

# The impact of large herbivores on European ecosystems – a systematic literature review

Lena-Marie Musall, Bachelor Thesis

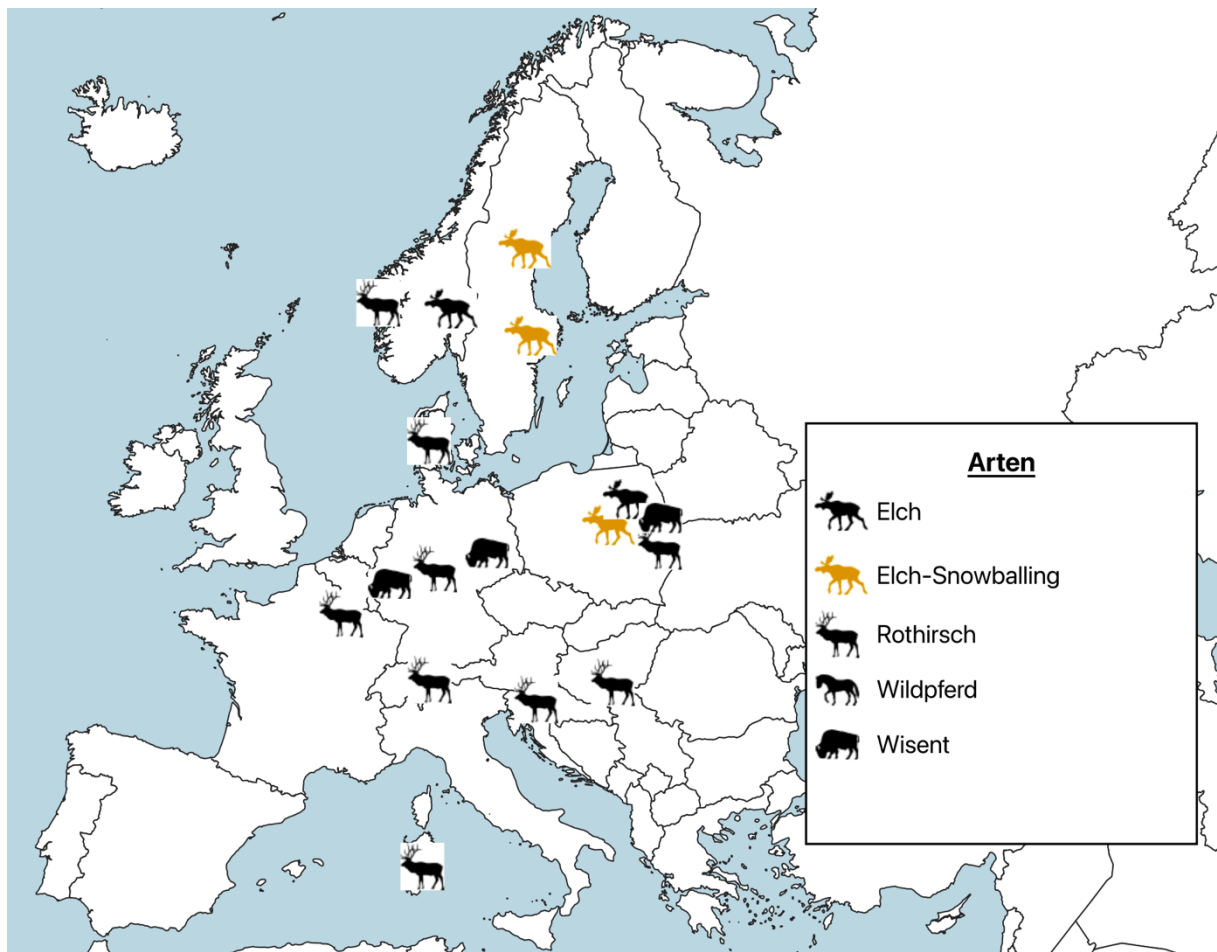
This thesis investigates the ecological effects of large herbivores (including red deer, European bison, moose, and wild horse) on European ecosystems using a systematic literature review following the PRISMA approach. The aim is to identify key mechanisms such as vegetation dynamics, nutrient cycling, seed dispersal, and trophic interactions, and to analyze their relevance across different regions and biomes in Europe. The results show that large herbivores play a crucial role in shaping habitats and contribute significantly to biodiversity and landscape dynamics. At the same time, research gaps become evident, particularly regarding underrepresented species such as moose and certain habitats like wetlands. Overall, the study highlights the ecological importance of large herbivores in the context of current conservation and rewilding debates.

**Figure 1**



Source: Own image, generated with ChatGPT (OpenAI, 2025) based on a prompt depicting large European herbivores (red deer, European bison, moose, wild horse) in a natural landscape.

**Figure 2**



Spatial distribution of study locations of large herbivores in Europe. Own illustration created with QGIS.

Base map: Natural Earth (<https://www.naturalearthdata.com/downloads/10m-cultural-vectors/>, accessed on 24.01.2026).

Animal icons:

- *Alces alces* – <https://www.phylopic.org/images/60736917-9124-4af4-ba87-14b9e53014b/alces-alces-silhouettes/>
- *Bison bonasus* – <https://www.phylopic.org/images/d65f6782-5a32-4b77-8448-4081bf1df02/bos-bison/>
- *Cervus elaphus* – <https://www.phylopic.org/images/b960d496-81f5-43a1-9acd-159b3d7b79/cervus-canadensis/>
- *Equus ferus przewalskii* – <https://www.phylopic.org/images/85d95128-912c-427a-9542-138e1db5651/equus-ferus-przewalskii/>