GLOBAL CONSERVATION TRANSLOCATION PERSPECTIVES: 2025

Case studies from around the globe - 8th Edition

Edited by Pritpal S. Soorae

IUCN SSC Conservation Translocation Specialist Group

Conservation Translocation SPECIALIST GROUP

PANTHERA

SSC Species Survival Commission

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(Clockwise from top-left)

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- Project partners Orinoco crocodile *(Crocodylus intermedius),* Colombia © Juan Carlos Enciso - Fundacion Natibo

(Center picture)

- Adriatic marbled bush-cricket *(Zeuneriana marmorata),* Italy © Filippo Maria Buzzetti

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Reintroduction of the Persian leopard in the Russian Caucasus - northern part of its historical range

Uiatcheslau Rozhnou[1], Anna Yachmennikova[1*], Jose R. Hernandez-Blanco[1],
Maria Chistopolova[1], Sergey Naidenko[1], Natalia Dronova[1], Irina Voshchanova[2],
Alim Pkhitikov[3], Fatimat Tembotova[3], Magomed-Rasul Magomedov[4],
Madina Slanova[5], Pavel Weinberg[5], Zaurbek Dzutsev[5] & Sergey Trepet[6]

Introduction

Persian leopard *(P p. tulliana)* is listed as Endangered under criteria C2a in the IUCN Red List (2023). In Russia, the Persian leopard is included to the Red Data Book of the Russian Federation (Red Data Book, 2021). Its sub-species range include habitats such as forest, savanna, scrublands, grassland, rocky areas (eg. inland cliffs, mountain peaks), sandy areas and semi deserts that are situated in the territory of Afghanistan, Armenia, Azerbaijan, Iran, Iraq, Pakistan, Russian Federation, Turkmenistan, TQrkiye and Georgia. Russian Caucasus is the north border of the subspecies range. The last Persian leopards were killed here by locals in the middle of the 20th century - 1952 in Ossetia and in 1956 in Chechnya.

The reintroduction Project was initiated in Russia in 2007 (Rozhnov et al., 2008) and aimed to restore sub-species grouping in the Russian territory to support those leopards that naturally spread to the North part of the range from the South with mates for breeding. The Russian Project on Persian leopard reintroduction was included as an important part in the international project on the Persian leopard subspecies conservation and recovery. The Project was initiated with international support of the IUCN Cat Specialist Group (SSC) and by using EAZA (European Association of Zoos and Aquaria) sources; also IUCN Guidelines for Reintroductions and other Conservation Translocations (IUCN, 2013) were used for this project.

Monitoring of leopards in their natural released habitat

Main Goals

1. *Facility development:* To design and construct specialized breeding facilities that enable zoo leopards to breed and allow their cubs to be raised and trained with minimal human contact, ensuring natural behavioral development.

2. *Captive breeding and rearing:* To establish breeding pairs from the existing zoo population and raise their offspring with the appropriate wild instincts and survival skills necessary for life in their natural habitat.

3. *Pre-release screening system:* To develop a comprehensive assessment protocol for human-trained leopards prior to release. This system will evaluate their ability to hunt effectively, avoid human conflict, and demonstrate a high likelihood of independent survival in the wild.

4. *Managed release:* To reintroduce young leopards into the wild according to genetic management rules, ensuring a sufficient level of unrelatedness. The programme aims to release a founding population of no fewer than 50 individuals to ensure genetic diversity. [5]

5. *Post-release monitoring:* To conduct rigorous monitoring of released leopards to confirm their successful adaptation, including their capability to hunt natural prey, thrive independently, and coexist safely with local communities.

6. *Population restoration:* The ultimate goal is to reestablish self-sustaining, genetically viable leopard populations in the wild that are capable of natural reproduction and long-term survival.

Success Indicators

1. Released animals could survive in the wild more than one full year cycle and avoid human-carnivore conflict.

2. Released animals establish their home range and socio-spatial structure.

3. Leopards breed in the wild naturally and successfully; young leopards disperse in to the natural ecosystem.

Attaching radio-collars to leopards before release into the wild

Project Summary

Feasibility

The Caucasus is one of the 25 most biologically diverse "hot spots", it is included in the list of 200 ecoregions of the planet whose biodiversity is important at the global level (CEPF, 2004). It is not easy to implement continuous field monitoring in the habitat where animals are being reintroduced, but it allows keeping wildlife as a whole system close to be untouched in the enough wide areas due to complicated relief. Animals are released in the mountain region, where lowlands are forested, and uplands are alpine areas full of rocks and stony fields. There are two release sites located at a distance of ~315 km from each other (Western and Central Caucasus). Altitude there varies from 1,200 - 1,400 m and a maximum of 2,300 m a.s.l.. Leopards choose their way along either rather gentle slopes, 15 - 20°, or steep ones up to 75 - 80° (Rozhnov et al., 2020).

Historically, people in the Caucasus region usually used any chance to kill leopards because of their direct threat to domestic animals and hunting. The region has a high population density of 60 people/km². However, it is experiencing a population decline, characterised by a falling birth rate since 1990 and significant outmigration. The majority of the people in rural areas live near the poverty line and villagers have an additional sources of income such as growing vegetables, raising livestock, fishing and game-hunting. The Caucasus presents a huge diversity of ethnic, religious and cultural types of people. Environmental problems are understood by many locals, due to the high level of education in the region. In most areas the literacy rate is almost 100% but in rural areas people are less informed and environmental issues are poorly covered. Interest in the environment is low, since most people are busy with basic life needs such as food, warmth, fuel and work (Rozhnov et al., 2020).

Implementation

Before release, animals are specially tested for their health and adequacy of behaviour. The area where animals are released has a newly described *Cytauxzoon felis* disease, which could be lethally dangerous, for the leopards. Also there were a number of diseases described in the jackal population and among feral domestic cats (11 pathogens). They are potentially dangerous for unvaccinated leopard cubs born in the wild due the fact that leopards hunt jackals (Naidenko et al., 2021).

The first leopards were released into the wild in 2016 in the Western Caucasus (Caucasian Nature Reserve), with 2 males and 1 female introduced. Since 2018, releases have been conducted across two different sites. Between 2016 and 2023, a total of 15 leopards (8 males and 7 females) were released. These individuals were selected from a group of 27 held at the Sochi

Breeding Center. According to the programmes strategy, a total of 50 young leopards are planned for release (IUCN, 2013; Rozhnov et al., 2020).

All released animals were captive-bred and captive-reared in a specially built Sochi Breeding Center. Breeding pairs were provided by EAZA (2 breeding pairs) and 1 wild caught pair (male originated from Turkmenistan, female - from Iran) (IUCN, 2022).

Post-release Monitoring

All leopards were released at 2 years old which is the natural dispersal age of juveniles. They were equipped with GPS-collars (GPS-Iridium-VHF Lotek, Canada; GPS-GSM-VHF Moosefarm, Russia). Kill sites are calculated on the basis of clusters of locations checked during fieldwork. These expeditions are led by highly qualified zoologists to confirm the type of prey killed. A photo traps array is established in the range of the release site in order to observe leopard movements after the collar's battery runs low and to assess the leopards' body condition. Also newcomers, i.e. wild individuals, were detected namely 2 males (Rozhnov et al., 2019; Rozhnov et al., 2020).

Thirteen of the 15 released leopards survived successfully during the first year after release, in all four seasons. They hunt natural wild prey such as ungulates (wild boar, red deer, roe deer, bison cub, chamois, tour) and other prey (jackal, wolf, fox, wild cat, badger, raccoon dog) confirmed in the field (Hernandez-Blanco et al., 2024).

Evidence from GPS tracking and kill-site monitoring shows the released leopards are avoiding conflict with humans. Currently, 9 of the 15 released leopards survive. We have also recorded new wild males on camera traps, indicating that our released leopards are attracting newcomers (IUCN, 2022).

Major Difficulties Faced

Biological

Ecological: We have described a high density of brown bear *(Ursus arctos)* in the Western Caucasus to whom leopards lose their kills. This was not detected in the Central Caucasus (Hernandez-Blanco et al., 2024).

Disease: One female died due to the infectious disease *(Cytauxzoon felis)* that has never been described before for that geographical region

Climate: One leopard male has died in the avalanche in the highlands (3,700 m a.s.l.), in the hard weather conditions during a snow storm.

Anthropogenic: One leopard male was lost to a poaching incident.

Operational

Significant issues arose with personnel responsible for leopard training and captive breeding. A critical problem was the concentration of vital decision-making authority in the hands of underqualified staff.

Broad Underlying Problems

Suboptimal habitat: Russian Caucasus is the northern limit of the subspecies range and there are areas where conditions are close to the suboptimal.

Climate change: This can cause the spread of various diseases including the host species such as jackals.

Human-wildlife conflict: People kill leopards due to cultural and traditional reasons so more education is desirable.

Interaction with domestic species: The uncontrolled pasturing of domestic animals makes owners less accountable for their livestock. This, in turn, attracts wild carnivores to prey on these free-ranging animals, which share habitats and behave similarly to wild ungulates. Furthermore,

unvaccinated feral cats and stray dogs can transmit dangerous diseases to native wildlife.

Major Lessons Learned

n/a

Success or Failure of Project

Highly Successful	Successful	Partially Successful	Failure

Reasons for Success/Failure

- Specalised facilities for captive-breeding were built far from the city and this compared to the initial version allowed the training of captive born leopard cubs without any human contact *(finally success)*.

- Genetically matched breeding pairs were selected from the zoo population and transported to Russia. Furthermore, raising cubs to develop natural wild behaviors and to ultimately survive in the wild depends critically on the trainers' techniques. This involves preventing the cubs from imprinting on humans and persistently encouraging them to hunt live prey, a skill they master through repeated practice and learned experience.

- The developed a pre-release assessment system for human-raised leopards is important. This critical measure prevents human-carnivore conflicts involving inexperienced leopards after their wild release. It also protects the project from being discredited by the government and the public.

- Release leopards according to genetic unrelatedness rules, targeting at least 50 individuals; however, only 15 of the planned 50 have been released so far. The project must strengthen its breeding and release efforts to yield sufficient numbers for annual release, as current figures remain too low. ˙

- Monitoring them to prove they are able to survive in the wild, hunt natural wild prey,

and avoid conflicts with people. The monitoring method used is highly effective *(success)*.

- Restore leopard groupings in the wild which breed naturally and successfully. The project needs to increase the number of well-trained animals released per year - the number is too low now *(not successful)*.

- Released animals could survive in the wild more than one full year cycle and avoid human-carnivore conflict mainly due to: i) no human contact during development period for cubs, ii) negative reinforcement of occasional human contact during the special leopard-cub sensitive period, iii) more than 25 successful hunts on live prey before releasing, and iv) never feeding with domestic animal meat *(success)*.

- Released animals establish their home range and socio-spatial structure *(success - still in process)*.

- Leopards breeding in the wild naturally and successfully; young leopards; natural ecosystem connections and chains recover. A larger number of successfully released leopards are needed (*not successful yet but possibility of improvement)*.

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Author Details

[1]* *A.N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, Moscow, 119071 Russia,* *felis. melanes@yandex. ru* *rozhnov-v-2015@yandex.ru*

[2] *Irina Voshchanova, vipposte@mail. ru*

[3] *Alim Pkhitikov, pkhitikov@mail. ru*

[4] *Magomed-Rasul Magomedov, mmrd@mail.ru*

[5] *Pavel Weinberg, tu r@rambler.ru*

[6] *Sergey Trepet, trepetsergev@gmail. com*