



Ministry of the Environment
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LECA

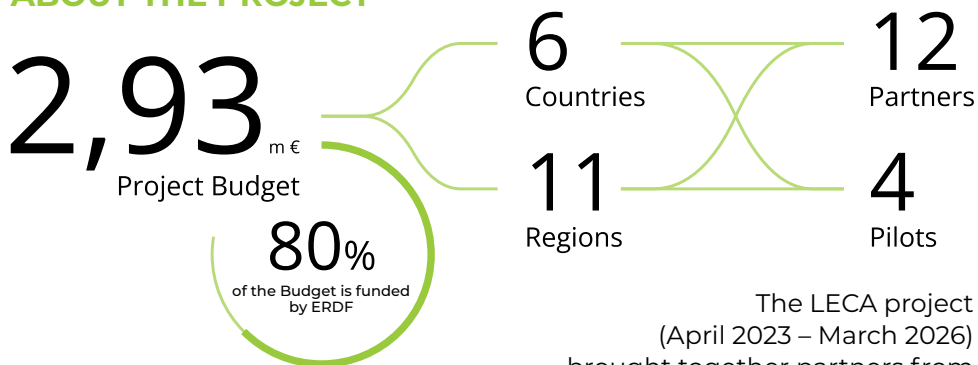


Supporting the coexistence and conservation of Carpathian Large Carnivores

April 2023 – March 2026

The **Carpathians** are one of Europe's last large wilderness regions and home to significant populations of lynx, wolves and brown bears – key species that keep forest ecosystems healthy. Despite legal protection, their populations remain threatened by poaching, habitat fragmentation, road collisions, intensive land use and rising human-wildlife conflicts. Monitoring systems also differ across countries, making it difficult to understand population trends and respond effectively.

ABOUT THE PROJECT



The LECA project (April 2023 – March 2026) brought together partners from six countries and includes ministries, universities, nature conservation agencies and NGOs. Cooperation was essential to harmonise monitoring and management practices for large carnivores in the Carpathians.



GUARDIANS of the Carpathian Forests

The Carpathians are home to three iconic large carnivores. Each plays a vital role in maintaining healthy ecosystems and biodiversity. Despite their importance, these species face serious threats and need coordinated protection. **Protecting them means protecting the balance of nature for future generations.**

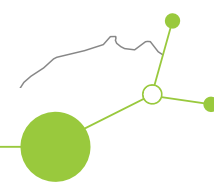
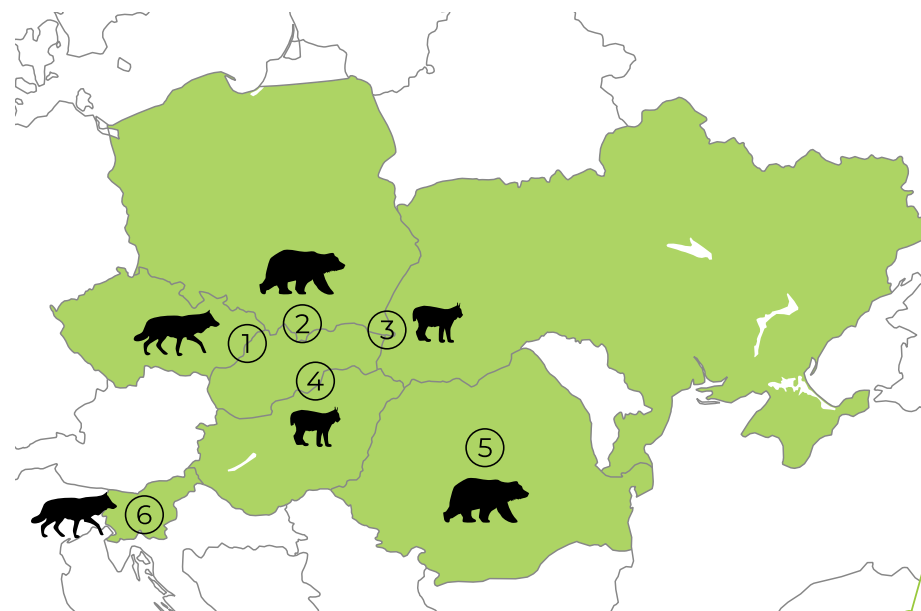
The **LECA project** strengthened conservation efforts for these species by introducing harmonised, science-based monitoring methods across the Carpathian region. By involving local stakeholders, improving conflict-prevention measures and supporting coordinated actions against illegal killing, the project contributed to better coexistence and more effective long-term protection of large carnivores and the ecosystems they depend on.

PILOT AREAS

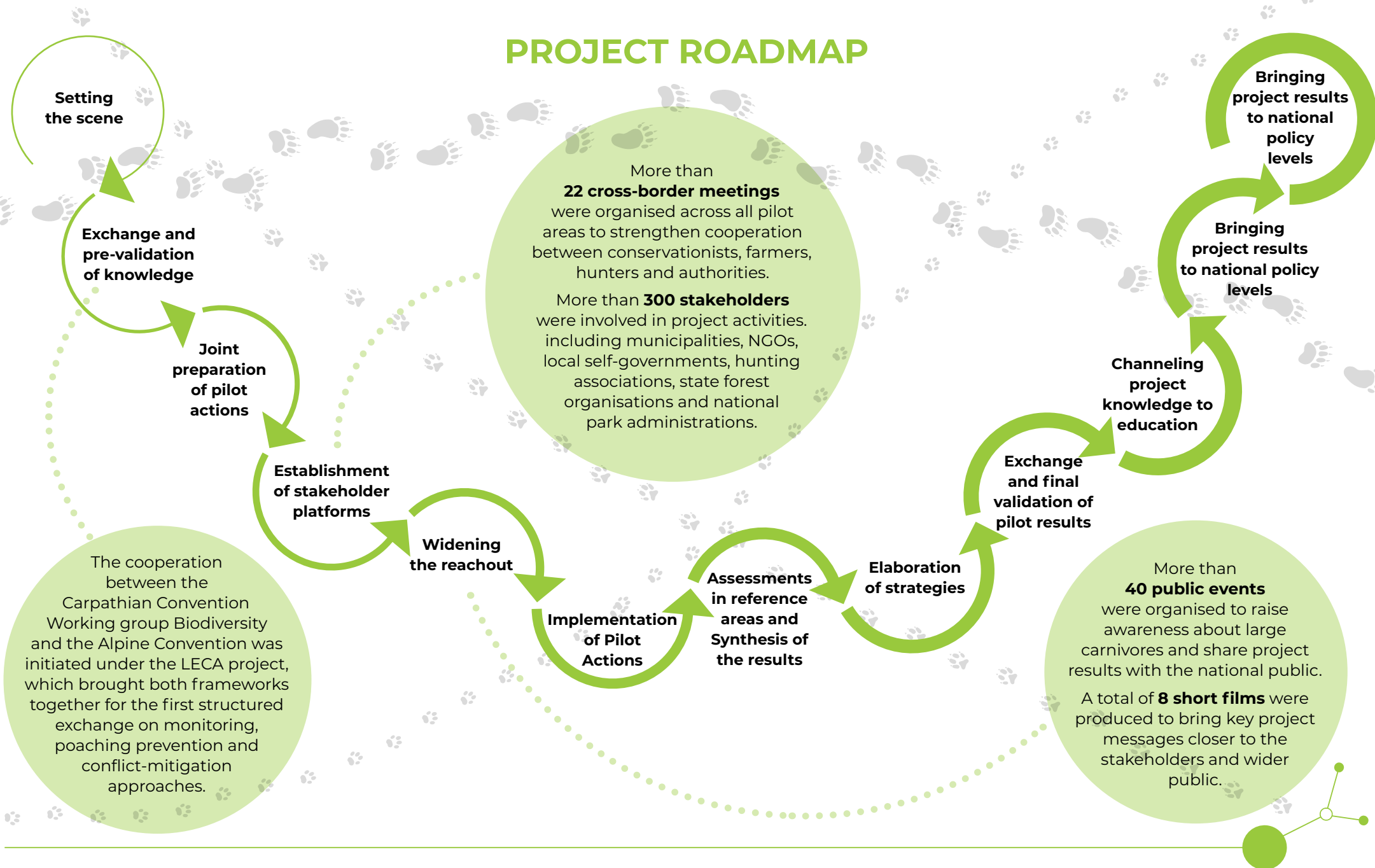
LECA implemented pilot actions in key cross-border regions:

1. **Beskydy-Kysuce (CZ/SK)**
2. **Tatras (SK/PL)**
3. **East Carpathians (SK/PL/UA)**
4. **Slovak Karst – North Hungarian Mountains (SK/HU)**

Additional reference sites were involved in **Romania (5)** and **Slovenia (6)**.



PROJECT ROADMAP



LECA IN NUMBERS



MAIN PILLARS OF THE PROJECT

I MONITORING OF LARGE CARNIVORES

II PREVENTING HUMAN-WILDLIFE CONFLICTS

III COMBATING POACHING

I. PILLAR:

MONITORING OF LARGE CARNIVORES

Why it matters

Large carnivores move across national borders, while management decisions are often taken at national level.

Harmonised monitoring methods are therefore essential to ensure comparable population estimates, reliable trend analysis and coordinated conservation actions across countries.

Key monitoring tools tested in the project

These tools provide accurate information about population size, movements and behaviour of large carnivores.

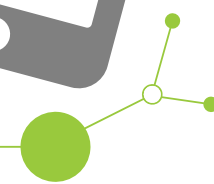
- Camera trapping
- Telemetry tracking
- DNA analysis
- Hormonal analysis
- Acoustic monitoring

PROJECT INNOVATION: CarniTrack – mobile monitoring application

The project developed **CarniTrack**, a mobile application that allows researchers, rangers and volunteers to record field observations of large carnivores. It provides a simple way to record field trips, store tracks, droppings, photos, or other observations, and create a comprehensive database for further processing.

All observations are automatically organised into a shared database that supports monitoring and research.

Available on Android and iOS. ▶



II. PILLAR:

PREVENTING HUMAN-WILDLIFE CONFLICTS

Why it matters

Preventive measures help reduce the risk of damage before it occurs.

By applying tools such as electric fencing, fladry, guardian animals and improved herd management, the project minimised losses for farmers and eased tensions around large carnivore presence.

Testing innovative methods further strengthens coexistence and increases acceptance of conservation efforts.

Effective prevention strengthens long-term coexistence between humans and wildlife.

Key measures implemented in the project

- Introduced and tested preventive measures such as electric fencing, protective netting and improved waste management.
- Deployed electric fences to protect livestock and apiaries in pilot areas.
- Installed bear-proof waste containers to reduce food attractants in settlements.
- Conducted behavioural monitoring using video collars to identify conflict hotspots.
- Engaged local stakeholders and authorities on coexistence measures and waste management solutions.
- Developed transboundary recommendations for coordinated damage prevention.
- Applied lessons from the Bieszczady Mountains pilot area to wider coexistence strategies.

PROJECT EXAMPLE: Electric fencing for livestock protection in Poland

Within the LECA project, several prevention measures were implemented in the Polish part of the Eastern Carpathians to reduce conflicts with large carnivores.

Video-collared bears helped identify food-related hotspots in towns, leading to improved waste management and the installation of bear-proof containers.

To better protect property and livestock, the project also supported practical prevention: 33 – electric fence sets were provided for apiaries and 12 for livestock protection between 2023 – 2025.

These measures significantly reduced conflicts and strengthened coexistence.



III. PILLAR: COMBATING POACHING

Why it matters

Poaching threatens large carnivore populations in the Carpathian Mountains, undermining ecosystem stability and cross-border conservation efforts.

Preventing illegal killing ensures populations can recover, supports science-based management, and strengthens public confidence in conservation.

Key activities implemented in the project

- Delivered seminars for law enforcement to strengthen wildlife-crime prevention.
- Identified needs and challenges through surveys with police investigators.
- Shared findings to improve cross-border investigative practices.
- Developed guidelines and tools for more effective wildlife-crime investigations.
- Enhanced cooperation and information exchange among experts across countries.
- Provided capacity-building to improve enforcement competencies.
- Introduced procedural recommendations to standardise investigation protocols.
- Clarified institutional roles to improve prosecution effectiveness.

PROJECT EXAMPLE: International webinar on poaching investigation

As part of the LECA project, an international webinar on large-carnivore poaching investigation was organised on 4 November 2025.

The event brought together police investigators and officers from Slovakia, the Czech Republic, Poland, Hungary and Ukraine to share best practices, discuss effective investigative techniques and strengthen cross-border cooperation.

Each country presented its own experience with wildlife-crime cases, followed by a joint Q&A session and shared recommendations.

Simultaneous interpretation into HU, PL and UA enabled active participation of local officers working directly in the pilot areas.



PILOT AREAS IN ACTION

1 Beskydy-Kysuce (CZ/SK)

- Located on the Czech–Slovak border in the Western Carpathians. Includes 2 protected landscape areas (Beskydy-CZ, Kysuce-SK).
- High human activity: forestry, hunting, tourism, grazing; landscape fragmented by roads and settlements.
- All large carnivores present, but only lynx reproduces regularly; wolf reproduction first recorded in 2019; no confirmed bear reproduction.

Key Pilot Action Focus: Grey wolf (*Canis lupus*)

- Documenting **wolf signs**: tracks, dung, urine
- **Genetic sampling & Camera trap monitoring & Tracking on snow cover**
- **GPS telemetry collars** with proximity system for conflict prevention
- **Engaging volunteers**: patrolling, reporting sightings via app, email, phone, or in-person, Training the volunteers

3 East Carpathians (SK/PL/UA)

- Transboundary area across Slovakia, Poland and Ukraine. Includes 3 national parks (Poloniny-SK, Bieszczady-PL and Uzhanskyi NP-UA).
- One of Europe's largest complexes of old-growth forests.
- Important refuge for large carnivores with long-term reproduction.

Key Pilot Action Focus: Eurasian lynx (*Lynx lynx*)

- Improving **scientifically robust monitoring** of lynx populations.
- Testing coordinated **transboundary monitoring and management approaches**.
- Installation of **bear-resistant waste containers** to reduce attractants.
- Deployment of **electric fences** for livestock protection.

*Five bears in the Tatra Mountains were fitted with **GPS telemetry collars**, two of them equipped with cameras. These devices provide detailed insights into bear movements and behaviour near settlements, helping authorities respond quickly and improve conflict prevention.*

2 The Tatra Mountains (SK/PL)

- Located in the highest range of the Carpathians on the Polish-Slovak border. Includes 2 national parks (Tatra NP-SK and Tatra NP-PL). Part of the UNESCO Tatra Biosphere Reserve.
- Biodiversity hotspot and major tourist destination.
- Home to wolves, lynx and brown bears, with bears being the most conflict-prone species.

Key Pilot Action Focus: Brown bear (*Ursus arctos*)

- **GPS telemetry collars** installed on bears to track movements.
- **Camera-equipped collars** to observe behaviour and evaluate preventive measures.
- **Camera trapping** for monitoring bear presence.
- **Electric fences and bear-proof containers** tested to reduce conflicts.

4 Slovak Karst-North Hungarian Mountains (SK/HU)

- Transboundary region on the Slovak–Hungarian border in the Inner Western Carpathians. Includes 3 national parks (Slovak Karst-SK, Aggtelek and Bükk-HU)
- Karst landscape with caves, forests and high biodiversity.
- Presence of lynx, wolves and bears, but limited knowledge about local lynx population.

Key Pilot Action Focus: Eurasian lynx (*Lynx lynx*)

- Improving **transboundary monitoring of lynx populations**.
- Identifying **lynx habitats and cross-border individuals**.
- Strengthening cooperation between hunters, foresters, park rangers and conservationists.
- Testing **conflict prevention measures** for livestock protection.





FINAL RESULTS & IMPACT OF THE PROJECT

KEY FINDINGS



- **Scientific monitoring produced robust data on large carnivore distribution, population structure and movement patterns**, while harmonised methodologies improved comparability of data and confidence in population estimates across borders.
- Results confirmed the **transboundary nature of bear, wolf and lynx populations**, highlighting the necessity of coordinated management and cross-border governance.
- Monitoring helped identify **hotspots of human–carnivore interactions**, allowing targeted preventive measures and more effective conflict management.
- **Livestock protection measures – including electric fencing, guarding systems and improved husbandry – significantly reduced damage incidents** when applied consistently and supported by advisory services.
- The project identified **gaps in enforcement and legislative frameworks related to wildlife crime**, including limited forensic capacity, procedural differences and weak cross-border information exchange.
- **Cooperation between authorities, experts and stakeholders strengthened through joint monitoring, consultations and stakeholder platforms**, contributing to policy discussions and improved conservation governance.

CORE RESULTS



- **Technical guidelines validated** for monitoring, poaching investigation and conflict prevention.
- **Pilot actions implemented in four cross-border areas**, testing solutions for bear, wolf and lynx conservation.
- **Cross-border stakeholder platforms established**, connecting authorities, scientists, farmers, hunters and local communities.
- **Local strategies and Memoranda of Understanding** adopted to ensure continuation of project outcomes.
- **National policy recommendations endorsed** following roundtable consultations.
- Results contributed to **transnational policy processes**, including updates of the Carpathian Convention Action Plan.

CHALLENGES FOR FUTURE



- Persistent human–carnivore conflicts in areas with intensive livestock farming and tourism.
- Gaps in enforcement of wildlife crime legislation and uneven monitoring standards.
- Need for stable funding to maintain prevention measures and monitoring systems.
- Continued cross-border cooperation and stakeholder dialogue required for effective conservation.
- Strong governance frameworks needed to support long-term coexistence with large carnivores.



STRATEGIC IMPACT

- Harmonised monitoring and enforcement approaches across countries.
- Strengthened **cross-border cooperation in biodiversity governance**.
- Integration of project knowledge into **education and training programmes**.
- Long-term policy influence at **local, national and European levels**.

