MODELS AND TOOLS FOR THE ECOLOGICAL NETWORKS: LANDSCAPE ECOLOGY AND GIS

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Abstracts

Sustainable land use planning and management require an holistic approach that integrates regionally significant environmental, economic and social issues. Planning and managing the wider landscape offers a mechanism by which this may be achieved. The concept of an "ecological network" seeks to maintain optimal conditions of ecological processes in the wider landscape and at the same time promote socio-economic viability. This concept is becoming increasingly important in European nature conservation. However, the models and tools to pursue wider landscape planning and management related to ecological networks have not yet been successfully demonstrated and evaluated.

A four year demonstration programme is proposed to test the hypothesis that:

• The integration of environmental issues in land use planning and management can be facilitated by the use of an holistic model that focuses on the realisation of regional ecological networks.

A multi-national partnership will record the achievements and experiences of three study groups located in the European regions of North West (UK), Abruzzo (Italy) and Emilia-Romagna (Italy). Each study group is centred on local authorities with their land use planning responsibilities and links with community, practitioners, and local universities, who will offer support and specialist guidance.

The model is based on concepts drawn from the discipline of landscape ecology, tools of Geographical Information Systems (GIS) and existing practice of community involvement.

The model has five, equally important and co-dependent elements or tasks:

• Technical development of Geographical Information Systems and the application of landscape ecology principles
• Assessing and influencing land use policy and instruments
• Demonstrating integrated land management
• Engaging stakeholders
• Dissemination.

The realisation of an ecological network will help local authorities and land managers to integrate environmental considerations in land use planning and management. It is a targeting mechanism and aid to decision-making, providing a methodology for advancing nature conservation in Europe in ways that make ecological sense and are consistent with European directives and initiatives.

The role of Geographical Information Systems and Landscape Ecology: the actual structure of ecological networks is determined by the application of landscape ecological principles to the available environmental and land use data for the area in question.

The structures of the networks in each of the project study areas will be developed using Geographical Information Systems (GIS) and existing nature conservation and environmental databases. A large part of the work, however, will be focused on the practical application of the GIS and landscape ecology principles in the "real world", namely, the day-to-day planning and management of the land by local people and the project partners. This would include, for example, the production of "vision plans" or scenarios for integrated land management schemes, and the use of the GIS in constraints maps for proposed development, and the evaluation of such actions.