

New camera trap data of the Pallas' cat *Otocolobus manul* (Pallas, 1776) from the Katon-Karagai National Park (Eastern Kazakhstan)

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Abstract

The article presents new information on the location of the Pallas's cat in the territory of the Katon-Karagai National Park, including data obtained from camera traps.

Keywords

Kazakhstan, Altai, Katon-Karagai National Park, snow leopard, manul, lynx, wolverine, wolf, camera trap, Red Book, IUCN, UNESCO

Introduction

Katon-Karagai State National Natural Park was established in 2001 and is situated within the administrative boundaries of the Katon-Karagai district in the East Kazakhstan region. The park is located in the upper and middle reaches of the Bukhtarma River in the Southwestern Altai, encompassing an area of 643,477 hectares. It features several significant geographic formations, including the Sarymsakty, Southern Altai, and Altai Tarbagatai ridges, as well as the southern macroslopes

of the Listvyaga Ridge and part of the Katunsky Ridge, which includes Mount Belukha – the highest point in both Altai and Siberia.

This area, along with the adjacent lands of the rural administration, is recognized as the UNESCO Katon-Karagai Biosphere Reserve, which is also part of the larger UNESCO Great Altai Transboundary Biosphere Reserve. A key function of the national park and biosphere reserve is to facilitate scientific research, which has been ongoing since the park's establishment. Special emphasis is placed on the protection and study of species listed in the Red Book of the Republic of Kazakhstan, including the snow leopard and Pallas's cat. Snow leopards are frequently observed in the park (Chelyshev 2014; Gabdullina and Amanbaev 2019), and their presence has been documented through camera traps and photographs (Chelyshev and Gabdullina 2021; Gabdullina et al. 2021; Gabdullina et al. 2022).

At the time of the park's creation, the Pallas's cat was believed to be extinct. Historical literature indicates that this species once inhabited the Southern Altai region (Yablonsky 1916; Kuznetsov 1948). The Red Book of the Kazakh SSR, published in 1978, noted that the Pallas's cat was "occasionally found in the Southern Altai, on the Naryn Ridge, and near Lake Markakol," and that it had been hunted in limited numbers across the Katon-Karagai, Kurchum, and Markakol regions of East Kazakhstan. However, Pallas's cat was notably absent from the summary report titled "Fauna and Ecology of Mammals of the Katon-Karagai National Park" (Prokopov 2006). Additionally, Zinchenko's article "History of Research into the Theriofauna of the Katon-Karagai National Park and Adjacent Territories of Altai" (2006) indicated that both the Pallas's cat and argali were considered to have disappeared from the Bukhtarma region.

In 2015, while researching snow leopards, researchers collected the first reliable evidence of Pallas's cat in the park (Chelyshev 2015). Despite the absence of reported sightings prior to 2015, the possibility of their presence was suggested by their location in nearby Russia, particularly in the northern spurs of the Saylyugemsky Ridge, the Ukok Plateau, and the Argutu region (Dyakov 2012).

Information from Global Biodiversity Information Facility (GBIF) from adjacent territories in Russia, Mongolia and China over the past 9 years left no doubt about the location of the Pallas's cat in the park.

Materials and methods

The Pallas's cat (*Otocolobus manul* Pallas, 1776) is classified as a rare species (Category 3) in the Red Book of the Republic of Kazakhstan and is listed as Least Concern (LC) on the IUCN Red List. Our study employed well-established observation methods, including surveys and camera traps, to monitor the species. On July 18, 2023, a sighting of a Pallas's cat was recorded in the northern part of the park through the survey method.

The research utilized camera traps from the SEELock brand, with the locations and altitudes recorded using a Garmin GPS device. Camera trap studies in the park have been ongoing since 2013 (Chelyshev and Gabdullina 2018). In December 2023, park employees installed camera traps in the Altai Tarbagatai ridge. Following the processing of photo and video materials, the first video of a Pallas's cat was captured within the Katon-Karagai National Park, marking the second find of the species recorded in this area, nine years after the initial sighting. The coordinates of the Pallas's cat detection are 49°12'N, 86°34'E, at an altitude of 2,322 m a.s.l.

Results and discussion

According to a personal report by the first director of Katon-Karagai National Park, Yeren Zhumagulov, on July 18, 2023, he encountered a Pallas's cat near an unnamed river flowing into Lake Maralye in the Chernovinsky forestry. At approximately 11 a.m., Yeren Zhumagulov heard the sounds of an animal drinking water about 10 to 15 meters away.

The camera trap on the Altai Tarbagatai ridge was installed on December 20, 2023 by forester Zhomart Amanbaev of the Archatinsky forestry and state inspector Akberen Kusmanov at an altitude of 2300 meters in the Sarybet tract. After working 42 trap days, the trap was removed on 2 March 2, 2024. In total, the camera trap contained 520 photographs and videos. People were filmed on video (installation of a camera trap) – 7, Altai snowcock *Tetraogallus altaicus* (Gebler, 1836) – a species listed in the Red Book of the Republic of Kazakhstan and is endemic to the Altai-Sayan ecoregion – 2, Alpine chough *Pyrrhocorax graculus* (Linnaeus, 1766) – 1, grosbeak *Coccothraustes coccothraustes* (Linnaeus, 1758) – 1, pearl finches *Leucosticte brandti* (Bonaparte, 1850) – 1, snow leopard *P. uncia* – 4, Siberian ibex *Capra sibirica* (Pallas, 1776) – 113, mountain hare *Lepus timidus* (Linnaeus, 1758) – 1, Pallas's cat *Otocolobus manul* (Pallas, 1776) – 1, lynx *Lynx lynx* (Linnaeus, 1758) – 6, wolf *Canis lupus* (Linnaeus, 1758) – 1, empty – 32, the remaining 92 videos were due to weather conditions (snow, wind, fog, Fig. 1). The same camera trap had 260 frames, people – 8, Altai snowcock *Tetraogallus altaicus* (Gebler, 1836) – 7, Alpine chough *Pyrrhocorax graculus* (Linnaeus, 1766) – 1, grosbeak *Coccothraustes coccothraustes* (Linnaeus, 1758) – 1, snow leopard *P. uncia* – 5, Siberian ibex *Capra sibirica* (Pallas, 1776) – 121, mountain hare *Lepus timidus* (Linnaeus, 1758) – 1, Pallas's cat *Otocolobus manul* (Pallas, 1776) – 1, lynx *Lynx lynx* (Linnaeus, 1758) – 6, wolf *Canis lupus* (Linnaeus, 1758) – 1, wolverine *Gulo gulo* (Linnaeus, 1758) – 1, empty – 25, the remaining 84 frames were due to weather conditions (snow, wind, fog, Fig. 2).

Thus, during the specified period, Siberian ibex, lynx, and Altai snowcock were most often caught on video and in photographs.

Pallas's cat was caught on a camera trap on January 23, 2024 at 21:11. Photos and videos were taken in the dark, but a fairly clear image was obtained (Fig. 3; Suppl. material 1: Video 1).

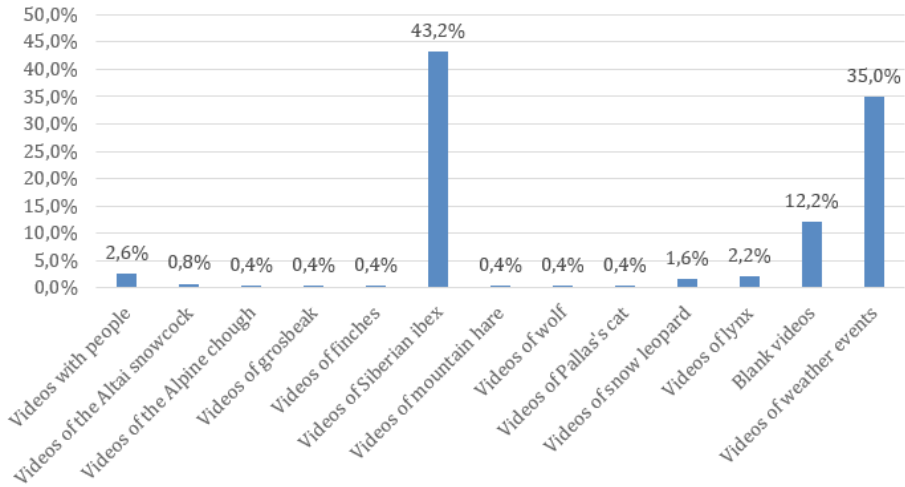


Figure 1. Objects captured on video, in percentage.

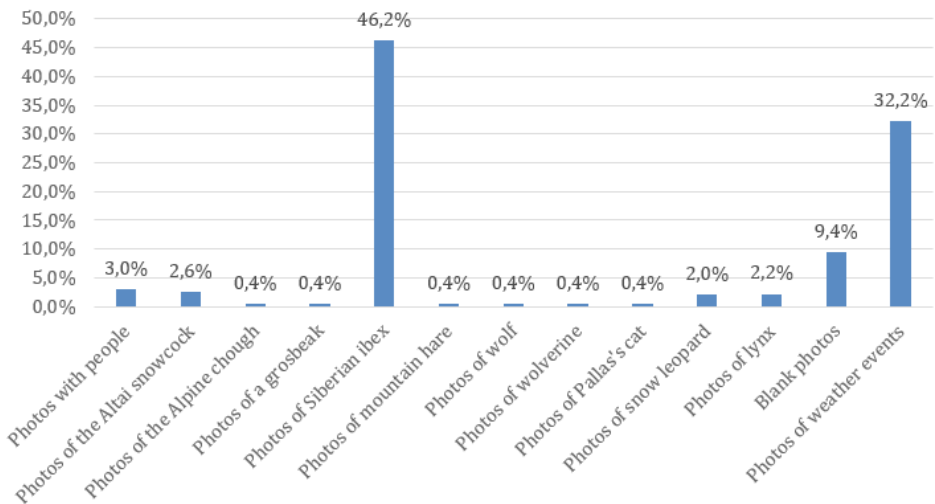
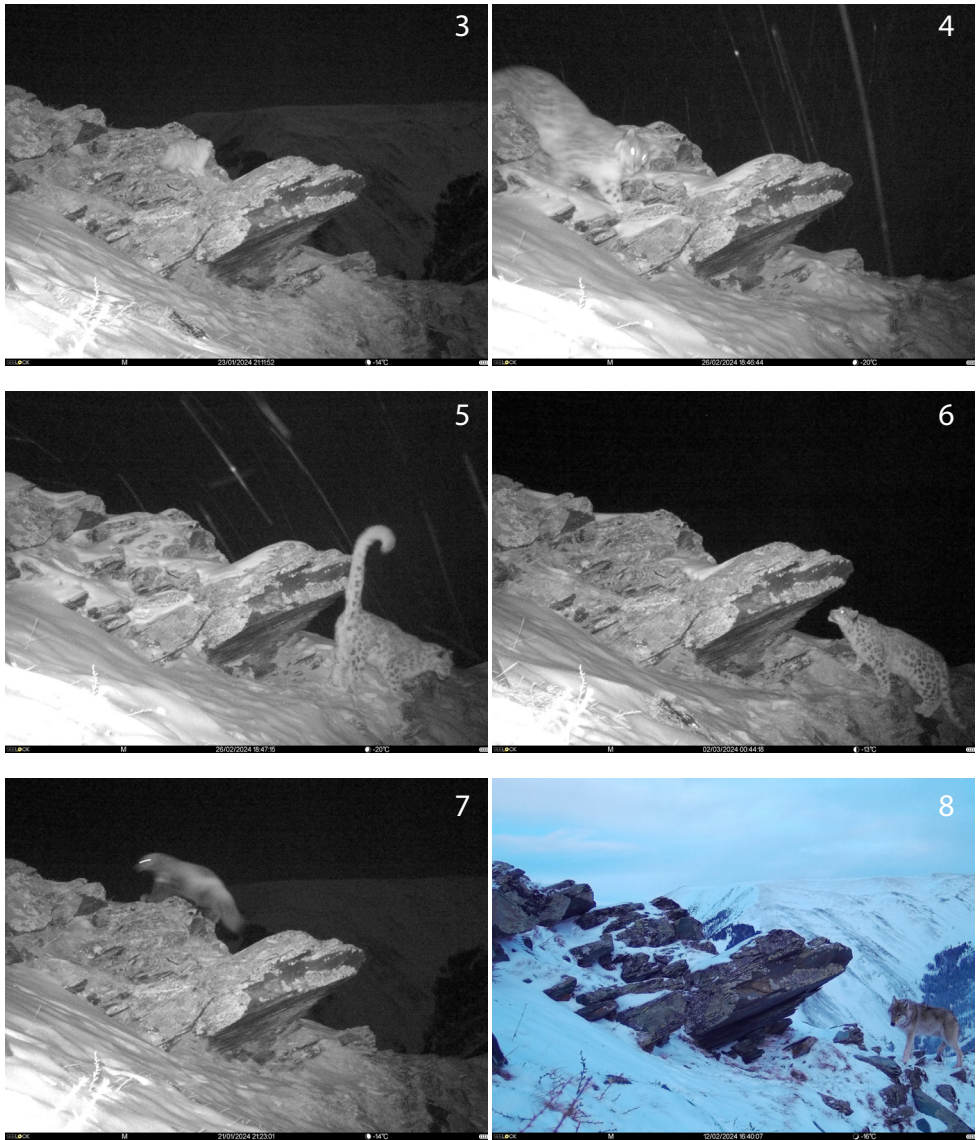


Figure 2. Objects captured in the photo, in percentage.

In addition, on 26 February from 18:46 to 18:47, 2 photos and 2 videos of a snow leopard were received (Figs 4–5; Suppl. material 2: Video 2; Suppl. material 3: Video 3), and another passage of a snow leopard was recorded by a camera trap on March 2 at 00:44 – 3 photos and 2 videos (Fig. 6, Suppl. material 4: Video 4).

Also, in addition to the Red Book species, other predators were caught on this camera trap: wolverine (Fig. 7), wolf (Fig. 8) and lynx (Fig. 9; Suppl. material 5: Video 5).



Figures 3–8. 3. Pallas's cat *Otocolobus manul* (Pallas, 1776); 4–6. Snow leopard *Panthera uncia*; 7. Wolverine *Gulo gulo* (Linnaeus, 1758); 8. Wolf *Canis lupus* (Linnaeus, 1758).

Thus, 9 years after the first discovery of the Pallas's cat on the territory of the Katon-Karagai National Park, we received another confirmation of the habitat of the Pallas's cat in the park. The nearest places of detection of Pallas's cat are 350 km southwest of the detection point (GBIF 2024) in the Tarbagatai district of the East Kazakhstan region and the Tarbagatai zoological reserve, which is now located mostly in the Abay region, 200 km northeast in the Kosh-Agach region Republic of

Altai (Russia) and approximately 250 km to the east – in Bayan-Olgii aimag (Mongolia). According to unconfirmed data, the Pallas's cat also lives in the protected zone of the park on the Kurchumsky ridge (Fig. 10).



Figure 9. *Lynx lynx* (Linnaeus, 1758).



Figure 10. Pallas's cat distribution map.

Acknowledgement

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Supplementary material 1

Video 1. Pallas's Cat (January 23, 2024 at 21:11)

Authors: Aliya U. Gabdullina, Zhomart B. Amanbaev, Renata A. Chelysheva

Data type: video

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Link: <http://journal.asu.ru/biol/article/view/15973/13593>

Supplementary material 2

Video 2. Snow Leopard (February 26, 2024 at 18:46)

Authors: Aliya U. Gabdullina, Zhomart B. Amanbaev, Renata A. Chelysheva

Data type: video

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Link: <http://journal.asu.ru/biol/article/view/15973/13594>

Supplementary material 3

Video 3. Snow Leopard (February 26, 2024 at 18:47)

Authors: Aliya U. Gabdullina, Zhomart B. Amanbaev, Renata A. Chelysheva

Data type: video

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Link: <http://journal.asu.ru/biol/article/view/15973/13595>

Supplementary material 4

Video 4. Snow Leopard (March 2, 2024 at 00:44)

Authors: Aliya U. Gabdullina, Zhomart B. Amanbaev, Renata A. Chelysheva

Data type: video

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Supplementary material 5

Video 5. Lynx (January 24, 2024 at 18:34)

Authors: Aliya U. Gabdullina, Zhomart B. Amanbaev, Renata A. Chelysheva

Data type: video

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