2.3 Fragmentation and connectivity

It is a well-known fact that protected areas can only conserve some 30-40% of native species in viable populations. Isolation leads to narrowing of the hereditary base which in its turn contributes to the extinction of species. To permit the survival of a substantial proportion of native fauna and flora, it is therefore essential to create also suitable conditions for species outside of protected areas. This includes creating the preconditions for species to disperse and migrate.

Central to the Habitats Directive is the creation of ‘Natura 2000’ – a coherent Europe-wide ecological network of sites selected on the basis of the protection that they offer to important habitats and species. Creating a network implies that the sites are connected allowing species to migrate from one site to another. Article 10 of the Habitats Directive states: “Member States shall endeavor, where they consider it necessary, in their land-use planning and development policies and, in particular, with a view to improving the ecological coherence of the Natura 2000 network, to encourage the management of features of the landscape which are of major importance for wild fauna and flora”. “Such features are those which, by virtue of their linear and continuous structure (such as rivers with their banks or the traditional systems for marking field boundaries) or their function as stepping stones (such as ponds or small woods), are essential for the migration, dispersal and genetic exchange of wild species”. Regrettably the implementation of Article 10 is not evaluated and member states are also not obliged to report on the implementation of article 10. The lack of emphasis on connectivity is not only a problem within member states but even more a problem at international level where there is no mechanism in place to ensure transborder connectivity of sites.

One of the major impediments to protecting biodiversity and limiting the success of EU’s biodiversity policies is because protected areas are becoming islands in “ecological deserts” in which it is difficult for species to survive. These ecological deserts are caused by the ever-increasing density of infrastructure and the intensity of agricultural activities which leave no place for other than commercial species.

Especially in view of climate change it is imperative that species can migrate from one place to another. Strengthening the connectivity between sites is therefore also considered an important climate adaptation measure.

To develop spatially robust ecological networks, there is a need to develop and apply selection criteria that are valid across the whole country. Key quality criteria for assessing the suitability of sites as components of an ecological network system include spatial location, size, representativeness and habitat assemblage. They also include the current state and development potential of sites as well as their ecological function.

A habitat network system comprises a number of different components:

- **Core areas** secure stable, permanent habitat for native species. These comprise remnants of natural or semi-natural areas, surrounded by buffer and restoration areas which prevent negative impacts from intensively used landscapes upon the core areas. Buffer and restoration areas can have conservation value in themselves, or may have the potential to develop towards semi-natural habitat.

- **Connectivity elements** are areas which ensure or facilitate genetic exchange among the populations of animals and plants in the core areas, as well as migration, dispersal and re-colonization processes. These can be 'stepping stones' or corridors.
The **surrounding landscape matrix** needs to be made less hostile to organisms and thus provide greater conductivity. This can be achieved by setting minimum quality requirements upon land uses. Such requirements are frequently met by broad-scale extensification.

Further reading and references: