2. In situ Management of Carpathian lynx

2.1. Short introduction on in situ management

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According to the Convention on Biological Diversity, “the fundamental requirement for the conservation of biological diversity is the in situ conservation of ecosystems and natural habitats and the maintenance and recovery of viable populations of species in their natural surroundings” (Bonn Lynx Expert Group 2021). In situ Management of a species means the maintenance and recovery of viable populations of the species in its natural habitats (EEA 2022) i.e. to conserve the species in its natural habitats.

In situ management of a species or subspecies, here the Carpathian lynx, comprises of the conservation, monitoring and management of its wild populations. Management interventions include reintroduction of Carpathian lynx into areas where the species historically occurred, reinforcements of populations by releasing individuals in an already existing lynx population or translocations of individuals between subpopulations to facilitate genetic exchange.

Part of the in situ management is also the genetic monitoring of the wild populations (see chapter *2.2 Genetic monitoring*). This is particularly important to early detect indications of any genetic issues such as inbreeding depressions that can occur when a (sub)population declines, reaching a critical small population size leading to reproduction between closely related lynx individuals. Such depressions are connected with health issues. By means of genetic monitoring, also the connectivity and genetic exchange between subpopulations can be analyzed. Moreover, genetic monitoring of wild populations is important to develop recommendations in regard to which lynx individuals genetically would be the most suitable ones to be released e.g. in the frame of a reintroduction or reinforcement project in a certain area/region. Based on the results of the genetic monitoring recommendations can even be formulated at the metapopulation level as well as specific recommendations for subpopulations can be developed.

In situ management also includes the management of orphaned lynx in their natural environment e.g., through the provision of food, as well as their capture and transport from the wild into rehabilitation centers and from there to release sites as well as the corresponding guidelines for such interventions (see chapters *2.3, 2.4, 3.2 & 3.4*).

The monitoring of released lynx, e.g., by means of radio telemetry or camera trapping, the so-called post-release monitoring, is an important part of the in situ management too. It allows measuring the success of reintroduction and reinforcement projects. Through monitoring lynx over a certain time period, one can determine how long the released individual survived and if it could integrate its genes into the population through successful reproduction (see chapter *2.5 Post-release monitoring*).

Last but not least, management interventions, i.e., in regard to when a lynx should be removed from the population for example due to a specialization on livestock depredation, is part of the in situ management (see chapter *2.5 Post-release monitoring*).

All these different subjects are covered in detail in the following chapters.

References:

Bonn Lynx Expert Group 2021. Recommendations for the conservation of the Eurasian lynx *Lynx lynx* in Western and Central Europe. Cat News Special Issue 14, 78–86.

EEA 2022. European Environmental Agency. In-situ conservation. Available at: (https://www.eea.europa.eu/help/glossary/eea-glossary/in-situ-conservation