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MEASURES APPLIED TO MITIGATE HABITAT FRAGMENTATION IN SPAIN

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Abstract: The PanEuropean Strategy for the Conservation of Biological Diversity identifies habitat fragmentation as the main cause of biodiversity loss in Europe. The expansion of urban and agricultural spaces is the factor that has traditionally caused the fragmentation of the natural habitats. But the development of transport networks that is becoming increasingly significant must be added to these previous factors. At present, the compatibility between the construction of new infrastructures and the conservation of biodiversity constitutes a challenge for those involved, since for the period 2000–2010 Spain expects to see the construction of around 6,000km of new transport infrastructures, the majority being motorways and high speed railways, which will add to the 700,000km of existing transportation network.

In addition, it should be pointed out that this significant expansion of infrastructure networks will affect a highly sensitive landscape, since Spain constitutes an enclave of interesting biodiversity within the European context, including the representation of various biogeographical regions from Alpine to Mediterranean habitats. The importance of the conservation of the flora and fauna in the country can be measured by looking at data that show there are 1,500 species of endemic flowers, and 41 endemic vertebrates, including some species which are in danger of extinction and highly sensitive to the fragmentation of their habitat such as the Iberian lynx (Lynx pardinus).

The mitigation of habitat fragmentation due to roads and railways is mainly developed during the process of environmental impact assessment (EIA), which analyses the effects of each project and designs measures destined to mitigate the environmental effects. In the near future and with a basis in a recently approved European Directive, the Strategic Environmental Impact Assessment (SEIA) will also be applied which will evaluate the plans of infrastructures including several projects together as a whole.

The application of measures to facilitate wildlife crossings and to reduce mortality caused by traffic collisions has been developed throughout the last decade. The first fauna passages merely consisted of adapted culverts or places that combined the fauna passage with forestry roads or streams. From 1997, specific wildlife passages began to be constructed. However, the measures to mitigate habitat fragmentation are still not widely applied, and it is necessary to increase the awareness of the technicians and decision makers involved and to encourage the dissemination of knowledge about the measures to mitigate the effects of habitat fragmentation.

With these aims, in 1998, Spain joined the Action COST 341 Habitat Fragmentation Due to Transportation Infrastructures, and a work program coordinated by the Ministry of Environment was set up. Within the framework of this initiative, intensive work has been carried out and includes:

- The production of a database containing information on 250 references of publications and unpublished reports about the subject (included in the IENE database; see www.iene.info).
- The production of an inventory which includes data on 140 measures: wildlife crossings and other measures applied to avoid fauna casualties.
- A report on the state of the art in the country (currently in press) which compiles data about the extension of the problem, the measures which are applied, and the results of the monitoring programs; see www.mma.es/conserv_nat/acciones/paisaje/paisaje.htm).

But one of the most relevant aspects that has been carried out within the framework of the COST Action is the creation of the Working Group (WG): Fragmentation of Habitat Due to Transportation Infrastructures. This brings together technicians who are responsible for the administration of transport and environment in Spain and the 19 Autonomous Communities (regions with autonomous government). The aim of this group is to increase awareness and to exchange knowledge, and there are plans to carry out specific objectives in the future such as the editing of a Technical Normative for the construction of wildlife crossings. This will standardize technical criteria in order to make the fauna passages more effective and make sure that they comply with the function they are designed for. Another future objective is the translation and adaptation of the report COST 341. Wildlife and Traffic. A Handbook on Identifying Conflicts and Designing Solutions.

One of the most outstanding achievements of the group is the cooperation between transport and environmental professionals that has encouraged the reconciliation of different stances with the common objective that the planning, construction and maintenance of transport infrastructures increasingly integrates criteria of prevention of those impacts which affect biological diversity.

Biographical Sketch: Carme Rosell is the Spanish coordinator of the Infra-Eco Network of Europe (IENE) Project, COST 341 – Habitat Fragmentation Due to Transport Infrastructures. She has coordinated the inventory of measures to mitigate habitat fragmentation in Spain (charged by the Ministry of Environment) and is also the author of a handbook on fauna passages.