

For further information about the *Life* EConet Project please visit www.lifeeconet.com or contact

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The European project improving the landscape for people and wildlife

Sommario

Il progetto *Life* EConet, realizzato con il sostegno del programma *Life* Ambiente della Commissione europea in Cheshire (Regno Unito), Emilia-Romagna e Abruzzo (Italia), ha dimostrato come le reti ecologiche possano contribuire a raggiungere una migliore gestione e pianificazione dell'uso sostenibile della terra, oltre a superare i problemi di perdita di habitat e di frammentazione e isolamento delle specie. I partner olandesi, pionieri nella creazione di reti ecologiche, hanno fornito la loro consulenza al progetto.

Le reti ecologiche offrono un nuovo approccio: un futuro in cui essere circondati da bellezza e diversità e dove si possa coesistere e trarre beneficio dalla natura. Il modello *Life* EConet di informazione, coinvolgimento, sensibilizzazione, integrazione e ispirazione delinea un possibile programma per il futuro. Il progetto ha consentito di raggiungere diversi risultati:

- > Approcci strategici e a lungo termine per il territorio del Cheshire, dell'Emilia-Romagna e dell'Abruzzo, in grado di ripristinare i collegamenti tra i vari habitat e di creare nuove opportunità per la fauna.
- > Una metodologia scientifica per la definizione di reti ecologiche che comprenda l'uso innovativo dei modelli GIS e di mappe oltre a classificazioni del territorio e analisi della frammentazione.
- > Accettazione politica e sociale del concetto di reti ecologiche e dei loro benefici sociali, economici e ambientali.
- > Lavoro coordinato e integrato tra le agenzie e le organizzazioni rurali, di pianificazione e di salvaguardia sotto il patrocinio di un'unica struttura complessiva e strategica per l'uso della terra e la pianificazione dell'abiodiversità.
- > Indicazioni su come impiegare tali informazioni in modo interessante, stimolante e comprensibile da parte di politici e proprietari terrieri.
- > Fornitura di consulenza sulle modifiche e la gestione dei piani sull'uso della terra, le specifiche dei progetti, lo sviluppo e i programmi di generatori di aree verdi.
- > Esempificazione di come implementare la politica dell'Unione europea e mondiale in materia di sviluppo sostenibile.

Il modello, gli approcci e le esperienze del progetto forniscono un solido quadro per aiutare a modellare e a creare uno sviluppo e una prassi politica a livello regionale e locale nell'ambito della conservazione della natura, la pianificazione dell'uso della terra, la rigenerazione della terra stessa e varie strategie settoriali tra cui trasporti, agricoltura, silvicoltura, turismo e gestione idrica. Sebbene sia possibile ottenere ottimi risultati modificando le prassi attuali, le nuove risorse e capacità devono essere investite in un'analisi del territorio e delle specie al fine di definire le reti ecologiche, di garantire il supporto e il coinvolgimento delle parti in causa e di creare nonchè gestire gli habitat a livello territoriale. I fattori più importanti su cui basare lo sviluppo delle reti ecologiche dovrebbero essere:

1. Assunzione di un approccio su larga scala (da un punto di vista sia tematico che geografico).
2. Adozione di una prospettiva a lungo termine.
3. Integrazione della salvaguardia della natura tra le altre prassi di gestione dell'uso della terra (vista l'enorme pressione sull'uso della terra, è difficile prevedere un aumento delle aree protette in futuro).
4. I nuovi habitat devono essere destinati alle aree più idonee da un punto di vista ambientale e la vegetazione deve essere designata di conseguenza. Altrimenti, la natura va lasciata libera di seguire il suo corso.
5. Tenere conto delle esigenze locali.
6. Mobilitazione del sostegno e del coinvolgimento di tutti gli enti amministrativi pertinenti.
7. Uso un mix di tutti gli strumenti disponibili.
8. Coinvolgimento di tutte le parti in causa.

Il progetto ha rappresentato una possibilità unica per i partner di sviluppare le proprie idee sulle reti ecologiche, la pianificazione e la gestione dell'uso della terra. I partner hanno tratto ampio beneficio dalla collaborazione europea in diversi modi, ad esempio condividendo conoscenze, accedendo a idee, esperienze e abilità e migliorando le proprie competenze. I partner ringraziano il programma *Life* Ambiente della Commissione europea per il supporto finanziario che ha reso possibile questa iniziativa.

Il progetto ha raccolto numerosi proseliti nel corso di quattro anni. Il loro incoraggiamento, supporto e consulenza sono stati fondamentali per il successo del progetto e hanno contribuito a gettare le basi di un autentico cambiamento sul territorio del Cheshire, dell'Emilia-Romagna e dell'Abruzzo.

Who is behind the *Life* EConet Project

The *Life* EConet Project has been a partnership of local authorities, government agencies, practitioners and research centres from the United Kingdom, Italy and the Netherlands, led by Cheshire County Council (UK).

The Project has been a unique opportunity for the partners to develop their ideas about ecological networks and land use planning and management. They have benefited from European working in many ways, for example, by pooling knowledge, accessing ideas, experience and expertise, and enhancing their skills base. The partners gratefully acknowledge the financial support of the European Commission LIFE Environment Programme that has made this possible.

The Project has made many thousands of friends over the course of the four years. Their encouragement, support and advice has been fundamental to the Project's success, and has helped to lay the foundations for real change on the ground in Cheshire, Emilia-Romagna and Abruzzo.

Lead partner (beneficiary)
Cheshire County Council

Project partners

European Commission
Life-Environment Programme

United Kingdom Partners
Cheshire County Council
English Nature
Environment Agency
Liverpool John Moores University
Sustainability North West
United Utilities
University of Reading
University of Salford
Vale Royal Borough Council

Italy Partners
Provincia di Bologna
Provincia di Modena
Regione Emilia-Romagna
Regione Abruzzo
Università degli Studi Dell'Aquila

Netherlands Partners
Provincie Gelderland
Wageningen Universiteit
Alterra, Research Instituut voor de Groene Ruimte

Evaluation and conclusions

Ecological networks offer a new vision - a future in which people are surrounded by beauty and diversity, and where they can coexist with, and benefit from, nature. The *Life* ECONet model of informing, involving, influencing, integrating and inspiring sketches one possible roadmap towards such a future. The Project has resulted in a wide range of outcomes:

- > Strategic and long-term visions for the landscapes of Cheshire, Emilia-Romagna and Abruzzo that re-connect habitats and create new opportunities for wildlife
- > A scientific methodology for defining ecological networks, involving the innovative use of GIS modelling, maps, and landscape classifications and fragmentation analysis
- > Social and political acceptability for the concept of ecological networks and their social, economic and environmental benefits
- > Co-ordinated and integrated working between rural, planning and conservation agencies and organisations under the umbrella of a single, overarching, strategic framework for land use and biodiversity planning
- > Illustrating how information can be used in interesting and stimulating ways that can be understood by decision makers, landowners and land managers
- > Guiding change and management in land use plans, design statements, developments and green generator programmes
- > Providing an example of how EU and world policy on sustainable development can be implemented

The ability of the ECONet model to be transferred elsewhere will be a key measure of the Project's success. It is advocated that the model and the approaches and experiences demonstrated by the Project provide a robust framework to help shape and inform policy development and practice at regional and local level in the areas of nature conservation, territorial land use planning, land regeneration and various sectoral strategies including transport, agriculture, forestry, tourism and water management. Whilst much can be achieved by modifying existing practices, new resources and skills will need to be invested in: landscape and species analysis to define econets, securing the support and involvement of stakeholders, and creating and managing habitats on a landscape scale.

The experience of the ECONet partners is that the Life ECONet model can help to deliver more sustainable land use planning and management, and that it is a good example for others to use and adapt to their local circumstances. The most crucial elements on which the development of econets should be based are:

1. *Take a broad approach (thematically and geographically).*
2. *Have a long-term perspective.*
3. *Integrate nature conservation into other land use management practices. (With so much pressure on the land it is difficult to envisage an increase in strictly protected areas for nature).*
4. *New habitats must be targeted to the most environmentally suitable locations, and the vegetation communities designed accordingly, or nature left to have a free run and naturally colonise.*
5. *Reflect local needs.*
6. *Mobilise the support and involvement of all relevant administrative bodies.*
7. *Use a combination of whatever instruments are available.*
8. *Involve all of the stakeholders.*

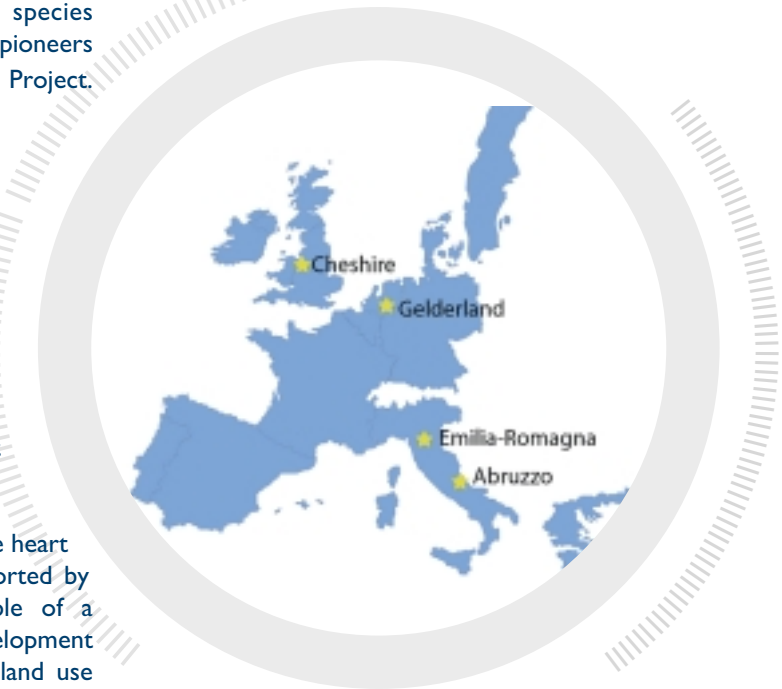
Introduction

The *Life* ECONet Project was supported by the Life-Environment Programme of the European Commission to demonstrate in Cheshire (United Kingdom) and Emilia-Romagna and Abruzzo (Italy) how ecological networks can help achieve more sustainable land use planning and management, as well as overcome the problems of habitat loss, fragmentation and species isolation. Partners from the Netherlands who are pioneers in developing ecological networks advised the Project.

The principal aims of the Project were to:

- > Promote sustainable development
- > Halt and reverse the continuing deterioration of the European Union's environment
- > Integrate environmental issues in land use planning and management
- > Demonstrate its transferability throughout the European Union
- > Disseminate the project and concept throughout the European Union

The Project demonstrated many of the issues at the heart of European environmental policy, and was supported by the Life-Environment Programme as an example of a measure designed to promote sustainable development through the integration of the environment and land use planning. For the partners, the Programme offered the funding opportunity to take forward local priorities that probably would not have been progressed otherwise.



LIFE, the Financial Instrument for the Environment, introduced in 1992, is one of the spearheads of the European Union's environmental policy. It co-finances in three areas:

LIFE Nature actions aimed at conservation of natural habitats and the wild flora and fauna of European Union interest, according to the Birds and Habitats Directives. They support implementation of the nature conservation policy and the Natura 2000 Network of the European Union.

LIFE-Environment actions which aim to implement the Community policy and legislation on the environment in the European Union and candidate countries. This approach enables demonstration and development of new methods for the protection and the enhancement of the environment.

LIFE-Third Countries actions concerning technical assistance activities for promoting sustainable development in third countries. This component of the programme enables a management capacity of the environment, both for administrative partners outside the Union as well as within companies and the NGOs of these countries.

More information about the LIFE fund can be found at www.europa.eu.int/comm/environment/life

The environmental problem tackled by the Project

Across Europe, increased demands on land for agriculture, housing and transport over the last 50 years have changed many landscapes. Consequently, wildlife habitats have become too small and isolated to survive, and many plants and animals are under threat.

Past wildlife conservation has focused on key sites, of which many have become protected areas. It is now recognised that this approach is insufficient to ensure the survival of valued habitats and species, many of which utilise the wider landscape outside protected areas.

From islands to networks

Saving wildlife will require us to reshape our work and thinking. To be effective, the conservation of nature and habitats must be planned and implemented on large spatial scales and over long periods. Expanding and linking areas for wildlife to create ecological networks (or econets as they are called here) offers a possible solution to this formidable challenge.



Why ecological networks?

Ecological networks aim to provide the conditions that are necessary for ecosystems and species populations to survive in landscapes that are exploited by human activities.

An ecological network typically comprises four main components:

- > Core areas representing key habitat types and ensuring their conservation
- > Corridors or stepping stones allowing species to disperse and migrate between the core areas
- > Buffer zones protecting the network from external influences
- > Nature restoration areas expanding the network to an optimum size

Already used at regional and local level in many Pan-European countries, the econet principle has been advanced at European level with the EU Species and Habitats Directive (articles 3 and 10) and Natura 2000. The concept is also fundamental to the Pan-European Biological and Landscape Diversity Strategy.

Project officer and partner exchanges between the UK, Italy and the Netherlands took place on several occasions and were a valuable way of exchanging work experience and understanding local issues.

Within the three case study areas dissemination was targeted to specific stakeholder groups and individuals, using a variety of methods. All three areas used folders designed to be visually attractive and to give basic information about the project, as well as meetings, seminars and conferences with local organisations, politicians and environmental and planning professionals, and articles in magazines and community newsletters.



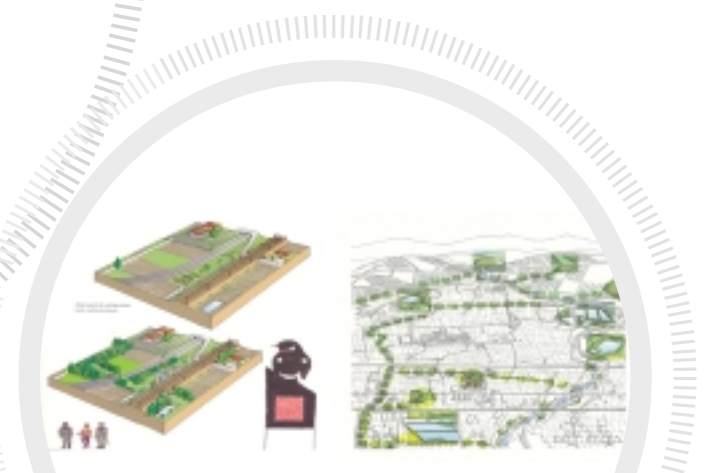
In Abruzzo innovative methods were used to spread the econet message to local mountain municipalities. These included a television documentary about the Project that was broadcast on 4 local networks.



In Cheshire, exhibitions at agricultural and country shows proved extremely successful in reaching rural people.



The experience of the Life ECONet Project is that dissemination is critical to raising awareness and understanding of ecological networks, but that the resources and skills required to do it effectively should not be underestimated. In any dissemination strategy it is essential to give consideration to why you want to communicate, who you want to communicate with, and what you want to communicate. Translation is an important tool in an international partnership and should be an integral part of the strategy.



In Emilia-Romagna an information booklet on ecological networks was published and distributed to key stakeholders.

Inspiring

An important part of the Project was to analyse experiences and lessons along the way, and to share these widely with practitioners, scientists, policy makers and the public within Cheshire, Emilia-Romagna and Abruzzo, and elsewhere within the United Kingdom, Italy and the rest of Europe.

At an early stage the Project established a strong sense of identity and a corporate image and Project "brand" that stakeholders could recognise and be proud to be associated with.

Methods used for dissemination

Processes	
	Project logo; website; promotional material; folders; presentations; publications; articles; newsletters; conferences; workshops; meetings; leaflets; TV and radio; rural shows and exhibitions

The Project website (bilingual in English and Italian) www.lifeeconet.com and promotional material was an integral part of this. At an international level the Project was disseminated through brochures, targeted correspondence with key European institutions, links with European websites, presentations by the partners at conferences and publications in journals and magazines. It was also showcased at the Johannesburg World Summit on Sustainable Development in September 2002.

The outcomes of the Project were presented by the partners at the end of Project International Conference and Exhibition in April 2003 in Chester. Over two days, 41 speakers shared and discussed their findings and lessons with a diverse audience of 250 delegates from community groups, landowners, farmers, foresters, water bodies, conservation groups, politicians, rural agencies and academic institutions. GIS exhibitions and posters illustrated the innovative ways in which computer technology, maps and aerial photographs had been used to study, interpret and analyse the landscape for wildlife, whilst field visits highlighted the opportunities and issues involved in integrating ecological networks in land use planning and management.



The *Life* ECONet Project, built on the econet principle, was set up in the belief that it offered an holistic mechanism to address this challenge. Specifically, that it would:

- > Provide a framework for land management, wildlife conservation and decision-making at the same time
- > Present an opportunity to develop regional econets on the ground
- > Enable a consistent approach to protecting nature and landscapes in Europe
- > Demonstrate a transferable model for integrating environmental issues in land use planning and management that had not been developed elsewhere
- > Provide an opportunity for holistic thinking about land use and land management issues that would not otherwise occur
- > Bring together local authorities, practitioners and research centres to address the issues and bring about actual landscape change

The *Life* ECONet Model

The Project's aims were to be achieved by testing the hypothesis that:

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

This model consisted of five equally important and dependent tasks:

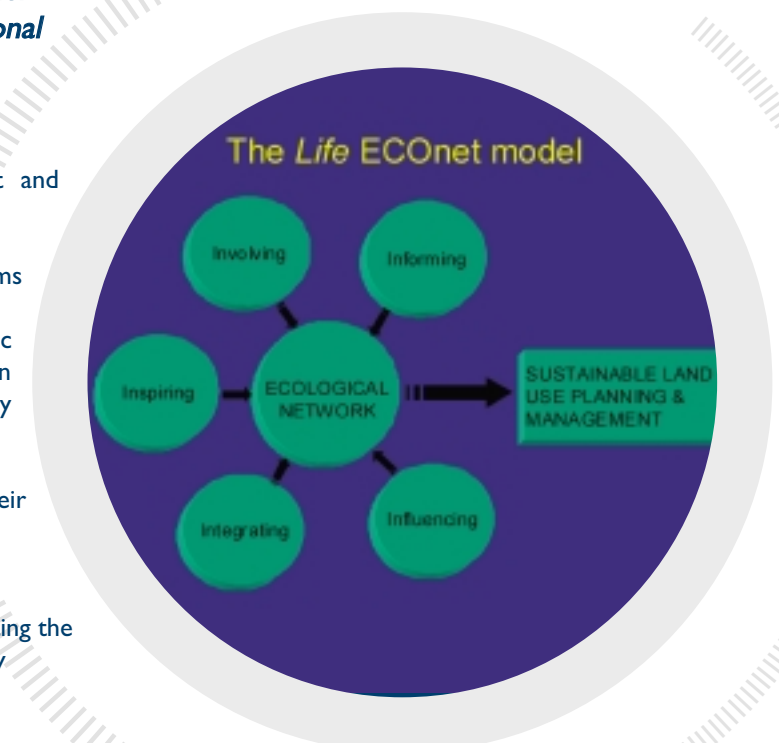
Informing - Using Geographical Information Systems (GIS) and landscape ecology principles to define ecological networks, and then using this geographic information to inform land use decision-making in interesting and stimulating ways that can be easily understood.

Involving - Engaging local people to listen to their views, and gain their support, commitment and participation towards ecology and land use change.

Influencing - Assessing land use policies and integrating the ecological network approach into all relevant policy sectors.

Integrating - Demonstrating how ecological networks can be integrated into land management practices (for example, farming, quarry restoration, derelict land regeneration, road design).

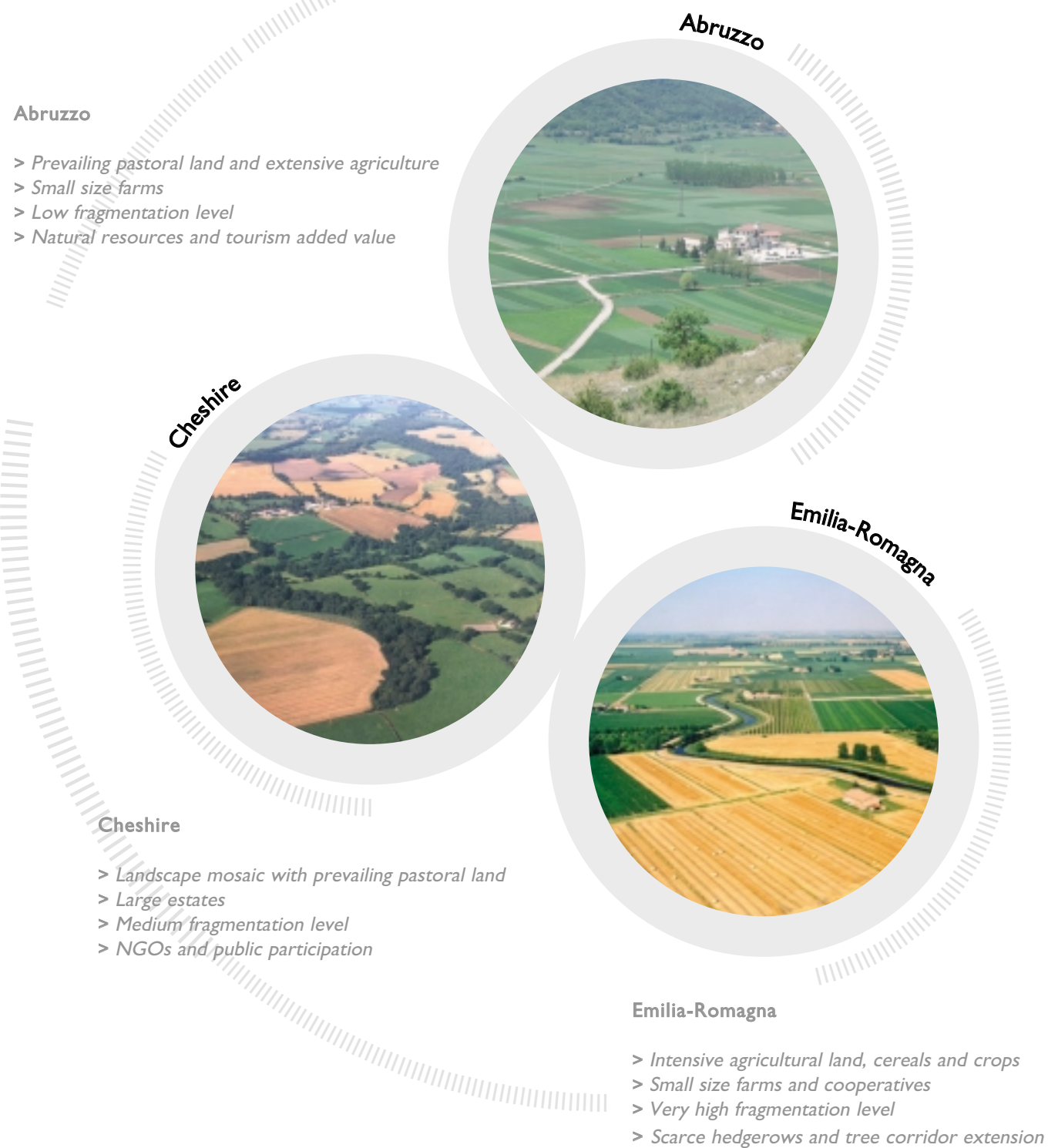
Inspiring - Utilising all forms of media to raise awareness and understanding of the concept of ecological networks and the *Life* ECONet Project.



The case study areas

The three case study areas chosen to test the model in Cheshire (United Kingdom), Emilia-Romagna and Abruzzo (Italy) are representative of pressures on land use throughout Europe. They also exhibit differences in their landscape, morphology, land uses and even land ownership patterns.

An important factor in relation to the transferability of the *Life* EConet model was its flexibility to be reproduced by local authorities of different organisational and cultural structures. It was anticipated, therefore, that it would have wide application both within and beyond the partner countries across all regions of member states.



Integrating

The *Life* EConet Project demonstrated the practicalities and issues involved in integrating the concept of ecological networks into a range of land management practices. Human land use change has been the cause of habitat losses, fragmentation and isolation in all three case study areas. The reversal of these effects can only be achieved by integrating the ecological network into the activities of those land uses and land users that initially caused the problems - these vary between the groups.

Methods used to demonstrate integrated land management	
Land uses involved	Agriculture; forestry; recreation; industrially derelict land; quarries; water management areas; hunting; wind farms; nature conservation; transport networks
Types of analysis	Agronomic; land use management; wind farm; water systems; biodiversity; road wildlife conflicts
Processes	Mapping road wildlife casualties on GIS; whole farm plans; forest design plans; water management plans; links to stakeholder engagement

Farmland is the major land use in all three case study areas. In Cheshire, management plans and reports were prepared for a number of farms, leading to applications for agri-environment schemes to fund habitat creation and management. In Emilia-Romagna and Abruzzo agronomic studies and engagement with farmers and agricultural enterprises have highlighted the potential for the expansion and creation of ecological networks.

The fundamental element of the Emilia-Romagna econet is water, and actions have been started with water boards to improve their ecological functions, including the preparation of guidelines for their ecological improvement and re-establishment as lowland ecological corridors.

It isn't just farmland. Nearly everywhere there are opportunities to restore degraded and derelict lands to favourable biological conditions. The Project has illustrated the potential of these and other "green generators" such as quarries and closed landfill sites for being restored to new habitats for wildlife.

Other studies have assessed the ecological impact of wind farms in Abruzzo, and in all three areas the potential conflicts between roads and wildlife have been explored. For some species such developments are barriers to movement and dispersal, and threaten population levels. A picture of road wildlife casualties has been built up in order to identify hotspots and locations to prioritise future work to mitigate the impacts of roads through the installation of fauna passages and fencing.

The experience of the Life EConet Project is that ecological networks can be integrated into a wide range of land uses, and that many land and water managers are prepared to listen and are keen to take action. A number are already doing so in small ways, without persuasion. Lack of sufficient financial support to implement large-scale improvements, however, is a constraining factor for some. There is great scope for public bodies to set an example and reform their land management policies to attain the vision.



Influencing

The Project has assessed existing land use policies, programmes and practices for their potential to realise ecological networks. Opportunities have been taken to influence policy and decision makers to change policies, instruments, schemes and practices that have been reviewed during the life of the Project. There have been some notable successes in Cheshire, Emilia-Romagna and Abruzzo of the ecological network approach being applied by various sectors to guide land use change and management:

- > At a strategic level, in overall biodiversity protection and conservation policies at regional, county and local plan level
- > In the input to the development of thematic strategies and plans such as territorial plans, structure plans, regional plans, biodiversity plans
- > Informing design statements, for example, the Delamere Forest Design Plan in Cheshire and the management plan for Manzolino-Tivoli in Emilia-Romagna
- > At the detailed development control level in varying degrees to guide new development
- > Informing green generator programmes by identifying ecological opportunities and promoting local vegetation community types
- > Attracting and focusing the allocation of a number of financial schemes

Methods used to influence land use policies, instruments and schemes	
Type of analysis	Policy, legislation and planning; schemes and initiatives; land use activities; environmental; stakeholders
Databases	Stakeholders; legislation; policies, schemes and initiatives
Processes	Literature review; stakeholder engagement; database collation and analysis; guidelines for land use policy, legislation and econet implementation; integration in capital works and development control decision-making

The experience of the Life ECONet Project is that at its simplest level, the ecological network approach is improving our understanding of the ecological needs of the landscape, and guiding land use change. The litmus test for any demonstration project is transferring from the theory into practice and implementation. Influencing policies, programmes and practices is a key stage in that process.

One of the main barriers to the incorporation of ecological network principles in land use policies and programmes is the perceived lack of relevance and low level of priority given to the issue by policy makers. The challenge is to demonstrate the clear economic and social benefits of the network.



Informing

The Project has used innovative techniques and the latest information technology to define ecological networks for Cheshire, Emilia-Romagna and Abruzzo. In this task, the considerable experience and expertise of the Project's Dutch partners was of great benefit as ecological networks were a new and untried concept in both the UK and Italy.

The networks have been based, as far as possible:

- > On scientific principles of landscape ecology
- > Using GIS modelling as the tool for analysing and mapping the landscape for biodiversity
- > Taking into account the wishes of stakeholders and the opportunities and restrictions for nature development as a result of various land uses

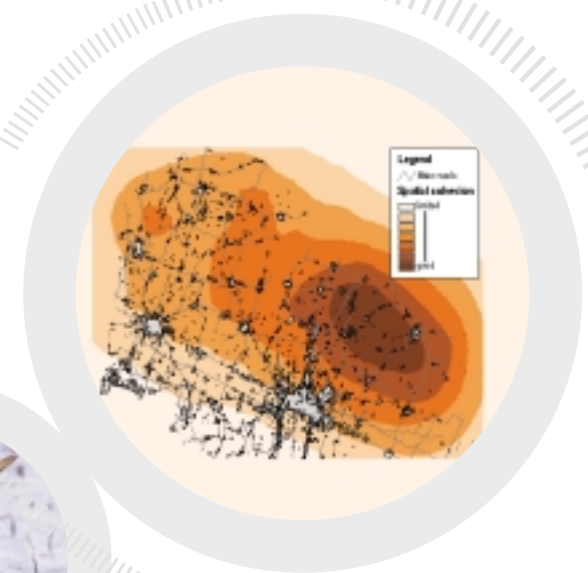
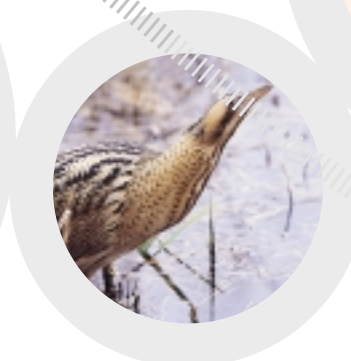
It would be impossible to design a network to take account for the needs of all organisms. To get around this problem an approach has been developed to assess the suitability of the landscape for a representative range of priority habitats, or some subset of biodiversity which acts as a surrogate for a habitat and a suite of species.

In the *Life ECONet* Project the assessment of the habitat requirements of specific selected species and the connectivity of the landscape was undertaken with the landscape-ecological model LARCH (Landscape ecological Analysis and Rules for the Configuration of Habitat), developed at ALTERRA.

The principles of LARCH are simple: a species is selected, relevant for nature conservation or an indicator species representing a suite of species, to assess the natural areas. The size of a natural area (habitat patch) determines the potential number of individuals of a specific species it can contain. The distance to neighbouring areas determines whether it belongs to a network for the species. The carrying capacity of the network determines whether it can contain a viable population. If that is the case, the network population is viable or sustainable for the species.

Methods used to define ecological networks	
Discipline	GIS; landscape ecology; land use history; land use analysis; zoology; botany; ecology; species modelling; urban and infrastructural fragmentation analysis; scenario development
Models and indices	LARCH modelling; indices for urban and infrastructural fragmentation analysis; land form profile digital elevation model
Data	Flora and fauna; geology; hydrology; land use; current and historical maps and aerial photographs

Emilia-Romagna. Analysis wetlands: bittern (*Botaurus stellaris*)

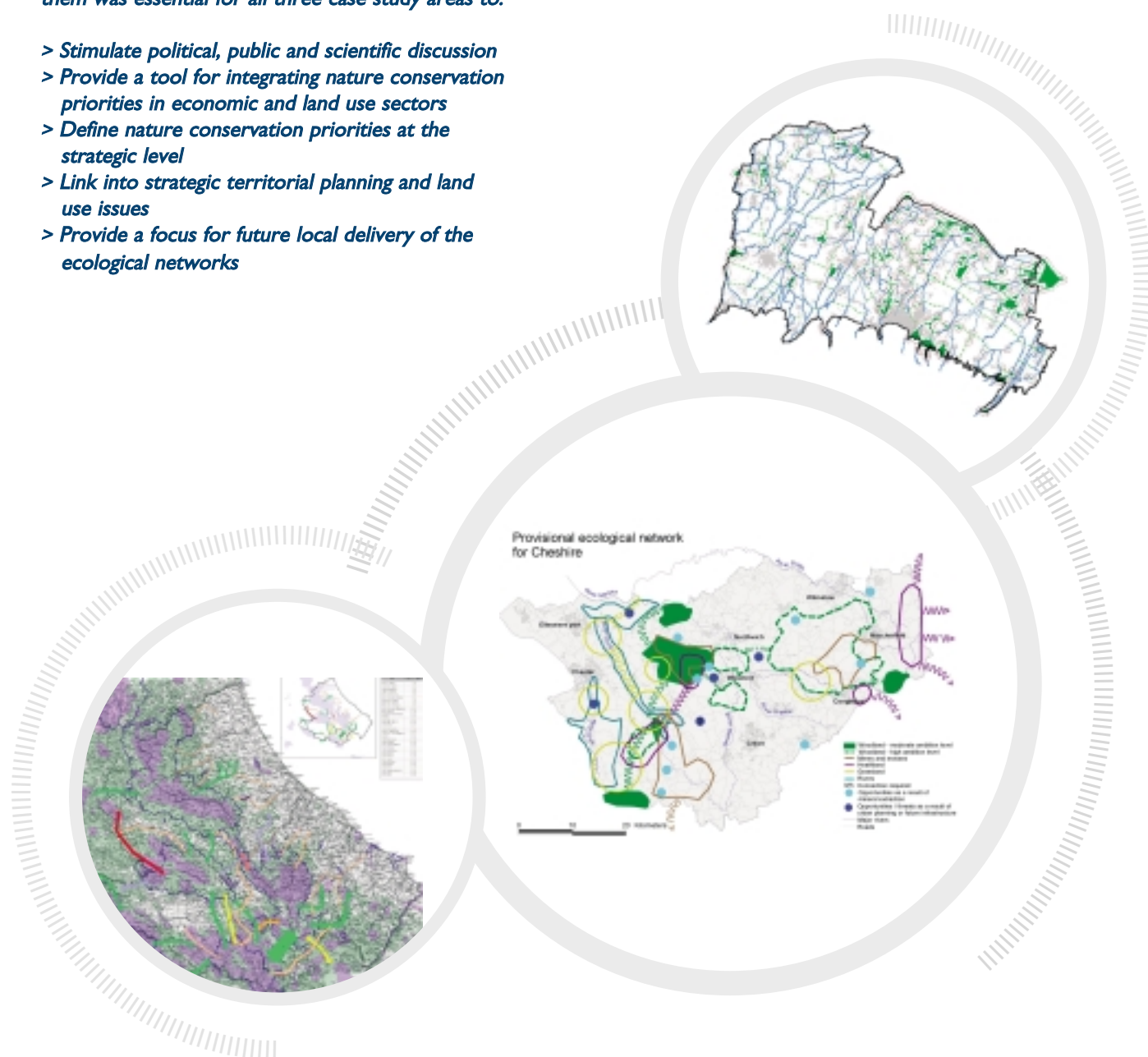


For the first time, ecological networks have been defined in Cheshire, Emilia-Romagna and Abruzzo which identify priority habitats and species as well as strategic options for targeting habitat expansion and corridors (for example, see the web-based toolkit developed for Cheshire www.lifeeconet.com/toolkit).

The experience of the Life ECONet Project is that GIS, combined with the use of maps and aerial photographs, presents environmental information in interesting and stimulating ways that can be understood by decision makers, land owners and land managers.

The production of an indicative map of an ecological network showing priority sites and features, areas of potential expansion and the linking corridors between them was essential for all three case study areas to:

- > Stimulate political, public and scientific discussion
- > Provide a tool for integrating nature conservation priorities in economic and land use sectors
- > Define nature conservation priorities at the strategic level
- > Link into strategic territorial planning and land use issues
- > Provide a focus for future local delivery of the ecological networks



Involving

The realisation of ecological networks is only possible with political and public understanding, acceptance, co-operation and participation.

The *Life* ECONet Project has engaged and sought the views and perceptions of a huge number of individuals, community groups and policy makers in diverse sectors including land-use planning, regional development, agriculture, forestry, fisheries, education, transport and tourism.



The stakeholder engagement process was fundamental to the success of the Project, and various techniques were used to seek people's views and gain their support.

The process by which stakeholders were engaged has varied according to what works best locally, and what are the local priorities. Participation at the grassroots level is crucial, however, to long-term implementation. The *Life* ECONet Project has, therefore, tried to develop innovative mechanisms to reach local people through rural shows and events, farm walks and social evenings, perception studies and particularly personal contacts, in an effort to increase public engagement, raise awareness of the Project and its concept, and to inspire participation.

The experience of the Life ECONet Project is that stakeholder engagement is time-consuming, but building relationships and changing people's attitudes and behaviour is critical to long-term success. In the process, the practical relevance of the ECONet concept to people's lives and livelihoods has to be demonstrated. The effort has been rewarded in the lasting relationships, trust, mutual understanding and respect that have been built up with many people. A major realisation is that the development of social networks is fundamental to achieving the ecological networks.

Methods used for stakeholder engagement	
Sectors	Agriculture; water planning and management; forestry; fisheries; nature conservation; land use planning and management; land reclamation; education; hunting; field sports; transport; tourism
Scale of engagement	Europe; national; regional; provincial; county; local
Processes	Contact sheets; stakeholder database; perception studies; questionnaires; group meetings; individual interviews; site visits; seminars; farm walks

