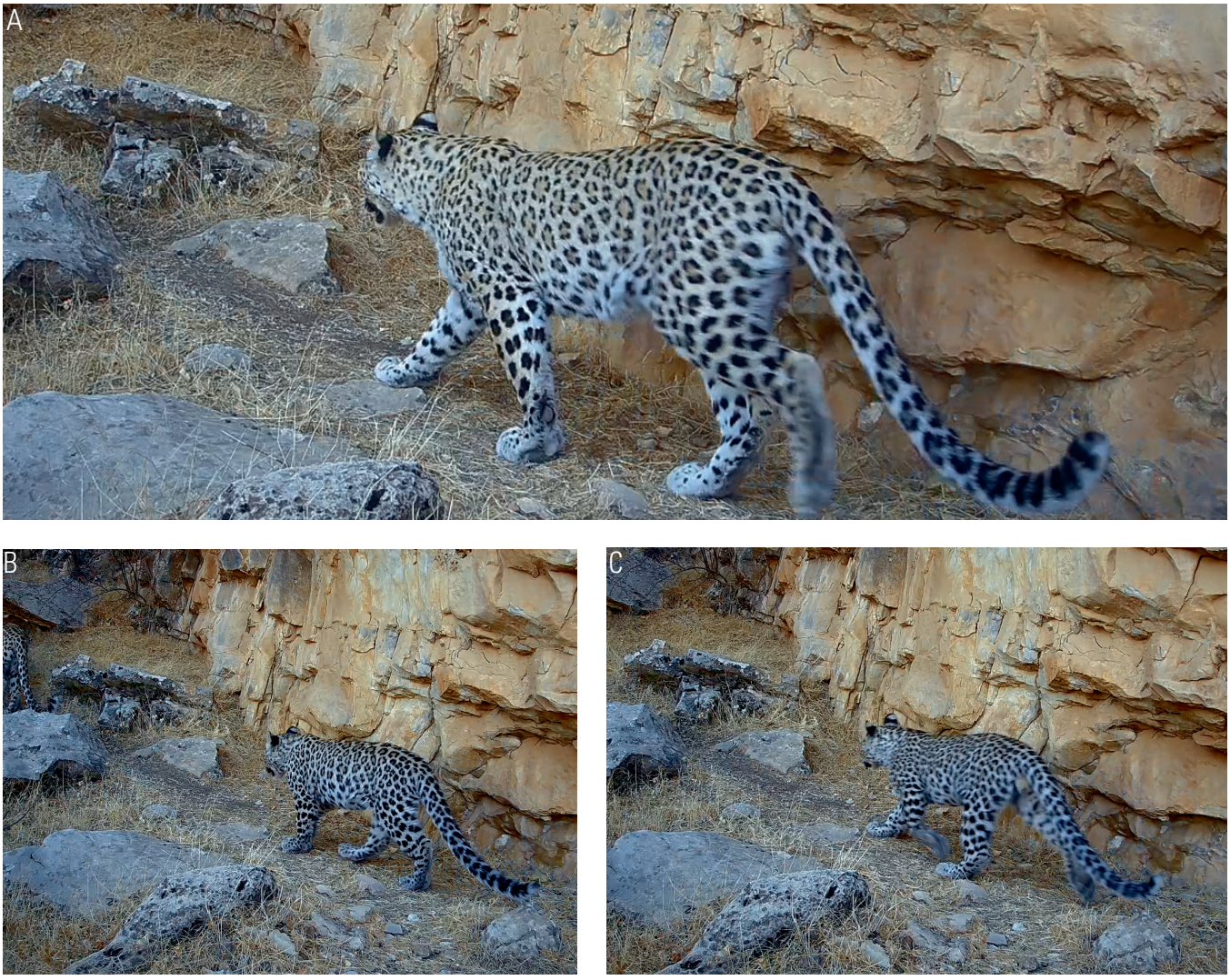


Fig. 3. Persian leopard family, Bamo Mountain: A) mother named Kurdistan; B) female cub named Zagros; C) male cub named Hallo (Photos Soran H.Ahmed/Soma I.Majeed).