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Proceedings of the Carpathian Lynx Conservation Meeting

Wöltingerode am Harz, 11–12 May 2023



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Acknowledgments

Conducting a conference of this size is only possible with the dedicated commitment and financial support of sponsors who believe in the common goal. The above-mentioned organizers would like to thank very much the Society for the Promotion of the Harz National Park, the HIT Environmental Foundation and the Standing Committee of the Bern Convention for their generous donations.

Last but not least the success of a conference depends on the active help of a number of people who have solved smaller and larger problems with a high level of personal commitment before during and after the event. We would like to take this opportunity to thank you all very much.

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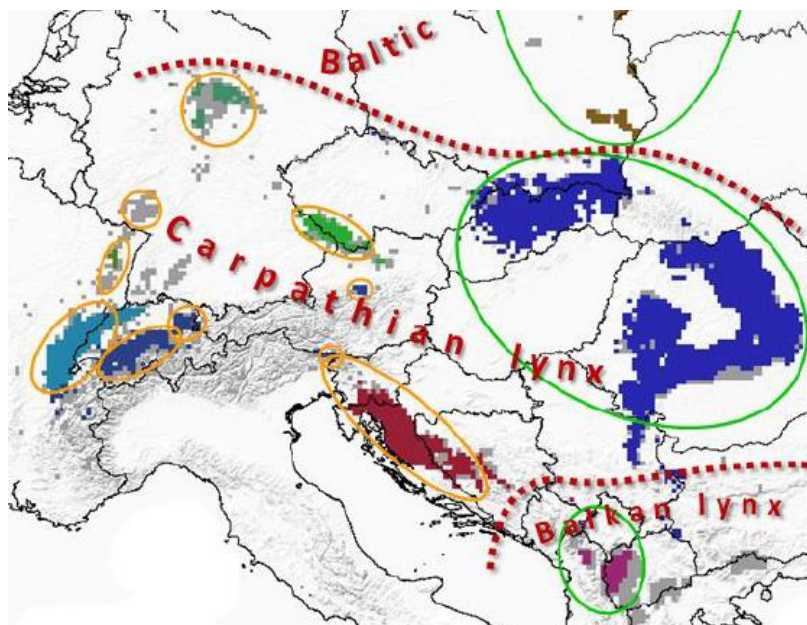
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Introduction: Recapitulation Bonn Recommendations and purpose of meeting

Urs Breitenmoser & Christine Breitenmoser

IUCN SSC Cat Specialist Group & Stiftung KORA

At a meeting in Bonn from 16–19 June 2019, a group of experts reviewed the situation of the Eurasian lynx on continental Europe and developed a series of recommendations, which have been endorsed by the Standing Committee of the Bern Convention as [Recommendation No. 204 \(2019\)](#). A key recommendation is the spatial delineation of the three distinct subspecies of lynx in Europe: *Lynx lynx lynx* (e.g. the Baltic population) in the lowlands of northern and north-eastern continental Europe, *L. l. balcanicus* (the autochthonous Balkan lynx population) in the southern and south-western part of the Balkan Peninsula, and *L. l. carpathicus* (the autochthonous Carpathian population plus reintroduced lynx populations in West and Central Europe) in the mountainous regions of the continent. This delineation considers the ancient zoogeography of the species as far as understood, but also the history of the reintroductions in West and Central Europe. The Bonn expert group concluded that especially the conservation of the Carpathian lynx would require regular exchange between all actors implementing conservation programmes. The autochthonous population in the Carpathians needs an improved range-wide monitoring and improved transboundary conservation effort; the ongoing or planned reintroductions or reinforcement projects in the “colonisation area” of the Carpathian lynx need coordination with regard to sourcing suitable animals, but also to achieve the long-term goal to create a large functional metapopulation in West- and Central Europe. The plan was to organise yearly meetings to bring the experts and practitioners from the realm of the Carpathian lynx together. However, this was impeded through the outbreak of Covid-19. Now, four years after the Bonn meeting, experts met in the Harz to resume the work and broadly discuss the cooperation in West and Central Europe for the conservation of the Carpathian lynx. On the positive side, the pandemic has taught us how to work together online. Several working groups initiated at the Bonn Meeting developed protocols on various issues, which were discussed during the Harz meeting.



Realm of the Carpathian lynx on continental Europe. Bonn Lynx Expert Group (2021). Recommendations for the conservation of the Eurasian lynx in Western and Central Europe. *Cat News Special Issue 14*: 78-86.

Greetings from the Bern Convention

Eoghan Kelly

Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)

The Bern Convention on the Conservation of European Wildlife and Natural Habitats covers virtually the whole European continent, stretching into some states of Africa, with 51 Contracting Parties who must adhere to the Treaty. We cover many different activities regarding habitats such as the Emerald Network, as well as species, monitoring visits, standard-setting and cooperation activities with countries.

The Convention has several decades of track record dealing with the lynx and similar large carnivore initiatives. A milestone was the adoption of five European Action Plans produced in collaboration with the Large Carnivore Initiative for Europe in 1999, for the wolf, Eurasian lynx, bear, Iberian lynx and wolverine. The Group of Experts on Large Carnivores was working in tight collaboration with the Institute during these years and helping to promote the implementation of the Action Plans at national and European level.

Here are the key texts which have been adopted by the Bern Convention Standing Committee over the last 30 years or so.

- [Recommendation No. 19 \(1991\)](#) on the protection of the pardel lynx (*Lynx pardinus*) in the Iberian peninsula
- [Recommendation No. 20 \(1991\)](#) on the protection of the European lynx (*Lynx lynx*),
- [Recommendation No. 89 \(2001\)](#) on the conservation of the European Lynx in the Alps
- [Recommendation No. 94 \(2002\)](#) on urgent measures for the conservation of the Iberian Lynx (*Lynx pardinus*).
- [Recommendation No. 101 \(2003\)](#) on the implementation of the Pan-Alpine Conservation Strategy for the Lynx (PACS)
- [Addition of the Balkan lynx \(*Lynx lynx ssp. balcanicus*\) to Appendix II \(strictly protected species\)](#) following the Proposal by Albania
- [Recommendation No. 204 \(2019\)](#) on the Conservation of the Eurasian lynx (*Lynx lynx*) in Continental Europe
- [Recommendation No. 211 \(2021\)](#) was adopted on conservation measures within national parks in North Macedonia, including in relation to Mavrovo National Park and Lake Ohrid and Galichica National Park and included strong recommendation regarding the Balkan lynx.

The latter process was in fact centred around the Bern Convention case-file system, which provides an opportunity to NGOs or private citizens to submit complaints for possible breaches of the Convention by Contracting Parties. In this instance, the central theme of the case related to hydropower plant concerns followed by more general allegations about misgovernance & mismanagement of Macedonian national parks. However, it quickly became clear that one species above all others was arguably most concerned by these unsustainable developments, or, to put it in another way, the Balkan Lynx could become the flagship species to encourage better conservation practices, therefore contributing to the survival of the protected areas, and of the species itself.

While it has been less than 2 years since the text, one positive outcome has been the improving collaboration between governmental and other stakeholders in the country. This is an area where the Bern Convention has true added value: a strong cooperation between science & policy is obviously a crucial target to aim for.

The Standing Committee of the Bern Convention was pleased to be able to contribute some funding to this event, and is looking forward to hearing the results and follow-up of this Workshop during the 43rd Standing Committee meeting on 28 Nov - 1 Dec 2023.

Finally, the lynx is an emblematic species and should be a flagship species for European conservation & restoration.



Reintroduction projects in Germany and beyond (brief recapitulation of planned reintroduction projects)

At the meeting, Ole Anders presented the summary of the ongoing / upcoming projects in Germany and beyond. For the purposes of these proceedings, each project is listed individually. The abstracts for the projects in the Black Forest, Thuringia, Saxony and the Dinaric mountains are copied from the Abstracts of the Presentations of the International Conference *Quo Vadis Lynx?* (Harz National Park 2023) held the day before this meeting at the same location.

References:

Harz National Park (ed.): Quo Vadis Lynx? -International Conference on Chances and Challenges in the Conservation of a Large Predator in Europe, Germany and the Harz Mountains, Abstracts of the Presentations, Wöltingerode May 10th 2023, 41 Pages.



The Planned Reintroduction of Lynx in the Black Forest, South-West Germany

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Lynx were originally present in the forests of Baden-Württemberg and neighbouring regions and were extirpated around 200 years ago. Since the 1980s several small populations have been established in the immediate surroundings of the Black Forest by reintroduction projects in the Swiss Jura Mountains, north-western Switzerland, the Vosges, and the Palatinate Forest. However, these populations can only be developed into a stable metapopulation through additional colonization of adjacent habitats such as the Black Forest.

In the past years, migrations of single male lynx have been repeatedly verified in Baden-Württemberg. The connection to the neighbouring population in the Swiss Jura seems insufficient for the immigration of females into the Black Forest and the establishment of a local population. In order to improve the situation of lynx in the Black Forest and thus to develop a Upper-Rhine-Lynx-Metapopulation (URLM), lynx are to be released in the Black Forest according to a government decision. The project, which is scheduled to run for four years, has been carried out since the spring of 2023 by the Forest Research Institute Baden-Württemberg (FVA) in close cooperation with the State Hunting Association Baden-Württemberg, the WWF, and Karlsruhe Zoo, and with the involvement of the Working Group Lynx and Wolf Baden-Württemberg.

The planned reinforcement of the URLM includes the release of six to ten animals, predominantly females. The number of animals to be released into the wild can change within the framework mentioned, since possible animal losses are taken into account and are compensated for in the course of the project. The number and sex ratio of animals to be released also depends on existing or new migrants.

Mainly one to two-year-old lynx born and raised in special enclosures will be used for the reinforcement program. The enclosures meet the strict specifications of the Linking Lynx Group for breeding, raising, and testing of lynx for reintroduction projects. There is close cooperation with the ex-situ Carpathian lynx breeding program of the European Association of Zoos and Aquaria and the German Wildlife Park Association (Deutscher Wildgeheverband), as well as with other reintroduction projects in Germany. Before release, each animal undergoes intensive testing for health, genetic suitability, and species-appropriate behaviour. As a significant advantage, ex-situ sources do not negatively affect the Carpathian lynx population. In addition, animals can be selected that have a particularly high genetic value for the target population. Experiences from former projects show that captive bred lynx from enclosures generally adapt to the wild and show no undesirable behaviour.

In addition to the breeding and release of lynx the following actions will be implemented within the four-year project from 2023 to 2027 (e.g.):

- Information on the lynx will be communicated to the affected groups and institutions through information brochures and events. In addition, several 'lynx info points' will be established in the Black Forest, where up-to-date information about the project and the lynx will be descriptively presented to the public.
- Hunters from the core habitats of the lynx in the Black Forest will be specifically trained to become special network partners with the aim to promote knowledge transfer and acceptance within the hunting community.

- The development of the lynx population is monitored intensively in close cooperation with the hunting community.
- Relevant corridors for the exchange between the adjacent populations will be identified, and measures for their protection will be initiated.

The project is financed by funds from the state of Baden-Württemberg as well as generous support from WWF Germany, the HIT Environmental Foundation of North Rhine-Westphalia, and other donors.



Lynx Thuringia – Connecting Lynx Populations in Central Europe

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Eurasian lynx have been reintroduced in several central European countries since the 1970s. However, even 50 years after the first reintroduction projects, the species still occurs in several small and isolated populations. Owing to a lack of genetic exchange among these populations, genetic diversity has declined significantly in some populations and will likely continue to decline if they remain isolated. Improving connectivity between the isolated lynx populations has thus been identified as an important goal for lynx conservation in Europe.

Within Germany, the approximately 2,200 km² area of the Thuringian Forest is of outstanding importance for this pan-European conservation goal because a stable lynx population in the Thuringian Forest would provide the so-far missing link to connect the existing populations in the Harz Mountains and the Bavarian Forest/Bohemian Forest. However, monitoring results collected during the past ten years and theoretical modelling suggest that natural colonisation of the Thuringian Forest is unlikely to occur within the next 20–30 years. Nevertheless, theoretical modelling also suggests that a large, viable population could be created by actively translocating lynx into the Thuringian Forest. In this way, a significant stepping stone population could be created to connect the populations in the Harz Mountains and in the Bohemian/Bavarian Forest, and from which further suitable habitats in central Europe could be colonized.

The corporate project “Luchs Thüringen – Europas Luchse vernetzen” (Lynx Thuringia – connecting lynx populations in central Europe) was established to pursue these goals. The project aims to release 12–20 lynx in the Thuringian Forest between 2024 and 2027. Approximately half of the lynx will be wild-caught individuals from the Romanian Carpathians, the other half being lynx from carefully selected captive breeding sources. A scientific monitoring program in Romania and Thuringia will accompany the project. The project will involve comprehensive outreach activities, including dialogues with important stakeholders. In this way, we aim to create awareness for lynx conservation, and for the role of the Thuringian Forest within a central European lynx metapopulation.

Luchs Thüringen is a corporate project involving Friends of the Earth Germany (BUND Thüringen), WWF Germany, Wildtierland Hainich gGmbH, ThüringenForst, A.ö.R., Asociația pentru Conservarea Diversității Biologice (ACDB), Romsilva, as well as the University of Göttingen as executing organizations, and the UNESCO Biosphere Reserve Thuringian Forest, the Thuringian Forest Nature Park, as well as the Hunting Association of Thuringia as associated partners. Funding has been provided by the Thuringian Ministry for the Environment within the EU co-funded program ENL/ ELER.

The “RElynx Saxony” Project – Eurasian Lynx Relocation to the Ore Mountains

Paul Lippitsch & Catriona Blum-Rérat

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The Eurasian lynx is still endangered in Central and Western Europe and is today found here only in a few autochthonous refuges and reintroduced populations. Long-term protection of this once widespread species requires the establishment of stepping-stone populations between currently isolated populations in today's agricultural landscape.

The "RElynx Saxony" project was launched in September 2022 working towards this goal. The project aims to release up to 20 lynx individuals of the subspecies *Lynx lynx carpathicus* to the Ore Mountains and Elbe Sandstone Mountains. This low mountain range is an ideal project area because it is classified as a suitable lynx habitat due to the large, connected forest areas that can sustain a sufficiently large lynx population. It will create a valuable stepping-stone to the autochthonous population in the Carpathians and between the existing populations in the Bavarian-Bohemian Forest and the Harz Mountains.

The first release period will start in the Western Ore Mountains in the spring of 2024. If these released lynx do not populate the Elbe Sandstone Mountains, a second release area located to the east will be used for subsequent release periods until 2027. The founder animals will consist of lynx caught from wild populations, rehabilitated orphan lynx and lynx from ex-situ breeding programs.

In Saxony, the last lynx was killed in 1743 near Hinterhermsdorf in Saxon Switzerland, Elbe Sandstone Mountains, Saxony. There have been occasional lynx sightings since the 1950s, mainly in the Ore Mountains and Elbe Sandstone Mountains. Between 2013 and 2019, a territorial male lynx originating from the Harz population was confirmed in the Western Ore Mountains on both the German and the Czech side. Another lynx was confirmed in the Lower Lusatian coalfield between November 2017 and April 2018. This animal also came from the Harz population. In 2020, three lynx from a Polish reintroduction project were confirmed to have crossed the border into Saxony. However, none of the animals became permanently established in Saxony.

Reinforcement of the Dinaric Lynx Population and Creation of a Stepping Stone in the Alps

Rok Černe

Slovenia Forest Service, Ljubljana, Slovenia

Before the start of the LIFE Lynx Project in 2017, the Dinaric-SE Alpine lynx population was at risk of extinction. The Alpine region had no reproduction, and the Dinaric part of the population was experiencing a significant decline. However, a collaborative international effort from Slovenia, Croatia, Italy, Romania, and Slovakia saved the population by introducing new genes into the Dinaric part of the population and creating a stepping stone unit in the Alpine region of Slovenia.

The effectiveness of the LIFE Lynx Project is primarily based on the strong involvement of stakeholders and international collaboration. The achievements are mainly a result of close collaboration among forest institutions, universities, hunters' associations, local hunting clubs, national parks, local communities, NGOs, and responsible ministries.

It is essential to recognize that this project's success extends beyond just saving the Dinaric-SE Alpine lynx population. The project set a precedent for successful conservation efforts prioritizing practical involvement and close collaboration among different parties locally, nationally, and internationally. By emphasizing these key factors, the project demonstrated that successful conservation efforts could be achieved when different institutions, stakeholders, and countries work together towards a common goal.

ULyCA – An Urgent Lynx Conservation Action for the Recovery of the lynx in the south-eastern Alps

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The lynx population in the Dinaric Mountains and South-eastern Alps had declined since the beginning of the millennium, was isolated and genetically impoverished. It was threatened with extinction, which is why an EU LIFE project "Preventing the Extinction of the Dinaric-SE Alpine Lynx Population Through Reinforcement and Long-term Conservation" has been underway since 2017 to increase the population by relocating lynx. From 2019 to 2023 a total of 12 lynx have been translocated from the Carpathians to the Dinarics for genetic rehabilitation of the Dinaric lynx. A sub-goal of this project was also the establishment of a stepping-stone population in the Eastern Alps

The lynx sub-population in the South-eastern Alps plays an important role in connecting the Dinaric and Western Alps populations. However since 2000, the number of lynx in the south-eastern Alps has steadily declined. To save this subpopulation from extinction and help the lynx in the south-eastern Alps to recover, urgent conservation actions were necessary. The aim of the project ULyCA (Urgent Lynx Conservation Action) is to reinforce the nucleus of lynx in the south-eastern Alps that will merge with the stepping-stone population that was created in the Slovenian Alps in the frame of the LIFE Lynx project and eventually allow this subpopulation to be reunited with the Dinaric population.

From 2021 to 2023, six lynx (3 females and 3 males) originating from Romania and Slovakia have been released in the Slovenian Julian Alps. The three females have so far produced four litters. In the Italian Julian Alps three females (two from the Swiss Jura Mountains and one from the Romanian Carpathians) and two males (one from Romania and the other from Croatia) have been released, resulting in a total of eleven lynx released in the Julian Alps. Prior to translocations, all lynx were thoroughly checked for health and fitted with a radio collar. In addition, their genetic profile was tested to avoid translocations of related lynx. The release site in Italy is located in a remote valley of the Tarvisio Forest on the border with Slovenia, about 30 km west of the reintroduced stepping-stone population in the Slovenian Alps. Three lynx have already moved between the two nuclei.

Lynx translocations are a complex international operation from the organisational and technical point of view, which required and still requires broad sharing and participation. ULyCA is a project of the Carabinieri Forestali (Italian Forest Police), and Progetto Lince Italia of the University of Turin is in charge of the technical and logistical aspects. Important support was received from WWF Italy, Germany, Switzerland and Austria, as well as through the collaboration of the "Hunting and Lynx Working Group", which brings together regional hunting associations. The realisation of this project was only possible thanks to the active collaboration of the Biodiversity Service Department of Friuli Venezia Giulia, the Regional Veterinary Authority (ASUFC), the Regional Forest Corps, the team of the Federal Office for the Environment (BAFU) in Switzerland, the canton of Jura, KORA, which is responsible for lynx captures in Switzerland, the Institute for Fish and Wildlife Health of the University of Bern (FIWI), and the two quarantine stations of the Goldau and Dählhölzli zoos (both in Switzerland). In Romania, the Biodiversity Office of the Ministry of Environment, Water and Forests, Romsilva (State Agency for Forest and Hunting Management) and ACDB, an organization of biologists active in the

field of conservation, were key. Finally, in Croatia the Ministry of Environmental Protection and Spatial Planning as well as the Universities of Zagreb and Karlovac, and in Slovakia the Ministry of Environment and Bojnice Zoo, which have been professionally involved with the rehabilitation of the Croatian orphan lynx.



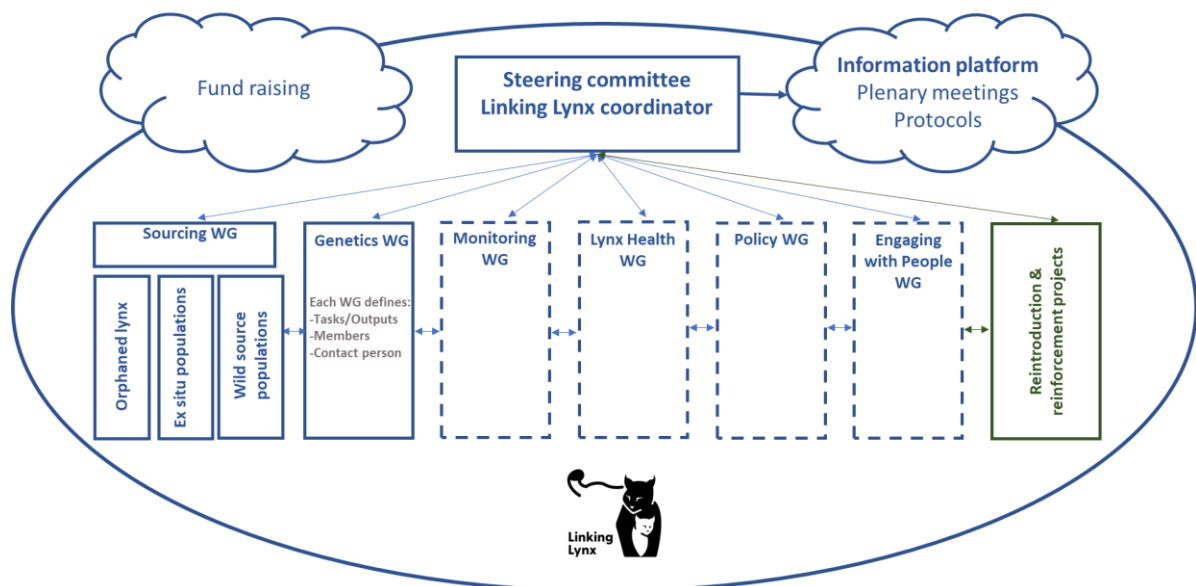
Linking Lynx: Proposal for organising the cooperation in the realm of the Carpathian lynx

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The participants of the Bonn meeting in 2019 agreed that the expert group should be continued and that several permanent lynx working groups should be established, e.g., genetics, monitoring, health, sourcing, policy and human dimensions. Meanwhile, two working groups have already been operating – the genetics working group (“CElynx”) and the sourcing working group (“Linking Lynx”) – and the other working groups are discussed during the Harz workshop. Here, we present a proposal for organising the future cooperation in the realm of the Carpathian lynx. We propose to unite all permanent working groups as well as planned and ongoing reintroduction and reinforcement projects within the already formed Linking Lynx network. A steering committee – consisting of the coordinators of each working group and an overall Linking Lynx coordinator – would be responsible for fund raising and for the organisation of regular meetings of working groups, the steering committee and the whole network. Through a common website, the working groups could reach out to partners and the general public and share protocols and other information among members. How the network will engage with international conventions, EU bodies, IUCN institutions, EUROLYNX, etc. is yet to be defined.

Linking Lynx – Carpathian Lynx Working Group



Proposed organisation for cooperation in the realm of the Carpathian lynx

Joint monitoring of Carpathian lynx: Protocols, standards, tools, progress...

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Reliable estimates of abundance of lynx populations are key in understanding the species' life history and demography and are required for policy and decision making (e.g., Fauna-Flora-Habitat directive).

In Central Europe, camera trapping has become the standard tool for collecting systematic data about present lynx populations, enabling us to estimate the basic demographic parameters, such as abundance. At the same time, opportunistic monitoring often represents the first information about lynx in yet unexplored areas, as well as guide the future monitoring programs. In case of reintroduction or reinforcement of lynx populations, telemetry is essential for tracking the translocated animals and evaluating the overall success of the conservation actions. With the use of genetic surveys, we can assess parameters such as inbreeding, a pressing issue for many lynx populations in Central Europe. However, the decisions about the specific criteria for the implementation of different methods vary between study areas and influence the quality and comparability of the data collected on a continental scale.

As lynx is spreading in Central Europe due to reintroduction programs or natural recolonisation, the significance of standardised monitoring and comparability of obtained parameters is increasing. Especially the camera trap monitoring faces enormous challenges concerning data merging and large-scale individual comparisons.

The working group discusses the question "How can we meet the future demands of lynx monitoring in Central Europe?" and the following topics:

- i. The requirements for a successful intra- and inter-population lynx monitoring, focusing on camera trapping mainly in terms of data standardisation.
- ii. The minimum standard for evaluating the effectiveness of the reintroduction programs, defining the specific criteria for the application of each method for lynx surveillance available (opportunistic surveys, camera trapping, telemetry studies, genetic sampling).
- iii. What are the measurements of success in a lynx monitoring? And which factors apart from the study design contribute to or affect the success of monitoring?
- iv. The most recent examples of good practice of lynx reintroductions and population-level monitoring programs and the latest lessons learnt.
- v. What support can existing networks offer to tackle the future needs and challenges?

The participants were invited to share their experience and collaborate with their own ideas or to suggest additional topics to be discussed.

Veterinary protocols: importance in lynx conservation

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The Life Lynx conservation project in Dinaric Mountains and south-eastern Alps aims to save the small reintroduced, and extremely-inbred lynx population from extinction and secure its long-term survival. Monitoring the resident lynx population and reinforcing it with new, healthy animals from the viable Carpathian population are critical elements of this project. Clinical and laboratory health assessment, optimal peri-anaesthetic monitoring and quarantine are important factors guaranteeing good physical condition of animals prior to their translocation and release. Out of eight resident lynx from the Dinaric population collared in the last 5 years, a heart murmur was detected in three of them. In contrast, none of the 18 animals translocated from the Carpathians showed clinical signs of a heart condition and the same was true for 8 of their offspring that were also inspected during captures for collaring. In two lynx that presented with a heart murmur, an atrial septal defect (ASD) was diagnosed, either postmortem or intravitally as the cause of the murmur. In the third case of heart murmur, the etiology remains unknown and the lynx is still alive. Atrial septal defect as a congenital heart condition has been previously described with a very high prevalence (18%) in the Florida panther population, where the inbreeding rate is also strongly emphasized (Cunningham et al. 1999). Thorough execution of veterinary protocols including careful clinical examination and monitoring of the captured animal by a wildlife veterinarian or trained biologist are extremely important factors in detecting similar cases in the future. A multimodal approach, access to preclinical diagnostic methods, laboratory analysis and consistent adherence to prescribed necropsy protocols are necessary for definitive diagnosis of hidden or previously unknown health abnormalities, which are essential for the conservation of threatened populations suffering from inbreeding.

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Cunningham M. W., Dunbar M. R., Buergelt C. D., Homer B. L., Roelke-Parker M. E., Taylor S. K., King R., Citino S. B. & Glass C. 1999. Atrial septal defects in Florida panthers. *Journal of Wildlife Diseases* 35, 519-530.

Policy dimensions: relevant policies, policy makers and funding

Katrina Marsden

Adelphi

Lynx is one of four protected large carnivores in Europe which are specifically addressed through EU and international policy. Some challenges are shared by all four large carnivore species, for example encouraging cross-border management; addressing negative perceptions related to livestock depredation or competition for game species leading to persecution; or reducing the impact of habitat loss and fragmentation through infrastructure. However, others are specific to a particular species or more or less serious for one or another and challenges vary by locality. Lynx tends to enjoy a more popular public image than wolf for example, but is more seriously impacted by habitat fragmentation and inbreeding. Policy work therefore needs to be directed at both the general and specific challenges on multiple levels from the international to the regional implementation.

This presentation will examine the different policies influencing lynx conservation and management with the aid of examples. Some of the larger-scale for a for policy exchange and discussion will be briefly described. In the later policy workshop, the different entry points for influencing the formation and particularly the implementation of policy on the EU, national and regional level will be examined with participants.

Lynx is protected by international treaties specifically the Bern Convention and CITES. The two conventions allow controlled hunting of lynx (Balkan lynx is strictly protected) and controlled trade of trophies (where necessary permits are in place). A recent initiative also aims to include Balkan lynx in the annexes of the convention on migratory species (CMS or Bonn convention). On an EU level, the Bern Convention is translated and strengthened through the EU Habitats Directive which lists the lynx in annex 4 (strictly protected) and annex 2 (needs site designation). The EU Biodiversity Strategy to 2030, aims to strengthen the requirements of the Habitats Directive. Relevant requirements include the improvement of habitat connectivity between protected areas. Additionally, member states must identify priority habitats and species for restoration as part of a restoration plan. Finally, the Biodiversity Strategy also requires the establishment of a new EU restoration law. A proposal for such a law has been made by the European Commission and is currently in interinstitutional agreement between the Council and the Parliament. Some of the requirements in the law could have direct relevance for restoration of habitat for lynx.

When examining EU policy, financial instruments and impacting policies must also be considered. The LIFE programme is the most direct funding source for species management actions. However, the Common Agricultural Policy is the largest and broadest source of financing for land management. The CAP is directly used by a number of member states for reducing depredation of livestock (mainly focused on wolves). However, certain measures could additionally be relevant for the lynx e.g., those more focused on forestry. Forest policy is also relevant (though less strongly driven from the EU level). Policies and financing for infrastructure developments are another area with a potentially serious impact on lynx conservation.

There are a range of entry points for influencing policy which were examined as part of the workshop. On a broad level, the discussion and stakeholder engagement around the above policies are relevant. On the EU level, managing authorities discuss through the EU Biodiversity Platform (EUBP, formally CGBN). The EU Platform on Coexistence Between People and Large Carnivores provides a forum for discussion between interest groups on the EU level. The platform model has also been

used to establish similar multi-stakeholder groups on the regional to local level. International conventions also have their own attached discussion groups. The WISO Platform of the Alpine Convention brings together managing authorities and stakeholders to discuss large carnivore management. The Carpathian Convention also frequently discusses large carnivores as part of their Biodiversity Working Group. In the Dinaric-Balkan-Pindos region, an ongoing initiative has established a large carnivore platform and authorities have agreed that they would like to work together on establishing an accompanying treaty as well as exchanging continuously on practical measures.



Public Outreach for Eurasian lynx conservation in the Dinaric Mountains: Contributions of Interreg projects DinaRis and Carnivora Dinarica, and Life project LIFE Lynx

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The Dinaric Mountains region in south-eastern Europe is home to the small, reintroduced population of Eurasian lynx (*Lynx lynx*), and conservation efforts are underway to revitalise this population through reinforcement and close collaboration with key stakeholders. Interreg projects DinaRis (implemented from 2006–2008) and Carnivora Dinarica (implemented from 2018–2021), along with the Life project LIFE Lynx (ongoing implementation from 2017–2024), have played a crucial role in implementing public outreach initiatives to raise awareness and maximise conservation efforts.

Slovenia-Croatia Interreg project DinaRis, a cross-border initiative, focused on studying the reasons for sudden decline of the population and facilitating the initiation of transboundary collaboration in lynx population monitoring and conservation in the Dinaric Mountains. Through public lectures, workshops, an awareness campaign, and involvement of hunters, DinaRis aimed to ensure and check public support for the needed urgent conservation measures aimed at mitigating the inbreeding within the population.

Carnivora Dinarica, another Interreg project among partners from Slovenia and Croatia, aimed to promote best practices in carnivore conservation and raise public awareness about large carnivores, including the Eurasian lynx, in the Dinaric Mountains. Public outreach initiatives such as establishment of a large carnivore interpretation centre, implementation of educational events, public seminars, and campaigns were implemented to engage local communities, stakeholders, and the general public in lynx conservation efforts. The efforts were closely coordinated with those of the LIFE Lynx project.

LIFE Lynx, a Life project, focuses on saving the Dinaric lynx population. Through translocation efforts, as well as a thorough public outreach and awareness initiatives, LIFE Lynx aims to restore the lynx population in the region and ensure the new challenges, expected to occur as the population recovers, are met with timely and adequate measures. Educational and PR campaigns, social studies, public consultations and involvement of key stakeholders and local communities are implemented to raise awareness about the conservation needs of the Eurasian lynx and its ecological role.

These Interreg and Life projects have contributed significantly to the implementation of public outreach initiatives for Eurasian lynx conservation in the Dinaric Mountains. By raising awareness, engaging local communities, stakeholders, and the public, and promoting the conservation and sustainable management of the Eurasian lynx population, these projects are playing a crucial role in ensuring the survival of this iconic species in the region.

Number and Distribution of the Eurasian Lynx in Ukraine According to the Official Data

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The Eurasian lynx is one of the leading rare large carnivore species in Ukraine that play an essential role as indicators of the state of ecosystems. The Eurasian lynx is distributed on the territory of the Carpathians and Polissya in Ukraine. It is a protected species in Ukraine, listed in the Red Data Book since 1994. The species is also protected by the Bern Convention ratified by Ukraine.

On 16 September 2021, the Ministry of Environmental Protection and Natural Resources of Ukraine approved the National Action Plan for the Conservation of Eurasian lynx in Ukraine. This official strategic document determines the implementation of measures for monitoring, conserving, and managing the species at the state level. Following the objectives of international and national action plans for species conservation and recommendations of the Carpathian Convention on large carnivore monitoring, we tried to find out the number, current range, and distribution of lynx populations in Ukraine based on official data.

The analysis of the number and distribution of Eurasian lynx in the Ukrainian Carpathians and Polissya was established. Annual data on the number of Eurasian lynx on the territories of hunting units and nature conservation areas from 2009 to 2019 were compiled. According to the official data obtained from hunting units and nature conservation areas in 2019, there were 435 lynx in the Ukrainian Carpathians and 128 lynx in the Ukrainian Polissya. (But according to the expert data and data of the Red Data Book of Ukraine (2009), we have at most 350–400 lynx in the Ukrainian Carpathian and at most 80–90 lynx in the Ukrainian Polissya.) Based on the collected data, maps of the Eurasian lynx distribution and forest habitats of the species in the Ukrainian Carpathians and Polissya were created in a grid of squares of 10 by 10 km.

The obtained results provide a better understanding of the dynamics of the Eurasian lynx over the last decade in the administrative regions and distribution areas of the species in Ukraine. However, the summary results of the number of Eurasian lynx obtained based on official reports of hunting units and nature conservation areas can be overestimated due to the problem of «double» accounting of animals by users of adjacent lands (hunting units, nature conservation areas, forestries). Therefore, it is important to synchronize lynx monitoring between users of adjacent lands, use unified modern research methods, establish systematic species monitoring on permanent study sites, and exchange monitoring data and information between institutions of different state subordination. Such scientifically based data must be the basis for developing and implementing measures for conserving and managing the Eurasian lynx populations at the regional, national, and international levels.

Working Group Discussions

After the initial introductory presentations, workshops were held for each of the six working groups (sourcing, genetics, monitoring, health, policy, human dimensions) and the participants split into the WGs for further discussion. Whilst some of the WGs had already been established following the Bonn meeting in 2019, other WGs were meeting for the first time. By the end of the workshops, all WGs should have defined a WG Leader (who would represent the WG in the Steering Committee), a modus operandi, and have discussed their focus incl. possible synergies / differentiation from existing Groups such as EUROLYNX groups on similar topics. The results of the workshop discussions are presented below.



Discussion of the Sourcing Working Group (subgroup 1) – *ex situ* programme

Working Group Leader: Dina Gebhardt

Workshop Participants: Catriona Blum-Rerat, Deborah Brady, Roland Bürki, Dina Gebhardt, Micha Herdtfelder, Paul Lippitsch, Markus Port, Jens Seeger, Alexander Sliwa, Eckhard Wiesenthal

The Sourcing Working Group split up to discuss their issues in two subgroups (*ex situ* programme, orphans & wild sources) at the Harz meeting in the middle of May 2023. So far, the Sourcing WG has met in its entirety several times online and e.g., discussed and developed requirements for breeding and coordination enclosures. During this workshop, the *ex situ* programme subgroup focused on the practical aspects of sourcing zoo-born lynx for releases in the realm of the Carpathian lynx, and in particular in the ongoing reintroduction projects in Germany (see *Reintroduction projects in Germany and beyond*). This means lynx will be bred in captivity within EAZA (European Association of Zoos and Aquaria) zoos and zoological institutions of the DWV (Deutscher Wildgehege-Verband) with the prospect to release their offspring in one of the reintroduction projects. With the projects announced, over the next four years, approximately 50 lynx will be needed for release, with around 20 being wild-caught and the remaining 30 being captive-bred.

In the workshop the following topics were discussed:

1. *Breeding enclosures*: To provide enough individuals to the *in situ* projects, around twenty suitable breeding enclosures will be required over the next ten years. Discussions have taken place regarding the requirements for these enclosures, including the number of visible sides, visitor paths, distance from visitor areas on inaccessible sides, and the type of privacy barriers. The enclosures should be well-structured with ample hiding places. A questionnaire was sent to member institutions. As of the date of the conference, six institutions have replied that their enclosures fulfil our requirements: Langenberg and Bern in Switzerland, Nurnberg, Karlsruhe and Chemnitz in Germany and Han-Sur-Lesses in Belgium. More enclosures will be checked and will be added to this list in the next years.

Feeding protocols have also been discussed, with considerations for the type of meat to be provided and the interaction between keepers and lynx during feeding. Meat of wild game is preferred and should be the only food during the time when offspring is present if possible. The enclosure size, separability, and noise levels are also being evaluated, with a screening team assigned to assess each enclosure and produce reports.

Efforts are being made to create more space by moving old lynx and pairs to other facilities, freeing up enclosures for breeding pairs. The possibility of using one of the coordination enclosures for surplus lynx has also been discussed and seems like a good option if valuable place for a breeding pair can be created.

2. *Coordination enclosures*: From the breeding enclosures within the zoological gardens the offspring intended for release are moved to a coordination enclosure. The construction of three coordination enclosures is underway, with one enclosure already finished and the other two expected to be completed by December 2023. Each coordination enclosure will be screened for suitability by experts.

Lynx will stay in the coordination enclosures for a period of 3–5 months, possibly longer depending on the release strategy. Each coordination enclosure will consist of three compartments, allowing one compartment vacant for potential orphans or old surplus animals from the EEP (EAZA *ex situ* programme). No breeding will occur in the coordination enclosures because it is preferred to keep females in their current locations and not having to move them.

3. *Handling of lynx*: How keepers of lynx within suitable breeding enclosures should act and work during the time when offspring is present must be defined. Due to the lack of time during the workshop at the Harz conference, the development of a handling protocol remained a task for following meetings.
4. *Challenges*: There are a few challenges that have to be faced by this working group. One of them is how to deal with the surplus animals that will be created. *In situ* projects require about twice as many females as males. Should culling of surplus males be an option and when would be the correct time to perform this? Also, the young lynx will have to pass two behavioural assessments – one before being moved to the coordination enclosure, and the second before being released. Those deemed unsuitable for release will again need to be dealt with. As an additional complication, responsibility will have changed from the breeder to the *in situ* project for the individuals that have been moved to the coordination enclosure before being regarded as unsuitable. These challenges will be addressed within a bigger scope working group (the “distribution platform”). Furthermore, after a few years breeding with the same pairs, certain genes might get overrepresented in the lynx that could be used for reintroduction. To prevent this from happening, after a few years the lynx in suitable breeding enclosures need to be exchanged with other tested, pure Carpathian lynx.

What’s next in our working group? Dina Gebhardt has been elected as a new member of the Linking Lynx Steering Committee. Various tasks need to be completed, including finalizing protocols for the coordination enclosures and lynx handling for keepers. In order to finalize this, the working group continues the discussions in online meetings.

The enclosures – breeding enclosures and coordination enclosures – need to be assessed by an expert team. To get more choice for breeding, more enclosures need to be assessed to add to the suitable enclosure list.

Discussion of the Sourcing Working Group (subgroup 2) – orphans & wild sources

Working Group Leaders: Kristina Vogt (orphans), Jakub Kubala (wild sources)

Workshop Participants: Ole Anders, Florian Brandes, Christoph Heider, Miha Krofel, Jakub Kubala, Lilli Middelhoff, Anja Molinari-Jobin, Mihai Pop, Audrey Stéphan, Kristina Vogt

Orphan lynx

Orphan lynx rehabilitation is challenging and requires high standards of animal care (Borel et al. 2022). However, after a period of rehabilitation in a suitable enclosure and release, orphan lynx have a high probability of survival. The latter is twice as high if the animals are not re-released in a population centre, but at its edges, and increases again significantly if they are placed in areas that were previously lynx-free (Molinari-Jobin et al. in prep.). Rehabilitated orphan lynx are, therefore, suitable for use in:

1. Reintroduction and population reinforcement projects
2. The long-term maintenance of assisted genetic exchange between different lynx populations

In the recent past, the Linking Lynx working group has compiled criteria that (orphan) lynx that are to be used for reintroduction and reinforcement projects must meet (protocol 2.4, 3.1, 3.2, 3.5). The criteria relate in particular to genetic suitability, health management, nutrition and the requirements for the enclosures in which the animals are kept until they are rehabilitated into the wild.

The source populations of orphan lynx, that can be considered for translocations, must accordingly be genetically suitable for such measures. Additionally, suitable enclosure options, including veterinary care for the rehabilitation of orphan lynx over several months, must also be available in the vicinity of these populations.

As a pre-condition, the state authorities, responsible for the populations in the individual countries of origin, must agree to a translocation of rehabilitated orphan lynx and implement or support regulations which, after the spontaneous identification and capture of orphan lynx, allow their transport to rehabilitation enclosures and their subsequent translocation into the target areas without major delays.

Correspondingly, the administrations responsible for the target populations must agree to the import of rehabilitated orphan lynx from the source areas and enable their transport and reintroduction without major delays.

Orphans from the Carpathian population have been used in the past for reintroduction and reinforcement projects (e.g. Idelberger et al. 2021). The corresponding experience with the legal issues can be built upon.

In order to support upcoming reintroduction projects with orphan lynx of suitable origins and to develop a long-term system for the regular exchange of orphan lynx between lynx populations, the working group has drawn up a road map made up of several steps that have to be completed one after the other:

1. A list of criteria (check list) is compiled from existing recommendations and protocols that orphan lynx suitable for translocations must meet. The check list will be supplemented as an appendix to protocol 3.2.
2. A list of wildlife sanctuaries suitable for the rehabilitation of orphans will be worked out.

3. The existing Linking Lynx MoU is expanded to incorporate also criteria for the use of orphan lynx for release in the designated Carpathian lynx regions.
4. In each population that is eligible for the donation of orphan lynx, persons/institutions are identified who are able to assess whether the orphans can meet the catalogue of criteria or not.
5. Deficits in fulfilling the catalogue of criteria will be identified for each of the eligible populations.
6. As far as possible, the identified deficits will be processed and solved.
7. The populations that can provide suitable lynx are listed. The results meet the recommendations of the Genetics Working Group.
8. Demands from target populations/ projects for the translocation of orphan lynx are listed and integrated into the lynx distribution platform and coordinated by the Sourcing Working Group.
9. The relevant legal requirements for the (inter)national transport of rehabilitated orphan lynx are identified. This issue should be processed by the persons responsible for the reintroduction project in the target populations.
10. Target projects apply for permission to import and release lynx from the source areas.
11. The information, experience gained and the implemented agreements are used to establish a system of regular exchange of rehabilitated orphan lynx between populations.

Wild sources

During the second part of this workshop, the working group discussed how people working with wild source populations could participate in the Sourcing Working Group and what is needed for the future from their perspective. The following important points were identified:

- A Conservation Strategy for the Carpathians and beyond would help ensure
 - political will in source countries to provide lynx for reintroductions
 - that translocations are part of a greater conservation scheme
 - that conservation needs of source populations are met.
- If IUCN guidelines for reintroductions/reinforcements in the realm of the Carpathian lynx are developed, recommendations for what measures have to be implemented in the wild source populations should be included.
- The Carpathian lynx population needs a sound monitoring to evaluate status, impact of translocations on population development and on social acceptance of such measures by the public.
- A joint monitoring programme needs to be established in Carpathian countries that is set up in the long-term and not dependent on short-term funding from reintroduction projects.
- During the preparatory phase of reintroduction projects, the partner institutions in the Carpathian source countries should already be involved.
- When planning a reintroduction project using wild sources, preparational work should also be conducted in the source countries (monitoring, assessment of public acceptance, communication).

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Discussion of the Genetics Working Group

Working Group Leader: Christine Breitenmoser-Würsten

Workshop participants: Christine Breitenmoser-Würsten, Jarmila Krojerová-Prokešová, Gregor Rolshausen, Tomáš Skrbinšek

Working Group abstract

Small, isolated populations may suffer from genetic erosion and inbreeding depression. It is therefore crucial to include genetic factors management plans for further lynx reintroductions to ensure their long-term success. Reintroduced populations of lynx in Central Europe show overall moderate levels of genetic diversity and high levels of inbreeding (Mueller et al. 2022). Thus, a set of recommendations was formulated at the Expert Lynx conference in Bonn 2019 to enable (i) a harmonised genetic monitoring, and (ii) short- to long-term genetic management of reintroduced lynx populations (Bonn Lynx Expert Group 2021). In the workshop we will review progress since previous meeting and address specific aspects, i.e.: (i) Agreement on lynx generation length, (ii) Standardisation of genetic marker sets and sampling rate for harmonised genetic monitoring, (iii) Optimal management scenarios for ensuring viability of lynx populations, (iv) Genetic metapopulation model for Continental Europe. We will furthermore discuss the perspectives and needs of further genetic/genomic research to gain knowledge on the genetic status of reintroduced lynx populations and on evolutionary processes affecting their viability for future. The expected outcome is the definition of next steps and recommendations for further cooperation.

Discussion

Introductory discussions concerned strategies for a harmonized genetic monitoring for all respective European re-introduction populations and the ongoing breeding efforts. Agreement was reached on the importance of genetic testing – using microsatellites and/or SNP Markers – of each individual that is considered for the breeding program. For this, we also addressed the importance of a concerted set of microsatellite markers and shared data on particular markers that will be harmonised among local work-groups and projects in Slovakia, Switzerland, France, and Germany (C. Breitenmoser-Würsten). Finally, we agreed to use an established approach to infer Lynx generation length at 4.9 years (Pacifci et al. 2013, Keith et al. 2015).

Regarding progress since previous meetings, the outcome of two case studies were discussed: (i) highly inbred Lynx in the Dinaric population (T. Skrbinšek) and (ii) Genetic diversity in the Bohemian-Bavarian-Austrian population BBA (J. Krojerová-Prokešová). Focal points centred around the continued work on simulation approaches addressing the dynamics of genetic diversity following various introduction strategies as well as breeding programs (G. Rolshausen, T. Skrbinšek). Future management strategies should take results from such simulations into account in order to seed respective populations accordingly. Furthermore, and concomitant to simulations that address particular populations, we discussed the use of meta-population models that incorporate each re-introduced population together with Carpathian source populations. Such models can be helpful predicting timelines to reach a viable genetic population size (N_e), as well as (assisted) geneflow dynamics among sub-populations. A productive outcome of these efforts will be reached via the combination of population-focussed simulations and meta-population-focussed timeline predictions (G. Rolshausen).

Future directions of the work group involve progress in genetic simulation work (see above), as well as establishing an advanced monitoring system for phenotypical indicators of inbreeding depression

and/or mutational loads in subpopulations. As an example, indicators such as malformations, histological lesions, susceptibility to infectious diseases, and reproductive problems were discussed. In future meetings, these points will be advanced further to reach recommendations.

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Discussion of the Monitoring Working Group

Working Group Leaders: Urša Fležar & Kirsten Weingarth-Dachs

Workshop participants: Silvia Blašković, Duško Čirović, Martin Duľa, Johanna Emmrich, Urša Fležar, Andrea Gazzola, Malte Götz, Ingrid Hucht-Ciorga, Linda Kopaniak, Anja Molinari-Jobin, Paolo Molinari, Katja Schnetz, Zarah Schwan, Kirsten Weingarth-Dachs, Fridolin Zimmermann¹, Diana Zlatanova, Jana Zschille

The monitoring working group (MWG) involved 17 representatives from Czech Republic, Bulgaria, Germany, Austria, Croatia, Slovenia, Serbia, Romania, Italy and Slovakia. The debate started with the incentive of A. Molinari-Jobin to discuss the potential expansion of SCALP (Status and Conservation of the Alpine Lynx Population) to map to the entire range of the Carpathian lynx. With standardizing chance data in an EEA 10 x 10 km monitoring grid, the map would improve the understanding of the distribution of the Carpathian lynx, as well as outline the areas of reproduction, which would be the minimum standard of assessing the status of the Carpathian lynx. As all of the attendants supported the idea, **creating a SCALP map for Carpathian lynx within the next 3 years was defined as the first goal of the working group**. However, two main issues were raised; i) we do not know where exactly the limit of the distribution of the Carpathian lynx is, e.g. in Bulgaria and Montenegro there might be Carpathian and Balkan lynx present, but data deficiency is high and basic knowledge about lynx in these countries is lacking, as well as the interest for ensuring data collection by the responsible authorities and ii) data-sharing agreements should be formulated if requested from the authorities and accompany the data sent for the SCALP map production.

We created a list of the countries already providing their data and the ones which are partly providing or not providing data yet (Table 1). The MWG agreed that the work should be organized in the following steps. (1) The SCALP map production will be **communicated to the lynx experts from the countries not being present** in the MWG by the leaders of the MWG (K. Weingarth-Dachs & U. Fležar). The experts will be identified with the help of the publication from Hočevar et al. (2020) and invited to get involved in the same way as the members present at the MWG meeting. **An online group (e.g., Google group) will be formed for communication** within the MWG, and it will be open to all interested participants/data providers. (2) **An online meeting for all members of the MWG will be organized in July 2023**. A. Molinari-Jobin will shortly present the history and benefits of SCALP maps and the process of their production; the data requirements, communication with the data providers, etc. and call out for the data. After the meeting, we should come up with a list of participating countries and outline the further work regarding national coordination of finding potential data providers, categorizing the data and managing the required data agreements.

Furthermore, the MWG discussed the differences in needs and capacity for camera trapping in different study areas, i.e., for different populations of Carpathian lynx. For example, the objectives for camera trapping for small populations, e.g., Harz, Germany may be different than for large populations, e.g., Romania, and consequently the design, the effort and the obtained parameters. We agreed **when performing a camera trapping study, the essential data to be collected** in order to obtain sensible parameters and enable harmonization between study areas are i) **data about lynx events** (date, time, lynx ID, site ID) ii) **data about lynx individuals** (individual lynx ID, sex, first recognition (lynx year), first recognition status (juvenile/adult)) and iii) **data about effort** (array size, number of camera traps and coordinates per site, camera trap spacing, deployment data). The extent of

¹ Did not participate in the Harz meeting, but member of the Working Group consulted for the Proceedings

details must still be discussed further in future group meetings. However, we are aware that ~3 years are needed to optimize camera trapping in a new study area.

We also discussed the possible support that the existing lynx networks can offer for the MWG, especially the scientific support from the Eurolynx network. The main topics to be shared among the Linking lynx and Eurolynx monitoring groups would be i) software solutions for data processing and sharing, i.e., TRAPPER, ii) potential AI solutions for lynx individual identification, iii) experience exchange among countries with different monitoring efforts, and iv) sharing of knowledge with other networks, e.g., Eurowildcat e.g., regarding the same methods.

Table 1. The list of countries already involved, partly involved or not yet involved in data sharing for production of SCALP maps.

Already involved	Partly involved	To be involved
France	Austria (Alps)	Poland
Switzerland	Germany (Alps, Upper Rhine)	Czech Republic
Liechtenstein		
Italy		Ukraine
Croatia		Romania
Slovenia		Slovakia
Bosnia and Herzegovina		Germany (Harz, Bohemian Bavarian Austrian Population (BBA) part, reintroduction areas Austria (BBA part) Hungary Serbia Bulgaria Montenegro Belgium

Finally, the MWG meeting ended with good practice example of monitoring lynx after reintroduction/reinforcement from the Dinaric Mountains and SE Alps. Within the LIFE Lynx project, lynx were translocated to areas with and without resident lynx present with a goal of genetic rescue of the inbred remnant population. In both areas, intensive camera trapping provided critical information about lynx persistence, especially when GPS collars failed (e.g. in the Alps) and about successful integration of translocated males into the remnant population, e.g. recording females with kittens within their newly established territories. As camera trapping strongly engaged the crucial stakeholders, i.e. hunters, it also resulted in a trustful relationship with the project team and the governmental institutions.

Further work of the MWG will be led by Kirsten Weingarth-Dachs and Urša Fležar as coordinators, with the support of Fridolin Zimmermann and Anja Molinari-Jobin. Besides the next steps of the MWG work, the group should also serve as an environment for capacity building, therefore all comments, suggestions or questions regarding lynx monitoring from any of the members to any of the members are encouraged and welcome.

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Discussion of the Health Working Group

Working Group Leaders: Iris Marti & Magda Sindičić

Workshop Participants: Florian Brandes, Luděk Bufka, Pia Cigler, Stefan Hoby², Saskia Keller², Pavel Kvapil, Iris Marti, Benoît Quintard², Magda Sindičić, Branislav Tam²

During the past two decades, wildlife health is increasingly attracting the attention of both the scientific community and the public. Development of new scientific methods and diagnostic tools has greatly expanded our knowledge on the ecology of wildlife disease and at the same time standards for animal welfare are continuously improving and are being enforced by legislation. Health issues are an indispensable part of the capture, transport and management of lynx kept in captivity for any reason. Additionally, health problems of inbred populations and the increasing number of lynx reintroduction/translocation projects are positioning health issues on the top of the priority list in the overall management and conservation of European lynx populations. The Lynx health working group was formed within the Linking lynx network and met for the first time during the Carpathian lynx conservation meeting in Harz, Germany in 2023. First group meeting gathered veterinarians and other experts dealing with different aspects of lynx health. It was agreed that the main goals of this group are 1) to raise awareness among lynx experts about the importance of lynx welfare during the research and management activities; 2) to raise awareness among lynx experts about the importance of health monitoring at individual and population level; 3) to synchronise and upgrade existing protocols dealing with lynx health and prepare new ones, in order to improve standards of lynx health care in research and management; 4) to serve as a platform for exchange of knowledge and experience among experts working in the area of lynx health; 5) to provide support to all lynx experts in health related issues. It was agreed that the work of the group will be coordinated by Magda Sindičić (Faculty of Veterinary Medicine University of Zagreb) and Iris Marti (FIWI, University of Bern). The group will aim to meet at least twice per year online and once in person.

The first meeting was focused to step-by-step evaluation of protocols used for lynx anaesthesia, clinical examination of captured animals and necropsy. Improvements and recommendation were discussed and specific goals for future work were agreed on:

1. Revision and improvement of existing protocols for lynx anaesthesia, with special attention to debilitated or genetically impaired animals.
2. Revision and improvement of existing protocols for peri-anaesthesiologic monitoring, with a list of obligatory and recommended procedures.
3. Revision and improvement of existing protocols for health assessment and sampling for infectious and non-infectious diseases.
4. Revision and improvement of existing necropsy protocols.

The group agreed a that multimodal approach, access to preclinical diagnostic methods, laboratory analysis and consistent adherence to prescribed protocols are necessary for high quality lynx health care, and that is what all European lynx experts should thrive for. A special challenge is the diagnosis of hidden or previously unknown health abnormalities, which are being discovered in populations suffering from inbreeding. The proper management of health issues in inbred populations will be of major importance for the future and while the lynx health working group will contribute their expertise, the complexity of this topic will require cooperation of experts from all fields of lynx research and management.

² Did not participate in the Harz meeting, but member of the Working Group consulted for the Proceedings

Discussion of the Policy Working Group

Working Group Leaders: Jochen Krebsühl & Manfred Wölfel

Workshop participants: Urs Breitenmoser, Eoghan Kelly, Jochen Krebsühl, Katrina Marsden, Mihai Pop, Sebastian Rogahn, Christian Stauffer, Manfred Wölfel

Compared to the management of wolves and bears lynx seems to be the easiest one of the European Large Carnivores. Depredation on livestock is limited, and bold approaches towards people are very rare. However, due to low reproduction rates combined with limited colonization potential, lynx only naturally disperse very slowly or not at all within Central Europe. Moreover, as a major roe deer hunter, lynx is seen as a considerable competitor to human hunting in some areas which might result in reduced population pressure due to illegal killing.

Within the “Linking Lynx” initiative, the policy working group serves as a “clearing house” linking the different working levels, from field work, monitoring and research over regional and national administration, authorities and policy makers up to the EU level with the commission and parliament. The working group translates technical guidelines and protocols for policy makers in a short, strong and convincing way and seeks to adequately place them into policy processes. Vice versa the working group will ensure that important policy developments find their way to the implementation level.

The work will imply the following tasks:

- Ongoing scanning / screening process of what is going on at implementation and policy level
- gathering information from various sources, refurbish it and feeding it to other sources
- translation of technical information, making it more valuable and comprehensible
- engaging with given and new conventions (definitions, possibilities, processes)
- addressing key persons, e.g., within administration and on policy level
- giving advice (ideas, opportunities, timeslots) to Linking Lynx groups
- Linking Lynx group feeding in / highlighting relevant information they come across to the policy working group

Current policy processes to be aware of:

- Convention on Migratory Species (CMS)
 - Draft concerted action
 - Deadline 27 May 2023
 - If listing successful, prepare conservation strategy and guiding principles
- Bern Convention endorsement of action plan/protocols
 - as endorsement building on resolution / revision of the resolution
 - deadline end of October 2023
- Conservation Strategy for the Carpathians
 - engage with Carpathian Convention and Science for the Carpathian Group
 - upcoming Conference in Romania (planned for 27-29 September, but most probably postponed)
 - initiate a process to obtain a political agreement from the Carpathian countries to support the goals of Linking Lynx
- Guidelines for the „expansion area“ (reintroduction area)
- Restoration pledges and law
 - Lynx is part of the pledges of the given EU Biodiversity Strategy

- Restoration law: process got stuck in European Parliament. Final vote was held on July 11, law passed the parliament at noon!
- Proposal for a revision of the environmental crime regulation (shift from civil to criminal offence)
 - Start highlighting poaching as issue in certain countries in run up
 - Check status of environmental crime LIFE project
- Potential to take more action on not reaching favorable conservation status (FCS)
 - Infringement proceedings in certain countries?
 - Letter from EU-commission to recommend the Carpathian Lynx metapopulation - promoting the objective in the future National Biodiversity Strategies/Plans not as a national objective but as a transboundary good practice for lynx conservation. Linking Lynx as a connecting Europe biodiversity's next step after Natura 2000 and other initiatives (e.g., Danube, Alps convention)

Modus operandi:

As Co-Chairs of the Working Group serve Manfred Wöfl and Jochen Krebühl. Information exchange/discussions within the policy working group will be made via E-Mail/Online meetings. Members of the group head for inputs from different policy processes (conventions, EU level) which requires to identify appropriate people to represent these processes on international, national and regional level. Input from other working groups is welcome, needed and may be requested.

Discussion of the Engaging with People Working Group (formerly Human Dimensions WG)

Working Group Leader(s): to be defined

Workshop participants: Elisa Belotti, Max Boxleitner, Rok Černe, Sandrine Farny, Peter Gerngross, Irena Kavčič, Aleksandra Majić Skrbinšek, Maja Sever, Josefa Volfova, Manuela von Arx, Sybille Wöfl

The inaugural meeting of the Human Dimensions Working Group took place with the objective of exploring the needs for organizing the expert working group and discussing its potential areas of exploration and desired outcomes. The meeting, attended by 11 participants, involved brainstorming sessions that yielded valuable insights. Additionally, the participants agreed to change the name of the working group to the "**Engaging with People Working Group**" to better reflect its purpose.

During the meeting, the Engaging with People Working Group identified several topics of interest that will guide their future discussions and activities. The focus was on creating a platform where practical experiences (both positive and negative) and knowledge can be shared and exchanged among the experts actively working in the field as well as collaborative and innovative idea generation within the group while recognizing the influence of regional or unique circumstances on stakeholder engagement strategies.

The identified topics of interest include:

- How to get people involved: Exploring strategies and approaches to encourage public participation and engagement in conservation projects.
- Information vs. communication: Recognizing the distinction between merely providing information and establishing effective communication channels with stakeholders.
- Importance of listening: Emphasizing the significance of active listening and incorporating stakeholder perspectives in decision-making processes.
- Building trust: Highlighting the challenges associated with building trust and the need for trust-building initiatives, as trust is easily lost.
- Timely planning and transboundary collaboration: Developing advice and guidelines for planning and implementing projects that require collaboration across borders, especially in cases with anticipated transboundary impacts.
- Stakeholder engagement dos and don'ts: Identifying best practices and considerations when engaging with stakeholders, including the selection of appropriate messengers for specific interest groups and supporting effective ingroup communication.
- Stakeholder identification: Determining key stakeholders to involve and groups to inform in the decision-making process.
- Continuity beyond projects: Addressing the challenge of maintaining long-term engagement and trust-building efforts beyond the duration of individual projects.
- Financial mechanisms: Investigating suitable financial mechanisms for different projects focusing on public engagement.
- Thorough approaches: Identifying situations that require a comprehensive public engagement, such as reintroduction initiatives compared to monitoring-only projects which usually engage "only" with specific stakeholder groups.
- Institutional/project settings and capacities: Considering the impact of institutional and project-specific contexts on stakeholder engagement.

- Impact evaluation: Developing methods to assess the effectiveness and impacts of stakeholder engagement.
- Lobbying as a communication approach: Exploring the role of lobbying in stakeholder communication strategies.

Potential outputs and activities were discussed and a list of working group potential products created:

- The Engaging with People Working Group discussed possible outputs and activities that would contribute to their objectives. The proposed outputs and activities include:
- Exchanging best practices: Sharing examples of successful stakeholder engagement and innovative ideas.
- Project planning guidelines: Providing a list of questions and considerations to guide project planning for different types of projects.
- Mainstreaming positives and overcoming stereotypes: Developing guidelines on how to assess and maximise the benefits for the various stakeholder groups coming from conservation projects and species presence. The document should also include guidance on promoting positive messaging and challenging stereotypes.
- Communication guidelines: Creating a set of guidelines outlining best practices for effective communication including how to define communication goals and objectives.
- Transboundary collaboration: Developing targeted guidelines based on the IUCN Guidelines for reintroduction's social feasibility analysis to facilitate collaboration across countries, states, or regions.
- Forum establishment: Exploring the possibility of establishing a forum, called "Linking Lynx," to support transboundary collaboration in conservation planning.

Conclusions and next steps:

1. A clear need and willingness for the establishment of the working group was identified.
2. Participants agreed to change the name of the working group to the "**Engaging with People Working Group**" to better reflect its purpose.
3. Modus operandi: a Google group for the participants will be created to facilitate communication among the members. Existing relevant literature will be shared on a Google Drive.
4. Leader of the working group needs to be named to take over the coordination of the group's work and communicate on group's behalf with the steering committee.

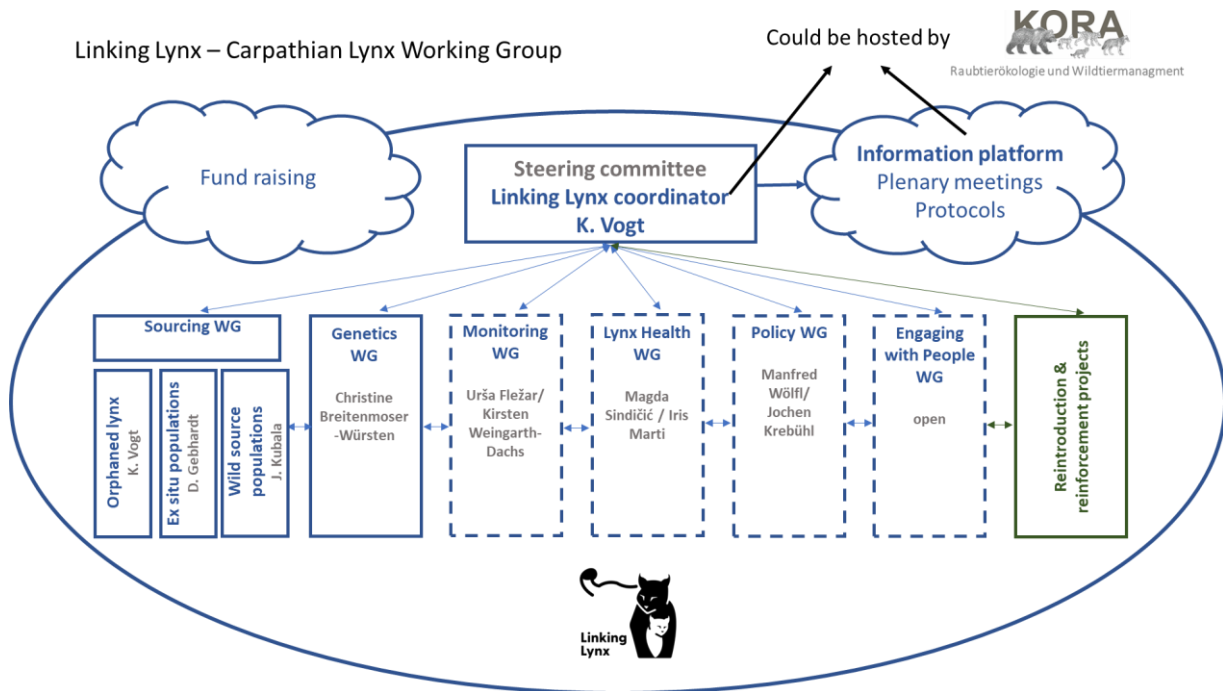
Final Discussion

Roland Bürki¹, Kristina Vogt¹, Christian Stauffer¹, Urs Breitenmoser^{1, 2}

¹Stiftung KORA

²IUCN SSC Cat Specialist Group

Proposed organisational structure and name



The proposed structure of *Linking Lynx* is presented above. There were no objections to this organisational structure. The name *Linking Lynx* is to be extended by adding *Carpathian Lynx Working Group*. Recommendation No. 204 (2019) of the Standing Committee of the Bern Convention asks for the creation of a permanent Eurasian lynx Working Group. *Linking Lynx* will take on this role for the range of the Carpathian lynx. Thus, it should gain a mandate from the Convention, which may be helpful, e.g., in terms of fundraising. Consequently, the name of the group should reflect this.

Formal structure

Jochen Krehbühl thanks KORA for the work they have already done and their willingness to host the Coordinating position and the information platform. He proposes to form an additional institution for fundraising and communication, which should be situated in the EU. With its seat in Switzerland, KORA is limited to participate in various fundraising opportunities for organisations in EU countries. Jochen Krehbühl offers to help planning and setting up this additional institution. This initiative is very welcome.

Bringing our standards and protocols to the attention of the EU and other governmental bodies

As of the date of the conference, a proposal is under development to list the Eurasian lynx under the Convention on Migratory Species CMS (the Eurasian lynx under Appendix II, the Critically Endangered subspecies Balkan lynx under Appendix I). In parallel, a Concerted Action (a CMS instrument) will be proposed, e.g., asking for the development of a Conservation Strategy for the lynx in the Carpathians, and guidelines for its conservation in West and Central Europe where Carpathian lynx are used for

reintroductions. Both, the listing proposal and the Concerted Action, will be discussed at the upcoming Conference of Parties (COP14, 23–28 October 2023).

It would be important to have a Conservation Strategy for the autochthonous population and guidelines for the reintroduced populations specific to the Carpathian lynx, especially for the Carpathian range states, and to have them endorsed by the conventions. General IUCN guidelines for conservation translocations already do exist, but they are very broad as they cover all species. Guidelines specific to the Carpathian lynx should be short, sharp and strong, but explicitly name locations, populations, actors, etc.

Manfred Wölfel, co-chair of the newly formed Policy WG, recommends avoiding aiming too high with the policies. The higher the aim is, the less likely the implementation. There are no votes against the submission of a Concerted Action to the CMS Conference of Parties.

Continuation

Slovakian colleagues proposed to hold the next meeting in 2024 in Bojnice in summer 2024, possibly combined with a workshop to develop the Carpathian lynx Conservation Strategy with all range states.

For the future, it will be considered combining the *Linking Lynx* with the *EUROLYNX* meeting as there is a big overlap of participants. However, this would result in an even longer and more exhausting meeting. Marco Heurich points out that the *EUROLYNX* meetings for 2023 and 2024 are already planned, the earliest possibility for such an attempt will be in 2025. The Bern Convention might also be able to help setting up a meeting in Strasbourg at some point. The more we advance, the fewer of these long meetings will be needed, too, and it may be possible to hold one-day meetings.

Appendix I – List of participants to the Carpathian Lynx Conservation Meeting

Name	Affiliation	Country
Anders, Ole	Nationalparkverwaltung Harz	DEU
Belotti, Elisa	Šumava National Park	CZE
Blašković, Silvia	University of Zagreb	HRV
Blum-Rerat, Catriona	Senckenberg Museum für Naturkunde	DEU
Boxleitner, Max	WWF	DEU
Brady, Deborah	The Lifescape Project	GBR
Brandes, Florian	Wildtier- und Artenschutzstation Sachsenhagen	DEU
Breitenmoser, Urs	Stiftung KORA	CHE
Breitenmoser-Würsten, Christine	Stiftung KORA	CHE
Bufka, Luděk	Šumava National Park	CZE
Bürki, Roland	Stiftung KORA	CHE
Černe, Rok	Slovenia Forest Service	SVN
Cigler, Pia	University of Bern	CHE
Ćirović, Duško	University of Belgrade	SRB
Duľa, Martin	Mendel University	CZE
Emmrich, Johanna	Nationalparkverwaltung Harz	DEU
Farny, Sandrine	Chargée de mission animation du Plan Régional d'action lynx massif des Vosges	FRA
Fležar, Urša	Slovenia Forest Service	SVN
Gazzola, Andrea	Association for the Conservation of Biological Diversity	SVN
Gebhardt, Dina	Tierpark Bern	CHE
Gerngross, Peter	Silvestris e. U.	AUT
Götz, Malte	Deutsche Wildtierstiftung	DEU
Heider, Christoph	HIT Umweltstiftung	DEU
Herdtfelder, Michael	Forstliche Versuchs- und Forschungsanstalt Baden-Württemberg	DEU
Heurich, Marco	Nationalparkverwaltung Bayerischer Wald	DEU
Hucht-Ciorga, Ingrid	LANUV NRW Artenschutz	DEU
Kavčič, Irena	University of Ljubljana	SVN
Kelly, Eoghan	Bern Convention	
Kopaniak, Linda	Forstliche Versuchs- und Forschungsanstalt Baden-Württemberg	DEU
Krebühl, Jochen	Stiftung Natur und Umwelt Rheinland-Pfalz	DEU
Krofel, Miha	University of Ljubljana	SVN
Krojerová, Jarmila	Czech Academy of Sciences	CZE
Kubala, Jakub	Technical University of Zvolen	SVK
Kvapil, Pavel	Zoo Ljubljana	SVN
Lippitsch, Paul	Senckenberg Museum für Naturkunde	DEU
Majić Skrbinšek, Aleksandra	University of Ljubljana	SVN
Marsden, Katrina	Adelphi	DEU
Marti Iris	University of Bern	CHE
Middelhoff, Lilli	Nationalparkverwaltung Harz	DEU
Molinari, Paolo	Progetto Lince Italia	ITA
Molinari-Jobin, Anja	Progetto Lince Italia	ITA
Pop, Mihai	Association for the Conservation of Biological Diversity	SVN
Port, Markus	BUND Thüringen	DEU
Rogahn, Sebastian	Thüringer Ministerium für Umwelt, Energie und Naturschutz	DEU
Rolshausen, Gregor	Senckenberg Zentrum für Wildtiergenetik	DEU
Sandrini, Julian	Forschungsanstalt für Waldökologie und Forstwirtschaft RLP	DEU
Schnetz, Katja	Hochschule Weihenstephan-Triesdorf	DEU
Schwan, Zarah	Nationalparkverwaltung Harz	DEU
Seeger, Jens	Forstliche Versuchs- und Forschungsanstalt Baden-Württemberg	DEU

Sever, Maja	Slovenia Forest Service	SVN
Sindičić, Magda	University of Zagreb	HRV
Skrbinšek, Tomaž	University of Ljubljana	SVN
Sliwa, Alexander	AG Zoologischer Garten Köln	DEU
Stauffer, Christian	Stiftung KORA	CHE
Stephan, Audrey	Trames verte et bleue, Lynx	FRA
Trbojević, Tijana	University Banja Luka	BIH
Trbojević, Igor	University Banja Luka	BIH
Vogt, Kristina	Stiftung KORA	CHE
Volfová, Josefa	Friends of the Earth – Czech Republic Carnivore Conservation Programme	CZE
von Arx, Manuela	Stiftung KORA	CHE
Weingarth-Dachs, Kirsten	Habitat-Wildlife-Services	DEU
Wiesenthal, Eckhard	Deutscher Wildgehege Verband e. V.	DEU
Wölfl, Manfred	LCIE Germany	DEU
Wölfl, Sybille	Luchs Bayern e.V.	DEU
Zlatanova, Diana	Sofia University	BGR
Zschille, Jana	TU Dresden	DEU