Vitenskapskomiteen for mat og miljø
Norwegian Scientific Committee for Food and Environment

VKM Bulletin 2024: 14

Non-detriment finding for Amur leopard (*Panthera pardus orientalis*)

VKM, Matthew Grainger, Katrine Eldegard, Jo S. Hermansen, Alexander Kopatz, Eli K. Rueness, Hugo de Boer

VKM Bulletin 2024: 14
Non-detriment finding for Amur leopard (*Panthera pardus orientalis*)

Published: 10.09.2024

ISSN: 2704-1689
Norwegian Scientific Committee for Food and Environment (VKM)
Postboks 222 Skøyen
0213 Oslo
Norway

Phone: +47 21 62 28 00
Email: vkm@vkm.no

vkm.no

Suggested citation: VKM, Matthew Grainger, Katrine Eldegard, Jo S. Hermansen, Alexander Kopatz, Eli K. Rueness, Hugo de Boer (2024). Non-detriment finding for Amur leopard (*Panthera pardus orientalis*). VKM Bulletin 2024:14, ISSN: 2704-1689. Norwegian Scientific Committee for Food and Environment (VKM), Oslo, Norway.

Vitenskapskomiteen
for mat og miljø
Norwegian Scientific Committee
for Food and Environment

Non-detriment finding for Amur leopard (*Panthera pardus orientalis*)

Authors: VKM Panel on CITES member Matthew Grainger (Norwegian Institute for Nature Research). Reviewed and approved by VKM Panel on CITES members Katrine Eldegard (Norwegian University of Life Sciences), Alexander Kopatz (Norwegian Institute for Nature Research), Eli K. Rueness (University of Oslo), Hugo de Boer (University of Oslo) and VKM Secretariat member Jo Skeie Hermansen.

Competing interests: The authors declare no competing interests in relation to this NDF.

Date: 28.02.2024

Scientific name: *Panthera pardus orientalis* (Schlegel, 1857)

Common name: Amur leopard, Siberian leopard, Far eastern leopard, Far-eastern leopard, Korean leopard

Norwegian name: Amurleopard, orientalsk leopard

Type of permit: CITES Appendix I (Norwegian CITES Regulation Annex I, List A).
Country of re-export: Norway (NO)
Country of import: France (FR)

Purpose and source: The proposal concerns the re-export (purpose-of-transaction code Z) of one live, 8-year-old male Amur leopard (source code C) from Bjørneparken AS (Norway) to EcoZonia (France). The male was originally imported to Bjørneparken AS from Parken Zoo (Sweden) in 2020.

For species listed in the Norwegian Cites Regulation Annex 1, list A, it is required to establish that re-export does not have a harmful effect on the conservation status of the species, in compliance with the Norwegian CITES regulation Chapter 2, § 5. The CITES Scientific Authority assesses whether the re-export satisfies § 5b. The import of the specimen was done before The Norwegian Scientific Committee for Food and Environment (VKM) was appointed as a scientific authority under Norwegian CITES-regulation. Therefore, VKM did not make a NDF at the time of import to Norway.

VKM has adopted the definition of detriment, cf. Conf. 16.7 (Rev. CoP17) suggested by the U.S Fish and Wildlife Service Division of Scientific Authority:

1. Harvest that is not sustainable.
2. Harvest that harms the status of the species in the wild.
3. Removal from the wild that results in habitat loss or destruction, or that interferes with recovery efforts for a species.

Conclusion

VKM concludes that the re-export from Norway to France of one 8-year-old male Amur leopard bred in captivity will not have a harmful effect on the conservation status of the species.

The conclusion is based on the following factors:

- The individual and both of its parents were bred in captivity and the re-export will thus not have a harmful effect on the conservation status of the species.

- The re-export of the individual from Bjørneparken AS (NO) to EcoZonia (FR) is part of the European Endangered Species Programme (EEP), an *ex situ* conservation programme for Amur leopard jointly managed by the European Association of Zoos and Aquaria (EAZA) and Eurasian Regional Association of Zoos and Aquariums (EARAZA). The EEP is part of the World Association for Zoos and Aquariums (WAZA) Global Species Management Plan (GSMP) for Amur leopard.

1. Biological information

Distribution

The Amur leopard (*Panthera pardus orientalis*) is one of nine recognised subspecies of *P. pardus*. It was historically widespread across the Korean Peninsula, Northeastern China, and the Russian Far East. It is now restricted to forests on the border between Russia's Primorsky region and the Jilin and Heilongjiang provinces of Northeastern China (Li et al., 2024).

Life history

Panthera pardus orientalis selects areas with high ungulate density (its prey-base), in lower-elevation Korean pine forests on southwest facing slopes far from human disturbance (Hebblewhite et al., 2011).

The age of first reproduction is 2–3 years of age and average litter size is two (range of 1–4). Offspring become independent from the mother at two years of age. Lifespan is 10-15 years in the wild and up to 20 in captivity (Sunquist & Sunquist, 2002).

Role in the ecosystem

Amur leopards are predators with preference for roe deer (*Capreolus pygargus*), sika deer (*Cervus nippon*) and wild boar (*Sus scrofa*) (Yang et al., 2018). They will also predate upon smaller meso-predators, such as Asian badger (*Meles leucurus*) and raccoon dog (*Nyctereutes procyonoides*) as well as domesticated livestock (Yang et al., 2018).

2. Population trend

Joint camera trapping surveys in China and Russia in 2014/2015 led to an estimate of the global population of 84 (70–108, 95% confidence interval) individuals (Vitkalova et al., 2018). This was an increase from a previous estimate in 2007 which was 25-34 individuals in Russia alone (Pikunov, 2010). Estimates of the population size from non-invasive genetic sampling (from scat and hair) in China in 2002/2003 and 2007/2008 estimated a similar number; 28 (95 % CI 19–38), and 26 (95 % CI 13–33) (Sugimoto et al., 2014).

3. Conservation status

The Amur leopard is listed as Critically Endangered (CR) on the IUCN Red List of Threatened Species due to an "observed, estimated, projected or inferred continuing decline" and a subpopulation containing more than 90% of the remaining individuals (Criterion C2a(ii)) and an estimated population less than 60 mature individuals (Criterion D) (Stein et al., 2022). It is widely considered to be among the rarest and most endangered of all big cats (WAZA, 2018).

4. Threats

Habitat loss is considered a major threat to the species; they have lost as much as 98% of their historic range (Jacobson et al., 2016). Poaching for its skin and for use in Asian medicine was a major contributing factor to the decline in the population (Jiang et al., 2015).

The isolation of the remaining population means that there is a low level of genetic diversity (Sugimoto et al., 2014). An emerging threat is canine distemper virus which can be spread through predation on feral dogs or other canids (Wang et al., 2022).

5. Conservation and Management measures:

International legislation

Panthera pardus is included in CITES Appendix 1 (01/07/1975). The species is listed in the EU Wildlife Trade Regulations Annex A.

National legislation

China

The Wild Animal Conversation Law of China lists the Amur leopard as a first-class national protected animal under the law authorized by the Standing Committee of the National People's Congress of China in 2016 (Shevtsova et al., 2018).

Russia

Trade or use of the Amur leopard is forbidden by several Russian Federal laws:

- Federal Law on Specially Protected Natural Areas (14 March 1995, №. 33-F3)
- Federal Law on Animal Species (24 April 1995, №. 52-F3)
- Federal Law on Environmental Protection (10 January 2002, №. 7-F3)
- Forest Code of Russian Federation (8 November 2006, №. 200-FZ)
- Federal Law "On Hunting and Hunting Resources and Legal amendments in Federal Laws" (24 July 2009, №. 209-F3)
- Criminal Code of the Russian Federation (with changes made on 2 July 2013, №. 150-F3)
- Government decree, "Affirmation of the list of the most valuable wild fauna and aquatic biological resources that belong to species listed in the Red Data Book of the Russian Federation and protected by agreements" (See Article 226.1 and Article 258.1 of Criminal Law, 31 October 2013, №. 978)

Conservation measures

China has designated several protected areas for the species since 1980 in northeastern China and have a well-established captive breeding programme. The Northeast China Tiger and Leopard National Park was established in 2021 and encompasses 14,000 km^2 of forest in Jilin Province. In Russia, several nature reserves are home to the largest population of Amur leopard including The Land of the Leopard National Park, gazetted in 2012, which encompasses of 2,799 km^2 of habitat in Northeast Russia (Shevtsova et al., 2018).

The focal individual is part of the European Endangered Species Programme (EEP), an *ex situ* conservation programme jointly managed by European Association of Zoos and Aquaria (EAZA) and Eurasian Regional Association of Zoos and Aquariums (EARAZA). The EEP is again part of the World Association for Zoos and Aquariums (WAZA) Global Species Management Plan (GSMP) for Amur leopard, established in April 2013. As of July 2018, the captive population under the Global Species Management Plan (GSMP) comprised 217 individuals housed across 88 institutions. This population, originating from 14 individuals, retains 91% genetic diversity, as reported by WAZA in 2018.

The Amur leopard is one of the two large cats for which the IUCN recommends reintroduction from captive stock currently held in international zoological gardens (Christie, 2009).

6. Trade/use

Legal

Live trade between zoological gardens or other captive breeding facilities occurs in order to prevent loss of genetic diversity (Kelly et al., 2013).

Illegal

Poaching for use in Asian medicine was one of the drivers of the population reduction (Uphyrkina et al., 2002).

7. References

Christie, S. (2009). Breeding Far Eastern Leopards for Reintroduction: The Zoo Programme Perspective. In *Reintroduction of Top-Order Predators* (pp. 388–410). https://doi.org/10.1002/9781444312034.ch18

Hebblewhite, M., Miquelle, D. G., Murzin, A. A., Aramilev, V. V., & Pikunov, D. G. (2011). Predicting potential habitat and population size for reintroduction of the Far Eastern leopards in the Russian Far East. *Biological Conservation*, *144*(10), 2403–2413. https://doi.org/10.1016/j.biocon.2011.03.020

Jacobson, A. P., Gerngross, P., Jr, J. R. L., Schoonover, R. F., Anco, C., Breitenmoser-Würsten, C., Durant, S. M., Farhadinia, M. S., Henschel, P., Kamler, J. F., Laguardia, A., Rostro-García, S., Stein, A. B., & Dollar, L. (2016). Leopard (Panthera pardus) status, distribution, and the research efforts across its range. *PeerJ*, *4*, e1974. https://doi.org/10.7717/peerj.1974

Jiang, G., Qi, J., Wang, G., Shi, Q., Darman, Y., Hebblewhite, M., Miquelle, D. G., Li, Z., Zhang, X., Gu, J., Chang, Y., Zhang, M., & Ma, J. (2015). New hope for the survival of the Amur leopard in China. *Scientific Reports*, *5*(1), Article 1. https://doi.org/10.1038/srep15475

Kelly, P., Stack, D., & Harley, J. (2013). A Review of the Proposed Reintroduction Program for the Far Eastern Leopard (*Panthera pardus orientalis*) and the Role of Conservation Organizations, Veterinarians, and Zoos. *Topics in Companion Animal Medicine*, *28*(4), 163–166. https://doi.org/10.1053/j.tcam.2013.09.004

Li, H., Pandey, P., Li, Y., Wang, T., Singh, R., Peng, Y., Lee, H., Lee, W.-S., Zhu, W., & Choi, C.-Y. (2024). Transboundary Cooperation in the Tumen River Basin Is the Key to Amur Leopard (Panthera pardus) Population Recovery in the Korean Peninsula. *Animals*, *14*(1), Article 1. https://doi.org/10.3390/ani14010059

Pikunov, D. G. (2010). Dynamics of the Range and Abundance of Leopards in the Russian Far East from 1961 to 2010. In *N Amur-skii tigr v Seve ro_Vostochnoi Azii: Problemy sokhraneniya vXXI veke (Amur Tiger in the Northeast Asia: Problems of Conservation in the XXI Century), Vladivostok: Dal'nauka,* (pp. 334-342.).

Shevtsova, E., Jiang, G., Vitkalova, A., Gu, J., Qi, J., Chaika, M., Guskov, V., Ning, Y., Wang, M., Kostyria, A., & Darman, Y. (2018). *Saving the Amur Tiger and Amur Leopard*. https://www.neaspec.org/sites/default/files/2018_12_17_UNESCAP_Tiger.pdf

Stein, A. B., Athreya, V., Gerngross, P., Balme, G., Henschel, P., Karanth, U., Miquelle, D., Rostro-García, S., Kamler, J. F., Laguardia, A., Khorozyan, I., & Ghoddousi, A. (2022). *Panthera pardus* [dataset]. https://doi.org/10.2305/IUCN.UK.2023-1.RLTS.T15954A215195554.en

Sugimoto, T., Aramilev, V. V., Kerley, L. L., Nagata, J., Miquelle, D. G., & McCullough, D. R. (2014). Noninvasive genetic analyses for estimating population size and genetic diversity of the remaining Far Eastern leopard (Panthera pardus orientalis) population. *Conservation Genetics*, *15*(3), 521–532. https://doi.org/10.1007/s10592-013-0558-8

Sunquist, M., Sunquist, F. (2002). *Wild Cats of the World*. The University of Chicago Press, Chicago.

Uphyrkina, O., Miquelle, D., Quigley, H., Driscoll, C., & O'Brien, S. J. (2002). Conservation Genetics of the Far Eastern Leopard (Panthera pardus orientalis). *Journal of Heredity*, *93*(5), 303–311. https://doi.org/10.1093/jhered/93.5.303

Vitkalova, A. V., Feng, L., Rybin, A. N., Gerber, B. D., Miquelle, D. G., Wang, T., Yang, H., Shevtsova, E. I., Aramilev, V. V., & Ge, J. (2018). Transboundary cooperation improves endangered species monitoring and conservation actions: A case study of the global population of Amur leopards. *Conservation Letters*, *11*(5), e12574. https://doi.org/10.1111/conl.12574

Wang, D., Accatino, F., Smith, J. L. D., & Wang, T. (2022). Contributions of distemper control and habitat expansion to the Amur leopard viability. *Communications Biology*, *5*(1), Article 1. https://doi.org/10.1038/s42003-022-04127-9

WAZA. (2018). Amur Leopard. *Https://Www.Waza.Org/*. https://www.waza.org/priorities/conservation/conservation-breeding-programmes/global-species-management-plans/amur-leopard/

Yang, H., Dou, H., Baniya, R. K., Han, S., Guan, Y., Xie, B., Zhao, G., Wang, T., Mou, P., Feng, L., & Ge, J. (2018). Seasonal food habits and prey selection of Amur tigers and Amur leopards in Northeast China. *Scientific Reports*, *8*(1), Article 1. https://doi.org/10.1038/s41598-018-25275-1