

Special Issue

N° 14 | Autumn 2021

CAT JOURNAL

The Eurasian lynx in Continental Europe



Stiftung Natur und Umwelt Rheinland-Pfalz





CATnews is the newsletter of the Cat Specialist Group, a component of the Species Survival Commission SSC of the International Union for Conservation of Nature (IUCN). It is published twice a year, and is available to members and the Friends of the Cat Group.

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Original contributions and short notes about wild cats are welcome

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This **Special Issue of CATnews** has been produced with support from the Stiftung Natur und Umwelt Rheinland-Pfalz, HIT Umwelt- und Naturschutz Stiftung, and Foundation KORA.

Design: barbara surber, werk'sdesign gmbh
Layout: Christine Breitenmoser
Print: Stämpfli AG, Bern, Switzerland

ISSN 1027-2992 © IUCN SSC Cat Specialist Group

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Cover Photo: Camera trap picture of two Eurasian lynx kittens in north-eastern Switzerland. 11 December 2014 (Photo KORA).

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Transboundary cooperation in lynx conservation under the auspice of the Upper Rhine Conference

The reintroduction of lynx *Lynx lynx* to the Palatinate Forest with adjacent suitable habitats in France, Switzerland and Germany spurred the interest to augment the international cooperation to exchange information, develop harmonized approaches and to establish supporting organisational structures. Thus, the Expert Committee Lynx has been established under the auspices of the Upper Rhine Conference and functions as an administrative umbrella to the protruding lynx habitats.

The Upper Rhine is framed by the secondary mountain ranges of the Black Forest, the Jura, the Southern Vosges and the Northern Vosges-Palatinate Forest (Fig. 1). The lynx was reintroduced to the Swiss Jura in the 1970s and to the French Vosges in the 1980s. In the Black Forest, single male lynx are regularly observed. The Palatinate Forest population is currently being reintroduced (Drouet-Hoguet et al. 2021; Germain & Schwoerer 2021; Herdtfelder et al. 2021; Idelberger et al. 2021).

A demographically and genetically viable lynx population requires a large extension, which could be achieved by combining the subpopulations into a "metapopulation". Together, the mountain ranges bordering the Upper Rhine, the Black Forest, the Jura, the Southern Vosges and the Northern Vosges-Palatinate Forest, form a semi-natural living space of around 36,000 km² and could accommodate a viable "Upper Rhine metapopulation" (URM) of lynx. This URM is furthermore connected to the Alps and the Swabian Alb, and, eventually, to secondary mountain ranges further north. The secondary mountain ranges, forested in large areas, provide favourable habitats for the lynx (Schadt 2002; Zimmermann & Breitenmoser 2007), but the populations are still small, vulnerable and separate. The only significant population consists of about 150 independent lynx in the French-Swiss Jura, while only a few individuals live in the Vosges-Palatinate Forest region and male lynx from the Swiss Jura occasionally migrate to the Black Forest (Drouet-Hoguet et al. 2021; Herdtfelder et al. 2021; von Arx et al. 2021). Single lynx are observed in the Southern Vosges (Germain et al. 2021).

The reasons for the slow expansion are the biology of the lynx (Zimmermann et al. 2007), especially the limited willingness of females crossing the fragmented landscape, but also a high anthropogenic mortality, not at least due to the fragmentation of habitats and illegal killings due to the low acceptance of the lynx among parts of the local population. A further threat is genetic impoverishment through inbreeding, as long as the individual populations remain isolated. A functional Upper Rhine metapopulation requires the natural or assisted dispersal of lynx between these healthy subpopulations and the colo-

nisation of further existing suitable habitats especially by females. Based on documented migrations, we hypothesise that natural migration would be sufficient to maintain the genetic viability of the population if once vital subpopulations exist in all ranges. So far, 13 male lynx migrated to the Black Forest and adjacent secondary mountain ranges. For seven individuals, the Swiss origin has been documented (Forstliche Versuchs- und Forschungsanstalt Baden-Württemberg 2019; Herdtfelder, pers. comm.). Another male migrated from the French Jura to the Southern Vosges in 2015 (Hurstel & Laurent 2016). From Palatinate Forest to the Southern Vosges mountains two males migrated, with several individuals more exploring the Northern Vosges mountains in excursions or as part of their territory. One male crossed the river Rhine from Ludwigshafen to Mannheim (Idelberger et al. 2021). Rivers of this size are usually considered as major barriers (Schadt 2002). On the institutional side the necessary cross-border cooperation has been initiated at the Franco-German-Swiss Conference of the Upper Rhine (Upper Rhine Conference). The Upper Rhine Conference provides the institutional framework for cross-border cooperation in the region. It is the successor organisation to the two regional commissions (bipartite regional commission for the northern and tripartite regional commission for the southern Upper Rhine region) which de-

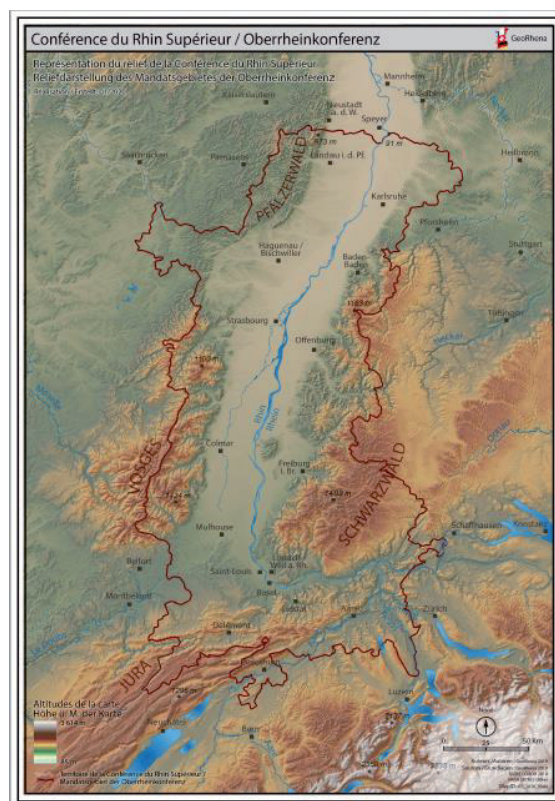


Fig. 1. The mandated territory of the Upper Rhine Conference (red outline) and the included mountain ranges of Jura and Vosges Mountains, Black Forest and Palatinate Forest (Oberheinkonferenz 2012).

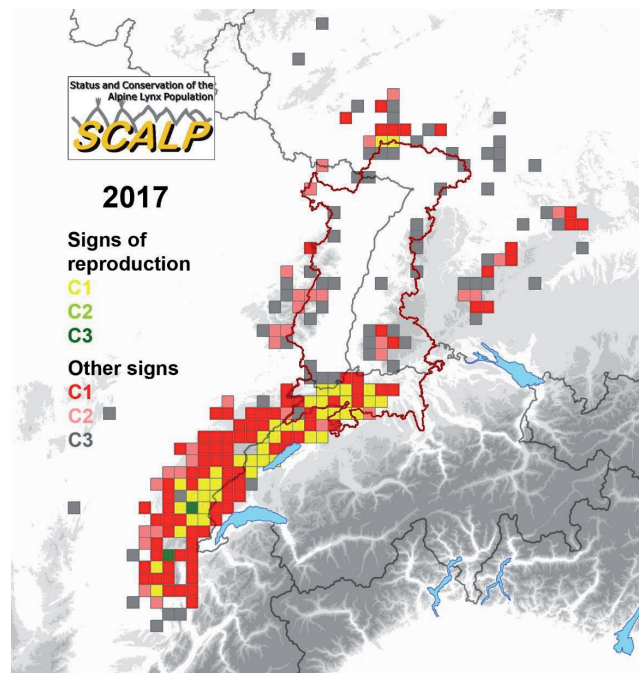


Fig. 2. As a result of the Expert Committee Lynx, a joint distribution map according to the SCALP criteria has been created for the Upper Rhine area (Molinari-Jobin, unpubl.). The red demarcation shows the mandated territory of the Upper Rhine Conference

rived from the 1975 Upper Rhine agreement between Germany, France and Switzerland and which were established to work under the auspices of the Franco-German-Swiss Intergovernmental Commission (The Upper Rhine Conference: <https://www.oberrheinkonferenz.org/de/services/english.html>, accessed on 19.12.2019).

The governments of France, Switzerland and Germany have welcomed the establishment of the Expert Committee Lynx (<https://www.oberrheinkonferenz.org/de/umwelt/arbeitsgruppe.html>, accessed on 17.01.2020) at the Intergovernmental Commission meeting in Berlin on 23. October 2015. The Expert Committee constituted on 27.10.2016 to work on demographic and genetic monitoring, interconnection, acceptance and management. The effectiveness of the institutional platform to address current challenges in the conservation of lynx will depend on the ability and willingness of the participants to cooperate, on available resources and on the socio-political measures proposed in each region.

The mandated territory of the Upper Rhine Conference embraces sections of three extant or potential lynx populations, namely the Jura, the Vosges-Palatinate Forest and the Black Forest populations (Fig.1). As already mentioned, this URM is connected to adjacent secondary mountain ranges.

The Expert Committee Lynx at the Upper Rhine Conference elaborated in a first step methods and instruments on demographic and genetic monitoring and agreed to conso-

lidate national data to allow for an overarching presentation of the URM (Fig. 2) using the SCALP criteria for the evaluation and transformation of national data (Molinari-Jobin et al. 2021).

In order to establish and maintain an Upper Rhine metapopulation, (1) a demographic-genetic, spatially explicit model for a potential metapopulation should be developed, (2) shared and standardised monitoring, conservation and management measures in accordance with the „Guidelines for Population Level Management Plans for Large Carnivores“ (Linnell et al. 2008) should be developed and implemented, and (3) competent authorities and interest groups should be consulted and informed, as well as the public awareness of a common, large-scale, transboundary Upper Rhine habitat should be promoted. The necessary cross-border cooperation has been initiated with the Expert Committee Lynx at the Upper Rhine Conference and should be expanded in the future.

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