



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



Success of the lynx releases and genetic reinforcement of the Dinaric population

1st. report

Action C.3

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1 Introduction

Prevention of the extinction of the Dinaric – Southeastern Alpine lynx population is the main goal of the LIFE Lynx project (LIFE16 NAT/SI/000634). To fulfill this goal, population reinforcement is needed to increase genetic variability of the inbred Dinaric lynx population. To achieve sufficient genetic reinforcement and decrease the level of inbreeding we planned to integrate at least nine animals from the Carpathians into the existing Dinaric population (within the project action C.3). 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 translocated animals are collared with telemetry collars, which enable us to monitor the process of their integration in the existing Dinaric population.

So far, we have released four animals to Slovenian part of the Dinaric Mountains; Goru, Catalin, Boris and Maks, and four animals to the Croatian part; Doru, Alojzije, Pino and Emil. Below we present the current status of the released lynx and assess the success of their integration into the existing Dinaric population. In the following years, further translocations are planned for Slovenia and Croatia.

This report partially overlaps with the yearly report for action C.5 (Krofel et al., 2021), where all surveillance data obtained by different methods is presented. In this report, we provide some additional and detailed information about the status of the translocated lynx obtained after the C.5 report was published.

2 Status of translocated lynxes

In each subsection bellow, we briefly describe the most important events for each translocated lynx, taking place since their release into the Dinaric Mountains.



Lynx Goru

Estimated age at capture: 5 years (2019)

Sex: male

Weight: 22 kg (2019)

Origin country: Romania

Date of capture: 12.2.2019

Country of release: Slovenia

Date of translocation: 26.4.2019

Date of release: 14.5.2019 (Loški Potok)

Territory: Mala Gora (Slovenia)

Status in 2021: Established as a territorial animal (2021)



Lynx Goru was captured in Romania in February 2019 and released in Slovenia in May, 2019. Seventeen days after the release, he arrived to area Mala Gora in Kočevsko region, where he established his permanent territory. In this area, a remnant female named Teja was present. Her home range overlapped almost completely with Goru's home range, which measures around 144 km². They met already on the first day when Goru arrived to her territory and they mated in late June 2019. In August, we detected one kitten named Mala, which was later captured and, collared. Goru's paternity was confirmed with genetic analysis (Krofel et al.2021). In 2020, based on the telemetry data and later genetic confirmation, Goru and Teja mated again, and had three kittens. One of them was collared and named Niko. On March 1, 2020, still during the lynx mating season, Goru temporarily left his territory on Mala Gora and moved towards Ravna Gora area in Croatia, up to 50 km from the edge of his territory. After a month in Ravna Gora area, he returned to his home range on Mala Gora. Offspring were not detected in Croatia in the area where Goru was temporarily present, although his paternity was so far unable to confirm. On July 14, 2020, he was recaptured and his collar was replaced so we continue to monitor him for additional two years. At the end of 2021 mating season, he made another extra-territorial excursion southwest from his home range towards Snežnik in Slovenia and Gorski Kotar in Croatia. After a month, he returned to his home range in Mala Gora. Again, it is so far unclear whether this excursion resulted in any additional paternity. It is also not yet known if in 2021 Goru again mated with Teja (who has no longer been detected in the last months, however). Given successful establishment of a new territory and several confirmed reproductions, we consider Goru as successfully integrated in the Dinaric population. We consider Goru included in the Dinaric lynx population.

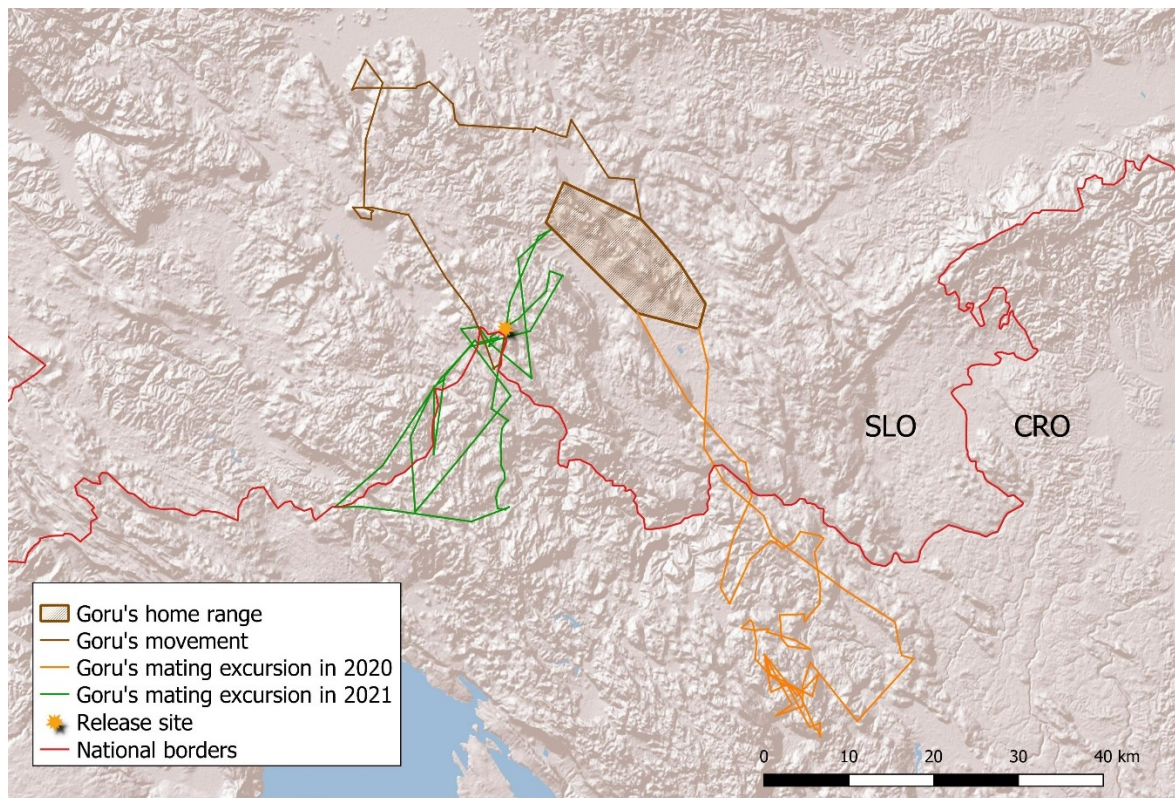


Figure 1: Movement and home range of lynx Goru.

Lynx Doru

Estimated age at capture: 4 years (2019)

Sex: male

Weight: 20 kg (2019)

Origin country: Romania

Date of capture: 27.2.2019

Country of release: Croatia

Date of translocation and release: 4.5.2019

Date of release: 4.5.2019 (NP Risnjak)

Territory: Javorniki, Slovenia (2019)

Status: Unknown, likely no longer alive (2021)



Doru was captured in Romania in February 2019 and was released in Croatia, in Risnjak National Park in May. After the release, he spent some days in Risnjak and then moved towards the north, crossing the national border. He arrived to Javorniki, Slovenia, on June 13, 2019, where he unsuccessfully attempted to cross the Ljubljana-Koper highway. He established his territory in Javorniki area with the home range of 130 km². Data from the telemetry collar was received only until the end of January 2020 after which date he was also no longer detected with any other methods in use (camera traps or non-invasive genetic samples). Thus, we assume he is no longer present in Javorniki area, which was also indicating by another collared male (Maks) using this territory in 2020. Furthermore, we did not detect any potential offspring; therefore, we can conclude he was not integrated in the Dinaric population. Since his disappearance from the Javorniki area coincides with lost telemetry signal, it

seems most likely that he is no longer alive. We will replace him with another lynx from the Carpathian population.

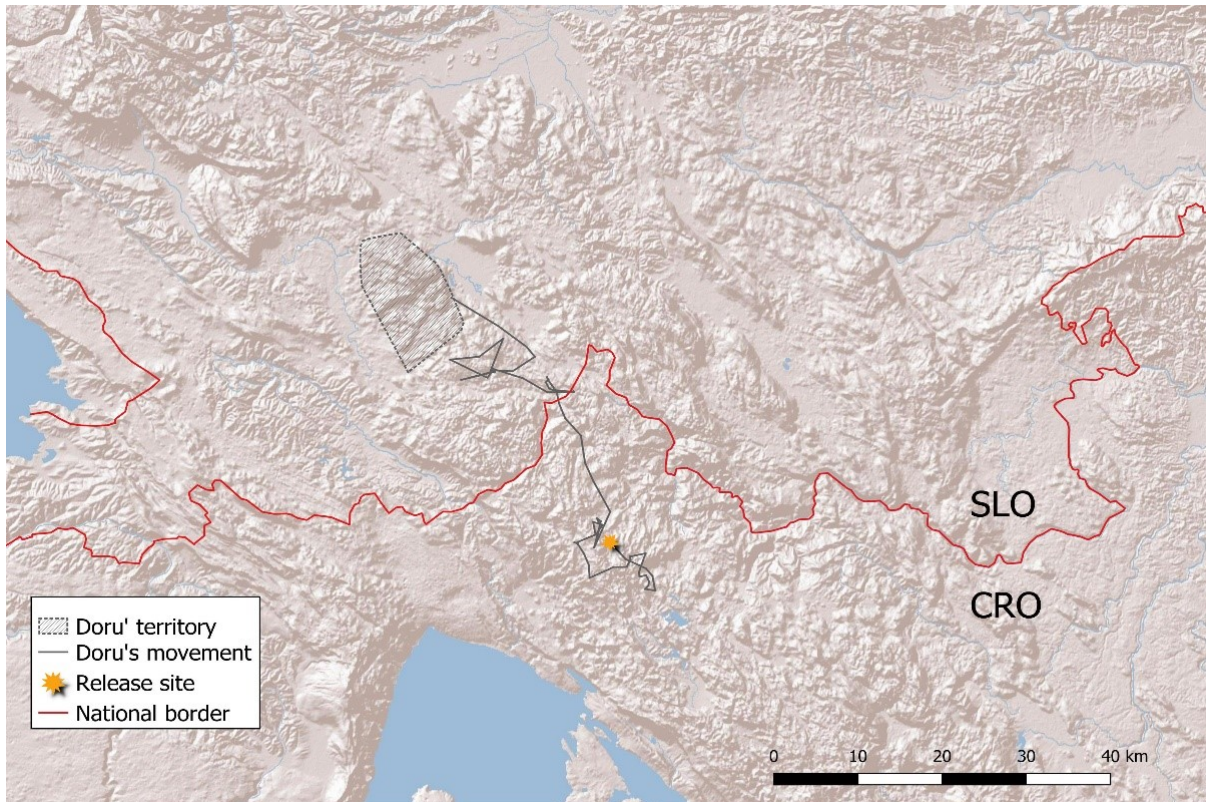


Figure 2: Movement and territory of lynx Doru.



Lynx Catalin

Estimated age at capture: 4 -5 years (2020)

Sex: male

Weight: 24 kg (2020)

Origin country: Romania

Date of capture: 16.1.2020

Country of release: Slovenia

Date of translocation: 7.3.2020

Date of release: 31.3.2020 (Snežnik)

Territory: Menišija, Logatec plateau and Rakitna, Slovenia

Status: Established as a territorial animal (2021)



Catalin was captured in Romania in January 2020 and released in Slovenia at the end of March, 2020. After the release on Snežnik plateau, he first moved south and crossed the national border with Croatia, where he reached Istria. Then he turned west and crossed a large part of Gorski Kotar, crossed the border again and via Kočevsko arrived to the surrounding of Mt. Krim, south of Ljubljana on April 19. He established his territory, which now covers Menišija, Logatec plateau, Rakitna and some parts of Mokrc. On the western side, his home range is limited by the Ljubljana-Koper highway, which he has

not crossed. Size of his home range is currently 258 km². In summer 2020 he was observed and recorded several times together with a remnant lynx assumed to be a female (known as “Menišija1” from the photo-monitoring), which dispersed here as a yearling in 2019 from Kočevska . In mating season 2021, he made a short excursion towards Racna gora in the south of Slovenia but returned to his home range in Menišija after a few days. Offspring were not yet detected, , but we expect that he mated at least with a probable female from Menišija and potentially also with females from Mokrc and Racna gora. Given successful establishment of a new territory and potential reproductions, we consider Catalin as potentially successfully integrated in the Dinaric population.

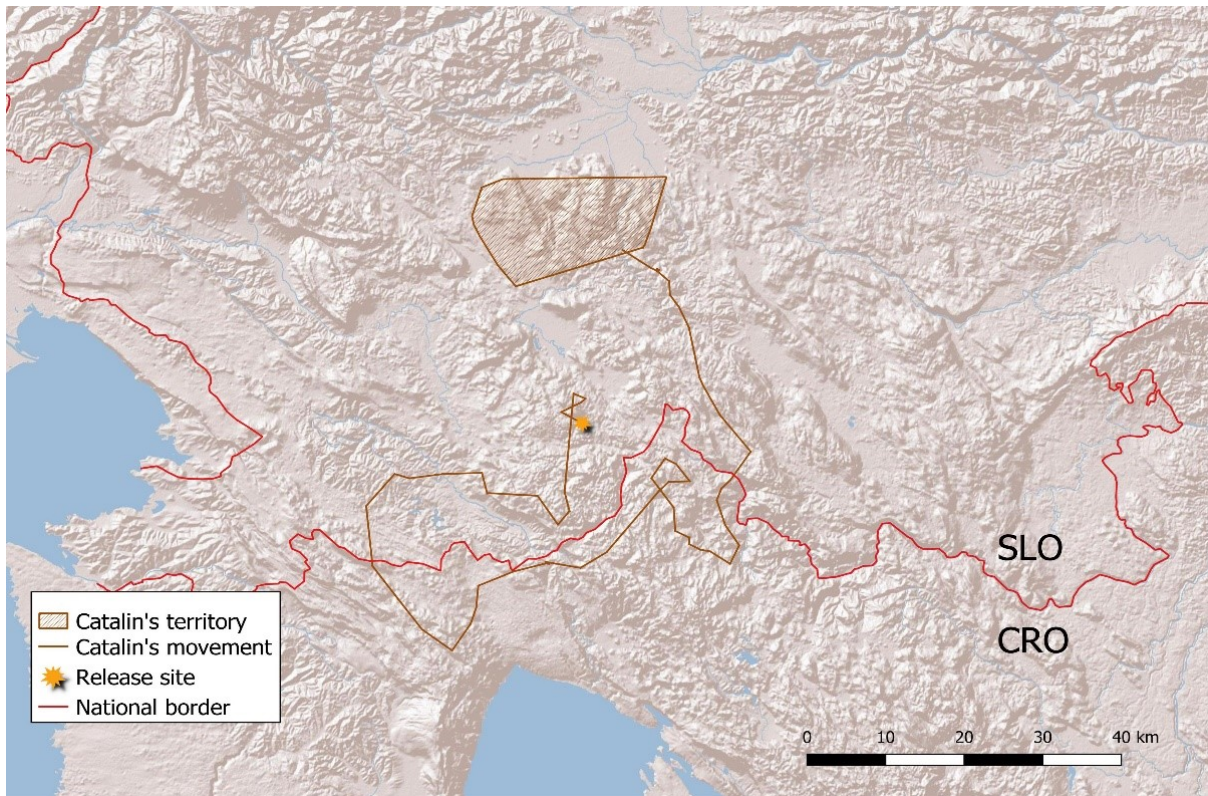


Figure 3: Movement and territory of lynx Catalin.



Lynx Boris

Estimated age at capture: 1 -2 years (2020)

Sex: male

Weight: 16 + kg (2020)

Origin country: Romania

Date of capture: 25.1.2020

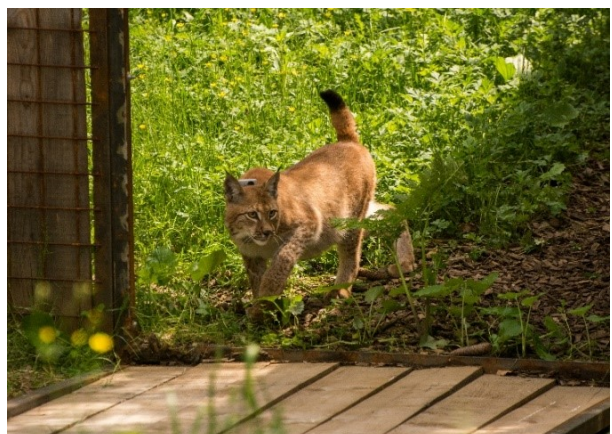
Country of release: Slovenia

Date of translocation: 30.4.2020

Date of release: 28.5.2020 (Loški Potok)

Territory: Mala Kapela, Croatia

Status: Likely established as a territorial animal (2021)



Male Boris is a 2-year-old lynx that was captured in Romania in January 2020. He was translocated to Loški Potok enclosure where he was released in late May. Soon after the release, he went to Croatia and stayed around Gerovo for about 2 months, apparently establishing a temporary home range. Most likely due to the encounter with an adult male territorial remnant lynx, he abandoned this area and moved south-east to Vrbovsko where he stayed for a month. Soon afterwards, he again moved further south to Ogulin and Mala Kapela area where he has been present since October 14, 2020 and has apparently established a territory, although at the moment this cannot be definitely confirmed. In the end of March 2021, his collar stopped sending GPS data, however VHF function is still working, therefore we can confirm he remains alive and present in the area. Attempts to recapture him and replace the malfunctioned collar are in progress. No information is available regarding potential mating, although remnant females are known to be present in this area. Given apparent establishment of a new territory and possible reproductions, we consider Boris as potentially successfully integrated in the Dinaric population.

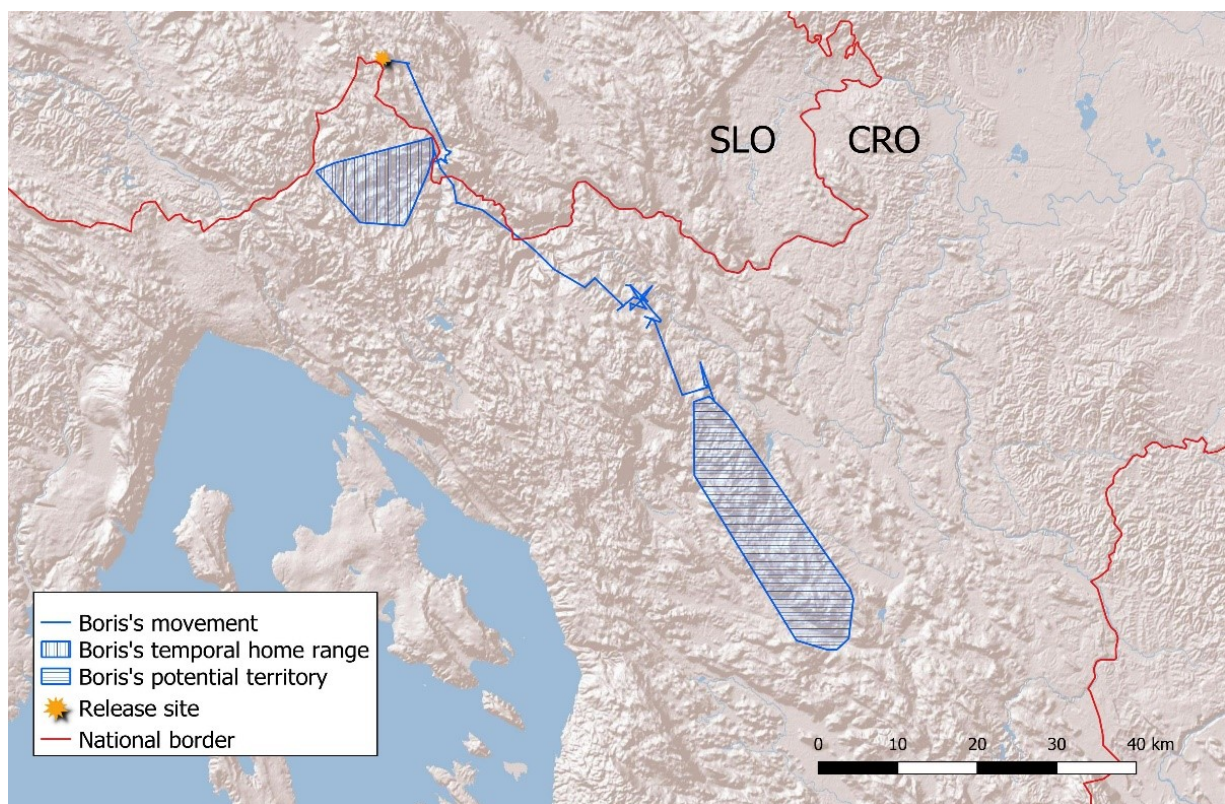


Figure 4: Movement and home range of lynx Boris.

Lynx Pino

Estimated age at capture: 5 years (2020)

Sex: male

Weight: 20 kg (2020)

Origin country: Slovakia

Date of capture: 25.3.2020

Country of release: Croatia

Date of translocation: 30.5.2020

Date of release: 30.5.2020 (Northern Velebit)

Territory: /

Status: Unknown



Male Pino was captured in Slovakia in March 2020 and released in Sjeverni Velebit National Park in Croatia on May 30, 2020. Unfortunately, his collar stopped working immediately after the release and no telemetry data were ever received. He was not recorded on camera traps, but in August 2020 a local hunter reported a sighting of a collared lynx on central Velebit. No other collared lynx was present there at that time so this could indicate the presence of Pino in this area. At the moment his status is uncertain and we will try to detect him with other surveillance methods (camera traps or non-invasive genetic sampling), before making conclusions about his integration into the remnant population.



Figure 5: Location of lynx Pino release site.

Lynx Maks

Estimated age at capture: 2 years (2020)

Sex: male

Weight: 16 kg (2020)

Origin country: Slovakia

Date of capture: NA

Country of release: Slovenia

Date of translocation: 3.6.2020

Date of release: 23.6.2020 (Snežnik)

Territory: Menišija (temporary)

Status: Likely established as a territorial animal (2021)



Lynx Maks was translocated from Slovakia to Slovenia. He was captured with a broken paw and in bad health condition in 2019 in Slovakia. He was successfully rehabilitated in ZOO Bojnice, transported to Slovenia, and released from the enclosure in Snežnik plateau in late June 2020. After the release, he started his journey north towards Javorniki, where he was (similarly as Doru) stopped by the Ljubljana-Koper highway. He stayed in the area for three months, apparently establishing his territory in the same area previously occupied by Doru. However, on September 24, he left this area for an unknown reason. Maks then moved to Menišija and Logatec plateau, where he stayed for two months, partly sharing the area with male Catalin, who arrived here a few months earlier, and resident remnant lynx, probably a female ("Menišija1" identified on camera traps). On November 22, 2020, he left the Menišija area, probably due to the presence of a territorial male (Catalin), crossing the Ljubljana-Koper highway. He made an excursion to the Alps which lasted 81 days and then he returned to Menišija, where he stayed until the end of May 2021 but also used area west of the Vrhnika-Unec highway. Afterwards, he left Menišija again and moved west towards Hrušica Trnovski gozd, where he appears to be currently establishing a territory. No information is available about potential mating, although it is not excluded. Given lack of data on his reproduction and since it is not yet clear, if Maks established a new territory, we cannot yet make conclusions about his integration into the remnant population.

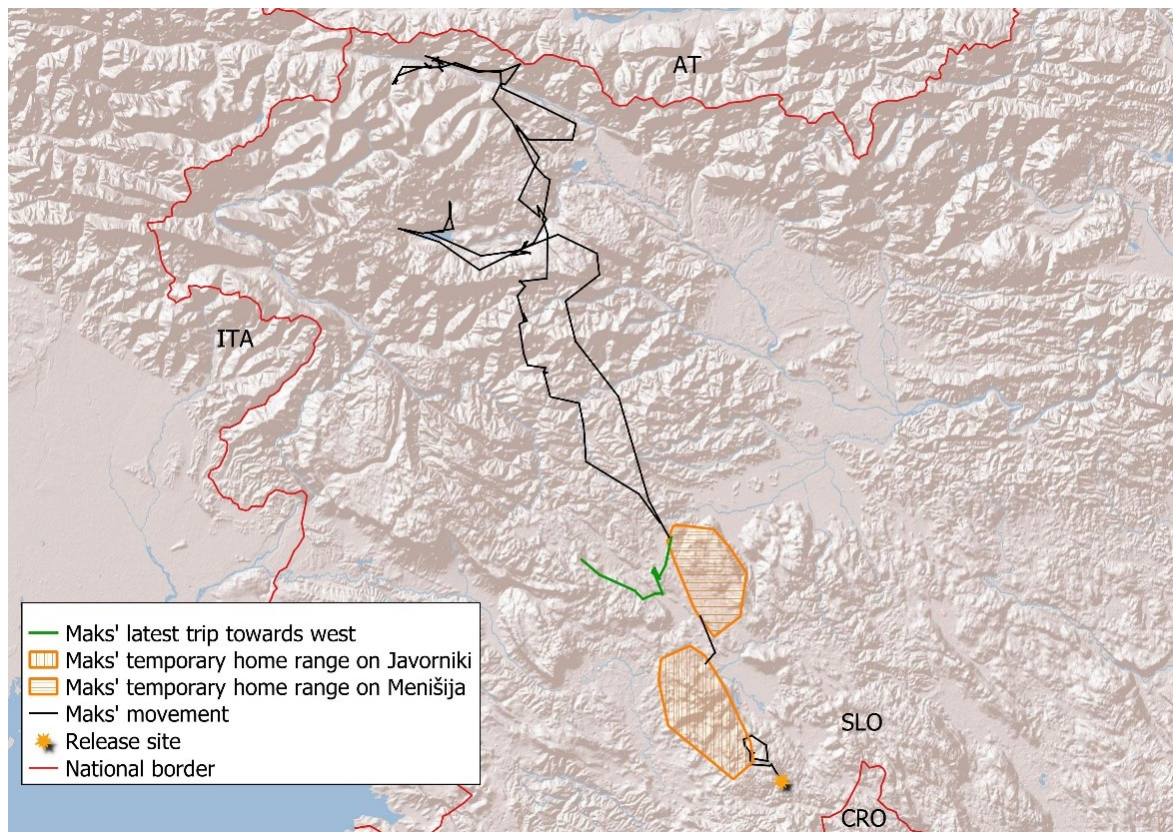


Figure 6: Movement and home range of lynx Maks.

Lynx Alojzije

Estimated age at capture: 3-4 years (2020)

Sex: male

Weight: 20 kg (2020)

Origin country: Romania

Date of capture: 20.1.2020

Country of release: Croatia

Date of translocation: 13.3.2020

Date of release: 13.3.2020 (Paklenica NP)

Territory: Sveti Rok (Croatia)

Status: Established as a territorial animal (2021)



Male Alojzije was captured in Romania in January 2020 and was released in Paklenica National Park in Croatia on March 13, 2020. After the release, he moved north-west along the Velebit Mountain until Baške Oštarije, where he turned back towards the south-east and came back to the vicinity of the release site on April 24, where he established his territory around Sveti Rok. His current home range measures 166 km² and covers the very south of Velebit Mountains. Alojzije is frequently crossing the Bosiljevo-Split highway above the Sveti Rok tunnel. Before this translocation, in 2019, we recorded one female in the area but after, in 2020, we only documented two males in the surrounding area. Alojzije is still present in the area but his offspring was not yet detected. Given apparent establishment of a

new territory and possible reproductions, we consider Alojzije as potentially successfully integrated in the Dinaric population.

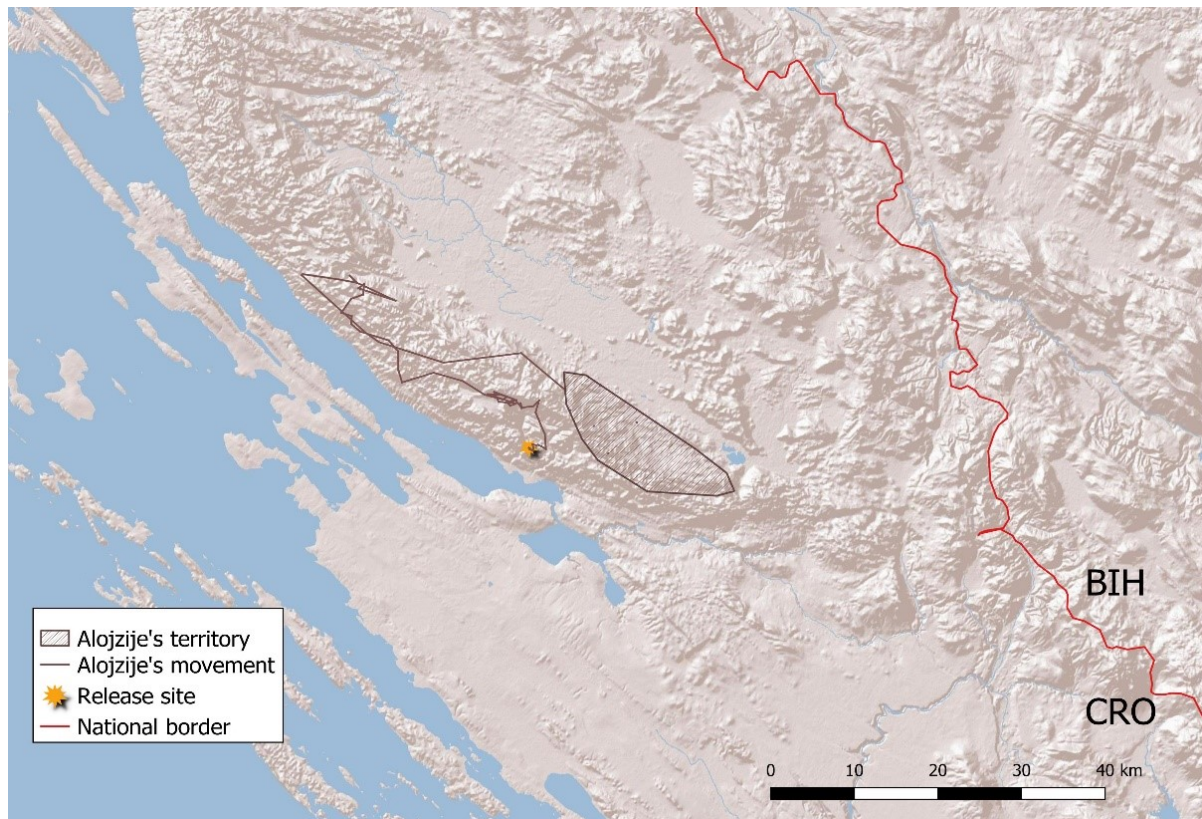


Figure 7: Movement and territory of lynx Alojzije

Lynx Emil

Estimated age at capture: 3 years (2021)

Sex: male

Weight: 20 kg (2021)

Origin country: Slovakia

Date of capture: 26.2.2021

Country of release: Croatia

Date of translocation: 14.5.2021

Date of release: 14.5.2021 (Velebit)

Territory: /

Status: Alive, not yet established territory (2021)



Male lynx Emil was captured in the Vepor Mountains in Slovakia at the end of February 2021. Emil was transported to Croatia and released on May 14, 2021 in the Nature Park Velebit. After his release close to the mountain hut Apatišan, lynx Emil moved northwest, crossed the National Park Northern Velebit and made a short stop by the sea where we recorded his prey - a young mouflon. Shortly afterwards, he continued moving south along the coastline before he turned back under the forest cover of the National Park Northern Velebit. Latest data show that he is staying within the Northern Velebit area, but it is too soon to determine his integration status or whether he is establishing a territory.

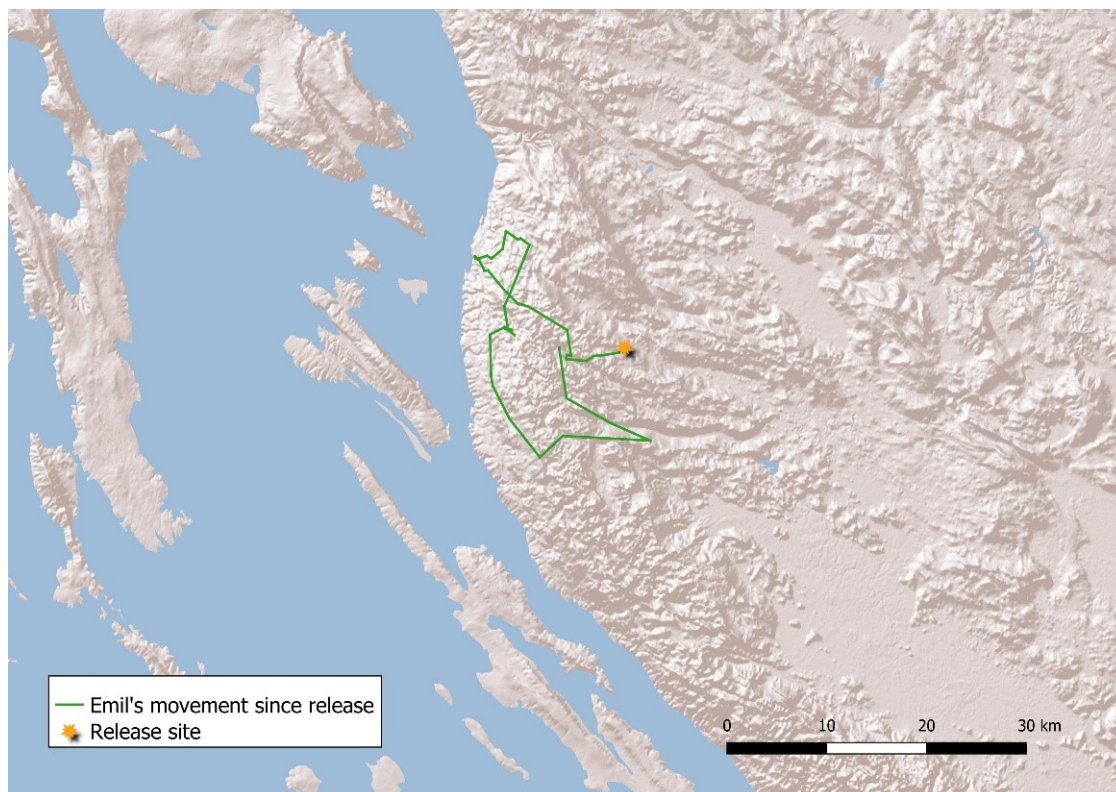


Figure 8: Release site and movement of lynx Emil.

3 Conclusions

According to the currently available data, we can conclude that four lynxes are successfully integrated into the existing Dinaric population; Goru, Catalin, Boris and Alojzije. Successful integration cannot be confirmed for the other four animals, among which two disappeared (Pino and Doru), and the other two appear to be still in the process of establishing a territory (Maks and Emil).

The most successful individual is male Goru, who already had fathered at least two litters. Mala, the kitten from 2019 was collared for a short period and is now regularly recorded with camera traps. Another offspring of Goru and Teja - male Niko was collared in 2020 and is currently dispersing near Ogulin in Croatia. Other two kittens were recorded by camera traps in Mala gora area, however they were not captured and collared so we are not monitoring their movements and hope to detect them via other surveillance methods in the next monitoring seasons. Lynx Catalin who was observed with the resident female on Menišija plateau and is regularly visiting area frequented by another female on Mokrc, could also have successfully reproduced and we hope to confirm his potential offspring via camera traps and genetic sampling in the near future. Both Goru and Katalin also made extra-territorial excursions during the mating seasons, possibly mating with additional females on Snežnik, Racna gora and Gorski kotar. Lynx Boris likely established his territory in Mala Kapela area in Croatia. During the mating season, he stayed in the area, where also the presence of the females is confirmed. In the next lynx monitoring season, our efforts will be focused to find females with kittens and try to get their genetic samples and check for Boris' possible paternity. Similar is true for lynx Alojzije, which established his territory in the Sveti Rok area. Previous year no females were detected there, although some might be present.

Lynx Maks is a special case, as it looked like he already established a territory on two occasions, first in Javorniki and second in Menišija plateau. However, in both cases he moved away from these temporary home ranges and visited the Alps in the meantime. At the moment he again appears to be establishing a territory in a third area (Hrušica and Trnovski gozd), where presence of another territorial male was confirmed in 2019. His status for now remains unclear. Lynx Doru, whose collar stopped sending the data and no other type of presence data was collected will be replaced with another animal. Similarly, lynx Pino has not been detected since his release but still too early to make conclusions in his case. Lynx Emil was released last, and latest data show that he is staying within the Northern Velebit area, but it is too soon to determine his integration status as well.

4 References

Krofel M., et al. 2021. Surveillance of the reinforcement process of the Dinaric - SE Alpine lynx population in the lynx-monitoring year 2019-2020. Technical report. Ljubljana, January 2021, 45 p.

Seth M. Wilson., 2018. Lessons Learned from Past Reintroduction and Translocation Efforts with an Emphasis on Carnivores. Tehnical report. Ljubljana, October 2018, 43 p.