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

LIFE16 NAT/SI/000634

Final report of indicators collected until the end of the project for assessing impacts of project actions on local economy and communities and on ecosystem functions

April 2024

Action D5: Assessment of socio-economic impacts of the project actions on local economy and communities
Action D6: Assessment of project's impacts on ecosystem functions

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Introduction

To identify and develop suitable indicators we used a participatory and reiterative process involving the members of the project team discussing both our needs and practical realities such as availability of the data. Initial proposal was developed at the University of Ljubljana and was then discussed over two project team meetings. The methods were agreed upon by the project team by choosing the most suitable quantification tools to monitor and evaluate the chosen indices. We carried out assessment repeatedly, for most indices on a yearly basis.

Assessment of socio-economic impacts and ecosystem services assessment, although carried out separately, are complementary as both connect directly to LIFE Lynx project objectives. Moreover, the concept of ecosystem condition is strongly linked to human well-being through ecosystem services. The main concept of ecosystem services is based on the general notion that ecosystems need to be in good condition to provide multiple ecosystem services. Therefore, we assess and report both together.

To develop indices to assess project's impacts on ecosystem functions we used analytical framework developed under the EU Mapping and Assessment of Ecosystems and their Services (MAES) initiative and "Assessing ecosystems and their services in LIFE projects – A guide for beneficiaries".

Assessment results can help explain better to the public and stakeholders the multiple benefits of the project and its connection not only to reaching biodiversity conservation goals but also to society and the economy with which they directly interface. As such assessment results facilitate transparent information sharing thus creating an important added value to the project.

Final assessment of socio-economic indicators

Measuring, evaluating and clearly demonstrating the impacts of conservation interventions to socio-economic environment is critical for management, accountability, and lesson learning. This is particularly important for projects with substantial share of community-engaging activities or have potential to impact local livelihoods and quality of life in either positive or negative ways. LIFE Lynx project included both elements – community-based approach to maintain high public acceptance of lynx, activities that have the potential to provide positive impacts to local livelihoods (e.g., tourism and education related activities) and lastly also increasing the number of lynx which can potentially cause damages to livestock thus negatively affecting local livelihoods.

Through assessment of socio-economic indicators LIFE Lynx project attempts to answer how the project activities have impacted social constructs and issues such as how has the project engaged public and especially key target groups (e.g., hunters, schools, farmers, public, scientific community), how has the project impacted governance systems, has it created new jobs or otherwise impacted the wellbeing of local communities.

In the table below we present the final values for economic and social indicators of the LIFE Lynx project.

Table 1: Final values of the economic and social indicators for the project LIFE Lynx.

INDICATOR	MEASUREMENT UNIT	METHOD	CORE RELEVANT ACTIONS	BASELINE 2017 (BEGINNING OF THE PROJECT)	Estimated Impact	At the end of the project
ECONOMIC INDICATORS						
Number of livestock killed by lynx per year (DSEA)	No. attacks	compensation claim register, count	C9	7		In the last year of the project 1
Fear of financial damage due to lynx presence	% of agreement to the statement "I am afraid that increased lynx presence would cause me financial damage"	project database, count	A7, D4	-		6.6% (survey done in 2023)
Number of farms using electric fencing at pastures	No. Farms	SFS PLI database, count	C9	41	Number of protected flocks increase by 15	17 new electric fences (14 were handed to the Slovenian farmers + 3 emergency fences in Italy)[1]
Number of "painting workshop" products sold	Cumulative no. of products sold	project database, count	C11	-		37
Estimated revenue from tourism activities	Cumulative income in € based on estimated spending of 80 EUR per day for overnight visitors and 20 EUR for day users	estimate	C11	-	21000 EUR	13680 EUR

[1] Assesments done in the previous years counted all the electric fences used in Slovenia (financed by the state and different projects), that is why the number in the previous Assesments was much higher than is this number for fences financed by LIFE Lynx only.

Number of visitors and tourists taking guided Walks/workshops linked to lynx or the project (market uptake)	Cumulative no. customers	project database, count	C11		70	709
Jobs created	Full time equivalent	FTE calculated as 220 8-hour working days per year (Initial situation calculated as FTE annually working as permanent employees for the project beneficiaries on lynx-related topics when project starts), project financial reporting	all actions	3.83 FTE	FTE increase by 92.45	132.37 FTE
INDICATOR	**MEASUREMENT UNIT**	**METHOD**	**CORE RELEVANT ACTIONS**	**BASELINE 2017 (BEGINNING OF THE PROJECT)**	**Estimated Impact (absolute values)**	**At the end of the project**
SOCIAL INDICATORS						
Number of physical planners involved in training seminar	Cumulative no. of experts	project database, count	C7			69
Number of project team members involved in communication training	Cumulative no. project team members	project database, count	A8, E5	-		95

Number of damage inspectors educated	Cumulative no. of damage inspectors that participated in education	project database, count	C9	0	50	92
Number of representatives of tourism sector and protected areas educated	Cumulative no. of tourism and protected areas representatives	project database, count	C11	-		170
Number of participants/visitors at public events organized by the project	Cumulative no. people present	project database, count, can include estimates for larger events for general public	all actions	-	At least 4000 participants at events	8627
Number of news entries published on lifelynx.eu	Cumulative number of news entries / page posts	count, web page dashboard	all actions	-		2144
Number of unique page views	Cumulative no. page views	count, Google Analytics	E6	-	250.000	536.298
Number of subscribers to the Facebook	Cumulative no. Subscribers	count, Facebook accounts (LIFE Lynx and Cro field blog)	E6	-	3000 likes	21130
Number of events with screening /number of public broadcasts for video materials (film)	Cumulative no. of broadcasts /shows	project database, count	E3	-		156
Number of views of project video materials	Cumulative no. of views	project database, count	E3			910024
Number of public events organised	Cumulative no. events organised	project database, count	all actions	-		179
Number of local inhabitants participating in the LCG meetings	Cumulative no. participants	project database, count	E1	-		516

Number of publications concerning lynx and project activities (leaflets, brochures, reports, guidelines etc.) produced, editions in different languages are reported separately	Cumulative no. publications produced	project web page depository, count	A5, E1, E4, E6	-		135
Number of national management documents adopted by state authorities	Cumulative no. adopted documents	national legislation depositories	A5	3		1
Number of articles or spots in the media concerning lynx and mentioning the project	Cumulative no. articles and spots	project media clipping database, count (baseline includes articles published before the start of the project)	D4	2	At least 400 media appearances of the project	1761
Number of schools involved in lynx related activities	Cumulative no. schools	project database, count	E4	-		81
Number of children and adolescents involved in lynx related schools activities	Cumulative no. people present	project database, count, can include estimates for larger events	E4	-	At least 3000	3850
Number of school teachers involved in lynx project	Cumulative no. people present	project database, count	E4	-	At least 30	114
Number of independent events attended by project team members	Cumulative no. events attended	project database, count	E5, all actions	-		419

Cumulative number of participants at workshops for preparation of national management documents	Cumulative no. people present	project database, count	A5	-		134
Hunter involvement	Cumulative no. of hunting organizations involved in reinforcement and monitoring	project database, count	A3, C3, C4,….	-	At least 80	387
Number of public and private organisations (or projects) which are not partners being involved	Cumulative no. of organisations / projects	project database, count	E5	-		758
Public support to maintaining lynx in SI/HR/IT (DSEA)	% favourable replies	project database, count	A7, D4	-	Support for lynx conservation increase by 15% from the 1st survey to the last	85.3%
Public support to bringing new lynx to SI/HR/IT (DSEA)	% favourable replies	project database, count	A7, D4	-		51.8%
Number of popular articles written by project team members	Cumulative no. of articles	project database, count	all actions	-	80	126
Number of game management plans adjusted to ensure prey	Cumulative no. of local management plans amended due to project	project database, count	C10	0	At least 3	5

Number of registered users of the geo database	Cumulative no. of users	geodatabase, count	C6	-		297
Number of lynx data points in geo database	Cumulative no. of data points	geodatabase, count	C6	-		59753
Number of police inspectors trained	Cumulative no. of trained police	project database, count	C8	0	At least 20 police officers	48
Contribution to science (published papers, presentations at scientific conferences)	Cumulative no. of contributions	project database, count	all actions	-		72
Gender representation	Cumulative share of female FTE in the project team	project financial reporting data, FTE calculated as 220 8-hour working days per year	all actions	-		50,9 %
Gender representation	Cumulative share of female € earned the project team	project financial reporting data, personnel expenses, FTE calculated as 220 8-hour working days per year	all actions	-		51,8 %

Assessment of biological and ecological indicators

Main concepts

Ecosystem services include all contributions of the ecosystems and all their parts towards benefits in various human activities. Typically, ecosystem services are categorised into three main groups: (1) provisioning services (e.g. timber, food); (2) regulating and maintenance services (e.g. water purification), and (3) Cultural services such as recreation, tourism, education.

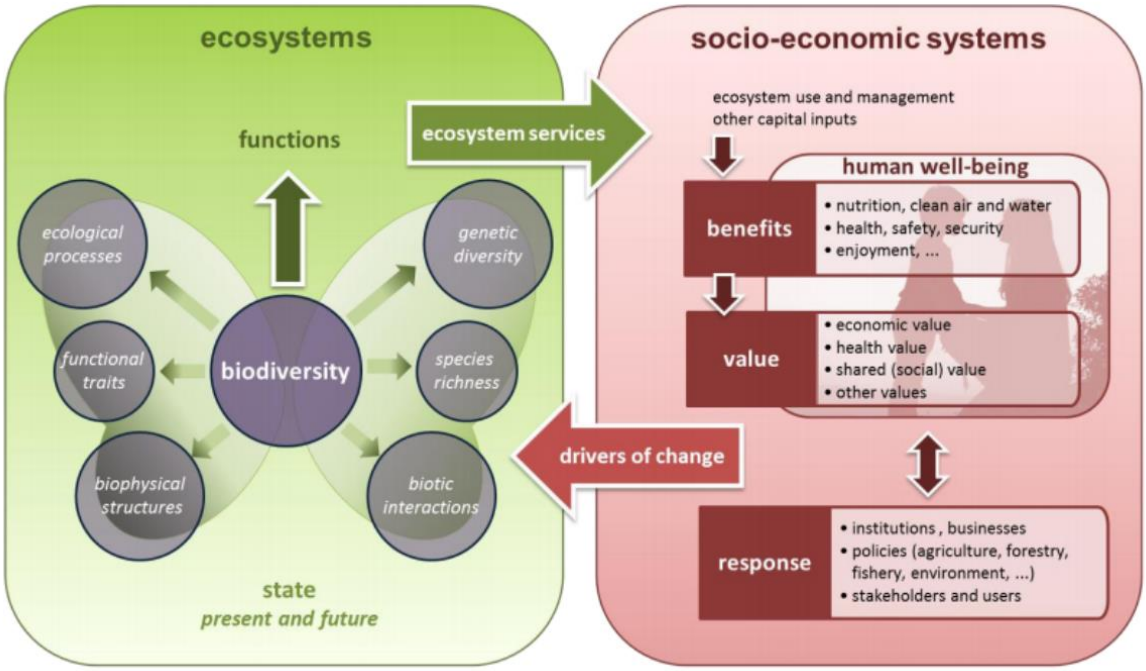

Figure 1: MAES Framework (from "Assessing ecosystems and their services in LIFE projects").

LIFE Lynx assessment

According to the MAES analytical framework LIFE Lynx project deals mainly with the "forest and woodland" ecosystem type. Following the analysis of human-environment systems we found that many of the challenges of Eurasian lynx conservation that are being addressed through the project are also linked with other terrestrial and more human-dominated ecosystem types such as urban, grassland and cropland ecosystem types.

In the table below we present the final values for biological and ecological indicators of the LIFE Lynx project.

Table 2: Final values of biological and ecological indicators for the project LIFE Lynx.

INDICATOR	MEASUREMENT UNIT	METHOD	CORE RELEVANT ACTIONS	BASELINE 2017 (BEGINNING OF THE PROJECT)	Estimated Impact	At the end of the project
BIOLOGICAL AND ECOLOGICAL INDICATORS						
Number of threatened species	Number of individuals in the Dinaric-SE Alpine lynx population (DSEA)	estimate	C5	60-90[2]	Population (number of individuals), increase by 21 individuals	121-192 (2023)[3]
Number of functional lynx territories	Territory occupied by male and a female (DSEA)	confirmed through genetics & camera trapping	A3, C5	15[4]	Territory occupied by male and a female increase by 9	30-34 (2023)
Number of lynx reproductions	Number of annually confirmed reproductions (DSEA)	confirmed through genetics, snowtracking, direct litter observations (females on telemetry) & camera trapping	A3, C5	16[5]	Number of annually confirmed lynx reproductions increase by 4	22 (2023)

[2] Estimate was based on expert opinion.

[3] Estimate was obtained through camera trapping data and spatial capture recapture analyses.

[4] Assessed in A3 (2018).

[5] Assessed in A3 (2018).

Distribution (DSEA)	km2	confirmed through genetics, snowtracking & camera trapping		8500	Increase by 2000 km2	14700 km^2 (2023)[6]
Effective population size	Estimated using genetics	estimated using genetics	C5	NA		31 (28 - 35)[7]
Inbreeding	Estimated using genetics	estimated using genetics	C5	0.3	Decrease by 0.12	0.08 - 0.19[8]
Number of successfully translocated animals	Cumulative number of translocated lynx	count	C3, C4	-	At least 14 lynx successfully translocated and included into receiving population	18 (14 of those were included into the receiving population)
Number of documented breeding events of the translocated animals	Cumulative number of breeding events	Found litters through telemetry (females), documented using genetics (pedigree reconstruction)	C5	NA		22[9]
Minimum number of lynx in the captures area in Slovakia	Number of different animals	count (no. of detected individuals) and spatial capture-	A1	NA		25

[6] Calculated in C5 final report (2024) - Surveillance of the reinforcement process of the Dinaric - SE Alpine lynx population in the lynx-monitoring year 2022-2023

[7] From 2022 on, derived from genetic data and the number of successfully integrated translocated lynx (impossible to precisely estimate from genetic data because of the translocations).

[8] For 2023 estimated including the Alpine stepping stone population under different assumptions of gene-flow with Dinaric Mts.

[9] As breeding events were counted also the kittens that were born within territories of translocated males, since the translocated males are highly likely their fathers.

		recapture estimates				
Minimum number of lynx in the captures area in Romania	Number of different animals	count (no. of detected individuals)	A2	-		17[10]
Number of breeding events in the stepping stone area	Cumulative number of confirmed breeding events	confirmed through genetics, snowtracking, direct litter observations (females on telemetry) & camera trapping	C5	-		6
Number of genetic samples collected in the project	Cumulative number of collected genetic samples	count		-	At least 700	879
Health status of lynx	Cumulative number of examined dead lynx	count	C5	-		13

[10] The number 24 in the Assessment of 2022 was not correct, because it also included kittens, the correct number of adult lynx for 2022 is 16.

Discussion

Economic indicators

Population reinforcement of lynx can result in increases in local densities of the species and increased chances of livestock losses so one of the goals of the project was to improve livestock protection from lynx depredation. With the reinforcement of the population and the consequent population growth we could expect some more livestock animals to be killed by lynx, however in the last year of the project there was still just 1 animal killed by lynx. That is primarily due to availability of the wild prey but also due to the fact that quite a lot of livestock farmers are now using livestock protection fences. When the project began 41 livestock flocks were protected by electric fences and 15 electric fences for protecting livestock of the local farmers were planned to be purchased within the project. During the project that was exceeded, since 17 livestock protecting electric fences were purchased (14 were donated to farmers in Slovenia and 3 are being used as emergency fences in Italy). Fear of financial damage events is an important factor that can influence people's attitudes towards large carnivores, so we also included a question about that in the public opinion surveys conducted through the project duration. The share of public opinion survey respondents, who answered that they would be afraid that lynx presence would cause them financial damage remained low throughout the project (3.2% in 2019 and 6.6% in 2023 survey).

Tourism based on large carnivores in Slovenia, Italy and Croatia is still underdeveloped. There are opportunities for new, niche-products and ecotourism focused experiences that can be sustainable and will bring revenue to local communities. Since lynx is an elusive species and population abundance in the project area was very low, direct observations were not possible. Therefore, we wanted to develop innovative tourism products, enlarging our target group from wildlife watching enthusiasts to art-oriented people, adventure seekers and nature lovers. So, during the project 37 “painting workshops” products were sold. A total of 709 visitors and tourists took guided walks/workshops linked to lynx or the project, which largely exceeded the number 70, which was planned at the beginning of the project. An estimated revenue of 13,680 EUR from tourism activities was earned by local tourism providers, which is a bit lower than was planned (21,000 EUR), however because of the Covid pandemic the tourism sector was hugely impacted for years and that is why the revenue is lower than was predicted. Project created jobs within project beneficiaries as 132,37 FTE were covered during the years of the LIFE Lynx project, amounting to 3.861.986,68 €.

Social indicators

Successful reinforcement and long-term viability of lynx in the SE Alps and Dinaric Mountains is largely dependent on demographic exchange and gene flow between populations, so identifying and integrating spatial information on lynx habitat connectivity into national and international-level planning is crucial. “International Guidelines for Establishing Connectivity between Swiss Alpine, Dinaric/SE Alpine, and Balkan populations” prepared by the project team were therefore presented at a seminar to 69 physical planners and relevant companies in Slovenia and Croatia so that these critical data can be incorporated into future environmental impact assessments.

It is very important that all team members consistently deliver all external communications during the project so 95 project team members were involved in different communication training sessions. This showed great results and the project team used diverse communication channels to educate, inform and engage interest groups.

Damage inspectors deal with different damage cases and collaborate closely with farmers, so they

have to know what to suggest to farmers about different protection measures, they have to know how to install the equipment properly and how to maintain it. Therefore, we have provided two seminars for Slovenian Forest Service (SFS) damage inspectors on how to install, maintain, and monitor all electric fences. We had planned to educate 50 damage inspectors during the project, however the final number of educated inspectors was even higher, 92.
A total of 170 representatives of the tourism sector and protected areas attended educational seminars that were organised to present best practice examples, economic opportunities and use of lynx and other large carnivores to increase the tourism value of the area.
At least 4000 participants were expected to attend events organised by the project but the final number of all participants was more than double of the expected number, 8,627.
Project website and Facebook profile were set up in the first year of the project and are targeting the wider public. They are being used to regularly share information about the project and lynx conservation. Until the project's official end we published 2144 news entries on LIFE Lynx project web page. The project web page received 536,298 unique page views (we expected 250,000). We had expected to gain 3,000 subscribers at the project Facebook page, but that was highly exceeded with the final number of 21,130 subscribers to "LIFE Lynx" and "LIFE Lynx - hrvatski terenski blog" pages at the end of the project.

To promote the LIFE LYNX project and lynx conservation in general, we produced a two-part documentary film series focused on hunter involvement in historic lynx reintroduction efforts in the 1970s (Part I) and chronicle their role and the role of other beneficiaries and stakeholders in the current reinforcement effort (Part II), in total 156 events with public screening of the two films were organised. We also produced other video materials (ambassador video clips, short project video clips), films and video materials were viewed 910,024 times till the project's end. Additionally, Croatian national TV financed another documentary, focusing on project implementation in Croatia.
To gain and maintain the support for our project among the public and some of the most important stakeholder and target groups we organised 179 public events.
We aimed to build and maintain strong public support for lynx population recovery and long-term conservation by ensuring early and sustained public participation in the project so local consultative groups were established and LCG meetings were attended by local inhabitants 516 times.
Important communication was shared with the public and stakeholders through project publications concerning lynx and project activities, in total 135 publications had been produced (editions in different languages were counted separately) till the end of the project.
The lack of a coherent management response to the Dinaric lynx population decline is one of the main threats to the population, so it is important to develop a transnational, population level management approach for long-term lynx conservation. For implementation of that, production of Common guidelines for transboundary lynx management and 3 national management documents for countries sharing the Dinaric – SE Alpine population had been planned. In Croatia a new Lynx Management Plan with Action Plan was adopted. In Slovenia a new Lynx strategy and action plan were prepared in 2023 by the project team in cooperation with the National Ministry and are now in the process of adoption by the Ministry. In Italy an Interregional Management Plan was drafted within this project and submitted to the authorities.

We carried out media clipping and subsequent content analysis of the media articles about lynx. We had expected at least 400 media appearances of the project, however the project appeared in as many as 1,761 media articles.

One of the goals of the project was to increase knowledge about the lynx conservation among the

younger generation and school teachers. By building partnerships with local school children and teachers, we expected to gain long lasting community support for lynx reinforcement and conservation. We had planned to include at least 3000 children and 30 teachers. In total 81 schools, 3850 children and adolescents and 114 teachers were involved in the project.
It is important to share knowledge and experiences among partners and similar LIFE and/or non-LIFE projects, so our project team members attended 419 independent events.
The only way to ensure survival of lynx in human-dominated landscapes is to ensure their coexistence with humans. Decision-makers should collaborate closely with experts and key stakeholders and include them in preparation of the management documents; therefore, we have included 134 participants at workshops for preparation of national management documents.
For the project it was very important to develop strong partnerships with hunting organisations and to include them in species monitoring and reinforcement activities, in that way we also build support from this crucial interest group. We had expected to involve at least 80 hunting organisations, but then 387 hunting organizations were actually involved. We have also involved 758 private and public organizations (or projects) in the project through different events, personal communication and networking with the goal to gain and maintain the support for our project.

Public support for lynx conservation was expected to increase by 15% from the first to the last public opinion survey, however we found that support for maintaining lynx in Croatia, Italy and Slovenia was already very high in the first public opinion survey of the project and remained high throughout the project (85.7% in 2019 and 85.3% in 2023). Respondents of the public opinion survey also generally supported bringing new lynx to Croatia, Italy and Slovenia (73.9% in 2019 and 61.7% in 2023).
Popular articles were prepared in order to ensure objective and accurate media coverage about the lynx reinforcement effort, general lynx ecology and to promote the project, LIFE Programme and Natura 2000 network. We had planned to produce at least 89 popular articles but in the end our team members wrote 126 popular articles.
New guidelines for ungulate management plans in Slovenia that better incorporate the life history of lynx were prepared. The main purpose of developing new guidelines was to adjust hunter harvest of ungulates (red deer, roe deer, chamois), to ensure an adequate prey base for a recovering lynx population. We had planned to adjust 3 game management plans, but in the end we managed to adjust 5 plans.
We have created an Internet-based Geo-Database for lynx monitoring at the transboundary level. There were 297 registered users of the geo database and 59,753 lynx data points entered to the database till the project ended.

One of the project's goals was to establish a specialised police investigation unit and other necessary conditions for effective persecution of potential illegal killing of lynx and other protected wildlife. We planned that at least 20 police officers would receive specialised training for solving wildlife-crime cases, but in the end that number was exceeded and 48 police officers were actually trained.
Conservation projects have in general high potential for producing scientific outputs in the field of conservation biology and that was also true for LIFE Lynx, during which 72 scientific papers and presentations at scientific conferences were prepared.

Out of 132,37 FT project personnel, females estimated to 50,9% over the duration of the project.

Biological and ecological indicators
For the success of the project it was very important to track the reinforcement process and provide up-to-date information that helped manage, direct, and maximise the effects of reinforcement

activities.
The means of assessment of the biological and ecological indicators in the Dinaric - SE Alpine area have changed over time, so we need to be careful in their interpretation. Specifically, the estimates from 2017 are based on expert opinions as no rigorous monitoring system was established at the national or international level, apart from collecting opportunistic data which allows at best the estimate of distribution and the indication of reproduction areas. Still, at the beginning of the project the estimated number of individual lynx in the Dinaric-SE Alpine lynx population was 60-90 lynx. The baseline assessment of the Dinaric-SE Alpine lynx population, done within A.3 action, offered the first reliable insight in the status of lynx in the region, confirming at least 71 independent lynx and 15 females with kittens. However, only at the start of the reinforcement process (in 2019), the resolution of the collected data was sufficient to perform a scientific evaluation of the status, which later enabled us a fair and objective comparison of the lynx demographic status before and after the reinforcement process. Thus, we confirmed that the abundance of lynx in the Dinaric Mountains in 2019-20 was 96 (69-113) lynx and has increased to 152 (121-192) in 2022-23. Additionally, we confirmed the presence of at least six independent lynx in the Alpine stepping stone population. Already these results show us that we have surpassed our estimated impact, i.e. an increase of the number of lynx for at least 21 animals. Similarly, we have been able to improve the means of detection of females with kittens, especially through intensive camera trapping between 2018 and 2022. While the number of annually confirmed reproductions when the project started was 5, which was probably underestimated due to the poor data available, we confirmed 15 females with kittens in 2018. We expected that the baseline number would increase by 4, but in fact we confirmed 22 reproductions in 2023, so we can confirm that our plan has been exceeded.
There were presumably 15 functional territories of lynx (territories occupied by a male and a female) when the project started, we planned that during the project at least 9 new functional territories would be established, but that was surpassed since during the last monitoring season 30-34 functional territories were confirmed, so at least 15 new territories were established.
At the beginning of the project the lynx population distribution was 8500 km^2, we were expecting that that would increase by at least 2000 km^2 but in fact that has actually increased to 14700 km^2, so it has more than doubled by the last monitoring season.
Effective population size was estimated using genetics, however from 2022 onwards it was derived from genetic data and the number of successfully integrated translocated lynx (it was impossible to precisely estimate from genetic data because of the translocations). The effective population size for the last monitoring season (2023) was estimated to be 31 (confidence interval 28 - 35).
Inbreeding coefficient was estimated using genetics, however for 2023 it was estimated including the Alpine stepping stone population under different assumptions of gene-flow with Dinaric Mts. At the beginning of the project it was estimated to be 0.3 and we expected it to decrease to below 0.18, the actual estimate for the last monitoring season (2023) was between 0.08 – 0.19.
At the beginning of the project we planned that 14 lynx will be successfully translocated and included into the receiving population during the project, in total 18 lynxes were successfully translocated and 14 of those were also included into the receiving population, so our goal was achieved.
In total we documented 22 breeding events of the translocated animals until the 2022-23 survey season, 6 of those were breeding events in the alpine stepping stone area where new lynx subpopulation was established.

At the beginning of the project we wanted to determine how many lynx can be removed from each area in Romania and Slovakia without compromising the populations, moreover we also used the gathered data to estimate the effects of lynx removal on the local populations. For the final monitoring season (2023) it was estimated that there are 25 lynxes present in the Slovakian captures' areas and

17 lynxes in the Romanian captures' areas, which is more (for both countries) than in the second year of the project when the counts were done for the first time.

At the beginning of the project we planned to collect at least 700 lynx genetic samples for genetic analysis and in total we have collected 879 samples, which is more than predicted.
All dead lynx that were found were examined by an expert wildlife veterinary pathologist to confirm the cause of death and establish the health status of the animal, by the end of the project 13 dead lynxes were examined in this way (one of them in Italy in 2024).

Conclusions

At the beginning of the project we identified and developed suitable socio-economic indicators and biological and ecological indicators to follow the project's progress. The project team agreed on methods by choosing the most suitable quantification tools to monitor and evaluate the chosen indices. Assessments of indicators were carried out repeatedly, for most indices on a yearly basis. Final indicator assessment results presented in this report can help better explain to the public and stakeholders the multiple benefits of the project and its connection not only to reaching biodiversity conservation goals but also to society and the economy with which they directly interface.
During the project we managed to buy even more electric fences for livestock protection then was firstly planned. New niche tourism products were developed and attended such as painting workshops, lynx walks and local tourism already generated income from these activities, although it was a bit lower than predicted due to the pandemic.
Guidelines about connectivity were presented to physical planners, project team members were involved in communications training and an even larger number of damage inspectors was educated than firstly predicted. A lot of public events were organised and the number of people who attended project events was more than double of the expected number. Moreover, the final number of subscribers to the Facebook page was more than 7-times higher than the expected number.
By April 2024 two national operation documents were adopted in Croatia - guidelines for management of lynx orphans and national lynx management plan. Also, one interregional management plan was drafted in Italy and 2 management documents were prepared in Slovenia and are in the process of adoption by the Ministry.
We monitored the media articles mentioning lynx and we can say that the project was mentioned more than 4-times as many as expected at the beginning of the project.
A lot of schools were included in the project to increase the knowledge among the younger generation. The final number of children and teachers included in the activities has surpassed the predicted numbers.
Hunting organisations were included in the project and strong partnerships built with them, so the final number of included organisations is almost 5-times the number of predicted organisations. Results of the public attitude researches show that people generally supported bringing new lynx to Croatia, Italy and Slovenia and that the support for lynx conservation was already very high at the beginning of the project and remained like that till the end of the project, however it did not increase as was predicted.
During the project more than 120 popular articles were produced, which is much more than firstly predicted.
5 game management plans were adjusted to ensure prey, which is also more than predicted.
Specialised training for solving wildlife-crime cases was attended by more police officers than firstly planned.

When looking at the biological and ecological indicators we can note that all the predicted values for

the indicators were achieved (inbreeding coefficient, successfully translocated animals) and most of them were greatly exceeded (estimated number of individuals in the population, functional territories, annually confirmed reproductions, lynx population distribution, genetic samples).

Project created 132,37 FTE employees for the project beneficiaries on lynx-related topics, out of which 50,9 were females.

All in all, we can say that we can be very satisfied with the final indicator values of the project. There are individual cases where predicted numbers were not achieved, however the vast majority of the predicted numbers were achieved and a lot of them were also surpassed by much higher numbers than predicted at the beginning of the project.

Sources

Assessing ecosystems and their services in LIFE projects – A guide for beneficiaries
http://ec.europa.eu/environment/life/toolkit/pmtools/life2014_2020/documents/life_ecosystem_services_guidance.pdf

Mapping and Assessment of Ecosystems and their Services (MAES) -
http://catalogue.biodiversity.europa.eu/uploads/document/file/1673/5th_MAES_report.pdf