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Pan-European Ecological Network

Fact sheet VI – Ecological corridors and connectivity

The role of corridors and types

The intensive use of land, farming and monoculture forestry, transport and pollution, and land reclamation increases the need for connecting fragmented habitats and core areas. Ecological corridors, one of the elements of an ecological network, have the vital role of facilitating the movement and migration of species between core and adjacent areas; basically they connect the different elements of an ecological network. Where there is no fragmented nature, there is no strong need to establish corridors. An ecological network should also sustain biological diversity and landscape connectivity at all levels where fragmentation, isolation and barriers are found.

Ecological corridors are various landscape structures varying in size and shape from wide to narrow and meandering to straight, representing links between landscapes and maintaining or re-establishing natural connectivity. Clear examples are the migration routes for birds, ant-routes, badger routes and river corridors for fish migration like for the salmon.

Most of the ecological corridors found today are primarily the result of the presence or absence of human disturbance. Their density and spatial arrangement change according to human land use, their connectivity varies from high to low.

Corridors can be characterized into different types:

- continuous linear forms, distinctly different in type from the surrounding areas, not intensively used or managed, such as a river or tree lines;
- areas, landscape corridors formed as belts that link individual core areas and show the main direction of these links;;
- “stepping stones” that do not have structural continuity but maintain functional continuity, mostly useful for mobile species e.g. for birds as migratory bird sanctuaries.

Ecological corridors can be essential for long-term survival of certain species. The ecological relations of the corridors can exist in air, in the water and on the ground. Their spatial scale can differ from local to continental and global. As the distance between suitable biotope sites increases, the number of species that can bridge this distance decreases.

An ecological network has a hierarchical structure - meaning that its elements, core areas, corridors, buffer zones and restoration areas, may be distinguished at different levels: local, regional, national and international. Core areas on a local scale (e.g. animal sanctuaries, small forest complexes) might be elements of a corridor on a regional scale. The function of a given element in the network depends on its level.

Further readings:

1. R.P.B. Foppen, I.M. Bouwma, J.T.R. Kalkhoven, J. Dirksen, A.J.F.M van Opstal, 2000. Corridors of the Pan-European Ecological Network: concepts and examples for terrestrial and freshwater vertebrates. Tilburg, ECNC: European Centre for Nature Conservation
2. 2. 1st International Symposium of the Pan-European Ecological Network “Nature does not have any borders: towards transfrontier ecological networks”, Paris, September 1999 – Environmental Encounters No. 44, Council of Europe
3. 2nd International Symposium of the Pan-European Ecological Network “The partnership of local and regional authorities in the conservation of biological and landscape diversity, Rochefort (Belgium), September 2001 – Environmental Encounters No. 50, Council of Europe
4. 3rd International Symposium of the Pan-European Ecological Network “Fragmentation of habitats and ecological corridors”, Riga, October 2002 – Environmental Encounters No. 54, Council of Europe
5. Workshop on the ecological corridors for invertebrates – strategies of dispersal and re-colonisation in today’s agricultural and forestry landscapes, Neuchâtel, May 2000 – Environmental Encounters No. 45, Council of Europe
6. Colloquy on “Marine and coastal ecological corridors, Llandudno (Wales), June 2002 – Environmental Encounters No. 55, Council of Europe
7. National and regional approaches for ecological networks in Europe, November 2001, Study by RHG Jongman, I. Kristiansen and ECNC – Nature and Environment Series No. 110, Council of Europe
8. Corridors for birds within a Pan-European Ecological Network, 2002 – Study by C. Hindmarch and J. Kirby, Nature and Environment Series No. 123, Council of Europe
9. Ecological corridors and species: large carnivores in the Alpine region, Study by F. Corsi, L. Boitani and I. Sinibaldi - Nature and Environment Series No. 127, Council of Europe
10. Identification of the most important transboundary protected areas in Central and Eastern Europe, Study by R. Brunner - Nature and Environment Series No. 128, Council of Europe
11. Guidelines for the constitution of ecological river networks, Study by E. Wenger, WWF - Nature and Environment Series No. 129, Council of Europe