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RAPID COMMUNICATION

First Photographic Record of a Pale-Colored Wild Boar (*Sus scrofa*) Consistent with Leucism in the Zagros Mountains, Iraqi Kurdistan

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ABSTRACT

Pigmentation anomalies in wild mammals are rare and poorly documented in wild boar (*Sus scrofa*) populations. Leucism, characterized by partial loss of melanin while retaining normal eye pigmentation, represents one of the least frequently reported coloration anomalies in the species. During a camera-trap survey in Ramo Mountain, Zagros Mountains of Iraqi Kurdistan, an unusually pale-colored wild boar consistent with leucism was recorded. The individual exhibited cream to light-blond pelage with retained darker pigmentation on the snout and distal limbs, while the eyes remained normally pigmented. Its morphology and behavior were otherwise consistent with those of a typical wild boar. The animal was recorded on three independent occasions by motion-activated camera traps deployed for Persian leopard (*Panthera pardus tulliana*) monitoring in mountainous oak woodland habitat. Although progressive greying cannot be completely excluded based solely on camera-trap footage, the observed characteristics are more consistent with leucism. This observation represents the first documented record of a wild boar from Iraq exhibiting characteristics consistent with leucism and highlights the value of camera-trap surveys for detecting rare phenotypic variation in wild populations.

Keywords: Leucism, Wild boar, *Sus scrofa*, Pigmentation anomaly, Camera trap, Zagros Mountains

1. Introduction

The wild boar (*Sus scrofa*) is one of the most widely distributed large mammals in Eurasia, occurring across a broad range of habitats and exhibiting high ecological adaptability [1–3]. The species is widely distributed in Iraq, including the Zagros Mountains [4], although the genetic diversity and population structure of wild boar populations in the Zagros region remain poorly studied [5]. Wild boar exhibits considerable variation in coat coloration across its range, typically ranging from dark brown to black in adults, while juveniles display characteristic longitudinal striping that gradually disappears with age [3, 9]. Although this variation represents normal phenotypic diversity, pigmentation anomalies such as

leucism and albinism are rarely reported in wild boar populations [6, 7].

Coat coloration plays important adaptive roles in mammals, including camouflage and communication [8]. Pigmentation anomalies caused by altered melanin deposition, such as leucism, albinism, erythrism, and melanism, are relatively rare in wild mammals and have been documented only sporadically across different taxa [6, 10–13, 19].

Leucism is a genetic condition characterized by partial loss of pigmentation resulting from defects in the differentiation or migration of pigment cells [14, 19]. Unlike albinism, leucistic individuals retain normal eye pigmentation and may exhibit partial or patchy depigmentation of the pelage [14]. Documentation of leucism and other pale

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pigmentation anomalies in wild boar remains limited and is mostly restricted to isolated observations [7, 11, 12]. In Iraq, reports of pigmentation anomalies in wildlife remain scarce. Leucism has previously been reported in wild goats from the Zagros Mountains [15], while albinism has been documented in a Eurasian otter (*Lutra lutra*) from the Tigris River [16]. However, no published records of leucism in wild boar from Iraq or the Zagros Mountains are currently available in the literature.

Documenting rare phenotypic anomalies such as leucism is important for understanding genetic variation, developmental processes, and potential ecological implications within wildlife populations [6, 10]. The present observation therefore represents the first documented record of a wild boar exhibiting characteristics consistent with leucism from Iraq based on the available literature.

2. Material and methods

This observation was recorded during a wildlife monitoring program conducted by the Bamo Leopard Group and Leopards Beyond Borders in the Zagros Mountains of Iraqi Kurdistan. The study area is

located within the Garmian region, approximately 25 km south of Darbandikhan at approximately 34.89° N, 45.78° E (Fig. 1). The area lies within the Zagros Mountain range bordering Iraq and Iran, at elevations ranging from approximately 300–1820 m above sea level.

Three Bushnell Core DS-4K No Glow Trail Cameras were deployed along wildlife trails to monitor large mammals within mountainous oak (*Quercus* spp.) woodland habitats in the Bamo Mountain area, within the proposed Bamo Mountain Community Conservation Area, which forms part of the Zagros Mountains Forest Steppe ecoregion [17]. This ecoregion is characterized by a mosaic of open woodlands, shrublands, and grasslands dominated by oak species interspersed with rocky terrain and seasonal water sources [17]. Cameras were installed at approximately 40 cm above ground level and programmed to record motion-triggered 1-minute videos with a 1-minute interval between triggers.

The survey was conducted continuously from November 2022 to April 2023, with cameras checked at two-week intervals for maintenance and data retrieval, generating a total sampling effort of approximately 408 camera-trap nights. The survey

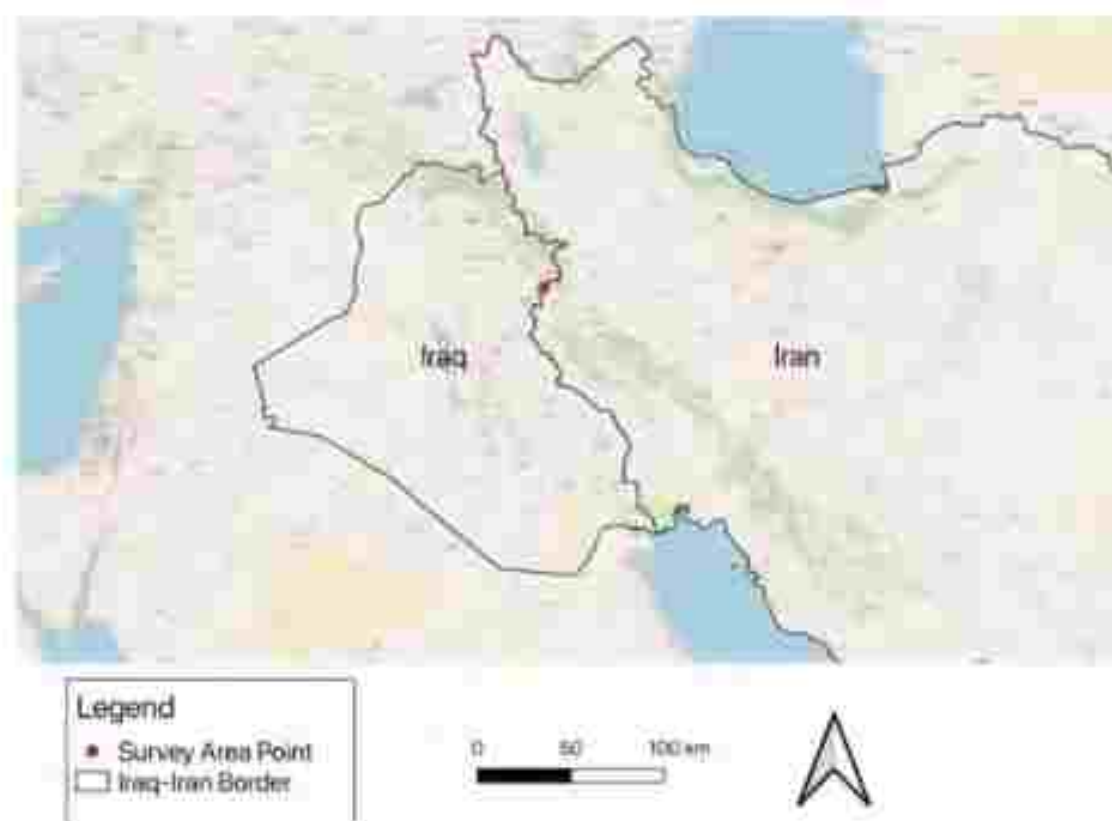


Fig. 1. Location of the study area in the Zagros Mountains of Iraqi Kurdistan. The map shows Iraq with an inset highlighting the study area in the Garmian region, approximately 25 km south of Darbandikhan.



Fig. 2. Still image extracted from camera-trap footage showing a wild boar (*Sus scrofa*) consistent with leucism (A1–A2) and a normally pigmented individual (B) for comparison, recorded in Barho Mountain, Zagros Mountains, Iraq Kurdistan on 18 February 2023, and 28 February 2023 respectively. The pale-colored individual exhibits cream to light-blond pelage with retained darker pigmentation on the snout and distal limbs.

primarily targeted large carnivores, particularly the Persian leopard (*Panthera pardus tulliana*), but also recorded other mammal species occurring in the study area. Identification was based on visual assessment of pelage coloration, ocular pigmentation, and retained pigmentation in the distal extremities compared with typical regional wild boar coloration.

Because the observation was opportunistic and based solely on camera-trap footage, no genetic or histological analyses could be conducted to confirm the pigmentation anomaly.

3. Results and discussion

On 18 February 2023, a camera trap recorded a video of an unusually pale wild boar consistent with leucism during daytime activity (Fig. 2; [Supplementary Video S1](#)). The individual was detected on three independent occasions (18 February, 26 February, and 23 March 2023), from a single camera-trap station and in all instances it appeared solitary.

The individual exhibited a uniform cream to light-blond pelage across most of the dorsal and lateral body surfaces, contrasting strongly with the dark brown to black coloration typical of adult wild boar [3]. Darker pigmentation was retained around the snout, lower limbs, ear margins, dorsal mane, and hooves. The eyes appeared normally pigmented, and no obvious morphological abnormalities were visible. Based on body size, head profile, and overall morphology, the individual was identified as an adult wild boar (*Sus scrofa*). It was presumed to be a female based on the absence of a visible scrotum, lack of prominent tusks, and relatively slender head and body morphology ([Supplementary Fig. S1](#)).

The observed phenotype is most consistent with leucism rather than albinism. Leucism is characterized by partial loss of pigmentation while eye pigmentation is usually retained, whereas albinism involves complete absence of melanin production and typically affects the eyes as well [14, 19]. The combination of pale pelage, normal eye pigmentation, and retained darker pigmentation on parts of the body therefore supports interpretation of the individual as leucistic. However, because this record is based solely on camera-trap footage, other forms of depigmentation, including progressive greying, cannot be entirely excluded without genetic, histological, or long-term monitoring evidence [14, 19].

Pigmentation anomalies have been detected across several mammalian taxa [6, 10, 13], but records in wild boar remain rare and are mostly limited to isolated observations [7, 11, 12]. Similar cases have been reported sporadically in wild boar populations from other regions, including Japan [7]. Based on the available literature, the present observation there-

fore represents the first documented record of a wild boar exhibiting characteristics consistent with leucism from Iraq and the Zagros Mountains.

While adult male wild boar are commonly solitary, females are generally associated with matriarchal groups (sounders) composed of multiple adult females and their offspring [2, 3, 18]. The repeated solitary detections of this presumed female may reflect temporary isolation, reproductive status, or normal individual variation rather than abnormal behavior. Given the limited number of detections and the absence of direct behavioral observations, no conclusions can be drawn regarding potential behavioral effects associated with the pigmentation anomaly.

Historical introgression from domestic pig lineages cannot be fully excluded because the wild boar populations in the broader Near East have a complex phylogeographic history linked to pig domestication and regional contact zones [5, 9]. However, no domestic pigs are known to occur within the study area, and the individual displayed morphology and behavior consistent with wild boar. The phenotype is therefore best interpreted as a naturally occurring pigmentation anomaly within the wild population, pending genetic confirmation. Rare pigmentation anomalies may influence camouflage, predator detection, thermoregulation, or social interactions [8], although their ecological consequences in wild boar remain poorly understood. This record highlights the value of camera-trap monitoring for documenting rare phenotypic variation in wildlife populations. Nonetheless, interpretation of the present observation remains limited by the small number of detections, lack of genetic confirmation, and reliance on opportunistic camera-trap footage.

4. Conclusion

This study documents the first recorded case of a wild boar (*Sus scrofa*) exhibiting characteristics consistent with leucism in Iraq. The observation highlights the value of camera-trap monitoring in detecting rare phenotypic anomalies that would otherwise remain undocumented in wild populations. Given the scarcity of such records globally, this finding contributes to the limited body of knowledge on pigmentation anomalies in wild boar and underscores the importance of continued wildlife monitoring in the Zagros Mountains. However, the interpretation remains limited by the absence of genetic confirmation and reliance on opportunistic camera-trap footage. Further observations and long-term monitoring are needed to better understand the occurrence, frequency, and ecological implications of such anomalies in wild populations.

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Conflicts of interest

The authors declare no conflicts of interest.

Ethical approval

Ethical review and approval were waived for this study because it was conducted using non-invasive camera traps only. No animals were captured, handled, baited, harmed, or disturbed during data collection. Camera traps were deployed in natural habitat and recorded wildlife passively.

Data availability

No datasets were generated or analyzed during the current study.

Funding statement

No specific funding was received for this study.

Author contributions

Hana A. Raza: Supervised the research; wrote the original draft; reviewed and edited the manuscript; and approved the final manuscript. **Baher F. Ali:** Conducted fieldwork; deployed and maintained camera traps; collected field data; contributed to writing the original draft and manuscript revision; and approved the final manuscript. **Nabaz Horeni:** Conducted fieldwork; deployed and maintained camera traps; collected field data; contributed to writing the original draft and manuscript revision; and approved the final manuscript.

References

1. Acevedo P, Vicente J, Höfle U, Cassinello J, Ruiz-Fons F, Gortázar C. Estimation of European wild boar relative abundance and aggregation: a novel method in epidemiological risk assessment. *Epidemiol Infect.* 2007;135(3):519-527.
2. Podgórski T, Luncu D, Scandura M, Sönnichsen L, and Jedrejewska B. Long-lasting, kin directed female interactions in a spatially structured wild boar social network. *PLoS One.* 2014;9(6):e99875.
3. Mayer JJ, Brisson II Jr. *Wild pigs: biology, damage, control techniques and management.* Savannah River National Laboratory; 2009.
4. Khwairahm NH, Arant K, HumadAmin HA, et al. Spatial distribution modeling of the wild boar (*Sus scrofa*) under current and future climate conditions in Iraq. *Biologia.* 2022;77:369-383.
5. Khalilzadeh P, Rezaei HR, Fadaei D, Serati M, Allahbadian M, Haile J, Goshayeh H. Contact Zone of Asian and European Wild Boar at North West of Iran. *PLoS One.* 2016;11(7):e0159499.
6. Mishra A, Sharma RM, Patil RN, Jadhav S. Colour aberration in Indian mammals: A review from 1886 to 2017. *Journal of Threatened Taxa.* 2019;11(6):13690-13719.
7. Suzuki, Kei K. Two white wild boars within a single family group in southwestern Japan. *Mammalia.* 2025;0146.
8. Caro T. The adaptive significance of coloration in mammals. *BioScience.* 2005;55(2):125-136.
9. Price M, Hongo H. The archaeology of pig domestication in Eurasia. *Journal of Archaeological Research.* 2020;28:557-615.
10. Ahrens MS, Machado R, Barbieri F, Freitas NS, Oliveira LH. Anomalous colour in Neotropical mammals: a review with new records for *Didelphis* sp. (Didelphidae, Didelphimorphia) and *Arctocephalus australis* (Otariidae, Carnivora). *Braz J Biol.* 2013;73(1):185-94.
11. Asimoff I, Neto EP, de Paula W, Hrfmann GS, Keuroghlian A, Jorge ML, Lima E, and Baquerio G. Sticking out in a herd? Records of anomalous pigmentation in a social herd-forming ungulate (*Tayassu pecari*). *North Western Journal of Zoology.* 2021;17(2):289-292.
12. Cleemann Kiran Kumar R, Samson A, Lenna Princy J. A record on leucism in Three-Striped Palm Squirrel (*Funambulus palmarum*) in Upper Nilgiris, Tamil Nadu, India. *International Journal of Pure and Applied Zoology.* 2021;9(3):2-3.
13. Samson A, Lenna Princy J, Mariyappan N, Thillairasan R, Yadav GN. First Known Case of Erythrim in the Golden Jackal *Canis aureus* in South India. *Journal of the Bombay Natural History Society.* 2024;121.
14. van Grouw H. What colour is that bird? The causes and recognition of common colour aberrations in birds. *Br Birds.* 2013;106:17-29.
15. Al-Sheikhly OF, Ahmed SR. A rare observation of a wild goat (*Capra urengus*) with unusual coat colour in northern Iraq (Kurdistan). *Caprine News.* 2020;1:12-13.
16. Al-Sheikhly OF, Feras NA, Hameedi JA, et al. A rare record of an albino Eurasian otter (*Lutra lutra*) in Central Iraq. *IUCN Otter Spec Group Bull.* 2022;39(2):223-228.
17. Olson DM, Dinerstein E, Wikramanayake ED, Burgess ND, Powell GVN, Underwood EC, D'amico JA, et al. Terrestrial ecoregions of the world: a new map of life on Earth: A new global map of terrestrial ecoregions provides an innovative tool for conserving biodiversity. *BioScience.* 2001;51(11):933-938.
18. Dardaillon M. Wild boar social groupings and their seasonal changes in the Camargue, southern France. *Z.Säugetierkunde.* 1988;53:22-30.
19. van Grouw H. What's in a name? Nomenclature for colour aberrations in birds: reviewed. *Bull Br Ornithol Club.* 2021;141(3):276-299.

Supplementary material



Supplementary Fig. S1: Still image extracted from camera-trap footage showing the ventral region of the leucistic wild boar (*Sus scrofa*) recorded in Bamo Mountain, Zagros Mountains, Iraqi Kurdistan. The absence of a visible scrotum, lack of prominent tusks and the relatively slender body morphology suggest the individual is likely female.

Supplementary Video S1. Camera-trap footage of the pale wild boar (*Sus scrofa*) exhibiting characteristics consistent with leucism recorded in the Bamo Mountain, Zagros Mountains, Iraqi Kurdistan, on 18 February 2023.