

BearConnect - Functional connectivity and ecological sustainability of European ecological networks – a case study with the brown bear

Context

High biological diversity can still be witnessed in some specific parts of Europe, where populations of large carnivores still roam free in their natural habitat. The charismatic and cultural value of these great predators is not to be under appreciated: being at the top of the food chain, they have a major impact on biodiversity regulation and ecosystem functioning over large scales. Their important role regarding ecosystem services delivery increases the need for species protection endeavours.

Therefore, the implementation of coherent systems of ecological networks considering simultaneously protected areas and other non-protected components of the landscape is needed to achieve successful conservation of these important and emblematic carnivore species.

Main objectives

The objectives of the BearConnect project revolve around the brown bear (or *Ursus arctos*) and aim at:

- Evaluating functional connectivity and factors influencing brown bear distribution, movements, and effective dispersal in current and future landscapes scenarios;
- Understanding the role brown bears have in ecosystems, with focus on trophic interactions and associated ecosystem services;
- Assessing the effectiveness of existing ecological networks for supporting the resilience of brown bear populations and associated ecosystem services;
- Providing spatially explicit guidelines for the improvement of ecological networks to be used in landscape connectivity planning for the conservation of brown bears and other species in Europe.

Main activities

In order to accomplish and achieve these objectives, the BearConnect project will:

- Coordinate with relevant stakeholders across Europe to combine different data types available for the 10 European brown bear populations;
- Analyse telemetry, demographic, genetic and ecological data to evaluate patterns of functional connectivity and landscape effects on bear movement and gene flow;
- Derive the structure of food web interactions and the economic value of a key ecosystem service provided by brown bears;
- Predict future changes in range dynamics of the brown bear and its food resources;
- Use quantitative models and simulations to assess whether existing ecological networks are suitable for conserving biodiversity and ecosystems functions and where management actions are required for improvement.

Stakeholders will be involved in project activities through an initial workshop and regular updates on project progresses. Final results will be presented to relevant stakeholders at regional workshops in Europe. Practical, spatially-explicit recommendations on how to maintain and improve ecological networks will be developed with the stakeholders and transferred to policy makers. A project website and a smartphone application are going to be created for the public and stakeholders.



Ursus arctos.

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Duration:

03-2017 to 02-2020

Total grant:

€ 1,397,615

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