



Preventing the extinction of the Dinaric-SE
Alpine lynx population through reinforcement
and long-term conservation



Establishment of a population "stepping stone" in the SE Alpine area Final report

Action C.4

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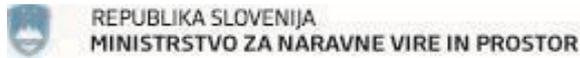
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1 Introduction

To maintain the lynx population in the Dinaric Mountains and the South-Eastern Alps, the establishment of a connecting population in the Alps was crucial within the framework of the LIFE Lynx project. The Slovenian Julian Alps serve as a corridor, connecting the lynx population between the Dinaric and Alpine regions. The goal of this action was to create an effective population 'stepping stone' between the Dinaric and Alpine subpopulations by releasing at least 5 lynx into this intermediate, unoccupied habitat at the junction of the SE Alps and the northernmost edge of the Dinaric Mountains. We have performed a 'soft release' of 6 lynx in the Alps, including three females and three males from two different release sites. Three lynx were released in the Jelovica plateau: Aida, Zois, and Lukaš, while three lynx were released in Pokljuka: Julija, Lenka, and Tris. Main goal of this action was the creation of a connected Dinaric-SE Alpine population and has facilitated the dispersal and subsequent population-level connectivity of these currently probably still isolated lynx subpopulations in the project area.

We relied heavily on best practice examples from other countries when preparing the plan for the lynx population reinforcement (reviewed by Wilson 2018). Individual lynx is considered as integrated into the population if: 1) survives at least one year after the release and, 2) establishes a territory.

All released lynx were equipped with a GPS-GSM collar before their release. They provided us with data on potential den and kill sites, and video surveillance of these sites provided us with information about the health status, reproduction, hunting success, and ecological impacts of the translocated lynx.

This report partially overlaps with the yearly report for action C.5 (Fležar et al., 2024), where all surveillance data obtained by different methods is presented and also with report D.2 (Fležar et al., 2024), where monitoring of the impact of population reinforcement is presented. In this report, we provide some additional and detailed information about the status of the translocated lynx.

2 Status of translocated lynx and telemetry

In each subsection below, we describe the most important events for each translocated lynx, taking place since their release into the SE Alpine area.

Lynx Aida



Lynx Aida

Estimated age at capture: 2 years (2021)

Sex: female

Weight: 16 kg (2021)

Origin country: Romania

Date of capture: 13. 2. 2021

Country of release: Slovenia

Date of translocation: 17. 4. 2021

Date of release: 26. 4. 2021 (Jelovica)

Territory: Jelovica, Slovenia

Status: Established as a territorial animal (2021)



A female lynx Aida was captured on 13th of February in Romania. She was estimated to be two years old and weighed 16 kg at the time of the capture. She was transported to a lynx enclosure on Jelovica in Slovenia, where she was released simultaneously with male lynx Zois on 26th of April 2021. During her quarantine time she showed no stress and behaved normally. She was consuming offered food (roe deer) regularly. Hunters fed her and were providing her with fresh water. Most of the time, she spent resting on the available platform. Same as Zois, she stayed in the area (Jelovica), where she established her home range, which measures around 208 km². After the release she met with Zois on a couple of occasions and also shared one kill with him. In August 2021 it was confirmed that she gave birth to three kittens and two were genetically sampled in winter. With the help of camera traps, we could confirm that at least one kitten survived until spring 2022. After a successful mating season in 2022, Aida gave birth to three kittens in late May, which were sampled on the field and Zois was confirmed to be a father. Genetic samples will allow us to detect them in the future by matching genotypes extracted from randomly collected non-invasive lynx genetic samples in nature. In november 2022 her collar was replaced with a new one, however, it stopped working 19 days later. 14 kill sites were checked in the field with the help of the hunters. The plan is to recapture her and equip her with a new telemetry collar. In January 2023 we

captured one of the kittens from the second litter of Aida and Zois, a female Rozi. In October 2023 Aida was caught on camera by a local hunter from Stara Fužina with three kittens, so far we have not been able to confirm the father of the cubs. In 2023, an adult lynx was detected in the area of Planina Zajamniki, which could be an offspring of Zois and Aida due to the similarity of the fur pattern to Zois, but we have not yet been able to obtain the genetic material to confirm this. With the establishment of a territory and three reproductions, Aida has confirmed to us that she is making a good contribution to strengthening the Alpine lynx population.

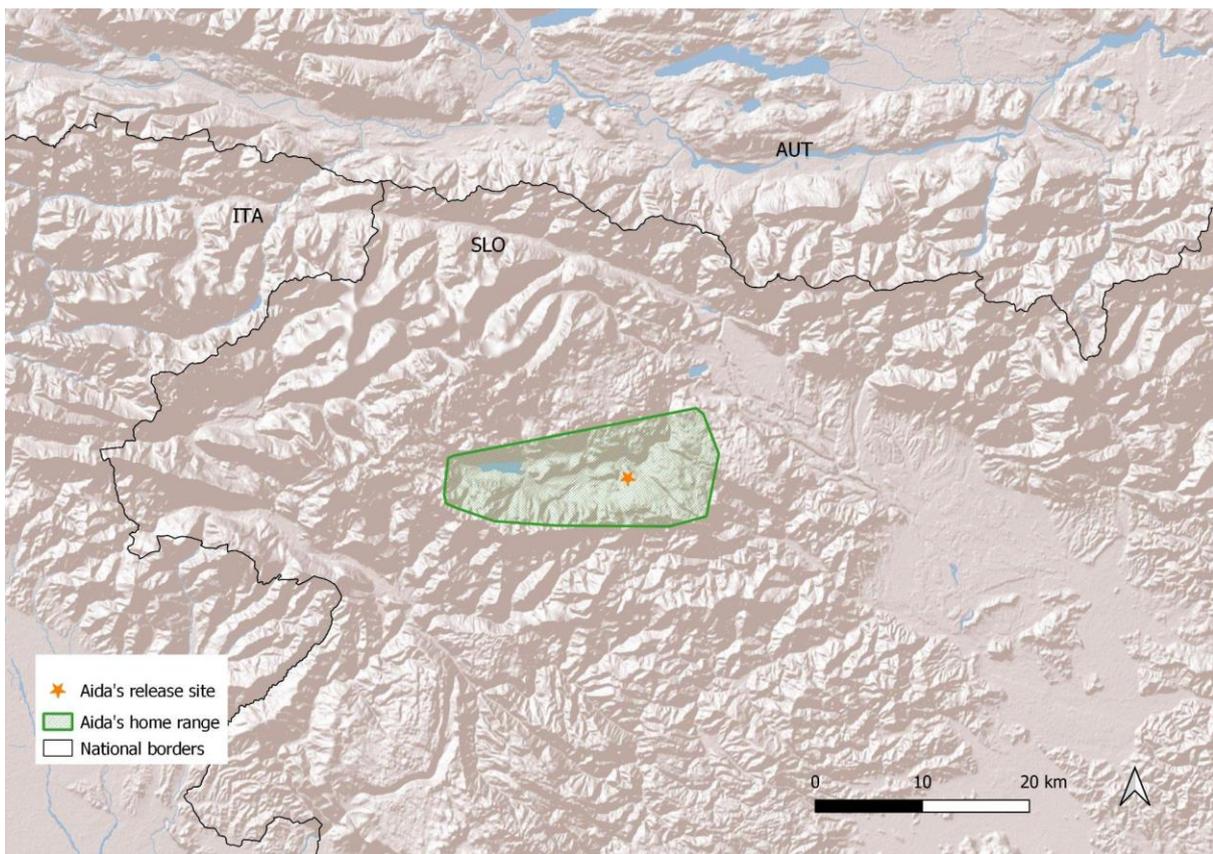


Figure 1: Release site and home range of lynx Aida.

Lynx Zois



Lynx Zois

Estimated age at capture: 2 years (2021)

Sex: male

Weight: 19 kg (2021)

Origin country: Romania

Date of capture: 9. 3. 2021

Country of release: Slovenia

Date of translocation: 17. 4. 2021

Date of release: 26. 4. 2021 (Jelovica)

Territory: Jelovica, Slovenia

Status: Established as a territorial animal (2021)



Zois is an adult male that was captured in Romania on 9th of March 2021. He weighed 19 kg at the time of the capture and was estimated to be 2 years old. He was transported to Slovenia to the Jelovica enclosure where he was released on 26th of April. During his quarantine time he showed no stress and behaved normally. He was consuming offered food (roe deer) regularly. Hunters fed him and were providing him with fresh water. Most of the time, he spent resting on the available platform. After the release, he stayed in the Jelovica area where he established his home range. Soon after the release, he mated with translocated female Aida, who later gave birth to 3 kittens. We regularly monitored Zois' kill sites and also his movement. In mating season 2022 he mated with female Aida again and then went on an excursion to Pokljuka where he stayed for one week before returning back to his home range in Jelovica. At the time of excursion, he was together with female lynx Julija, but he was not the father of Julija's first litter. We checked 5 of his kill sites on the field with the help of local hunters. Zois's collar stopped sending the data on 28th of April 2022, one year before the scheduled collar drop off. Since then, we also did not detect him anymore on camera traps that were set within lynx national monitoring neither with opportunistic records. He was not detected on camera traps also in 2023 and in the beginning of 2024. With two successful reproductions with Aida, Zois contributed to the development of the stepping stone population, however his current status remains unclear.

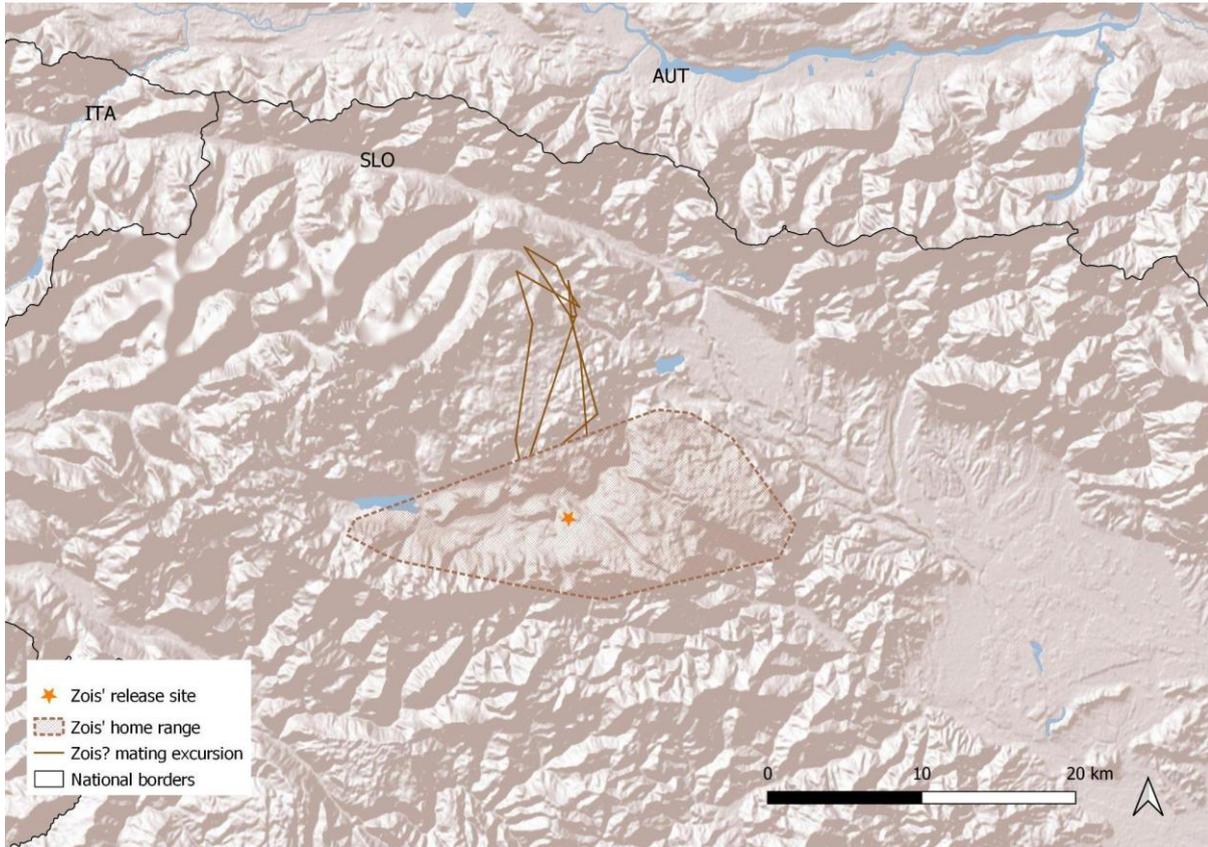


Figure 2: Movement and home range of lynx Zois.

Lynx Julija



Lynx Julija

Estimated age at capture: 2 years (2021)

Sex: female

Weight: 17 kg (2021)

Origin country: Slovakia

Date of capture: 11. 3. 2021

Country of release: Slovenia

Date of translocation: 24. 4. 2021

Date of release: 28. 4. 2021 (Pokljuka)

Territory: Pokljuka, Slovenia

Status: Established as a territorial animal (2021)



On 11th of March 2021, adult female lynx Julija was captured in Slovakia. She was transported to Slovenia on 24th of April and then released from Pokljuka enclosure together with Lenka and Tris on 28th of April 2021. During her quarantine time she showed no stress and behaved normally. She was consuming offered food (roe deer) regularly. Hunters fed her and were providing her with fresh water. Most of the time, she spent resting on the available platform. At the time of translocation, she was pregnant. Soon after the release we could detect denning behavior for a couple of weeks, however, we did not detect kittens later in the summer with camera traps set on her kills and within national lynx monitoring. She established territory in Pokljuka and Mežakla. Most of her home range is shared with Lenka and Tris and measures around 134 km². In mating season 2022, she mated with lynx Tris who she shares her home range with, however, also lynx Zois was with her during that period. In May 2022 she gave birth to 3 kittens, which were all captured and equipped with telemetry collars. We regularly monitor Julija with camera traps on kill sites and within lynx national monitoring. Before her collar stopped working in late winter 2023, we tried to recapture her, but we were not successful. In October 2023 we detected Julija with one kitten on camera trap in Pokljuka area, she was also detected often on camera traps in Radovna area during the winter. Later in March 2024, Julija was detected on camera trap with one more kitten, so we confirmed she had two kittens in her second litter. With the establishment of a territory and two reproductions, Julia successfully established herself in the Alpine lynx population. We checked 22 of her kill sites in the field, with the cooperation of the local hunters.

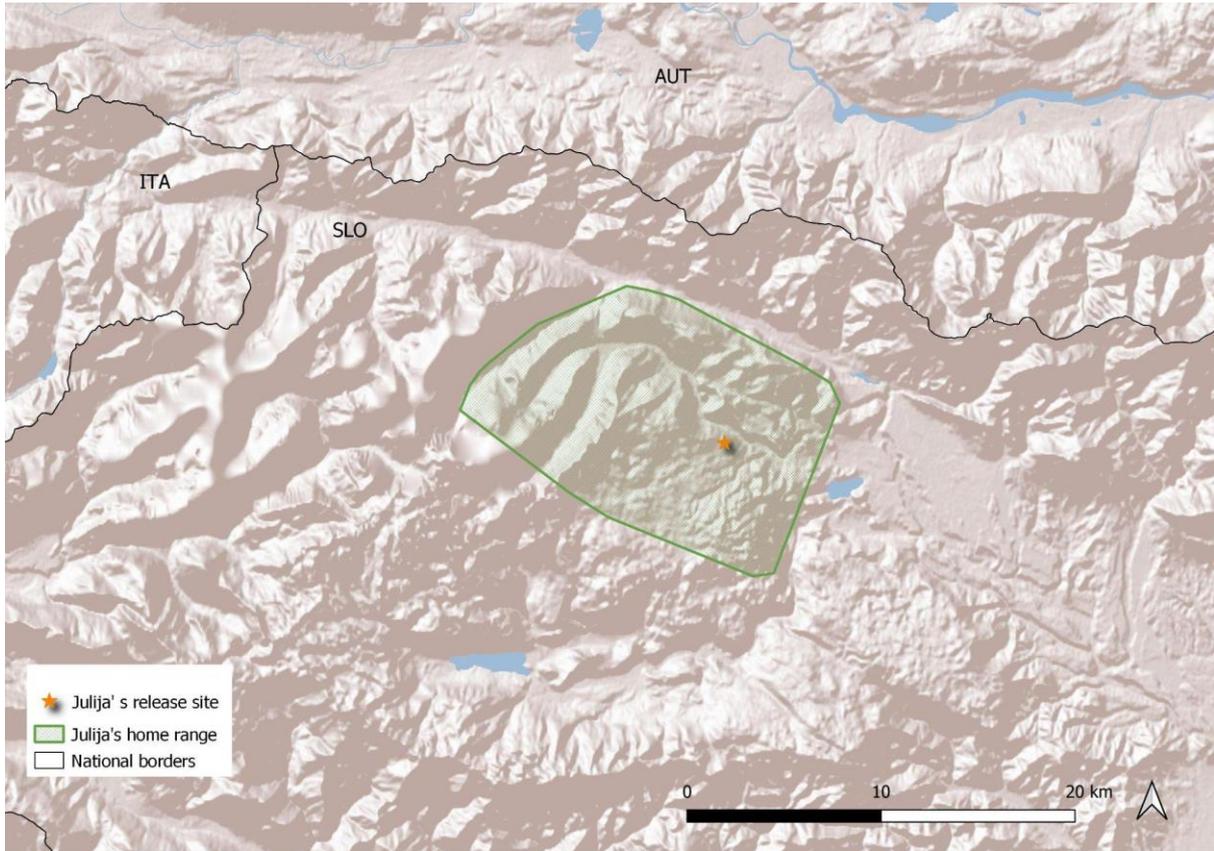


Figure 3: Release site and home range of lynx Julija.

Lynx Lenka



Lynx Lenka

Estimated age at capture: 3+ years (2021)

Sex: female

Weight: 15 kg (2021)

Origin country: Slovakia

Date of capture: 18. 3. 2021

Country of release: Slovenia

Date of translocation: 24. 4. 2021

Date of release: 28. 4. 2021 (Pokljuka)

Territory: Pokljuka, Slovenia

Status: Established as a territorial animal (2021)



Lenka is an adult female lynx that was captured in Slovakia on 18th of March 2021. At the time of the capture she weighed 15 kg and was estimated to be around 3 years old. She was transported to Slovenia, to Pokljuka enclosure where she was released on 28th of April 2021. During her quarantine time she showed no stress and behaved normally. She was consuming offered food (roe deer) regularly. Hunters fed her and were providing her with fresh water. Most of the time, she spent resting on the available platform. After release, she stayed in the Pokljuka area, where she established her territory. We surveyed five of her kill sites, where she preyed on roe deer. She is sharing her territory with translocated male Tris and, at least in the beginning, also with translocated female Julija, which is not very common in lynx territorial behavior. At one of the Julija's kill sites, Lenka was recorded scavenging. Unfortunately, her collar stopped sending data on 12th of December 2021, which prevented us from monitoring her further with telemetry. After the collar malfunction, we regularly recorded her with camera traps that were set within lynx national monitoring in the southern side of the Triglav National park. In the end of 2023, we managed to recapture her, however after some days, her telemetry collar fell off due to technical error. Altogether we checked 7 of her kill sites on the field.

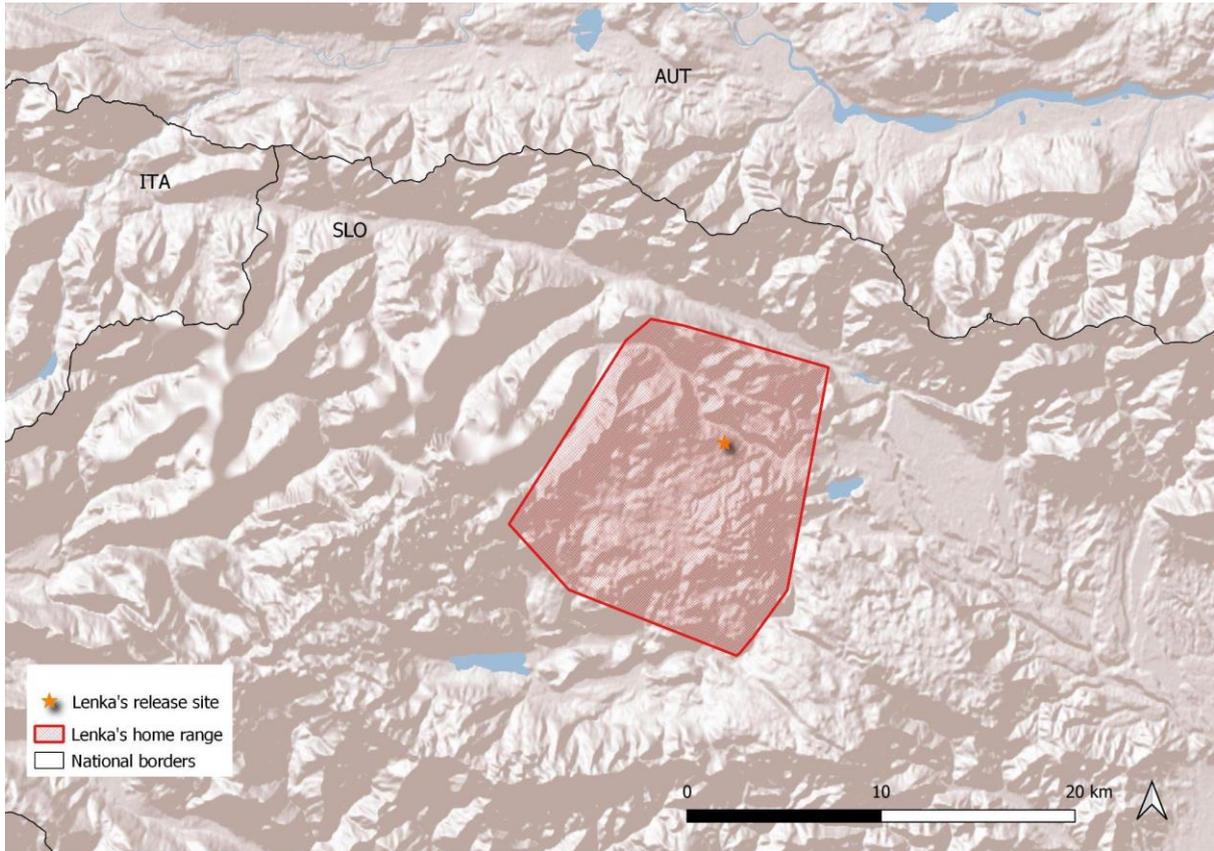


Figure 4: Release site and home range of lynx Lenka.

Lynx Tris



Lynx Tris

Estimated age at capture: 4 years (2021)

Sex: male

Weight: 27 kg (2021)

Origin country: Romania

Date of capture: 22. 1. 2021

Country of release: Slovenia

Date of translocation: 11. 3. 2021

Date of release: 28. 4. 2021 (Pokljuka)

Territory: Pokljuka, Slovenia

Status: Established as a territorial animal (2021)



On 28th of April 2021 adult male Tris was released in Triglav National Park area. He is estimated to be 6 years old and weighed 27 kg at the time of translocation. He was transported from Romania and stayed in Pokljuka enclosure for a month and a half before being released. During his quarantine time he showed no stress and behaved normally. He was consuming offered food (roe deer) regularly. Hunters fed him and were providing him with fresh water. Most of the time, he spent resting on the available platform. Soon after release, he established his home range in the Pokljuka area, which measures around 188 km². Tris was also monitored moving at high elevations, even at 2400 meters above the sea level. We managed to check one of his kill sites in the field. Unfortunately, his collar stopped sending the data on 16th of December 2021 and we could not monitor his movement further with telemetry. However, Tris was regularly recorded with camera traps in the next monitoring season. In mating season 2022, he mated with local female Julija, who was recorded with three kittens. To recapture Tris for changing the collar, we set a box trap in spring 2022, but we were unsuccessful. We recorded Tris for the last time in April 2023.

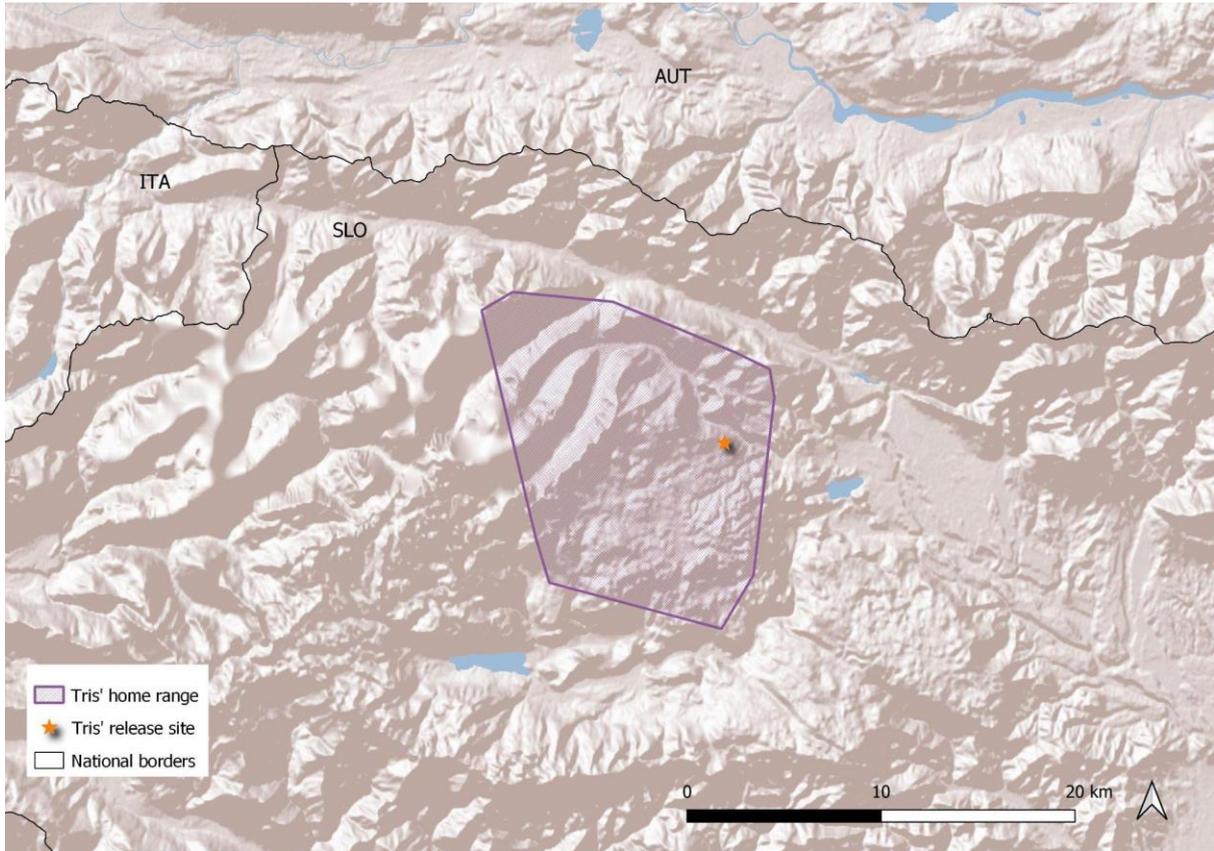


Figure 5: Release site and home range of lynx Tris.

Lynx Lukaš



Lynx Lukaš

Estimated age at capture: 3-5 years (2023)

Sex: male

Weight: 24 kg (2023)

Origin country: Slovakia

Date of capture: 27. 1. 2023

Country of release: Slovenia

Date of translocation: 12. 3. 2023

Date of release: 29. 4. 2023 (Jelovica)

Territory: /

Status: Not integrated - lynx missing since 2023



Lynx Lukaš was the last lynx that was translocated to Slovenian Alps within the LIFE Lynx project. He was captured in Slovakia on 27th of January 2023 and was translocated to the Jelovica release enclosure on 12th of March 2023. During his quarantine time he showed no stress and behaved normally. He was consuming offered food (roe deer) regularly. Hunters fed him and were providing him with fresh water. Most of the time, he spent resting on the available platform. On 19th of April, he was released soon after he went east where he crossed river Sava and Gorenjska highway in direction towards Karavanke mountains and Kamnik - Savinja Alps. It seemed at first that he established his territory somewhere in between Karavanke and Kamnik - Savinja Alps where he stayed for 4 months. Most of the time he spent on the border between Slovenia and Austria. On 14th of August his telemetry collar stopped sending GPS data, which meant we did not know his status, as he was in the area where there were no camera traps set within national lynx monitoring. We tried to find Lukaš with a VHF antenna, however we were not successful. His current status is therefore unknown.

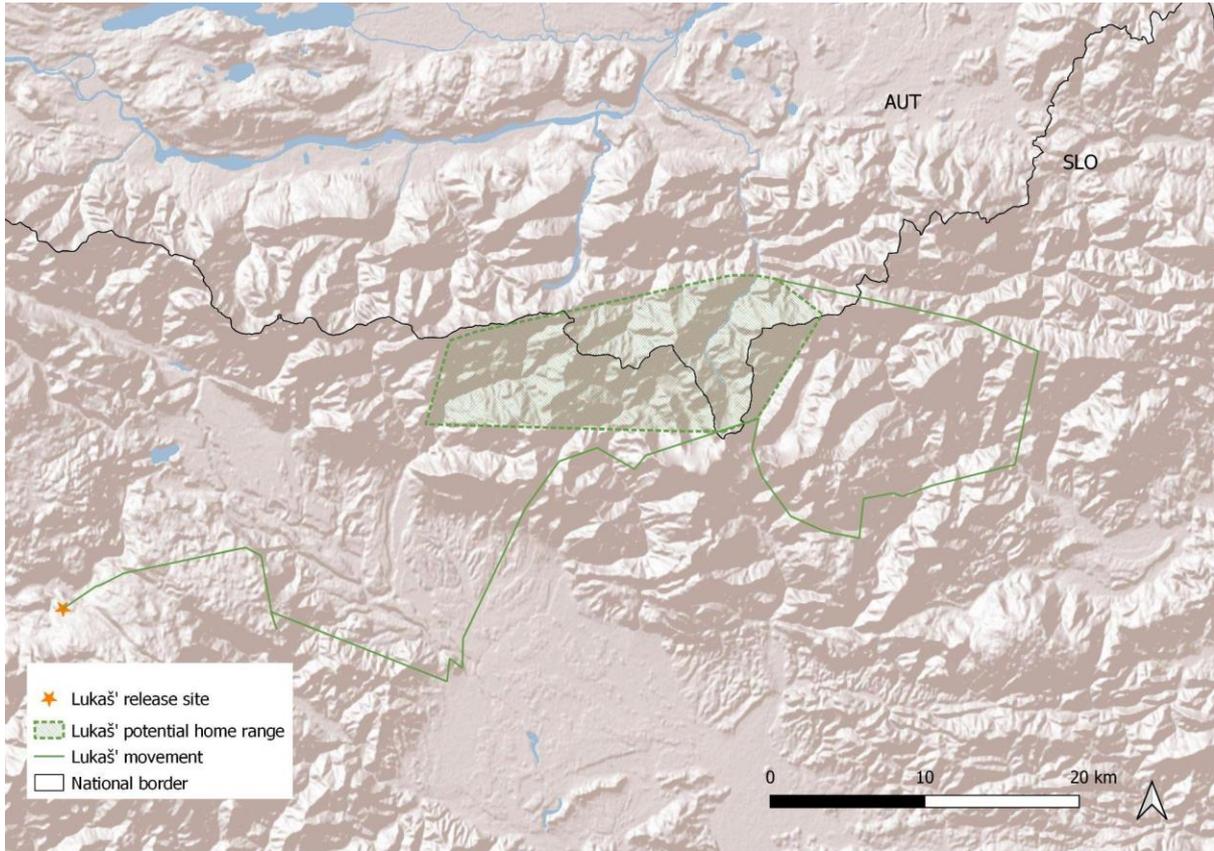


Figure 6: Movement and potential home range of lynx Lukaš.

3 Conclusions

With this action we managed to create an effective population “stepping stone” between the Dinaric and Alpine subpopulations by releasing 6 lynx into this unoccupied habitat at the junction of SE Alps and the northernmost edge of Dinaric Mountains. For 5 of released lynx we can confirm that they integrated successfully: Zois, Aida, Julija, Lenka and Tris (integration of individual lynx is successful if the released animal survives at least one year after the release, establishes a territory and finds a mate).

Release sites were carefully selected with the help and knowledge of local hunters and professional hunters. All the release sites in the C4 action were established in the Alpine mountain range. First release enclosure was built in Triglav National Park on Pokljuka, where Julija, Lenka and Tris were during their quarantine time. During the quarantine, the animals adapted to their new environment and habitat. Second release enclosure was built in LD Nomenj Gorjuše at Jelovica, where Aida, Zois and Lukaš were kept during their quarantine time. The lynx spent their time in the release enclosures peacefully and without any difficulties. Throughout the quarantine, they were cared for by local hunters. During the time when lynx were in the release enclosures both enclosures were checked by the local hunters every 2-3 days. Hunters also fed them and were providing them with fresh water. They were available 24/7 via phone number to check the situation around the enclosure any time needed. The veterinarian service was also on standby for emergency situations. The location of both enclosures was kept secret from the public to provide peace and quiet.

All of the released animals were equipped with GPS-GSM collars to track their potential deaths, injuries and migrations. With the help of telemetry data we were also able to detect kill sites, which gave us an opportunity to install automatic video cameras. Video footage enabled us to visually assess animals’ physical condition (health status) and to check kitten survival for reproducing females. In total we discovered 49 lynx kill sites in the field. GPS schedules were programmed to operate for at least two years, then an automatic drop-off system released them from the animal. We managed to recapture two female lynx, Lenka and Aida, and re-equipped them with telemetry collars.

Data on the successful integration of the introduced lynx into the Alpine population were obtained from the results and data obtained from telemetry, photo-traps and genetic sampling during the project. Unfortunately, Zois and Lukaš are no longer being monitored, for which we have not yet established the reason, and Tris has not been detected since April 2023, for which there are several possible reasons. Despite not being monitored, Tris and Zois have successfully integrated into the population, established their territory and reproduced; Zois had two litters with Aida and Tris one with Julija. Lenka had one offspring in 2022, for which we have not yet been able to obtain paternity data. All three females are still present in the Alps and are being monitored by photo-trap. We recorded six litters of lynx cubs in the



Alps, as all three females mated successfully. The Alpine population is also strengthened by the offspring of the introduced lynxes, which move close to their parents. In 2022 and 2023, we were also able to fit telemetry collars to all three of Julia's cubs from the first litter and to the offspring of the second litter of Aida and Zois.

All animals involved in Action C4 have been released. The final release occurred on April 29, 2023, when we released the male lynx Lukaš in Jelovica. Monitoring of the translocated animals has concluded, but we managed to capture some of their offspring and equip them with telemetry collars.

All the data obtained in the Alpine area show that we have succeeded in creating an effective population "stepping stone" between the Dinaric and Alpine subpopulations. In the Julian Alps area at the beginning of 2024 (according to the data from the systematic monitoring in the 2023/2024 season), we record the presence of 9 individuals (lynx that we follow through telemetry and lynx that have been translocated). Additionally, we record the presence of two more individuals without collars. In addition, we recorded 6 litters in the Alpine region, as all translocated females mated successfully.



4 References

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