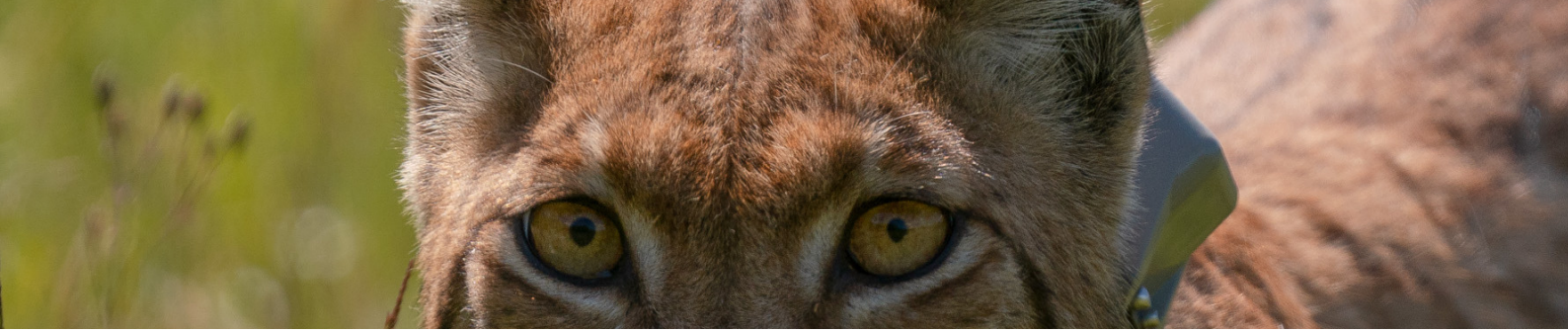

Book of Abstracts

LIFE Lynx International Conference: „Together for lynx“

and annual Eurolynx meeting

26 – 29 September 2023, Zadar, Croatia

LIFE Lynx LIFE16 NAT/SI/000634

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Oral presentations:

O-01

History of the Dinaric SE Alpine lynx population and the LIFE Lynx project

Rok Černe[1], Miha Krofel[2], Tomaž Skrbinšek[2], Aleksandra Majič Skrbinšek[2], Matija Stergar 1, Miha Marenče[1], Marko Jonozovič[1], Hubert Potočnik[2], Jakub Kubala[3], Mihai Pop[4], Marija Markeš[5], Tomislav Gomerčič[6], Ivana Selanec[7], Magda Sindičić[6]

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Prior to 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 primary cause of depression was inbreeding. The population was extinct by the end of the 19th century. However, in 1973, six animals were reintroduced and released in the Dinaric region of Slovenia. This reintroduction at the beginning proved to be highly successful, as the population expanded from Slovenia to Croatia, Bosnia, and partially to Italy and Austria. Unfortunately, a significant decline in the population was observed after the year 2010. In 2013, a study by Sindičič et al. confirmed that inbreeding posed a major threat to the population. It turned out, after reconstruction of some historical data, that the two pairs of reintroduced lynx from Slovakia were highly correlated.

To address this issue, both Slovenia and Croatia recognized the need to introduce new individuals from the Carpathian population, which led to the adoption of national strategic documents. International collaboration and preparations for the Life Lynx project were initiated, and the project implementation started in 2017.

Remarkably, by 2023, we can confidently state that the project implementation has been a success. As of now, out of the 18 translocated animals, at least 7 individuals have been successfully integrated into the Dinaric population, and a stepping stone population has been established in the Alpine region of Slovenia.

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

O-02

Live-trapping Eurasian lynx for conservation translocations - challenges faced by the source populations

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Relocating live-animals for reintroduction or population reinforcement is a widely used management strategy aiming to counteract rapid biodiversity loss or restore threatened populations. Sourcing individuals from wild populations has certain advantages, such as enhanced adaptability and survival of the translocated animal to the new environment. When planning to obtain individuals from wild populations, both technical (effort and practicality of the trapping activity) and biological aspects (animal welfare during capture and relocation on one side, and the potential impact of translocations on the viability of source populations on the other) are inherently important factors to consider.

In the Life Lynx project, the Carpathian lynx population served as a source population, providing individuals which will aid in the reinforcement of the genetically depleted Dinaric-SE Alpine lynx population. Between 2019-2023, in the Eastern Romanian Carpathians, we captured 14 lynxes, translocated 12 of them to the Dinaric-SE Alpine lynx population, and collared and released *in situ* the remaining two. During the project time-frame, we implemented camera-trapping, snow-tracking and collected non-invasive DNA samples to gather data on lynx presence and movement in the project area and assess the potential impact of the relocations on the local lynx population.

Factors such as i) scarcity of data on lynx occurrence and movement in Romania; ii) limited accessibility to the suitable lynx habitats; and iii) limited logistic resources, significantly influenced the amount of effort required for monitoring and finding the best trapping locations across several study areas in the Eastern Carpathian Mountains.

Animal welfare concerns remain challenged by the long time needed to reach the box-traps. Although the time the animal spent in the box-trap was reduced by working with local hunting personnel, the time span between confirming the lynx capture and transporting it to the quarantine enclosure was longer than recommended. Despite this, the captured individuals were in good condition and showed only minor symptoms of distress and superficial injuries.

The captures were sex-biased (12 males *vs*. 2 females). The impact of this result on the source population could not be assessed by the monitoring methods employed, nor could we establish whether the result was due to biological factors (unbalanced sex ratios within the population; sex-specific behaviour) or technical (trapping method, site-selection criteria).

Non-systematic monitoring provided the minimum number of lynxes in the project area. The source population does not appear to have been significantly impacted by the removal of individuals, as the number of individuals in the project areas remained constant over the duration of the study, even after the removal of 1-3 individuals per season. Moreover, confirmed yearly reproductions in each of the study areas further supports this assumption.

Knowledge-transfer between project partners played an important role in the success of the captures. Further analyses of the factors influencing capture rates will aid in the optimisation of trapping methods and

approaches for future reintroduction or in situ research projects, reduce trapping costs and time, minimise stress to the animal, and have better control over the chances of capture-related injuries or mortality.

O-03

International conservation and management of the Eurasian lynx (Lynx lynx) in the Slovak Carpathians

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The Carpathians have been and still are a source for lynx reintroduction and reinforcement projects, and have a great importance for the international management, and large-scale conservation of lynx in Europe. Capturing and translocating animals due to their reintroduction, or reinforcement requires relevant and systematic research on the source population, with an emphasis on its abundance and trend, as well as its genetic diversity and health status. The results obtained through our systematic robust monitoring survey conducted within the LIFE Lynx project, together with other previous surveys, allow us to estimate the average lynx population density in the Slovak Carpathians at 1.15 (± 0.29) lynx per 100 km^2 of suitable habitat, with an overall population size of 323 adult individuals. Based on these results, it is also possible to claim that the captures and translocations of 8 lynxes for the LIFE Lynx project had no negative effect on the viability of the Slovak population at the local, regional or national level. The lynx population corresponds to the favourable status according to the Habitats Directive, however it does not reach the carrying capacity in some areas of Slovakia due to conflicts with human interests and activities. The cooperation of all stakeholders within the LIFE Lynx project as well as in the systematic monitoring is an excellent example of cooperation and mutual trust, as well as an important precedent for resolving carnivore-human conflicts in the future. Such a range-wide cooperation with an efficient adaptive approach can ensure the long-term and large-scale survival of the species at the geographic scope of the Carpathians and hence contribute to the conservation of both, the autochthonous and reintroduced populations.

O-04

Reinforcement of the Dinaric lynx population

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A decade after the initial scientific confirmation of the threat posed by inbreeding to the survival of the Dinaric lynx population and a decade since consensus was reached that translocations from Carpathian Mountains are the only viable solution, the first lynx capturing season within the LIFE Lynx project commenced. In February 2019, two males, named Doru and Goru, were captured, assessed and quarantined in Romania. On May 5th Doru was released in Croatia, in a meadow in National park Risnjak, the exact spot where the first lynx was observed in Croatia following the 1973 reintroduction in Slovenia. Ten days later Goru was released in Slovenia, near Loški Potok, and to this day he remains the most successful in propagating his genes, having fathered at least 4 litters and 7 kittens. Moreover, at least one of his daughters also already had kittens.

During the period from 2019 to 2023, 11 adult male lynx and one female were translocated from Romania (7) and Slovakia (5) and released in Croatian (6) and Slovenian (6) Dinaric mountains (simultaneously 3 females and 3 males were released to the Slovenian Alps). All translocated animals were wild caught, with one male successfully rehabilitated after a leg injury in Slovakia. In Croatia, lynx were hard released immediately following the transport, while in Slovenia soft release was used. During a transitional period of 23 days on average, the animals were kept in enclosures at the release site prior to their release. Release locations were chosen based on cooperation with local communities, primarily managers of hunting grounds and protected areas, and based on the status of the resident lynx in the region. Translocated lynx settled on average 50 days after the release (range 1 - 159 days), on average 15.8 km from the release site. The maximum aerial distance reached from the release site was 68 km, and luckily none of the animals dispersed out of the Dinaric lynx population. Male Pino disappeared right after the release, while lynx Doru disappeared 9 months after the release. The telemetry collar of the rehabilitated lynx Maks ceased transmitting the signal 15 months after his release. Over this period, he resided in three different areas, making history as the first recorded lynx to cross the notorious highway Ljubljana – Koper and even reached Slovenian – Austrian border. Remaining nine translocated lynxes continue to be monitored, either through telemetry collars or camera traps. As of September 2023, there are five translocated males in Croatia. The most recently released lynx is still in exploratory movement while others have successfully established their territories. All 4 translocated lynx present in the Slovenian Dinarics are regularly monitored, three within their established territories while the most recently released female is still in exploratory movement.

Due to challenges in monitoring of reproduction, we can not confirm the exact number of offspring produced by translocated animals. So far, 8 litters were confirmed in Slovenia and additional 4 litters were recorded in Croatia within the territories of translocated males. Additionally, offspring of a lynx Goru already had a litter of her own with 3 kittens, so in the breeding season 2022/2023 we confirmed first F2 generation of the translocated lynx.

As we approach the final months of the LIFE Lynx project implementation, these results instil hope that international cooperation, drawn upon expertise from various backgrounds and engaging key interest

groups, stands as a successful formula for securing the future of the Eurasian lynx in Europe. But there are still some open topics:

1. Dominantly males were available for translocation into the Dinarics. How does the sex ration influence the success of the translocation/reintroduction program?

2. Despite very intensive monitoring program, it is difficult to detect and genetically confirm offspring. Malfunctions of telemetry collars significantly impacted monitoring of translocated animals. Are those problems possibly jeopardizing high quality understanding of the reintroduction process?

O-05

Creating a stepping-stone population in the south-eastern Alps

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One of the goals of the LIFE Lynx project was to establish a stepping-stone population in the Slovenian Alps. That would promote the long-term preservation of the lynx in the region as it would help connect the remnant lynx in the Dinaric Mountains with the lynx populations in the Alps. Moreover, the long-term success in preserving lynx in the Alps and beyond can only be ensured by connecting the existing isolated populations of lynxes. The Julian Alps, located in the North-Western part of Slovenia, serve as a corridor for the migration of large carnivores from the Dinaric Mountains in Southern Slovenia towards the direction of the Alpine arch. There, two target areas were chosen for lynx reintroduction: the Triglav National Park (TNP), which covers a significant part of the Julian Alps, and a high plateau Jelovica south of the park.

The success of reintroducing lynxes hinges on effective communication with all stakeholders, who must understand, accept, and support their return to the wild. A pivotal factor in establishing the lynx stepping stone population in the Julian Alps was the successful collaboration with hunters, playing a crucial role in the project. Initially, local hunters from adjacent clubs displayed reluctance, despite TNP's support for reintroduction. To address this, presentations explaining the purpose of lynx reintroduction to the Alps and emphasizing existing collaboration within the park, were organized. All communication with local communities was open, with giving honest information about the project purpose and planned activities, and explaining the expected consequences of lynx comeback for the ecosystem.

Motivated by nature conservation, hunting club Nomenj-Gorjuše, located in the high plateau Jelovica decided to collaborate with the LIFE Lynx project. They offered to release two translocated lynxes within their hunting ground, providing land for release enclosures and taking care of the lynxes before release. Following the successful release of five lynxes in the Julian Alps (a male and two females in TNP and a lynx pair in Nomenj-Gorjuše), all hunting clubs in Triglav National Park and Jelovica plateau actively participated in surveillance of the released animals and their offspring. This enthusiastic involvement demonstrates hunters' acceptance of lynx as an integral part of the forest ecosystem. Activities such as tracking GPS-collared lynxes, operating camera traps, and snow tracking have captivated numerous hunters and others, as they offer valuable insights into the lives of lynxes and other species. We are intrigued by how these collaborations and monitoring efforts would contribute to the long-term success of lynx reintroduction and conservation in the Alpine region.

After two years of intensive monitoring, four reproductions of translocated lynx were confirmed (one of the lynx pair in Jelovica in 2021 and one of each of all three translocated females in 2022), which clearly demonstrates the success of the lynx reintroduction to the Julian Alps. While the persistence of one translocated male could not be confirmed any longer after a year of GPS tracking and camera-trapping, in June 2023 we reintroduced another male, who then settled in Karavanke at the Slovenian-Austrian border. Soonafter, camera traps in the Julian Alps revealed presence of two uncollared adult lynxes, indicating that the stepping stone population is developing naturally. Following the success of the LIFE Lynx project, five animals were additionally released in 2023 in the border area of Italy and Slovenia in scope of Italian reintroduction project, which will potentially enhance the successful establishment of lynx in South-Eastern Alps.

The creation of the lynx stepping stone population in the Alpine region, based on open dialogue and strong involvement of local communities, especially the park rangers and local hunters, can serve as a good

practice example for reintroducing this charismatic species in any natural and socio-economical environments.

O-06

Health aspects in reintroduction projects

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Health monitoring and assessment of animals participating in reintroduction projects is obligatory part of every successful conservation effort. This usually includes: disease risk analysis of targeted and source population, precise clinical monitoring, thorough microbiological testing and quarantine of translocated animals, as well as detailed necropsy if needed, based on standardised protocols unified across countries and partners. Clinical and laboratory health assessment of all animals, optimal peri-anesthetic monitoring and quarantine are important factors guaranteeing good physical condition of animals prior to their translocation and release, so this was strictly implemented during the LIFE Lynx project Eurasian lynx translocations from Carpathian to Dinaric Mountains and south-eastern Alps. Feline immunodeficiency virus (FIV) and feline leukemia virus (FeLV) were identified as one of the most hazardous viruses for the lynx translocation programme, but fortunately all 18 adult lynxes captured for translocation in Slovakia and Romania tested negative. Hematological and biochemical examination, pathogen screening (FIV, FeLV, feline herpesvirus 1, canine protoparvovirus 1, canine distemper virus, feline calicivirus, feline coronavirus and SARS-CoV-2, Francisella tularensis, leptospirosis, hemotropic mycoplasma) were routinely tested from samples (swabs and blood) of captured animals.

Out of eight resident lynxes captured in Slovenia during the LIFE Lynx project, 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 in Slovenia. In two lynxes 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, the etiology of heart murmur 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 is also strongly emphasized. Thorough execution of veterinary protocols including careful clinical examination and monitoring of the captured animal 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.

O-07

Back from the brink: critical genetic erosion of the Dinaric lynx population and recovery following population reinforcement

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The Dinaric lynx population was reintroduced in 1973 with six animals originating from the Slovakian Carpathians. The reintroduction was initially successful: the population rapidly expanded both spatially and numerically until the late 1990s, when the first problems became apparent, and the population started declining. Various possible causes of the decline were suggested, but a genetic study found a very high level of inbreeding, indicating that the resulting loss of fitness was probably the main factor to blame. This provided the background for population reinforcement through the LIFE LYNX project, the main goal of which was the reversal of genetic erosion and improvement of the population's fitness to a level that would make it viable again, at least in the short term.

During the project we monitored the genetic effects of reinforcement. We made a baseline re-assessment of genetic status with new data prior to reinforcement and explored genetic distance between both Carpathian source population areas (Romania and Slovakia). The relatedness of all translocated animals was checked, and reinforcement goals adjusted as needed. We monitored reproduction of the translocated animals using noninvasive genetic sampling and tracked the general impact on the population's genetic outlook.

We found that, immediately prior to reinforcement, inbreeding was at an extremely high level of F = 0.316, with effective population size estimated at 13.4 (10.2 – 17.5 95% CI) individuals. We also found genetic structure between the source areas in the Carpathians. During the project, the existing population was reinforced with 13 animals, and an additional 5 individuals were brought in to start a new population nucleus in the Alps.

Although it takes time for animals to reproduce and contribute their genes to the population before the effects of the reinforcement can be fully appreciated, we were already able to assess the first benefits. When the new animals and their offspring form 15% of the population (which was already nearly the case by the end of the project), the level of inbreeding drops to 0.18, and should reach 0.15 when these animals form 40% of the population. This is well within the range observed from historic data in the 1980s when the Dinaric lynx population was doing very well. These estimates don't consider the new population nucleus in the Alps, which will bring additional benefits when animals from the two populations begin to mix and breed.

We can say that the LIFE LYNX project successfully brought the Dinaric lynx back from the brink of a second extinction, but the solution is inherently short-term. The population remains too small to be viable on its own and will need gene flow from other populations. In the short-term this means conservation management with periodic reinforcements, but efforts should be made in the long-term to establish an Alpine–Dinaric metapopulation that could be viable on its own.

O-08

Ecology of translocated and resident lynx in the Dinaric-SE Alpine population

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Reintroduction or population reinforcement of endangered animals can have several ecological implications. This might be especially relevant for apex predators, such as Eurasian lynx (*Lynx lynx*), which are characterised by important ecological roles they perform across the world ecosystems. Part of the monitoring programme of the LIFE Lynx project (LIFE16 NAT/SI/000634) was also to evaluate the behavioural ecology and ecological impact of the lynx that were translocated from the Carpathian population into the Dinaric Mountains and South-eastern Alps. Here we report on their home-ranging behaviour, prey species, kill rates, interactions with scavengers, mating behaviour and reproductive success and compare them with ecology of remnant lynx from the Dinaric population. Results showed that translocated lynx successfully adapted to their new environment and became part of local ecological network. Overall, they exhibited similar ecological traits and engaged in similar interspecific interactions compared to the remnant individuals. However, we observed several differences between the lynx in the Alps and those in the Dinaric Mountains (e.g. higher proportion of mountain ungulates and lower levels of kleptoparasitism by dominant scavengers in the Alpine region), which mainly reflects differences in the local mammal communities between the two regions.

O-09

First density estimates for Eurasian lynx population in the Dinaric Mountains

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Estimating abundance of wild animal populations is crucial for their management and conservation. For endangered populations, such as the Eurasian lynx (*Lynx lynx*) in the Dinaric Mountains, it is vital to assess the basic population parameters, such as density and abundance, to enable the decision-makers to appropriately assess the conservation interventions and objectively evaluate the changes in the population status.

After the reintroduction of the lynx to the Dinaric Mountains in 1973, information about the newly-formating lynx population was available through hunting bags, opportunistic records and questionnaires. While these data provided an insight into the population distribution and growth, the estimates of the population size were based on expert opinion. With the start of the LIFE Lynx project, a pilot camera trapping survey took off in 2018 in the Northern Dinaric Mountains and the Southeastern Alps. One year later, the coordinated teams from Slovenia and Croatia engaged over 100 local hunters and other volunteers to collect a first-ever comprehensive camera trapping dataset about remnant lynx and used it for scientific assessment of the population density and abundance.

Camera traps were set up in optimal lynx habitat, i.e. forested areas in the Dinaric Mountains, at three different types of micro-locations; scent-marking sites, forest roads and other types of locations, which were mostly carstic landscape features we assumed lynx would use, e.g. ridges, stone walls or large rocks. In total, 297 camera trapping sites were set up, effectively covering an area of over 10,000 km^2, which makes this camera trapping survey one of the largest reported. Camera traps were operating for a period of 6 months (August 2019-February 2020) and have recorded lynx 171-times. We were able to identify lynxes from their unique pellage patterns on 87% of the records, and assigned the sex to 82% of the individuals. We calculated density and abundance of the Dinaric lynx population using spatial capture recapture (SCR) models.

The density of lynx in the Northern Dinaric Mountains was 0.83 (95% CI: 0.60-1.16) lynx/100 km^2, which was comparable to other reintroduced Eurasian lynx populations in Europe. The densities of females (average 0.51 females/100 km^2) were higher than the densities of males (average 0.33 males/100 km^2), which was expected as males have larger territories than females. Moreover, the overall densities were lowest in Slovenia, possibly because the population comes to its edge there. The abundance in the area was estimated at 96 (69-133) individuals. Additionally, we showed that cameras at scent-marking sites, which lynx use for chemical communication, had on average a 1.6- and 2.5-times higher detection rate compared to cameras set on roads and other locations, respectively. As these differences can affect the density estimation, they should be accounted for in the SCR modelling.

For the threatened lynx in the Dinaric Mountains, such an assessment of the population status represents a key reference point, and will enable an objective evaluation of the impact of the ongoing conservation efforts undertaken within the LIFE Lynx project.

O-10

Habitat suitability and connectivity for Euarasian lynx between and within the Southeastern Alps and Dinaric Mountains area

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Following the extirpation from Central and Southeastern Europe by the end of the 19th century, the Eurasian lynx (*Lynx lynx*) was reintroduced in the Alps and Dinarics. The recovering population sizes fluctuated over the years; however, they remained relatively small and isolated. Because of slow natural colonisation, distribution after the establishment did not expand much. There is an urgent need to facilitate greater connectivity between the genetically isolated populations, particularly throughout the Alps and Dinarics, to create a viable metapopulation structure.

We used two methods to assess lynx habitat suitability: the MaxEnt algorithm implemented in the ENMeval R package (Kass et al. 2021) and the GLM approach developed by Schadt et al. 2002 and implemented in the area of the SE Alps-Dinaric lynx population. Landscape permeability was analysed by circuit theory approach in Omniscape software (McRae et al. 2016) and by least cost path algorithm from the R package Grainscape (Chubaty et al. 2020).

Here, we present the results of a habitat suitability model and landscape permeability analysis for Eurasian lynx in the SE Alps and northern Dinarides, an area that represents a stepping stone between Dinaric and Alpine lynx populations. We used GPS telemetry data from 31 individuals and locations of non-invasive genetic samples, while environmental layers included data on forest cover, human impacts, terrain slope, and elevation.

The results of the habitat suitability models and permeability analysis indicate that large and continuous forest complexes form migration networks for lynx movements. While the landscape in the Dinaric Mountains appears to be well connected, the area between Vrhnika and Razdrto represents the critical area that serves as a bridge between the subpopulations of Dinaric and SE Alpine areas, connectivity in that area is substantially obstructed by the fenced Ljubljana-Koper highway, which is definitely one of the most influential barriers between the two subpopulations.

O-11

Reflections on the LIFE Lynx Project: A North American Perspective

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The LIFE Lynx project represents a successful and innovative effort to prevent the extinction of the Dinaric and southeast Alpine Eurasian lynx population. The project relied on classic tools from conservation biology and wildlife genetics to bring a strong science foundation to the effort and integrated local communities and stakeholders through a robust communications effort and a meaningful engagement process to implement the work. At the heart of the success of this project was the commitment by LIFE Lynx partners to work with local people and communities who share the same habitat with lynx. In many respects, large carnivore conservation throughout the world depends on having some level of social acceptance from the people who live with large carnivores. The LIFE Lynx project may be a model example where recovery of a species like lynx was done where it was biologically suitable and socially acceptable. The project made a deep investment in planning and strategic communications particularly with attention to engaging local people and the hunting community in Slovenia and Croatia. By working from the bottom up, the project developed support at multiple levels and ideally has built a foundation that will enable conditions for long-term population viability of lynx. I offer additional reflections on the importance of working with local communities, developing transnational partnerships, and the value that the LIFE program has on conservation and democracy in today's world.

O-12

Tackling the potential illegal killing of lynxes

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Illegal killing of wildlife is a complex issue determined by different driving factors. It is influenced by various social mechanisms that contribute to the behaviour and negative attitudes of individuals towards wild animals that can in worst cases lead to illegal killing. In the case of lynxes (and other large carnivores) there are two main drivers; competition for the same resources (i. e. prey species such as wild ungulates) and the fear of livestock predation which poses a potential economic loss for livestock breeders.

To ensure the long-term survival of lynxes, we addressed these issues within the framework of LIFE Lynx project (LIFE 16 NAT/SI/000634) and implemented essential conservation measures, including key stakeholder engagement and education of law enforcement to mitigate the potential illegal killing of lynxes. We connected with Slovenian Police and between the years 2019 and 2022, and conducted the first professional training sessions for police officers with the goal of educating them about the importance of detecting, prosecuting, and sanctioning the illegal killing of lynxes, as each illegally killed lynx presents a threat to the viability of the population. Moreover, we conducted additional training for police officers and eleven educational seminars for field personnell (foresters, game wardens and professional hunters), who are most likely to be first to detect and report a suspected illegal killing of wild animals to the police. Finally, we produced a handbook on the investigation of illegal killing of wild animals, which was sent to all Slovenian hunters via national hunting magazine Lovec.

The actions carried out within the project represent an important foundation for more efficient and more effective detecting, prosecuting and sanctioning of wildlife crime in the future in Slovenia. With cooperation with the police, stakeholder involvement and education of hunters, we have created a snowball effect in the field of illegal killing of wild animals (lynxes) to ensure a better future and long-term survival of the Dinaric-SE Alpine lynx population.

O-13

Adapting management of key prey species for lynx and wolf in Slovenia

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The predator-prey relationship has many effects on both predator and prey, and indirectly on humans as well. Predation co-influences the survival, fitness, population dynamics and spatial distribution of prey species, on the other hand, the availability and characteristics of prey species populations influence the dietary selection and fitness of predator's populations, and in the case of rare or endangered predatory species, also their long-term conservation. The dynamics of the relationship between large carnivores (lynx, wolf) and wild ungulates have important consequences for humans as well: the availability of natural prey affects the level of predation of domestic/farm animals (human property), and predation of game species directly affects the attitude of hunters towards large carnivores, which can further influence their long-term conservation.

In order to encourage positive effects and inhibit negative effects of the aforementioned influences, it is reasonable to adapt the system of game (wild ungulates) management. The game management system in Slovenia is relatively complicated and has many restrictions for hunters, but on the other hand, it tries to adapt to diverse environmental conditions and also allows adjustments that take into account the effects of predators on game species. Some adaptations of the management of roe and red deer, which take into account the influence of wolves and lynx, were introduced in the game management in Slovenia already in 2013. We revised these adaptations within the LIFE Lynx project and extended them to include also chamois and mouflon. The adaptations were also implemented in the Game Management Guidelines, which will be incorporated into long-term (and consequently in operational) hunting management plans for the period up to year 2030.

In addition to biological background (quantified impacts of lynx and wolf on game species), we also took into account the perception and wishes of hunters when making adaptations of game management system. For this purpose, we held regional workshops with representatives of hunting ground managers and collected their suggestions regarding management adjustments. The proposals were then discussed and finalized within the team of experts in the field of hunting.

When adapting the management of game species, we took into account the impact of lynx on roe deer, chamois and mouflon, and the impact of wolf on roe deer, red deer, chamois and mouflon. We have also added adaptations to roe deer management to account for the impact of eurasian jackal. Management adaptations are made only in areas of long-term (at least two years) presence of carnivores, which must be confirmed by official monitoring. The key adjustments in the management of game species are reflected in: the planned culling quota of game species (lower quota), the age-sex structure of the quota (smaller proportion of females) and in wider tolerances in the mandatory realization of the planned culling quota. The result of the implemented adaptations is therefore a more flexible management of ungulates, which better adapts to the effects of carnivores and is also more tailored to expectations of hunters.

O-14

Diverse communication for lynx conservation

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Communication is a key pillar supporting wildlife conservation actions. Animal introduction and translocation activities are usually more successful if they involve the public, in particular key stakeholders, from the outset. The LIFE Lynx project has therefore planned and implemented various bottom-up and community-based communication activities to promote and maintain high public support for lynx conservation. More than 30 % of the team's working days were directly dedicated to various communication activities. Moreover, all concrete lynx conservation activities were accompanied by carefully planned communication.

The LIFE Lynx team put special effort into working with our key stakeholder group - the hunters. To maintain their high support for the conservation of the species, we established close cooperation with more than 370 hunting organizations in Italy, Slovenia, Croatia, Romania and Slovakia. Hunters were not only informed about lynx and the LIFE Lynx project, but also actively involved throughout the evolution of the project – especially in concrete field activities such as lynx translocations, camera trapping, telemetry studies, and preventing illegal killing of wildlife. All on ground activities were accompanied by close one-to-one or small group communication between project staff and hunters.

As support of the local public is crucial for successful conservation of the lynx, we engaged local communities through Local Consultative Groups. To equip younger generations with sufficient knowledge about lynx, interested schools were actively involved in the Young Lynx Guardian Programme, while project team members also organized educational workshops in many other local schools. Journalists and NGOs were involved in field trips and discussions, to ensure that the public is well informed and that verified information is shared. Support for the project was also endorsed by celebrity ambassadors who promoted the project in their own unique way. They did this through short video clips, presence at project events and even by producing children's books about lynx, describing real stories of translocated lynx.

The project team used a variety of communication channels and activities to effectively build trust with different stakeholders and ensure broad public acceptance for lynx conservation. From the project's start in 2017, we organized many workshops, seminars, lectures, field trips, and one-on-one meetings, reaching more than 8,000 people. To reach a wider audience, we set up project website, Facebook pages, and Instagram page, which are all growing each day. More than 22,000 people follow the project's social media and the website has more than 30,000 users per year from project countries and beyond. Moreover, we produced different printed media (bulletins, brochures, notice boards, postcards, bookmarks, T-shirts…) for promoting lynx and informing the public about project activities.

The engagement of the public, especially key target groups was measured via evaluation of project indicators and with assessment of public attitudes, throughout the project implementation. Although the effectiveness of individual communication approaches has not been evaluated directly, results from the latest survey show that the general public's attitudes towards lynx are very positive, and have become more supportive towards species conservation since the project started. Sympathy for lynx and its protection is also evident among the hunters, and was maintained high through the project's implementation. These results show that the high effort put into communication is very much justified. In order to achieve the

project's key objective - conserving the lynx for future generations, support for the species will continue to be promoted also through a wide established communication network.

O-15

Working with local communities

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While lynx reinforcement is crucial for saving the Dinaric – SE Alpine lynx population, its long-term conservation strongly depends on people's perception of the lynx presence and on their support of its conservation. Local inhabitants were the focus of the project's communication since they share their surroundings with the species.

To gain trust and support among the local community for the project activities, we established so-called "local consultative groups (LCGs)". Anyone interested in the topics could join, so stakeholders with different interests (personal or professional) took part. Within these local meetings we encouraged dialogue among the group members and involved them in directing some of the communication activities. In Slovenia six groups were grounded (in Dinarides and Gorenjska region), while in Croatia three groups were grounded - one group being specifically made for public institutions.

Part of the project means, firstly predicted for the members' travel reimbursement, was then used for putting to practise local ideas connected to the lynx. This was probably the part where cooperation between LCG members and the project team got the tightest. Some carried out local ideas provided additional activities (and memories), while others produced materials, which will also last after the end of the project.

A special role in this process also had the cooperating schools (or teachers). Within a Young Lynx Guardians programme, we closely cooperated with nine schools, having at least three activities with each one – a workshop, a field day, and an Open-door day, where pupils could raise awareness about the importance of lynx conservation among parents and others. Some schools had a lot of additional activities linked to the lynx. Each of these schools "guarded" one of the monitored lynxes, which meant receiving and disseminating regular updates from their lives, revealed by the monitoring.

By building partnerships with local school children and teachers, we have aimed to gain long lasting community support for lynx conservation. We organised seminars for teachers, prepared a teachers' manual and e-lessons, the latter being some kind of educational games. All these were accepted positively by teachers we got in contact with.

To enhance the awareness raising we produced eight information boards across the project area and different promotional materials. Having a T-shirt or a buff for spreading is still a way of saying "thank you for being a part of this". Also, brochures, project bulletin, postcards and bookmarks were produced, bearing the main messages of the project.

O-16

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 create a nucleus of lynx in the Italian 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 Romanian Carpathians) and two males (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 organizational 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 realization 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 Jura Canton, KORA, which is responsible for lynx captures in Switzerland, the Institute for Fish and Wildlife Health of the University of Bern, 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.

O-17

Genetic management for the future viability of the Dinaric-South eastern Alpine lynx population

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The Dinaric lynx population was reintroduced successfully in 1973, initially experiencing growth followed by a subsequent decline. Inbreeding, natural factors, and human-related mortality have negatively impacted the population's fitness and endangered its genetic diversity. The lynx translocations performed within the LIFE Lynx project (LIFE16 NAT/SI/000634) aimed to rescue the Dinaric lynx population from extinction by decreasing the inbreeding level. To ensure population's survival and assess the effectiveness of these actions, long-term genetic and conservation management is crucial.

In this study, we employed stochastic modeling of population development to evaluate the long-term viability of the Dinaric lynx population and determine suitable management strategies. The model input integrated literature data and project outcomes, including monitoring activities such as camera-trapping, non-invasive genetics, and parentage analysis, which provided valuable input for the simulations. Given the genetic erosion as the primary threat to the Dinaric lynx population, characterized by high inbreeding and loss of genetic diversity due to a small founder population and long-term isolation, the modeling results form the basis for science-based guidelines aimed at maintaining a genetically and demographically robust population.

The results demonstrate the promising effect of translocations conducted within the LIFE Lynx project in reducing inbreeding levels and increasing the effective population size. However, continuous management actions are essential to ensure the population's long-term viability. Based on the modeling outcomes, we propose six viable translocation strategies with varying numbers and sex ratio of translocated animals, different source populations, and intervals between translocations. These strategies have distinct advantages and disadvantages from ecological, genetic, management, and cost-effectiveness perspectives.

Simulations reveal that females have a greater long-term genetic impact, while males introduce genes more rapidly due to their ability to mate multiple times per year, emphasizing the importance of a balanced sex ratio for maintaining a robust population. In general, medium intervals (3-5 years) between translocations are recommended to allow for monitoring the recipient population's response to reintroductions and to maintain genetic parameters at acceptable levels.

We emphasize that any future management actions should be accompanied by continuous monitoring of the genetic and demographic status of the population, contributing to the long-term survival of the Dinaric-SE Alpine lynx population.

P-01

When the programme of Young Lynx Guardians comes into practise – Primary School Dragotin Kette Ilirska Bistrica

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The Dragotin Kette Primary School in Ilirska Bistrica is one of the nine schools participating in the LIFE Lynx project, within the Young Lynx Guardians programme in Slovenia.

Ilirska Bistrica is situated south-west of Snežnik, the highest peak in the Slovenian part of the Dinaric Mountains. The area is covered with fir-beech forests, which are the habitat of many species of flora and fauna, including the Eurasian lynx (*Lynx lynx*).

Even though people are often present in these forests and use them for various purposes (tourism, recreation, forest management), it is noticeable that genuine contact with and knowledge of nature is increasingly being lost.

It is ignorance and lack of knowledge that leads to the development of stereotypes and prejudices about the inhabitants of our forests and can result in unnecessary conflicts between people and particular species of animals, in our case most often large carnivores.

In the scope of school lessons that follow a prescribed curriculum, pupils only receive general information about the different groups within the animal kingdom. By joining the project, we have given pupils the opportunity to learn about the characteristics and lifestyle of the lynx, its habits, role in the ecosystem and the factors that endanger our population.

We managed to present the lynx themes through a variety of age-appropriate activities covering different subject areas: we became guardians of the introduced lynx Maks, named the lynx Blisk, created various art, graphic and literary products (poems, letters to the introduced lynx), made lynx carnival masks, celebrated the International Lynx Day, made casts of large carnivore footprints, took part in a workshop on large carnivores, held a field days, visited the lynx enclosure in Snežnik, and together with the Biotechnical Faculty in Ljubljana, created an information board and placed it in the school garden. During the 3-year cooperation, we set up a permanent lynx corner at the school, where we published up-to-date information on resident and introduced lynx, pupils' products, educational materials, and photos from automatic cameras.

In some activities, the pupils learned about the methods and forms of work used by experts in different fields to study the life of the lynx. The Slovenia Forest Service lent us an automatic camera, which we set up in a nearby forest together with a local hunter. Although our automatic camera did not capture any lynx, the pupils learnt a lot of new information about the diversity of the animal world in our immediate vicinity by reviewing the photos and footages and editing short films.

We believe that by joining the project, we have contributed to the Young Lynx Guardians becoming adult lynx guardians and thus preserving the lynx population for posterity.

P-02

Captive vs. wild: A large-scale study on the residential, exploratory and dispersal patterns of the Iberian lynx (*Lynx pardinus*)

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The Iberian lynx (*Lynx pardinus*) was once considered the most endangered feline in the world with less than 100 individuals remaining in two isolated populations. After 20 years of active conservation management, an ambitious reintroduction programme and extensive monitoring, the species has experienced a remarkable recovery (1668 individuals in 2022). Despite the success of conservation efforts, current populations remain mostly isolated due to the human-dominated landscape surrounding them. Consequently, a better understanding of the dispersal movement behavior and the establishment of new territories is needed to guide future conservation actions. The aim of this study is to investigate the movement patterns of the Iberian lynx in a fragmented landscape. For this purpose, we analyzed GPS telemetry data collected over more than ten years from both wild and captive-born lynxes. By utilizing a spatiotemporal clustering approach, we successfully identified and classified five distinct movement phases, which include dispersals, dispersals post-release, explorations, stable residence areas, and transient residence areas. Our analysis revealed significant differences in the velocities and distances covered by lynxes depending on the movement phase. Notably, we observed contrasting patterns between wild and captive-born lynxes, with wild lynxes exhibiting larger residence areas and covering less distance during the dispersal post-release phase compared to lynxes bred in captivity. Furthermore, we observed substantial differences based on sex, with males covering longer distances during extra-territorial movements and occupying larger residence areas than females. Our findings hold major importance for the management of future reintroductions and conservation actions that seek to guarantee the formation of an interconnected and self-sustainable meta-population for this iconic feline.

P-03

Importance of rocky landforms for Eurasian lynx *(Lynx lynx)* ecology in landscapes with different relief types

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Larger landforms such as valleys, ridges, or dolines can be easily detected with a number of already developed (semi-)automatic detection methods, while smaller features like rocky outcrops (i.e., cliffs, rocky blocks, rocky ridges, rock shelters, boulders, karrens and similar rocky features) are harder to detect. Field mapping or digitizing would be time-consuming, labour-intensive, and costly. Automated landform detection methods now allow remote and low-cost mapping, which has an outstanding potential for large-scale spatial analysis in remote and forested areas. In addition to geomorphology, detection methods can be useful for wildlife ecology and similar research.

To investigate impact of rocky outcrops on Eurasian lynx (*Lynx lynx*) space use, we selected two geologically, geographically, and biogeographically different landscapes in Europe: the Slovenian Dinaric Karst (carbonate karst) and Bohemian Forest Ecosystem (fluvial, glacial, and periglacial relief). We developed a quantitative approach for detecting rocky outcrops using a combination of LiDAR-derived DTM (digital terrain model) (1 m × 1 m) and field analysis. To demonstrate its applicability to wildlife research, we applied it in preliminary study in combination with GPS-telemetry data to assess lynx space use of these features for resting sites.

The preliminary study showed that the distribution, shape, and size of rocky outcrops are related to the geological structure, with the highest density and number of outcrops in limestone areas, and the lowest in areas with gneiss and granite. We found that lynx used locations for day-resting sites in the vicinity of rocky outcrops, with 32% of resting sites in the Bohemian Forest Ecosystem and 93% in the Slovenian Dinaric Karst within 50 meters of rocky outcrops. In both areas, lynx used larger outcrops, with mean heights of 6.6 m and 3.2 m, and mean areas of 100.1 m² and 38.6 m², respectively.

Use of rocky outcrops indicates that these landforms may play an important role in lynx ecology. LiDAR DTMs can be a useful source of information for detecting and studying the spatial patterns and morphometric settings of rocky outcrops, and enable applications in wildlife ecology and similar research, where large-scale detection of these features is required.

P-04

Improving Connectivity Between Populations of the Endangered Iberian Lynx

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By early twenty-first century, the Iberian lynx (*Lynx pardinus*) was on the brink of extinction with only 100 individuals secluded into two isolated populations: Doñana and Andújar-Cardeña. As of 2002, conservation actions, including habitat management, reduction of mortality rates, reintroductions and genetic management, were implemented. As a result, about 1.000 iberian lynx were detected in the whole distribution área in 2020, and seven new populations have been created through reintroduction. In this point, the next step was to promote demographic and genetic connectivity between populations in order to assure the long-term conservation of the species. To this end, the LYNXCONNECT project is currently being developed, which goal is to create 10 more occupied areas that function as "stepping stones" between populations. For this purpose, suitable patches (those in between populations holding enough habitat and prey to allow the settlement of a minimum of 2-3 reproductive females) were first identified. The combination of information generated from i) ecological connectivity analysis for the Iberian lynx through analysis of minimum cost paths and circuit analysis to identify the main corridors between populations, ii) digitized information on the abundance of wild rabbit (Iberian lynx staple prey) and iii) habitat suitability model for the Iberian lynx were used. Best suitable patches were selected by models. The actual suitability of these patches has been evaluated by field sampling. The 10 patches with which the connectivity between populations is maximized will be selected for releases. In the case of Andalusia, evaluated areas with the presence of Iberian lynx have already been detected, where new individuals have been released as a management measure for these stepping stones.

P-05

First ever GPS/GSM collared Eurasian lynx (*Lynx lynx*) in Bosnia and Herzegovina

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Eurasian lynx in Bosnia & Herzegovina is considered a strictly protected species with no hunting allowed. The estimation of the population size is undetermined. The scientific research, including monitoring, on large carnivores in Una National Park and surrounding areas has been conducted since 2012 and it is ongoing. At the time when these research activities were conducted (April 2022), no lynx has ever been captured and GPS/GSM collared in the territory of Bosnia & Herzegovina. For lynx capturing we used box trap made of light wooden panels, but lynx Unico accidentally got caught in a wolf foot snare trap (EZ Grip Traps #7) baited with a Hawbaker's lure. For the telemetry study, we used GPS/GSM collar, GPS schedule was set to record a GPS location every 5 hours. Unico was identified on trail cameras before capturing as well as during telemetry tracking. We tracked lynx Unico for a total of 285 days, from 08th April 2022 to 18th January 2023. The collar recorded 1370 GPS positions in total. The size of the home range was 219,33 km^2 MCP 100 % which was within the average size of male lynx in this region. In 285 days of tracking, we recorded 19 locations indicating that Unico killed large prey. Unico has been returning to these locations for 2-4 nights to consume the prey. Unico killed large prey every 15 days on average. This is the first ever captured and radio-collared lynx in Bosnia and Herzegovina.

P-06

Current distribution and abundance of the Balkan lynx (*Lynx lynx balcanicus*) in the Balkan region

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Historically, the Eurasian lynx (*Lynx lynx*) was widely distributed in Europe. However, heavy human influence over time, such as the expansion of agricultural areas, had a dramatic impact on lynx populations. The distribution of the lynx in the Balkan Peninsula has decreased drastically since the 19th century (Miric 1981, Melovski 2012). While since the 1970s the Scandinavian, Baltic and Carpathian populations recovered and further populations were built in Western Europe through re-introductions, an expert report (Breitenmoser-Würsten & Breitenmoser 2001) concluded that the Balkan lynx was facing extinction.

In 2006, the Balkan Lynx Recovery Programme (BLRP) started. A questionnaire survey among local people was conducted, to gather knowledge about presence, abundance and population trend and to understand the relationship of humans with large carnivores.

Based on the results from the baseline survey, BLRP defined the most promising areas to start looking for factual evidence of lynx presence first in North Macedonia and Albania and later on in Kosovo. The approaches employed for monitoring the Balkan lynx consist mainly of extensive and intensive camera–trapping monitoring. Based on first results, the Balkan lynx was listed as Critically Endangered in the IUCN Red List of Threatened Species in November 2015. Since 2018, the population is declining in the core area of the Balkan lynx distribution. In 2022, 35 to 39 individuals were documented in North Macedonia, Albania and Kosovo.

To recover the fragmented and isolated Balkan lynx population, BLRP is working on three pillars: species conservation, habitat protection and human dimension. Achieving the recovery of the Balkan lynx requires cooperation and commitment from state institutions that are responsible for the wildlife protection, other relevant actors and civil society.

P-07

Innovative approaches in tourism for promoting large carnivore conservation within local communities

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The coexistence between people and large carnivores presents a multifaceted challenge. At the local level, large carnivores can cause damage and economic loss, but they also offer opportunities for employment and financial growth, which may lead to increased acceptance within communities. Previous projects have predominantly focused on human-wildlife conflict, with limited attention given to the ecosystem services provided by large carnivores. Within the LIFE Lynx project, we shed light on the benefits of large carnivore presence, particularly in the context of wildlife tourism.

Large carnivores, such as the lynx, can serve as effective marketing tools for tourism destinations, diversifying local tourism offerings while simultaneously raising awareness and promoting species conservation. Furthermore, wildlife tourism has the potential to foster emotional connections with nature, creating a platform for increased human engagement in the conservation sector.

To achieve these goals, we developed and promoted a range of innovative products that emphasize the value of the lynx among local communities. Various artistic products were developed, such as art contests, art workshops for amateurs and art residency for professional artists. Art is a good medium for communicating nature conservation objectives: it has a power to evoke emotions and attract a diversity of people, thereby bringing nature conservation closer to the wider audiences. Furthermore, the art produced and exhibited continuously reinforces the message of lynx conservation to the general public.

Another key product was the establishment of thematic lynx trails with interpretive signs and didactic equipment to enhance visitors' experience. We designed interactive e-lessons and a booklet in a form of a lynx treasure hunt to engage younger children, and prepared didactic recommendations for school teachers, highlighting how the informational boards align with the school curriculum. Collaborating with local organizations, these trails were designed to continue beyond the project, as they would maintain the trails and offer guided tours.

In addition, we recommended enriching a long-distance transboundary trail between Slovenia and Croatia with lynx-related content, specifically targeting the hiking and cycling community. Instead of traditional information boards, the project prepared a digital guidebook that showcases various points of interest from the perspective of lynx habitat along the trail.

These products cater to diverse audiences, including families with children, hikers, bikers, and both self-organized and guided tour visitors, providing them with accurate lynx information while fostering a deeper appreciation for the lynx and its surroundings. Their development involved close collaboration with local tourism organizations and community representatives to foster a sense of ownership and ensure the long-term viability of these initiatives beyond the project's completion.

P-08

Origin of the Eurasian lynx population in the Roztocze region, south-east Poland

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Existing guidelines for population-level management plans for Eurasian lynx in Europe were developed in the context of the European Union Habitats Directive and the need to manage its populations as entire biological units. Lynx management units, so-called subpopulations, were delineated primarily based on discontinuity in distribution. However, the borders of those management units need to be reassessed as more fine-scaled data becomes available. To better understand the origin and connectivity of the lynx population inhabiting the previously unstudied Roztocze region, situated in south-east Polish uplands, we analyzed 16 lynx samples, both tissue and non-invasive, using a set of 15 microsatellite DNA loci for individualization, in which 10 were used for comparison with Ratkiewicz's et al. (2014) database of lynx genotypes from Poland and a 710 bp section of the mtDNA control region. We identified 10 individuals in our study area. In each sample, we detected only H10 haplotype. Observed heterozygosity is higher than expected heterozygosity (H_o = 0.606, SE=0.085; H_e = 0.580, SE=0.059), and the Fixation index is very close to 0 (F_{is} = -0.047, SE = 0.104), which suggest inflow of individuals from other populations, but the population remains stable. Also, mean values of allelic patterns pointed to the highest values of private alleles and different alleles in Roztocze region lynxes. F_{st} values show the highest genetic similarity with lynxes from forests around Białowieża (F_{st} = 0.064) and dissimilarity with individuals from the Carpathians (F_{st} = 0.131). Our results showed that the lynx population in Roztocze is genetically distinct from the Carpathian population and clustered with individuals from a Baltic population. Although analyses of microsatellite loci grouped individuals from Roztocze into separate units, the genetic distance between them and groups previously described in north-east Poland is weak.

P-09

Cooperation between Center of large carnivores Dina Pivka and the Life Lynx project

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In partnership with the CARNIVORA DINARICA project (Interreg Slovenia - Croatia), the Municipality of Pivka established Center of large carnivores Dina, which is a center for collecting and providing information on the importance of conserving large carnivores, their biology and ecosystem roles. We also inform visitors in an interesting and technologically advanced way about problems and solutions for the successful coexistence of humans with large animals.

The Dina Pivka Center is intended to raise awareness among general and professional public about the results of research projects in the northern Dinarides, shared by Slovenia and Croatia. With a variety of activities, we spread knowledge and understanding of large animals among residents and visitors, and in this way we contribute to the reduction of conflicts and the improvement of the Slovenian-Croatian cross-border area in the long term.

Through a modern exhibition space, we present the topic comprehensively and in a way that appeals to the general public. We have translated scientific knowledge into a language that we all understand. At 10 stations in the pleasant ambience of the magical forest, visitors immerse themselves in the world of bears, wolfs and lynxes with the help of interactive media tools and interesting stories.

Since August 2021, when the Dina Center was officially opened, we have participated in various events and other activities of the LIFE Lynx project. We constantly monitor the progress of the project, receive their notifications, and share information on our website and other social networks.

The co-management of the bear-friendly label (the label was created in the LIFE DinalpBear project) is currently underway between the Biotechnical Faculty University of Ljubljana and the Pivka Tourism Institute, which manages the Dina Center. At the same time, content about the bear-friendly label is being upgraded and transferred to the dinapivka.si website, which will thus become the main point for obtaining all information about the label, existing ambassadors and their products.

We place great emphasis on the education of younger generations. We have prepared several pedagogical programs for different age groups and established collaborations with various kindergartens and schools. Among others, we hosted schools that are part of the Young lynx guardians program.

With the LIFE Lynx project, we also participate in events for the general public. In 2022 and 2023, we celebrated International Lynx Day (June 11th) with joint events. In 2022, Lynx Day was organized by Dina Center. In 2023 we celebrated this day as part of the Summer Museum Night. Part of the program was the presentation of the book Brave Max, author and lynx ambassador Desa Muck.

In collaboration with LIFE Lynx and many other international partners, a new tourist offer for cyclist was created - the Lynx trail, that starts at our Center.

Cooperation with various projects in the field of large carnivores is of key importance, as this is how we maintain contact with professional research institutions. We include their knowledge and new findings in our programs and communication with the general public, which gives us credibility and relevance.

P-10

Ethical reflections around lynx in distress management in France

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Eurasian lynx populations in France have contrasting conservation status depending on the location (Jura, Alps, Vosges). The impact of collisions, poaching or lack of connection between populations are threatening the long-term population conservation. Hence, the species is both protected and endangered in France. In this context, the Eurasian lynx National Conservation Plan for 2022-2026 is implemented.

As diseases are likely to have an impact on the dynamics of small and fragmented populations, it seems essential to monitor them. Therefore, as part of the National Conservation Plan, a group of experts, coordinated by the French Biodiversity Agency (OFB – Office Français de la Biodiversité) and the Wildlife Veterinary Expertise Center - Pôle EVAAS (Pôle Expertise Vétérinaire et Agronomique Animaux Sauvages, VetAgro Sup, National Veterinary School of Lyon), implements lynx health management. The group aims to contribute to: i) Objectives and criteria for the management of lynx in distress and their rehabilitation, ii) Prioritization of health hazards and implementation of an integrated disease surveillance in live and dead lynx, iii) Health crisis management and prophylaxis based on the risks prioritization.

Ethical considerations are increasingly present during any human intervention on wildlife. In order to propose a shared ethical framework, questions therefore naturally emerged within the group of experts prior to the reflection on the lynx in distress management: How does human intervention impacts the well-being of lynx in distress? Should we prioritize individuals or the population well-being in general? What could be the future of an unrehabilitable lynx? When to choose euthanasia on individuals of an endangered species? How to choose between *in situ* and *ex situ* management for a lynx in distress? Is it acceptable to perform invasive procedures on free-living lynx? Is it acceptable to give live animals as prey to lynx in captivity? Does translocation impact the translocated lynx and other species in the wild?

Some consensus has been reached, for example: it seems justified to intervene on any lynx in distress in France, even if only to obtain reliable and objective information that will facilitate decision-making. Lynx management should take into account the animals well-being (which should be reassessed regularly), the availability of appropriate reception facilities, preservation of population interests and societal context. A case-by-case reflection is therefore often necessary.

Various management scenarios have been proposed depending on the goals of the rehabilitation. These and other results will be published as guidelines for the National Conservation Plan and will thus contribute to futures actions for the conservation of the European lynx.

P-11

Contrasting diet composition of Eurasian lynx in uplands and mountains of southern Poland

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Across its wide range, Eurasian lynx (*Lynx lynx*) prey mainly on small and medium-sized ungulates and lagomorphs; however, the share of particular species may vary across locations. We applied GPS-GSM telemetry on nine individuals (4 females and 5 males) and opportunistic snow-tracking to reveal the food habits of lynx inhabiting two environmentally different areas in southern Poland: (1) the western-most part of the Polish Carpathians (altitude between 300 and 1500 m), along state borders with Slovakia and Czech Republic, and (2) the uplands (up to 390 m) of Roztocze region near the state border with Ukraine. During 1998–2023, we found 274 kills made by lynxes. Our results indicate that roe deer (*Capreolus capreolus*) was the primary prey species in both study areas; however, there was a substantial difference in predation on the red deer (*Cervus elaphus*), which constituted 26.5% of lynx kills in Western Carpathians and only 2.8% in Roztocze. Lynx also consumed, although sporadically, the European hare (*Lepus europaeus*) and the red fox (*Vulpes vulpes*). Lynx visited the same killed cervid on average for 2-3 days and for up to six days when surplus or parallel killing occurred. In both regions lynx inhabits Natura 2000 sites dedicated to the protection of their habitats, therefore, the knowledge about its diet and foraging may guide management plans for those protected areas.

P-12

Home-range size and dispersal of Eurasian lynx in Southern Poland

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Despite its wide pan-European range, the ecology of the Eurasian lynx (*Lynx lynx*) is still unequally studied, with the majority of research projects conducted in the boreal biome of the northern and the mountains of the central and southern parts of the continent. We applied GPS-GSM telemetry to assess the home-range size of lynx inhabiting the previously unstudied Roztocze region (n=3) – an upland area located in southeast Poland, near the state border with Ukraine; and the Polish Carpathians (n=7). In both regions, forests are heavily fragmented and interspersed with extensive agricultural lands and human settlements. Home ranges (MCP100%) of lynx in Roztocze were the largest ever recorded outside of Scandinavia, reaching 680 km^2 for an adult male and 470 km^2 for an adult female. All individuals in Western Carpathians have transboundary home ranges. Home-ranges of adult males were larger than those of adult females and subadults. Young lynxes dispersed up to 340 km from natal home-ranges. In Carpathians young lynxes dispersed from Polish Carpathians to the Czech Republic and Slovakia.

P-13

Sharing conservation data in a large-scale international project

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Large-scale wildlife conservation projects, such as LIFE Lynx, face not only challenging conservation objectives, but also structural and coordination challenges. For instance, these projects require high standards of project coordination and trustful cooperation among international partnership. This inherently means bringing together diverse legislations, natural heritage management, cultures, public opinions and public engagement.

One particular aspect is the need to bring together and harmonise local, regional or national data on wildlife, in order to provide relevant information and conduct robust analyses at the population level and offer science-based recommendations for wildlife conservation and management.

Sharing data in the digital era is easier than ever but, on the other hand, usage of the shared data can be very challenging. This is mainly due to the difficulties in data harmonisation, caused by locally or regionally fragmented data, differences in data collection protocols, database structures and software, and even differences in database properties or languages used for storing the data.

To overcome these challenges, the project team adopted a unique approach, based on data-sharing experiences of previous LIFE project. We upgraded and expanded a free and open-source software infrastructure, a web-based portal called MBase (https://portal.mbase.org), originally set-up in the LIFE DINALP BEAR project. This portal has a user-friendly interface and is based on a geo-referenced database with modules fitting different types of data, originating from biometry, camera trapping, genetic sampling, and much more. It accepts data in any language and its modular design facilitates adding new data models, making it a valuable and comprehensive tool for storing wildlife data globally.

The MBase portal serves multiple purposes: i) it is a data repository for several projects - also storing different types of lynx data from all data-contributing LIFE Lynx partners - enforcing data consistency; ii) it is a project data-sharing environment, as every data-contributing partner has full access to all data on the portal; iii) it is a data-quality control, as it channels the otherwise extremely plastic and user-friendly data-import process through controlled steps of data upload; iv) it is a medium for public data promotion and for sharing information with the public.

Although the web portal guarantees free access for enhanced sharing of information, it is important to note that the access is strictly controlled and the entire data set is not publicly available. Data ownership holds significant importance and remains unaltered at all times: each data entry is linked to its respective owner and terms of use. Data-contributing partners have signed a Data-sharing agreement, which outlines the data-sharing process and terms of data use. Data visibility and access to project partners, authorities, and the public are managed through the modular and hierarchical system of user roles and rights.

Being free and open-source, modular, easy to upgrade and extremely flexible, the MBase portal can provide an excellent foundation for replication and transferability to other projects, initiatives, institutions and countries.

P-14

Involving hunters into lynx monitoring in Slovenia

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Local hunting clubs played a significant role in the implementation of camera trap-based lynx monitoring activities within the LIFE Lynx project. Members of hunting clubs (local hunters) possess valuable knowledge of the terrain in their respective hunting grounds. Their input in selecting optimal camera trap locations is thus crucial for effective lynx monitoring, especially in new areas with no prior knowledge about lynx presence. Moreover, local hunters in general exhibit a keen interest in camera-trap technology and the insights into the life of animals the cameras provide. This inherent enthusiasm motivated them participate in lynx camera trapping at a national scale. Recognizing this as an excellent opportunity, we used their involvement in lynx monitoring activities to educate them about lynx biology and familiarize them with the objectives of the LIFE Lynx project.

Since 2018, five camera trapping surveys were conducted. At the start of each survey (usually in September), hunting clubs were invited to participate based on the reported signs of lynx presence in their hunting clubs which are annually reported in structured questionnaires send out by the Slovenia Forest Service. In each collaborating hunting club, at least one local hunter took over the camera trap maintenance. Altogether, 64 hunting clubs and over 100 local hunters got involved into lynx camera trapping between 2018 and 2023. Together with LIFE Lynx project personnel, local hunters first chose the most suitable camera trap locations within their hunting grounds and set up the cameras. Then, they checked the camera traps on a monthly basis and retrieved the data. The data were regularly handed to the LIFE Lynx project personnel who processed the recordings. Finally, the camera traps were retrieved at the end of the each survey (usually in April). Over 5 years, lynx was recorded on 1566 occasions in 50 different hunting grounds. Overall, the hunters' enthusiastic collaboration in camera trapping importantly contributed to the overall success of the lynx monitoring efforts. We believe that the participation of hunters in camera-trap monitoring, as organized in Slovenia within the LIFE Lynx project, can serve as a good practice example for future citizen-science projects with similar objectives.

P-15

Exploring the wild world: unleashing creativity through lynx activities in school

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In today's rapidly advancing world, it is crucial to nurture students' holistic development, fostering their creative thinking, curiosity, and connection with the natural environment. LIFE Lynx project provides an extraordinary platform for students of Gymnasium of France Prešeren, Kranj, Slovenia to embark a transformative journey of exploration and self-expression.

The diverse range of activities included workshops, fieldwork, poetry writing, drawing and engaging introductions in different subjects and languages. By participating in these activities, students gain invaluable experiences, allowing them to develop their skills, expand their knowledge, and ignite their passion for nature and the arts. Student were allowed to express themselves through various mediums. These workshops cover a wide array of topics. By engaging in hands-on activities and collaborating with fellow students, participants learn to think critically, problem-solve, and communicate their ideas effectively. Through these workshops, students not only acquire technical skills but also develop a deep appreciation for the arts and their role in fostering self-expression. The Lynx program extends beyond the confines of the classroom, providing students with opportunities to immerse themselves in the wonders of the natural world. Fieldwork activities allow students to observe, investigate, and analyze the diverse ecosystems present in their surroundings. Students develop a profound connection with nature and gain a deeper understanding of environmental conservation. These hands-on experiences foster a sense of stewardship and empower students to become responsible caretakers of our planet.

Poetry serves as a powerful medium for self-reflection, emotional expression, and creativity. Some students recognizes the significance of poetry in developing language skills, cultivating empathy, and fostering introspection in foreign languages. Students were encouraged to explore their innermost thoughts, experiences, and observations through the art of poetry writing. Through this process, students enhance their linguistic abilities and develop a deeper appreciation for the beauty of foreign language.

The Lynx Activities in School offered a comprehensive platform for students to explore, learn, and grow through different activities, The Lynx program empowers students to become compassionate, environmentally conscious individuals who are capable of making a positive impact on their communities and the world at large. Through Lynx, students embark on a transformative journey that nurtures their intellect, artistic expression, and connection with the world around them. LIFE Lynx ensured that students are exposed to diverse perspectives, fostering critical thinking and intellectual growth.

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Students' attitudes towards large carnivores in Slovenia before and after role-playing workshop

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In June 2023, representative of LIFE Lynx project visited Gymnasium of France Prešeren, Kranj to conduct a Role Playing workshop. The goal was to gain insights into students' perspectives regarding the presence of large carnivores, including lynx, and to assess any changes in their opinions and feelings following the 35 min workshop. Analysis were based on survey conducted before and after the role-playing workshop. The survey questionnaire encompassed students' viewpoints on large carnivores and their opinions on measures for managing conflicts between humans and wildlife. Sixty-five students aged 15-16 years contributed to the study before the workshop. Not all stayed until the end of the workshop and 52 were included survey into after the workshop. In September 2023, 3 months after the workshop, we repeated the study. Prior to the workshop, minority of students expressed their belief that there is an overabundance of large carnivores in Slovenia, including lynx, resulting in substantial harm to livestock and transformation of rural areas. They proposed importance of using protective measures together with increased culling as a solution to reduce conflicts in all conducted surveys. Students also emphasized the need for state funding to assist livestock breeders in protecting their animals. Most of the students that didn't have an opinion before, after the study opposed culling, perceiving large carnivores as intelligent and sentient beings. They highlighted the significance of exploring alternative solutions that do not involve killing animals. These opinions more than doubled prior and after the workshop, and lowered in September. In September the percentage of students without opinion increased. At the conclusion, an additional survey segment measured students' feelings regarding the presence of large carnivores. It was observed that students who initially expressed fear and discomfort about the presence of large carnivores experienced a slight increase in discomfort after the workshop. However, those who already expressed no fear seemed to feel slightly more fear, what was contrary with the expectations of the workshop. The main reason could the story about a farmer, experiencing problems with wolves, presented by one of the students. In September this fear even increased, probably due to negative attitudes and articles in local media during the summer holidays. This study reveals diversity of students' perspectives on the relationship with large carnivores in Slovenia. The role-playing workshop influenced some changes in students' opinions and attitudes. Further research and educational initiatives are needed to foster a comprehensive understanding of human-wildlife interactions and promote sustainable coexistence.

P-17

The first successful rehabilitation of Carpathian lynx after a traffic accident within the Djerdap National Park

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Carpathian lynx (*Lynx lynx carpathicus*) inhabit a wide area of eastern and south-eastern Serbia. Current estimates are that Carpathian population counts around 40-60 individuals in Serbia, among which ~20 is permanently or occasionally present in the Djerdap National Park. On November 19th, 2022, a young Carpathian lynx male was injured in a traffic accident within the Djerdap National Park. Lynx was successfully transferred to the nearest Zoo in the city of Bor for rehabilitation. After chemical immobilization, animal was examined by a veterinarian and only minor superficial injuries and contusions were diagnosed. After two and a half months of rehabilitation, the veterinarian estimated that lynx is rehabilitated and can be returned to the wild. Lynx named Rista was microchipped and equipped with a GPS - GSM collar (GPS Plus; Vectronic Aerospace GmbH, Berlin, Germany) and a timer-controlled drop-off system. During collaring, all necessary samples were collected (blood and hair together with P1 tooth for age estimation) and animal was tested for Feline Leukemia Virus (FeLV), panleukopenia virus (FPV) and Feline Immunodeficiency Virus (FIV) followed by hematological and blood chemistry analyzes. All tests were negative. Rista was released near the place where he was found injured. GPS collar was scheduled to record a location on every 3 hour (8 positions/day). During the 130-days of monitoring, Rista traveled a total of 660 km, while his home range covered 2,069 km^2 (95% MCP). During almost three months after the release (16 Feb-8 May), lynx exhibited pronounced migratory behavior and travelled more than 488 km in total, mainly patrolling forest areas south of the Djerdap National Park. Since Rista is a young male (3 years), probably he is still searching for its territory and considering he was released at the beginning of the mating period, the observed dispersive movement pattern was quite expected. On May 8th, Rista returned to the Djerdap National Park where it most likely established its territory (34 km^2; 95% MCP). All locations where Rista spent more than 4 consecutive days were checked for the presence of prey. In 80% of the cases, the remains of roe deer were registered, while in the rest of filed visits it was not possible to observe any signs of predation (either due to inaccessible terrain, or because there was nothing left from the prey). The monitoring of this male continues in the hope that it will provide more new significant data on the ecology of the Carpathian lynx in Serbia.

P-18

Possible effects of inbreeding on reproduction in the Eurasian lynx

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The reintroduced lynx populations in the Swiss Alps and Jura Mountains originate from few founder individuals. Fifty years after the first reintroductions, both populations are still small, isolated, and have experienced loss of genetic diversity. This master thesis explores the possible consequences of elevated inbreeding levels (homozygosity weighted by locus) on reproductive success in females. Cubs of 41 radio-collared female lynxes were marked at the den site four weeks after birth, and their survival was studied using telemetry and camera-traps. We analyzed litter sizes and cub weights in relation to inbreeding levels, age of the mother, and population. The findings reveal that lynx mothers with a higher level of inbreeding tended to produce lighter cubs, although no significant effect on cub survival was observed. Given the potential for continued increase in inbreeding levels and the uncertain outcomes they may entail, a sound monitoring should be continued to prevent missing signs of inbreeding depression.

P-19

Scenario preferences and willingness to pay for Eurasian lynx reintroduction into Scotland: A deliberative choice experiment study

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Choice experiment (CE) is an economic method and within this non-market valuation technique, participants choose their hypothetical preferences from a range of scenarios or alternatives. After a long absence of large carnivores in Scotland, a Eurasian lynx (*Lynx lynx*) reintroduction is in consideration and provides an opportunity to explore this method as a community engagement tool for species reintroduction projects. The aims of the research were to explore: (i) community hypothetical preferences of lynx reintroduction scenarios in Scotland, (ii) attributes influencing reintroduction scenario preferences, (iii) the willingness to pay for influential attributes and, (iv) whether preferences for reintroduction scenarios alter over time. Nineteen workshops were undertaken in four locations in areas, or surrounding areas, of potential suitable habitat for lynx across Scotland. In the workshops, participants (*n = 100*) listened to a presentation on lynx ecology and behaviour, contributed to a focus group discussion and each participant completed eight choice sets for the CE. For the deliberative choice experiments (DCE), participants completed the same choice sets within a week of the workshop. Analysis of data is in progress and preliminary results include 86 % of participants changing their reintroduction scenario preferences in the DCE. The findings from this study can provide a basis for understanding drivers influencing community preferences in a species reintroduction project. DCE may prove a useful method in communicating with and engaging communities in species reintroduction planning.

P-20

Inclusion of the large carnivores theme in tourist and educational programs in nature

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Active participation of the hunting club members in different EU funded projects enabled access to new knowledge on the topic of large carnivores, especially participation in projects whose main goals are aimed at improving the conservation status (CARNIVORA DINARICA), preventing extinction (LIFE LYNX), comprehensive management and protection (LIFE DINALP BEAR) and improving the coexistence and conservation (LIFE WOLFALPS EU) of large carnivores. The educational programs were created with the aim of upgrading the theoretical knowledge acquired at the Large Carnivores Center Dina Pivka, where programs are focusing on domestic guests, especially children (up to 30 participants). The perception of the forest ecosystem as the home of many animals is crucial in getting to know, understand and consistently implement the rules of behaviour in the forest. Through experiential learning in the forest, the participants of the educational program learn about the ecology of wild animal species and learn about and practice methods of tracking large carnivores. The programs of BE AROUND ME are implemented in Javorniki forests (observation of bears in their natural environment, family hiking and forest hiking) and are mainly intended for foreign visitors (up to 8 participants) who are interested in the forest, forest animals and hunting. In the forest area, we look for signs of the presence of animals, we try to identify them, we look for places where the Eurasian Lynx could stay and move. We get to know the purpose of the photo traps, which were set up in cooperation with the professional colleagues of the LIFE LYNX Project. Through the interpretation of the guide, the participants of all experiences in nature get to know the LIFE LYNX Project, the goals of the Project and the sharing of news from the field about individual lynxes in the Dinaric Area. Through stories, participation in the field and sharing the experiences, the participants get to understand better the importance of the presence and preservation of large carnivores in our forests.

P-21

Temporal dynamics of Eurasian lynx (*Lynx lynx*) territorial marking activity

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The Eurasian lynx (Lynx lynx) is one of the most endangered mammals in Croatia, primarily due to inbreeding. In lynx research, camera traps are a valuable tool because they enable identification, gender determination, monitoring of reproduction and dynamics of habitat use. Locations of particular importance for camera trapping are lynx marking sites, often used for territory marking. Within the LIFE Lynx project (LIFE16 NAT/SI/000634), camera traps were set in Gorski Kotar area from 30.04.2018 to 07.06.2023 on 57 different locations, of which 39 were lynx marking sites. For the purposes of this research, data collected from 9 most visited lynx marking sites was analyzed for the period between 1.1.2019 – 31.12.2021. All the analyzed marking sites were objects built by humans and then abandoned, mostly forest houses and stables. Model of cameras used were Cuddeback X-change 1279. In 9510 camera trap/days, 310 lynx visits were recorded, of which 191 were male visits, 95 female visits and 24 visits by lynxes of unknown gender. The analysis of the seasonal visit dynamics has shown the highest number of visits in February (37), September (35), November (36) and December (37), while the lowest number of visits was recorded in May (14) and June (10). Almost all of the recorded lynxes visited marking sites throughout the year, except for one female that was recorded only in August 2019. Daily dynamics analysis has shown the highest lynx marking activity in the period from 17:00 to 20:00, while from 8:00 to 15:00 activity was the lowest. Based on this research, it is concluded that lynx monitoring on marking sites can be limited to the period from September to March, in order to optimize field work, reduce the risk of equipment loss in the field and avoid issues with vegetation.

P-22

Need for joint action: relocations support local connectivity but not between subopopulations in a large carnivore

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Eurasian lynx (*Lynx lynx*) populations in Central Europe still remain small and isolated 50 years after the first reintroductions. Illegal killing and low connectivity threaten the viability of these populations, which suffer from decreased genetic variability, especially the Dinaric population. Thus, the long-term survival of the Central European lynx populations requires a metapopulation to be established. To this end, the LIFE Lynx project has translocated 18 individuals into the Dinaric population and the SE Alps. We use a spatially-explicit individual-based model to assess the viability and connectivity of lynx populations in Central Europe under current conditions (Scenario 1), and after the translocations within the framework of the LIFE Lynx project (Scenario 2). We also calculated a minimum release population to create a stepping-stone network. Our results show that most of the already existing populations remained stable in our model for the next 20 years, but with low connectivity. LIFE Lynx translocations positively impacted the demography and connectivity on a local scale, although not at the metapopulation level. To create the stepping stone population that would significantly improve connectivity, we estimated at least 6 males and 18 females need to be released. Our work highlights a) connectivity between lynx populations is highly unlikely to happen without management interventions, b) translocations are powerful conservation measures to increase local viability but c) international effort and coordination are needed to provide the conditions for a metapopulation structure that guarantees the self-sustainment of lynx populations in Central Europe.