

Mapping eur asian lynx habitat network in Belgium and surroundings

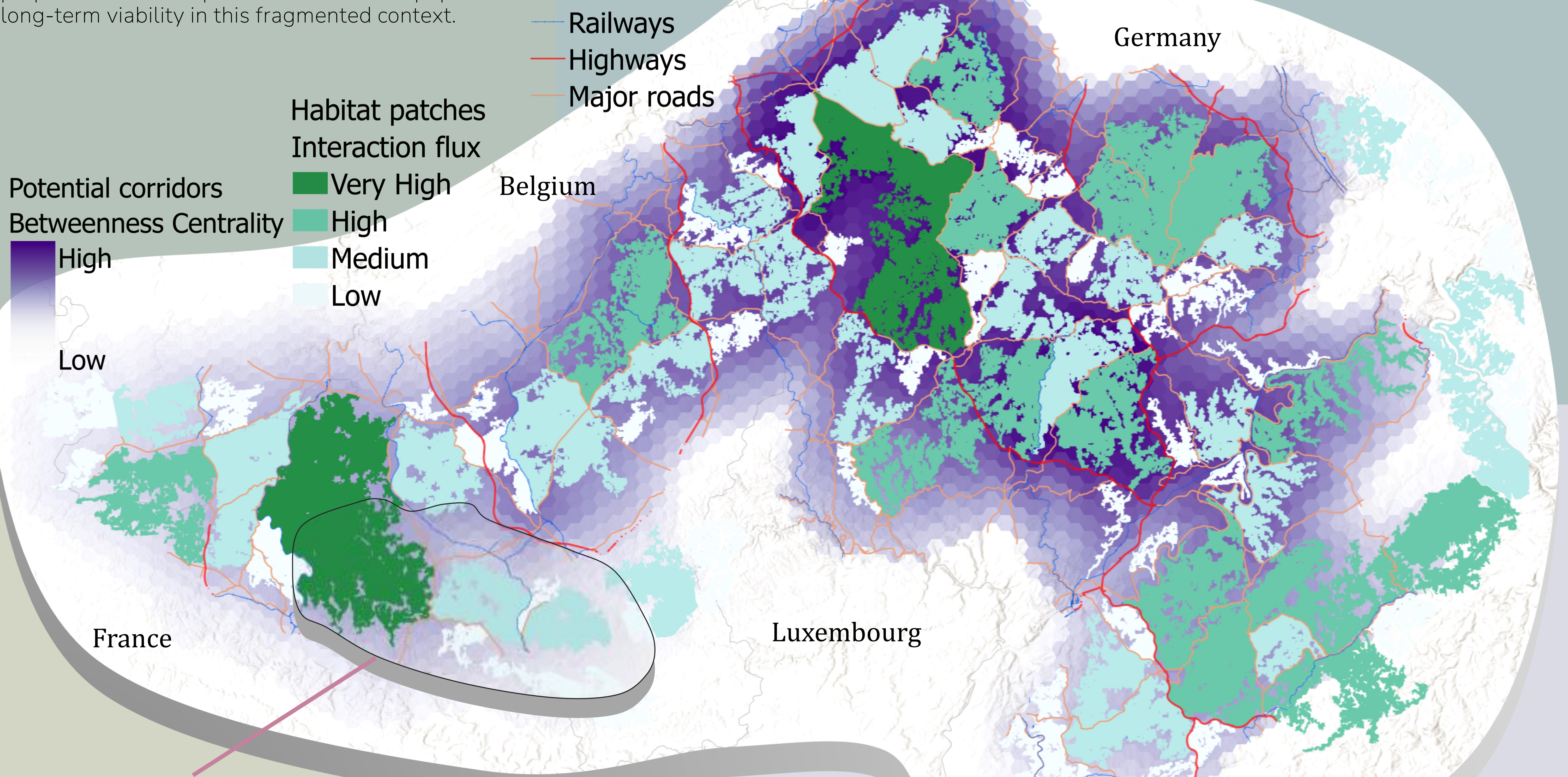
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1.Context

After a promising observation of a lynx in Southern Belgium in 2021, a study evaluated the capacity of Belgium and its surrounding regions to host a lynx population. The study revealed that the region has sufficient habitat quality to support up to 75 individuals. However, further studies were needed to assess habitat fragmentation in the area to ensure the population's viability. In such a fragmented landscape, an action plan was necessary to ensure the conservation and restoration of habitat connectivity for the species. This study aims to model the species' habitat network in the region and propose an action plan to ensure the population's long-term viability in this fragmented context.

2.Method

We used a habitat suitability model generated for the region to identify suitable habitat patches (Oeser et al., 2023). A resistance map was derived from this model by translating suitability probability into resistance (Duflot et al., 2018). Habitat network modeling was then performed using the Graphab software, combining a least-cost path approach with spatial graph theory. This allowed us to model the potential use of the landscape and prioritize network elements using connectivity metrics such as Interaction Flux and Betweenness Centrality. Interaction Flux (IF) was used to identify important patches with high carrying capacity that are located near other key patches. Betweenness Centrality (BC) helped identify patches where significant potential fluxes of individuals are concentrated due to their central location in the network. Major conflict points were identified by intersecting the most important corridors, based on BC, with major linear transport infrastructures.

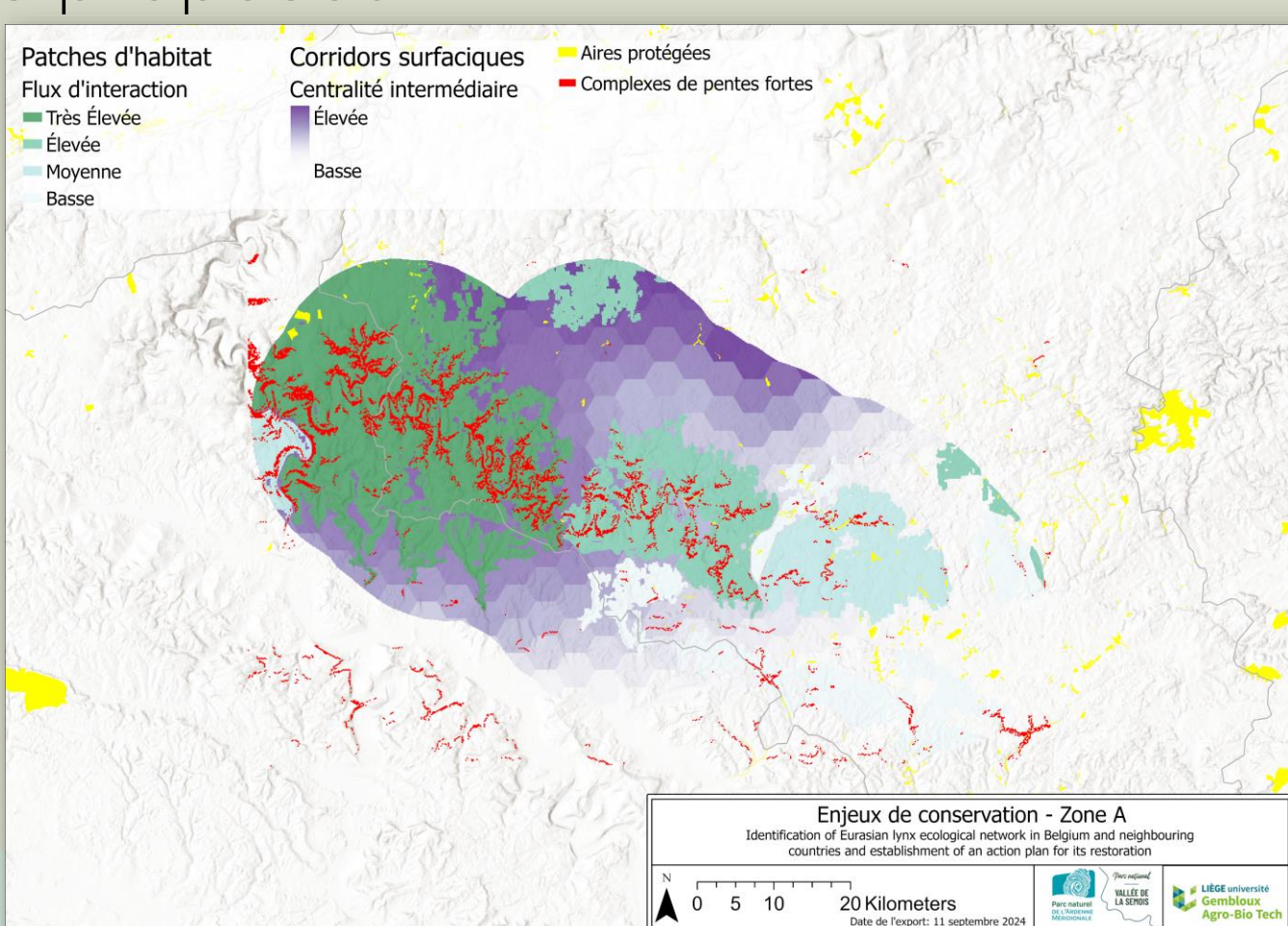


4. Identifying local actions

Local actions were derived from the regional action plan by conducting a landscape analysis at a local scale to identify the most important action zones.

This led to the identification of steep slope areas that need to be conserved to serve as core habitat and refuge areas for the species.

Four significant road conflicts were also identified, and a detailed action plan to mitigate these conflicts was proposed.



The results of the connectivity analysis helped identify conservation and restoration priorities in different areas of the network. This enabled the identification and structuring of a global strategy for a regional action plan.

Eight major actions were identified:

- Granting protection status to sites with high conservation value
- Proposing a status for continuous forest areas that structure the lynx habitat network
- Preventing collisions with vehicles
- Mitigating obstacles to dispersal
- Studying the crossing of linear transport infrastructure and implementing wildlife crossing monitoring
- Studying collisions between wildlife and vehicles
- Strengthening the coexistence of the lynx with livestock farming and hunting
- Targeted awareness and education efforts for coexistence with the lynx

3. Regional action plan



Acknowledgement

This project was financed by "Parc national de la Vallée de la Semois"

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