IUCN European Programme

NATURA 2000, Rural Development and Ecological Networks

Proceedings of international seminar held in Konstancin Poland on 15–18 December 1999

Editor

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IUCN Office for Central Europe in Warsaw
Warsaw 2000

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Published by: IUCN Office for Central Europe in Warsaw

Foundation IUCN Poland

ISBN: 2-8317-0529-0

Cover photo by: Dorota Metera

DTP: W-TEAM; Marek J.Woźniak & Jan Woreczko

Layout by: IUCN Office for Central Europe in Warsaw

Printed by: Pracownia Poligraficzna ARWIL s.c.,
Warsaw, ul. Czereśniowa 16

Available from: IUCN Office for Central Europe
ul. Narbutta 40/21, 02-541 Warsaw, Poland

The IUCN Office for Central Europe would like to express its gratitude to the Ministry of Agriculture, Nature Management and Fisheries of the Netherlands for its financial assistance for the projects administered by IUCN – The World Conservation Union.

Contents

From the Publisher

Work on the pan-European ecological network has been a gradual process conducted within the framework of many international initiatives and having global, European and regional scope. The process has been initiated by international conventions, e.g. the Convention on Wetlands of International Importance (Ramsar Convention), the Convention of the Conservation of Migratory Species of Wild Animals (Bonn Convention) and finally set up within the Pan-European Biological and Landscape Diversity Strategy (PEBLDS) in 1995.

One of the objectives of the PEBLES is to develop the Pan-European Ecological Network. The Ministers of the Environment suggested developing it on the basis of on-going initiatives. The effects of all these initiatives (the CORINE sites, the biogenetic reserves, the Areas of Special Conservation Interest (ASCIs) EMERALD, the Special Areas of Conservation under NATURA 2000) should be incorporated into one entity – a continuous structure.

In 1993 IUCN started a project, called "National Nature Plan" (NNP), to develop National Ecological Networks (ECONETs) in four Easter European countries (Hungary, Poland, Czech and Slovak Republics). The concept of these networks, especially the criteria for designation of their components, deliberately met in full the criteria laid down in the EU's conservation conventions and its' Habitats and Birds Directives. Thus the developing National Ecological Networks provide a ready planning tool for the designation of NATURA 2000 sites in these countries.

NATURA 2000, as a European network of protected areas, is an important objective of the EU Habitat Directive. This ecological network will contain **special areas of conservation** to enable the natural habitat types and the habitats of especial species to be maintained or, where appropriate, restored to a favourable conservation status in their natural range. The Habitat Directive assumes adaptation of its Annex lists of habitats and especial species when new states join the EU.

The **EMERALD Network** – a network of **Areas of Special Conservation Interest (ASCI)** for Europe – is developed on the basis of the Convention on the Conservation of European Wildlife and Natural Habitats from 1996 and is formally regarded as preparation for application of the Habitat Directive. In January 1996, a sufficient number of States of Central and Eastern Europe (CEE) had become Parties to the Convention and were requesting the development of the ASCI network.

From the point of view of spatial development planning, the ECONET concepts and implementation strategies elaborated in four NNP project countries, clearly demonstrate that ECONET has high practical value in terms of knowledge and

data gathered, as well as ready-to-hand mechanisms for integration of biodiversity conservation concerns into sectors of the economy.

IUCN has therefore recently launched projects in several other CEE countries to develop ecological networks, with the objective of contributing to the establishment of the Pan-European Ecological Network (PEEN) and, at the same time, to facilitate the process of EU enlargement and establishment of the NATURA 2000 network.

One problem faced by Accession countries is the risk of losing potential NATURA 2000 sites, and species of high conservation value which they contain, due to rapid infrastructure development before they can be adequately protected or defended. The consequences would be serious for European biodiversity, given that Accession countries represent a large proportion of Europe's remaining natural wealth. Therefore all the existing knowledge and experience, especially ECONET, should be used to speed up the process of implementing the Habitat Directive and designing the NATURA 2000 network.

In terms of deadlines given to the accession countries to designate NATURA 2000 sites, using ECONET as an integration mechanism would simplify and strongly support the design of NATURA 2000 by using readily available experience and knowledge. Thus IUCN argues that the expert network which it has established (representing knowledge and data, as well as experience gained) can facilitate the designation of NATURA 2000 sites by the first-wave Accession Countries.

With this goal in mind, the IUCN Office for Central Europe, which has supported the establishment of national ecological networks since 1993, organised an international seminar in December 1999. The seminar's theme was the integration of biological and landscape biodiversity considerations into major economic sectors, and it focused on the following objectives:

- To assess progress in implementation of major concepts and initiatives regarding biodiversity protection in Europe, in particular in Central and Eastern European countries;
- To identify links and overlaps between EMERALD/NATURA 2000 and ECONETs concepts and to assess the applicability of ECONET as a planing tool for the creation of EMERALD/NATURA 2000 in Central and Eastern European countries, in particular Accession Countries;
- To initiate discussion, and the exchange of experience and approaches towards identification of Strengths, Weaknesses, Opportunities and Threats resulting from the integrated implementation of those concepts and initiatives;
- To examine and demonstrate the application of ECONET as a tool for integration of biodiversity into the major economic sectors;
- To examine and demonstrate the practical value of ECONET for spatial development purposes at a national level: in particular, as a tool for integration of biodiversity into Rural Development Plans that need to be designed in Accession Countries under the SAPARD programme;
- To work our recommendations regarding the above topics;
- To build up political support for the further development of national ecological networks in Central and Eastern European countries.

Given the topics and objectives of the seminar, IUCN invited officials and experts from CEECs, working on the following topics:

- Emerald and NATURA 2000 networks
- National Rural Development Plans under the SAPARD programme
- Nature conservation and land use aspects of the spatial/physical (development) planning process, in particular on ecological networks;

Within the framework of the seminar, and to stimulate debate, several analytical issue or discussion paper were prepared by experts and representatives of ministries. In response to a request for current information on the state of progress in different countries, brief national over-views were also given

Thi publication of the seminar's proceedings is aimed at the European Commission, governmental institutions, international organisations, sponsors and non-governmental bodies interested in biodiversity protection within EU's enlargement process. It can be used to establish priorities for actions which aim to work out the methods of speeding up the process of designing the NATURA 2000 network and setting up plans for biodiversity protection in rural areas. We first present the agreed recommendations of the seminar, then the invited papers and finally the national summaries.

We hope that this publication will form part of the continuing and expanding debate on the best ways to promote the conservation of biodiversity in Europe at a time of widespread political change. We therefore invite you to contribute to this important process by joining an {electronic conference/e-mail discussion} at the address given below. This continuing debate will focus on practical methods to integrate the aims and principles of the National Ecological Networks with the aims and principles of sustainable rural and economic development.

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Environmental Protection Aspects in Polish Agriculture and Rural Development Policy

Henryk Wujec State Secretary
Ministry of Agriculture and Rural Development

The environmental conditions in our country are favourable for agriculture development. Results of tests carried out by the Institute of Cultivation and Soil Science at Puławy show that only 2% of soil in Poland is inappropriate for the food production for human consumption, and that these soils are mainly in big industrial regions. Also, in Poland half the mineral fertilisers and a seventh the amount of pesticides are used in comparison to countries with intensive agriculture production. Thus, I am fully convinced, that we still live here in a safe environment.

Nowadays, Polish rural areas are subject to significant changes. In July 1999, the Government of Poland adopted a key document "Coherent agriculture and rural development policy for 2000-2006". It is based on the following three pillars.

- Improve the living and working conditions of rural people such as: more closely attain their economic, educational, cultural and social objectives.
- Restructuring the agriculture sector, including: improvements to farms' sizes; modernisation; strengthening farmers' role in the agricultural market; and implementation of biological progress.
- Sustainable development of rural areas, including conservation of both natural resources and the rural cultural heritage.

Agriculture plays an important role in environmental development and maintenance of landscape and natural values. On the other hand, it might constitute a source of pollution and environment degradation. The new concept of agriculture and rural development policy particularly aims to enhance environment protection, including:

- restricting harmful effect on the environment caused by agriculture activities;
- promoting environmentally friendly production methods, including organic farming;
- preserving the genetic diversity of farm animals and plants.

To attain these objectives the following measures are envisaged, subject to the obtainability of necessary finance from national sources and from abroad.

- Investment support to improve the environment, including: constructing and renewing of facilities for the utilisation of municipal wastes; facilities for storage of silage and organic manure; construction of small sluice gates; construction of small water reservoirs and afforestation.
- Support for farmers adopting environmentally friendly production methods, such as compensatory payments for those: using appropriate farming methods in the areas of high natural values, like National Parks or Landscape Parks, as well as those farming in less favourable areas; for organic farms, and those under conversion into organic production methods; for those breeding rare animal or growing rare plant varieties.
- Financial support for farmers converting arable land into forests, in the form of partial co-financing of afforestation activities for five consecutive years, and inputs to the forest infrastructure sector.
- Training activities and demonstrations, in particular those relating to the dissemination of the rules of Good Agriculture Practice Code, the methods of bio-diversity maintenance at a farm level, and environmentally friendly production methods.

An evaluation system which allows one to predict and correct the effects of assumptions of economic and social development is a significant element of the rural development policy. The system will allow us to assess the policy effects on the environment. To this end, a monitoring system will be established to check out how the implementation of such programmes affects the environment.

Environmental protection means not only the passive maintenance of its current state, but also requires environmental policy aiming at the conservation of natural resources, including the traditional appearance of rural areas. If the government pays the farmer for setting the land aside, as well as for the activities aiming at environment and landscape protection, the farmer becomes not only a producer but also a “landscape conservator”. This philosophy shows how an understanding of cultural value of European agriculture is reflected in the Polish policy on agriculture and rural development.

Conclusions And Recommendations Of The IUCN Seminar:

NATURA 2000, Rural Development and Ecological Networks 15–18 December 1999, Konstancin n/b Warszawa, Poland

(*Draft*)

Background

The IUCN seminar was attended by representatives of the ten Central and East European accession countries, EU experts and representatives from Ukraine and Belarus. It aimed to discuss tools for ecological planning in the context of preparing for implementation of the EU NATURA 2000 network, and to explore the possibilities for integrating nature conservation objectives into sectoral policies such as agriculture. The meeting was extremely valuable for exchanging experiences and assessing methods. There was general agreement between the participants on the recommendations summarised below.

Recommendations from the seminar

Key Recommendations

R.1 Finance for conservation measures at European level should be directed towards preserving existing sites rather than restoring degraded ones.

R.2 Nature conservation policy should not only focus on protected areas, but contribute to a rural policy that integrates conservation objectives into sustainable rural development.

R.3 Measures need to be initiated to improve awareness of the links between agriculture and nature conservation. Such measures should target, in particular, the staff of ministries, the scientific community and affected stakeholders. Environmental NGOs have a key role in raising awareness and should be supported in their efforts.

R.4 The information exchange between accession countries and with the European Commission needs to be deepened. This process should include a WWW discussion forum and be open to partners in non-accession countries.

R.5 Conservation experts from accession states urgently need up-to-date Annexes for the Birds and Habitats Directives and an interpretation manual for NATURA 2000 habitat types to allow effective adoption of EU wildlife conservation.

R.6 Funds for pilot projects, including research support, should be extended to facilitate the rapid and effective development of agri-environmental schemes in accession countries.

Main points arising from the seminar and details of the actions recommended

Contents:

1. Nature conservation and sustainable rural development

Traditionally, nature conservation has focused on nature reserves and national parks as prime examples of unusual (natural) habitats with rare species. But much, if not the majority, of biodiversity occurs outside such sites. European countries recognise this, and have implemented policies that promote sustainable rural development linked to high biodiversity.

- Countries in both eastern and western Europe have entered into conservation obligations under the Bern Convention, the EMERALD programme and the Pan-European Biological and Landscape Diversity Strategy (PEBLDS).
- Public awareness of, and sympathy for, rural development that promotes biodiversity and vibrant rural societies will be vital in achieving conservation goals.
- The use of tools such as ECONET in the preparation of NATURA 2000 will simplify the necessary subsequent task of integrating biodiversity requirements into other economic sectors and thus enhancing conservation in the wider countryside.

2. The role of NATURA 2000 sites

The NATURA 2000 network of conservation sites – protected by legal obligation – will be a key outcome of implementing the EU's Birds and Habitats Directives and the main mechanism for complying with them.

NATURA 2000 designations are obligatory on accession countries and are the most important legal tool for nature conservation at EU level.

- The EC wants NATURA 2000 sites to be identified by the applicant countries upon, not after, their accession dates.
- Meeting the NATURA 2000 deadline requires a large dedicated mapping effort, in a short time scale, in all countries.
- That effort can be reduced, and made more effective, if based on existing protected sites and related databases (such as CORINE, ECONET, etc).
- Experience in EU countries has shown that early and clear explanations to stakeholders are vital to assist acceptance of NATURA 2000 designations.

3. Effective use of planning tools

A variety of tools has been used to provide data bases to underpin the spatial planning requirements for conservation. These include ECONET, CORINE, EMERALD, NATURA 2000.

- NATURA 2000 is an administrative solution that can be prepared through conceptual approaches such as ECONET.
- The ECONET concept has proved an extremely valuable, effective and versatile tool for spatial planning in many EU and accession countries (Netherlands, Poland, Hungary, Czech Republic and Slovakia). Critically, it also introduces, and visualises, a prioritised spatial ecological perspective, that assists the integration of conservation goals with other social and economic objectives.
- This seminar has shown that the different planning tools are complementary and can be used as building blocks to assist the choice of NATURA 2000 sites.
- The ecological recommendations arising from spatial analyses of CORINE or ECONET type data should be used by governments in the spatial planning process at local, regional and national levels.

4. Links between nature conservation, agriculture, forestry and rural development

Most European landscapes are shaped, and some habitats created, by human use such as agriculture and forestry. This is also true for many NATURA 2000 sites, and thus their maintenance often depends on a continuation of traditional, or at least extensive, agricultural management.

- Successful nature conservation depends on the support of the local population. Their support is more likely if they benefit from the natural heritage of the area. When effective conservation requires agricultural methods that reduce farmers' incomes, then it should promote policies that help provide alternative incomes. New visions are needed for rural communities that include the needs of rural dwellers who do not work in the countryside.
- For this reason emphasis should be put on a rural development that provides additional income based on sustainable production methods. EU agri-environment schemes can provide a useful supplement to farm incomes whilst promoting conservation friendly farming.

- Wherever possible, all EU funds should specifically promote sustainable rural developments that enhance the natural and cultural heritage of Europe.
- Conversely, EU funds for transport, agricultural and rural development should not be used in ways that harm important conservation sites. Designation of such sites prior to accession is thus an important priority.

5. EU instruments available for funding conservation

It is an objective of EU policy to integrate environmental measures into sectoral policies. Thus, a variety of policy instruments can be used to promote conservation goals.

- In the pre-accession framework the funds available include SAPARD, ISPA and PHARE.

  For example:
  - Article 2 of SAPARD includes 'Agricultural production methods designed to promote the environment and maintain the countryside' as a measure that can attract support;
  - The ISPA fund will support investment in environment related infrastructure, such as sewage treatment. ISPA could potentially support developments like visitor facilities in national parks.
- Other EU level funds that can support biodiversity enhancing projects include LIFE III, LEADER + and INTERREG III.
  - LIFE funds have already been used in one accession country (Romania).
  - Cross-border projects linked to accession countries have so far been financed through PHARE CBC. INTERREG III funding should become available for such projects.
  - LEADER + funding should be available, but the final regulations are not yet known.
- The 5th Framework programme could support conservation research projects.

6. Details of actions required to meet the recommendations

R.1 Raising awareness, improving communications and information needs

The general public.

- Encourage public and private initiatives to promote support for high-quality products from farms and forests promoting nature conservation, including labelling of produce.
- Provide local stakeholders with information about agri-environment schemes, via appropriate NGOs where possible, and consult with them to find ways to make the schemes acceptable to local communities.

Government staff not directly involved with conservation.

- Staff in departments not directly dealing with environmental matters need to be rapidly made aware of environmental requirements of EU legislation.

- To support the integration of conservation objectives into sectoral policies, we recommend comprehensive inter-departmental communication and co-ordination between ministries.

Conservation specialists.

- Staff should be alert to the possible conservation benefits that could be derived from inevitable construction projects (e.g. early, and sympathetic, involvement in motorway planning could lead not only to (marginally) better routes, but to: gravel pit wetlands, drainage treatment wetlands, herb-rich verges, conservation corridors of grassland and woodland, etc).
- Teams in different countries developing environmental databases should be encouraged to work towards common standards. Non-accession countries are encouraged to develop their databases to the same standards.

R.2 Setting up a communications platform

A WWW site, and/or electronic conference, were seen as excellent methods to exchange data, lists of expertise and requests for advice. Given the short time available for NATURA 2000 designations, this rapid communication method could be especially valuable, if started soon. Non-private pages on it could also serve to inform the general public. International meetings to review progress and problems should be organised regularly. Delegates from non-accession countries bordering the EU should be supported to attend them.

R.3 Information needs to achieve NATURA 2000 designations

- The selection of NATURA 2000 sites must be based on objective scientific evaluation. But in accession countries the necessary data (e.g. revised Annexes to Birds and Habitats Directives) are not yet available. Thus comprehensive and rigorous designations prior to accession are unlikely. The European Commission is encouraged to provide advice on this dilemma, and to provide funds and information for its resolution.
- Some countries need technical assistance to start working with the NATURA 2000 database.

Resources needed.

R.4 Support for conservation sites.

At a European level conservation funds should be directed to preserving existing sites rather than restoring degraded ones.

R.5 Support for compensation, pilot projects and research.

R.5.1 Funds for compensation and pilot projects.

- Funds to compensate for loss of potential forest revenues might be needed for some potential NATURA 2000 sites, especially in Baltic countries.
- Funds for rural development that support sustainable management of valuable conservation sites should be increased to allow integrated rural development programmes in these areas.

- Funds to spread the existing awareness of European biodiversity requirements from local conservation experts to other sectoral groups involved in rural development are urgently needed, especially in the form of pilot projects to assess effective methods.
- Finance under SAPARD should be sufficient to allow pilot agri-environment schemes at farm level in all accession countries.
- An appreciable proportion of ISPA and PHARE + funds should be earmarked for conservation projects.
- The LIFE III and LEADER + programmes should be made available in accession countries without the imposition of an 'entry ticket' cost on these countries.

R.5.2 Funds to support necessary research.

Socio-Economic and technical research needs.

- Advice, data and technical means for calculating appropriate levels of payment for agri-environment schemes.
- Effective mechanisms for integrating diverse (sectoral) viewpoints and resolving conflicts between them.

Ecological research needs.

- Extension and updating of the CORINE Land Cover databases.
- Analyses for the better determination of the 'favourable conservation status' of species and habitats of Community interest with regard to the implementation of the Birds and Habitats Directives.
- Local data on the extent that different degrees of agricultural and forestry intensity impact on biodiversity in the wider countryside. *Generally, would a network of intensively managed fields and intensively managed nature reserves be more or less 'biodiverse' than the same area of extensively managed land, and what would the corresponding agricultural outputs be?*
- Biodiversity levels and trends on abandoned farmland.
- The design of habitat mosaics for ECONET corridors (one species' corridor is another's barrier...).
- Preserving viable (meta) populations. Methods able to quantify effective population size (Ne), dispersal, and gene flow (with regard to genetic diversity), as affected by conservation corridors, and thus assist effective spatial planning.
- The ECONET concept can, and should, work at many spatial scales (field to national), and quantitative data are needed to guide effective use at different scales.

Elaborated by
Philip J. Bacon, Jan-Erik Petersen, Joost Kingma, Zenon Tederko

NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

Progress on the Approximation to the Birds and Habitats Directives in Accession Countries and what are the requirements and needs of the NATURA 2000 Network to be designed and implemented in Accession Countries

Jan-Erik Petersen,
IEEP, London

(A Summary of the presentation by Mr Olivier Diana,
DG Environment, European Commission)

Framework for nature conservation in the European Union

The activities of the European Union in the field of nature conservation need to be put in the framework of national legislation and international conventions, both of which serve as stimulus and driver of EU level initiatives. For several decades most EU Member States have acted for the protection of biodiversity, and their national laws influence EU instruments considerably. On the other hand international conventions, such as the Bonn and Bern Conventions or the Convention on Biological Diversity (CBD), adopted in Rio in 1990 have stimulated EU initiatives for biodiversity. The Bonn Convention, for example, strongly influenced the development of the EC Birds Directive in 1979, just as the CBD gave rise to the EU Biodiversity strategy of 1998.

In spite of European Community action to protect biodiversity, since at least the 1980s, nature conservation has only recently received recognition as an important policy objective for the European Union (in the Treaties of Maastricht (1992) and of Amsterdam (1997)). It is, therefore, a relatively young EU policy that is still fighting for recognition by other policy sectors. Nevertheless, important steps for nature

conservation have already been made. The Birds and Habitats Directives provide a strong legal framework for species protection and the establishment of a common network of protected areas across the whole EU, called NATURA 2000. The Environmental Impact Assessment Directive requires an evaluation of the nature conservation impact of all large scale infrastructure projects proposed by public or private bodies. The EU LIFE-Nature budget line provides dedicated funds for projects supporting priority species and habitats of the Birds and Habitats Directives. Sectoral policies, such as agriculture, are also being reformed to take account of their biodiversity obligations, e.g. through the establishment of agri-environment schemes under the Common Agricultural Policy (CAP). The increasing importance of nature conservation objectives is also made clear by the decision of the European Commission's Directorates General for Regional Policy and for Environment to make EU co-financing under the Structural Funds dependent on adequate progress with the establishment of the Natura 2000 network and on firm protection for future Natura 2000 sites. An overview of the legal framework for nature conservation at EU level is given in Figure 1.

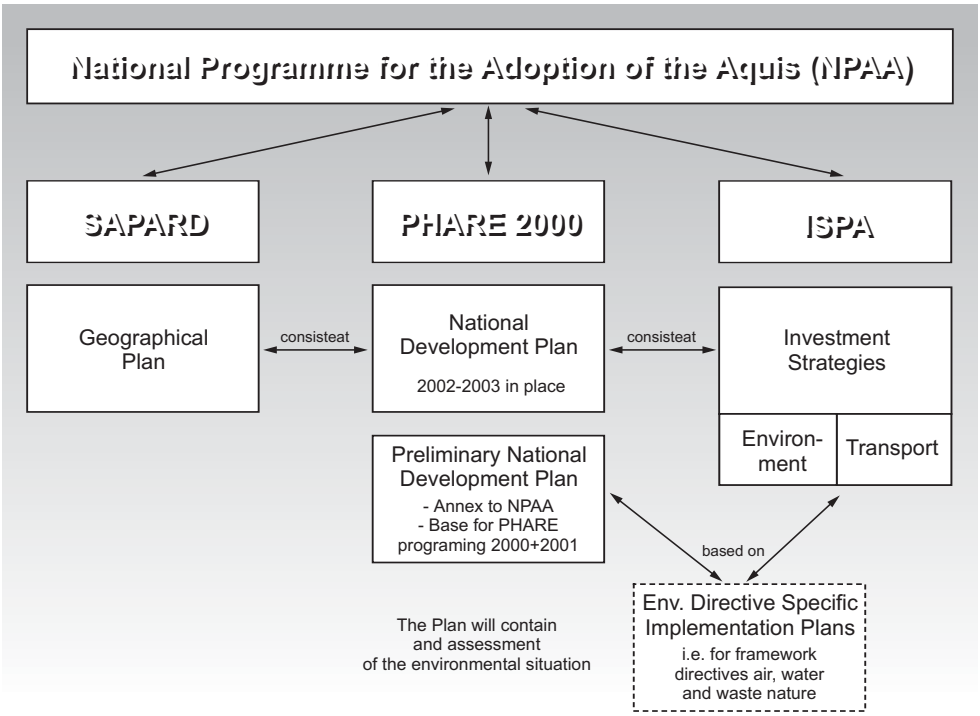
Objectives of the Birds and Habitats Directives and NATURA 2000

The Birds Directive of 1979 was the first piece of EC legislation for the protection of nature. It arose out of increasing concern for many migratory bird species in Europe that needed transfrontier protection. The Birds Directive provides a common basis to ensure:

- the protection of all wild species of birds in the European territory of the Community;
- that sufficient habitat was protected, especially for endangered and for migratory species;
- the avoidance of pollution, deterioration of habitats and disturbance of birds in protected areas;
- the outlawing of all means of large scale or non-selective killing of birds;
- the control of general hunting activities.

The Birds Directive has to be transposed and implemented by the EU Member States to become effective. It requires of the Member States to:

- take special conservation measures concerning the habitat of Annex 1 species (those considered to be particularly vulnerable);
- classify the most suitable sites (in number and size) as special protection areas (SPAs) for Annex 1 species;
- take similar measures for regularly occurring migratory species not listed in Annex 1;
- pay particular attention to the protection of wetlands and particularly to wetlands of international importance;
- send the Commission all relevant information (biodiversity data) for co-ordination of SPAs as a coherent whole;



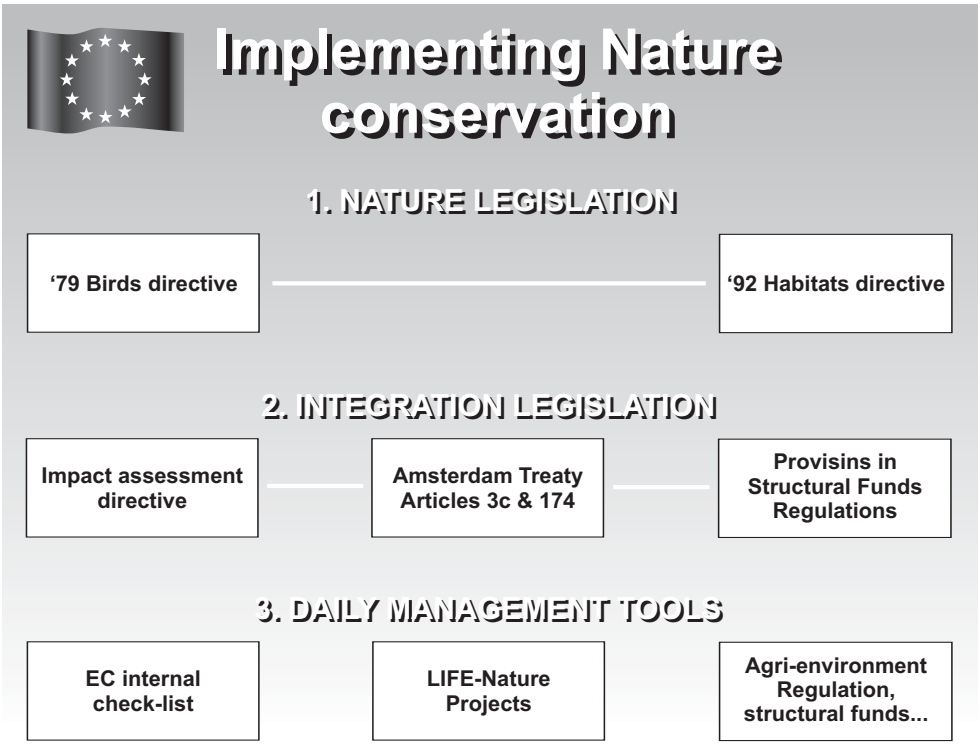
- take appropriate steps to avoid pollution or deterioration of habitats or any disturbance affecting the birds on SPAs;
- strive to avoid pollution or deterioration of habitats outside SPAs.

Since June 1994 the protection regime for special protection areas is set out in Article 6 of the Habitats Directive. This Directive complements and partially supersedes the Birds Directive. Its principle aims are to:

- promote the preservation of biodiversity;
- establish a common framework for the conservation of animals and plants and natural habitats of community interest;
- "maintain or restore at a favourable conservation status, natural habitats and species of wild fauna and flora of community interest";
- create an ecological network called 'NATURA 2000' (see Figure 2).

The Habitats Directive has several innovative features:

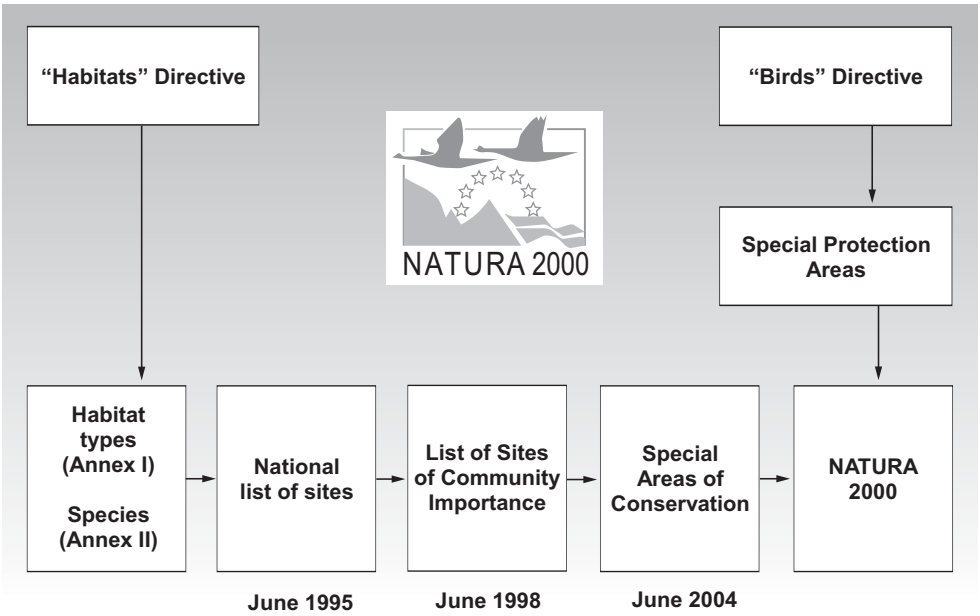
- it takes a biogeographical region approach;
- it encourages the integration of conservation objectives into sectoral policies;
- it establishes the principle of conserving habitats for their own sake and not only because they are home to certain species;
- it sets out a clear sequential procedure for evaluating plans and projects that are likely to significantly affect NATURA 2000 sites (see Figure 3).



During the discussion the point was made that there are serious delays with the implementation of both Directives in many EU Member States. Mr Diana commented that these arise partly out of misunderstandings regarding the objectives and powers of the Directives. In respect of NATURA 2000 sites local communities often fear that these would freeze all economic activities and establish strict ecological sanctuaries, or that the European Commission will decide on the designation of sites. Neither rumour is true, as the Commission can only act in accordance with the Member States, and on the basis of the list of proposed sites presented by the latter. Economic activities such as agriculture are often essential for the proper management of NATURA 2000 sites and will not be restricted if controls are not essential for the achievement of previously defined conservation objectives. Since the Agenda 2000 CAP reform, EU Member States can provide compensation to farmers affected by environmental obligations in NATURA 2000 sites (Article 16 of Regulation 1257/1999).

DG Environment uses several methods to keep the process of designating NATURA 2000 sites as transparent as possible:

- The NATURA 2000 Newsletter (available free of charge);
- A dedicated web site with information about LIFE, nature conservation legislation etc (http://www.europa.eu.int/comm/dg11/nature/home.htm);
- Meetings of the Ornis and Habitats Committees (bringing together representatives of the Member States and the Commission to discuss developments



under both Directives); meetings on biogeographical regions between experts and government representatives;

- presentations at conferences, seminars etc.

In spite of these efforts additional work by interested citizens, stakeholder groups and governments is still required to dispel fears about NATURA 2000, and to win more social and political support for an effective implementation of both Directives.

Current progress in implementing NATURA 2000 and the EU approximation process

The process envisaged by which accession states should approximate EU legislation on nature conservation legislation can be divided into several key steps.

a) The adaptation of the Annexes of the Birds and Habitats Directives to take account of the distribution of species, habitats and biogeographical regions in the applicant countries, the abundance of certain species currently listed in different annexes, and of local traditions. This process should be finalised before the Accession Treaty is signed between individual applicant countries and the EU.

b) The transposition of all relevant legislation (Birds and Habitats and EIA Directives) into national law by the day of accession.

c) The elaboration of lists of proposed sites under the Birds and Habitats Directives until accession the day.

d) After the accession day:
- the biogeographical selection process for NATURA 2000 sites between the new Member States and the European Commission;
- the elaboration of site management plans, the administrative framework for the NATURA 2000 network, and implementation of impact assessment procedures under Article 6 of the Habitats Directive;
- the proposal and approval of derogations under the various annexes of both Directives.

The European Commission does not favour any transition periods for the implementation of horizontal environmental legislation, including NATURA 2000. The reason behind this position is that there could be infrastructure or other development projects, which could damage important sites after accession, and which could not be halted through a legal challenge unless the relevant environmental legislation had already been transposed into national law. Given the considerable workload in adopting EU wildlife legislation, the Commission recommends action to be taken as soon as possible. With regard to amending the Birds and Habitats Directive annexes the following general guidelines are provided:

- understand the purpose of each annex;
- respect the balance of existing annexes;
- do not modify the legal requirements for the existing 'EU 15' countries;
- favour the addition of habitat types, including *de facto* species of community interest;
- use only latin names for species and use the habitat classification of the European Environment Agency for habitat designations;
- check the scientific value of your proposal;
- refer to the Bern Convention when appropriate.

Further, more detailed, information, relating to individual annexes, is available from DG Environment.

Integration of nature conservation into other economic sectors

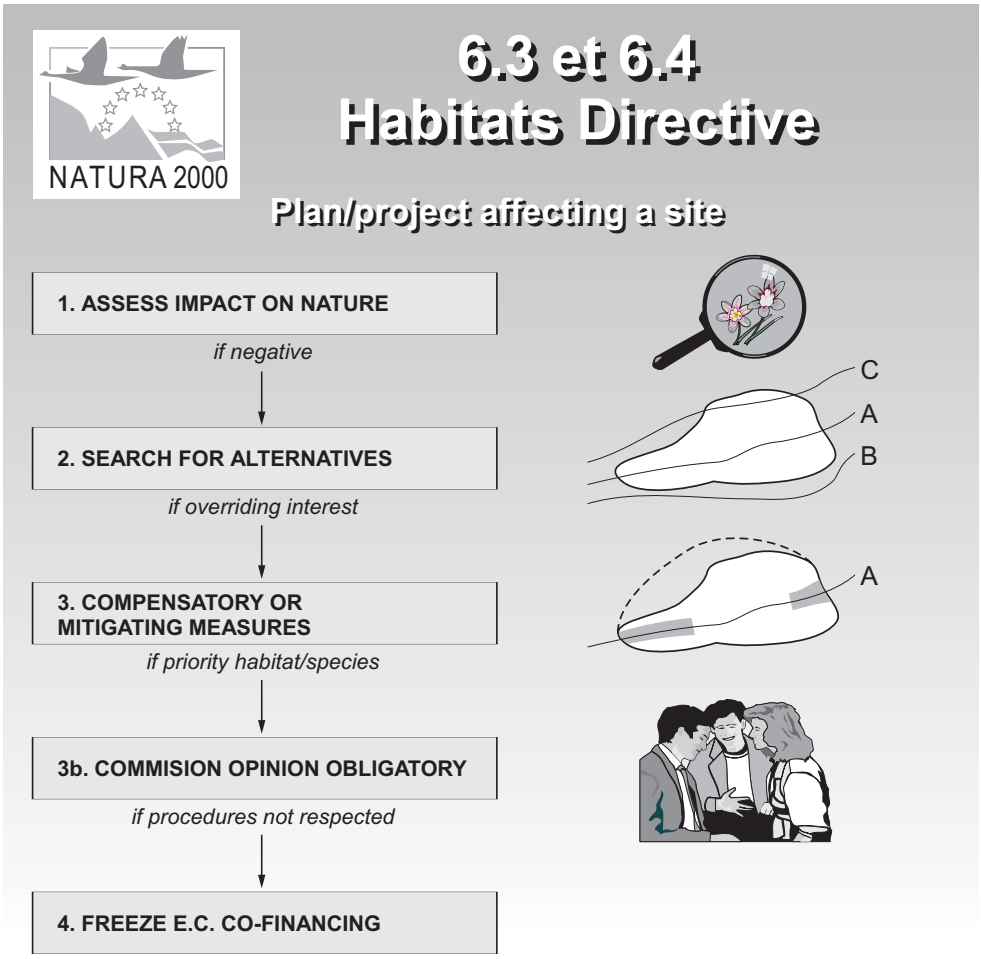
The integration of conservation objective into sectoral policies is of utmost importance for a successful protection of European habitats and species. Some of the measures used for this purpose at EU level have been mentioned in Section 1. With regard to the applicant countries the following financial instruments are of particular interest (see Figure 4):

a) LIFE - the only specific instrument for NATURA 2000,

b) PHARE (also encompasses the LIFE projects funds),

c) ISPA (Instrument for Structural Policies for Pre-Accession),

d) SAPARD (Special Action for Pre-Accession Measures for Agriculture and Rural Development).



Note that b. PHARE has financed a number of nature conservation projects over the past years, for example the 'Sustainable Nature Protection Project' that aims to:

- strengthen pan-European networks of conservation specialists;
- contribute to the improvement of monitoring techniques;
- prepare the implementation of Birds and Habitats Directives;
- strengthen the management and sustainable development of protected areas;
- provide for training/exchange/partnerships in the EUROPARCS framework.

The objectives of ISPA are as follows:

- alignment of applicant countries on Community infrastructure standards;
- financial contributions for environmental and transport infrastructure measures, but nature protection is not a priority;
- facilitate implementation of the Community acquis;

- contribute to sustainable development;
- environmental impact study is required.

SAPARD is an instrument that will affect a key land use – agriculture. In relation to one measure that is very important at EU level (agri-environment schemes cover 20% of agricultural land in the EU) the SAPARD Regulation and guidelines state that:

- the applicant countries have to provide a seven year rural development plan that outlines all the agricultural and rural development measures they intend to co-finance through SAPARD funds;
- an environmental ex-ante assessment is required to evaluate the likely environmental impact of different proposed measures, just as for similar plans in "EU 15" countries;
- SAPARD support may relate to agricultural production methods designed to protect the environment and the countryside;
- Activities in relation to pilot agri-environment schemes should focus on:
  - developing know-how and practical experience in setting up and operating agri-environmental schemes
  - transfer of environmentally friendly practices to farmers.

DG Environment supports the development of pilot agri-environment schemes under SAPARD as a key measure for the integration of conservation objectives into agricultural land management. The possibilities for financing such pilot schemes under SAPARD still need to be explored further in negotiations between the applicant countries and the relevant Commission services.

NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

The Linkages Between NATURA 2000, ECONET/PEEN And Rural Development Plans

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Introduction

A new phase of the international battle to conserve biological diversity started in the 1990s. The Rio Conference of 1992 turned out to be a breakthrough point in the environmental protection policy, the principles of evaluation of natural resources and the assessment of their importance for sustainable human development. In particular, two documents adopted at the Conference were of major importance: Agenda 21, which gave directions and objectives for sustainable development, and the Convention on Biodiversity. Both were signed by many countries from all over the world. This event was followed by many initiatives undertaken at the continental scale, in regions and particular countries. The most important actions in the European Union, include: implementation of Pan-European Biological and Landscape Diversity Strategy (PEBLDS), establishment of NATURA 2000 and EMERALD networks, and establishment of Agenda 21 for the Baltic Sea Region.

At the beginning of new millennium we have to say that the battle is not yet won. Destructive mechanisms that have adverse effect on the natural environment still prevail, because of insufficient financial means and weak protection against such detrimental effects. Such imbalance also exists in farming and this is the reason for concern. Thus it is necessary to integrate the disparate actions aimed at protecting nature, spatial planning, creation of a legal basis for implementing sustainable development of regions, as well as changing the orientation of development policy of many economic sectors to be more environmentally friendly. Such actions, taken by various international forums, governmental and non-governmental organisations, should complement and strengthen each other, creating a coherent system for the protection of biological diversity. The basic elements of this system in the EU are the NATURA 2000 and ECONET networks. Recently, as a consequence of reform of the Common Agricultural Policy (Agenda 2000) the requirement of special planning in rural areas has been introduced, planning which requires the use, of, among others, instruments for protection of the environment (e.g. agri-environmental instruments). The rural areas development plans therefore constitute an im-

portant instrument for implementation of tasks intended for the protection of nature and the landscape's resources. Thus the implementation of such plans, together or separately, influences land management policy, accumulation of environment protection instruments and the sustainable development of regions. The purpose of this paper is to assess the relations between such actions and to indicate ways to create better linkages between these instruments.

NATURA 2000 network

Establishing the NATURA 2000 network in the EU is considered to be the most important challenge for the protection of biodiversity. Establishment of the NATURA 2000 network is also a priority task for the EU associated countries which are adaptating to the *acquis communautaire* programmes. The criteria and rules for delimitation of protected areas within the network, the systems for verification of proposed areas and the schedule of creation of the network are all specified in the Habitats Directive of 1992 and Birds Directive of 1979. These two acts constitute a strong legal basis for the protection of European fauna and flora. These directives are accompanied by numerous supporting legal regulations, financing mechanisms, implementation procedures and the studies by experts who oversee the development of scientific and methodological support for the NATURA 2000 network.

The NATURA 2000 network is thus a modern system for the protection of nature in the European Union that stems from the traditional approach to conservation of biological diversity in protected areas. The target structure for the NATURA 2000 network should consist of geographical constellations of core areas having special protection: their territorial location and density should ensure the long term survival of endangered species and of habitats of European importance.

Compared to the traditional ways of protecting nature, the method of delimitation of the network is a considerable step forward, first of all because of methods used to set up the network. The process of NATURA 2000 network implementation consists of selection of special protected areas on the basis of species and habitat related criteria, indicated in Annexes I and II of the Habitats Directive. The areas of NATURA 2000 network are located in regions where the populations of priority species, or disappearing habitats, still exist, provided they meet the criteria which define their rank, i.e. their European importance (Annex III). These include, for example: (1) the degree of their representatives in the region and in relation to other locations of such habitat, (2) degree of preservation, (3) importance of such location, (4) size and density of the population existing in a given location, in relation to the nation-wide population, (5) the level of isolation of the population in the given location in relation to its natural range. The acceptance of clearly defined methods for delimitation of the NATURA 2000 network will limit the disparity between domestic and international nature protection systems and lead to unification and co-ordination of protective actions.

However, the spatial connectivity of the EU network of nature conservation is not ensured. This is a weakness of the NATURA 2000 network, particularly as it is commonly accepted that connectivity for species, communities and ecological processes are a key elements of nature conservation in environments modified by hu-

man impacts. Small fragments contain the most valuable sites – natural and semi-natural habitats. The problem of counteracting fragmentation and isolation of natural areas leads to the necessity for ensuring linkages among protected areas, but is not reflected the NATURA 2000 structures. The fragmented structure of the network is endangered by external threats from the surrounding areas. There is much evidence for the ineffectiveness of safeguards provided by areas having the status of national parks or nature reserves. The influence of external factors may even lead to ecological disasters within such protected areas, as happened in the Swietokrzyski National Park: here the conifers have been totally wiped out by pollution from industrial plants located near the Park.

There are also certain problems with the proper use of network delimitation criteria. The delays in many countries of the timely delimitation of sufficient areas of NATURA 2000 network result, among other carses, from insufficient recognition of natural resources, lack of current databases on the majority of priority species and their distributions. The NATURA 2000 network cannot guarantee the effective conservation of biological diversity without complementary actions, even such as connected with implementation of the *Pan-European Strategy of Biodiversity and Landscape P*rotection, or optimisation of social and economic development covering the whole area.

The concept of ECONET/PEEN

The concept of creation of the ECONET/PEEN network stems from *the Pan-European Biological and Landscape Strategy*, adopted at the Conference of Ministers in Sofia in 1995. The main objective of the Strategy is to support actions for implementing the Biodiversity Convention. The Strategy has clearly defined aims and objectives to conserve biological and landscape diversity across Europe. The key principle is the integration of biological diversity objectives into other economic sectors. One of the instruments for implementation of the Strategy is the creation of an ECONET network (also referred to as PEEN – Pan-European Ecological Network)

The ECONET/PEEN aims to co-ordinate activities undertaken by various countries to conserve biological diversity at the scale of the whole continent. The network is to be established as a result of combining:

1) networks of special protected areas created within the framework of international conventions and programs for protection of species and their habitats (e.g. NATURA 2000),
2) areas included into national ecological networks. It was assumed that the two networks would be complementary.

In many European countries the concept of the national ecological network is based on the basic ecological network model. Considering an existing system of nature protection in a given country we may come across a system in which:

- existing protected areas do not satisfy most requirements of the European ecological network and it is necessary to delimit core areas and ecological corridors in line with national and international criteria;

- protected areas in a country satisfy most requirements of an ecological network, e.g., the ***Territorial System of Ecological Stability*** (Czech Republic and Slovakia) and it is only necessary to verify the network in the context of criteria for assigning so called "European importance".

The ECONET/PEEN is defined as a spatially and functionally consistent network of core areas and corridors of ecological importance supported by buffer zones. ECONET provides optimal spatial conditions for the conservation and sustainable management of the biological diversity – at both the species and landscape levels. The underlying purpose of the network is to ensure the continued existence of wildlife, both in time and in space.

Protection covers characteristic ecosystems, natural habitats, species and landscapes of European importance across their traditional ranges, and the aim is to identify objects and areas requiring protective measures. Besides, integrating various activities to protect biological diversity, restoration of degraded natural features is assumed in the concept of the PEEN. It means that this network is not restricted to natural or semi-natural areas still having natural values deserving strict protection, but also include areas transformed by human activity and requiring restoration.

Most often, core areas are defined as a fragment of landscape with high natural values. The minimal size of a core area should be not less than 500 ha. The rank, function and structure of core areas in an ecological network change depending on the spatial scale. It is possible to distinguish local (e.g., nature reserves, small CORINE sites), regional (e.g., national parks) and supra-regional core areas (as extensive geographic areas of well preserved natural values). They are hierarchically interrelated: that is, core areas of higher level (the national scale) are built of core areas of lower level (a regional scale) that consist of concentrations of local core areas. Usually the character of conservation measures changes depending on the rank of a core area, from maximisation of protection in local core areas to a broadly defined policy of sustainable development in extensive areas.

Ecological corridors are traditionally defined as linear landscape elements that enable organisms to move from one isolated core area to others. More often ecological linkages refer to an arrangement of patchy habitats that enhances the movement of biota. Stepping-stones are one or more separate refuges periodically used by populations of dispersing or migratory species for resting, wintering and feeding. They are included as areas of key importance for maintaining continuity of migration routes although they are not themselves spatially continuous. So, ecological corridors and stepping-stones assist the structure and function of ecological systems and may be essential for the long-term survival of species. However, the actual scientific basis for their delimitation is still rather poorly founded, causing the surprisingly large number of diverse concepts proposed for the planning of ecological corridors.

There are some differences between the concepts of ECONET/PEEN and NATURA 2000, allthough the same assumptions and criteria are applied in both cases. The scope of the NATURA 2000 programme is limited to threatened species and habitats in Europe that are only a part of the holistic landscape approach of the ECONET/PEEN Network. It should be emphasised that the purpose of creating an

ECONET/PEEN network is to delimit the priority areas for the sustainable management of natural resources and to implement an active conservation policy. So, the two networks are not identical and should co-exist as two interrelated structures in spatial planning.

Assumptions of the ECONET network are based on the following premises:

- the network structure is to reflect specific variation of the natural environment in a country;
- the basic approach to network delimitation is a landscape approach that consists of taking into account the whole complexity of biotic and abiotic conditions and functional relationships;
- attempts should be made to enlarge network elements, so as to create multi--functional areas of complex natural structure;
- the network structure is a hierarchical system that reflects the internal complexity of core areas and ecological corridors, and also their rank/significance depending on the spatial scale.

Delimitation of an ecological network has to be based on integration of various planning concepts to make the process as complex and holistic as possible. Only then is there a good chance to combine spatial planning and the idea of a Pan-European Network to produce an efficient instrument of biological diversity protection. Criteria to decide about the European status of an area as a basis for inclusion into the ECONET/PEEN are still under preparation.

So far, there is no consistent, complete and representative Pan-European Network for conservation of biological and landscape diversity in Europe. The ECONET/PEEN initiative (considered to be superior to others) is at the initial stage of realisation, although many on-going international initiatives and previous events support the implementation of this network. The future of the ecological network depends on efficient realisation of its assumptions in all European countries. But success in this field is not yet sure. It requires:

- clear definition of the Pan-European Ecological network and its structure;
- preparation of common criteria and methods of development of the Pan-European Ecological network;
- progress in knowledge of both theoretical basis and methodological guidelines for development of the network;
- establishment of legal and economic instruments for efficient implementation of the network by all European countries;
- preparation and implementation of a program of monitoring biological network.

Most of those tasks are already under preparation (STRA-REP project). The following institutions co-ordinate this complex project: European Centre for Nature Conservation (ECNC), European Program AID Environment, World Conservation Monitoring Centre (WCMC), IUCN. It should be expected that the ECONET/PEEN network will soon obtain the same support of international institutions as currently given to the NATURA 2000 network, and should become

building blocks for biological diversity action plans. Then ECONET/PEEN should constitute a natural resource framework for all regional development plans.

Rural Development programmes

In many European countries farmlands are the most dominant type of land use: within the whole continent agricultural use average 45% of the land. The intensity of land and agricultural landscape management has an extreme influence on the condition of biological diversity of both those, directly related to the agrocenoses as well as those existing in their surroundings. The transformations which take place in agricultural areas, as a result of implementation of the Common Agricultural Policy (CAP) in the EU countries, are a force which leads to impoverishment of biodiversity on the continent. The CAP favours introduction of industrial forms of land cultivation and farming. These changes destroy the mosaic of habitats, the structure of agricultural landscapes becomes simplified and extensive methods of land cultivation are used less and less often. The interrelations between the traditional forms of farming and the wildlife, which adapted its lifecycles to the rhythm of agricultural production, are being broken. Most endangered species and phytocenoses are those connected with agricultural habitats.

The importance of agricultural areas for the conservation of biological diversity is reflected in numerous international documents, e.g. European Commission's Communication "Directive towards sustainable agriculture" (1999) and first of all in the reformed EU policy. In effect the financial instruments were introduced to the CAP in 1992 and were strengthened in the next reform (Agenda 2000). These instruments encourage farmers to use agricultural practices which comply with the requirements of environmental and landscape conservation, within the framework of so called agri-environmental schemes. They are of the first importance for financing the biodiversity and landscape protection plans including, for example, the NATURA 2000 network. Together with other instruments such as afforestation programmes or programmes for Less Favoured Areas (LFA), they constitute the basis for formulating the complex and balanced plans for the development of rural areas. These plans require an integrated approach during the definition of objectives and priorities to develop rural areas naturally, socially and economically.

Although the European Union provides many possibilities for financial support for the NATURA 2000 network, they are not fully used. This situation arises mainly from the poor knowledge that many conservationists have about the possibilities offered by different financial instruments, and also from their lack of skills to prepare the appropriate submissions to obtain the grants.

When it comes to implementation of biological diversity protection strategy these instruments should be used better than those previously in the EU countries and pre-accession countries (SAPARD programme). This is connected with the necessity to define the interdependencies between the rural areas development plans and the system of protected areas, of both NATURA 2000 and ECONET networks. The following premises support this.

- Research on both networks has a long history and should be used to evaluate the wildlife of rural areas and define indices for monitoring biological diversity.

- The sites of the NATURA 2000 network, and in the pre-accession countries the ECONET sites (where delimited) indicates the propriety areas for implementation of rural areas development instruments.
- Agricultural areas included in the biodiversity protection system should be part of the programme of research and provided with sustainable development plans.
- Agri-environmental schemes play a positive role in the development of ecological awareness among the land users, which is of fundamental importance for permanent protection of biodiversity.

Conclusion

The Convention on Biological Diversity dramatically changed the approach to nature conservation forcing:

- holistic/complex articulation of the causes of decline in biological diversity;
- consideration of functional relationships occurring in nature, and especially landscape processes, which facilitate a balance of ecosystem functions;
- progression from passive to active ways of carrying out conservation activities, including a stress laid on the significance of integration/consolidation of various activities for the conservation of biological diversity;
- application of methods of sustainable management of natural resources as major tools to conserve biological diversity.

Hence, in the light of the Convention, we should consider nature conservation in terms of the development of an ecological system at various levels of its organisation (population, ecosystem and supra-ecosystem/landscape levels). That means it is necessary to accept an action plan that is broader than the protection of threatened species and habitats. Actions to preserve and protect (viable populations and all significant types of ecological systems) should be only a part. Other activities should include:

- developing ecological systems, and maintaining their characteristic processes of relationships in the landscape, where these have been heavily disturbed and fragmented by human activities;
- minimising the effect of isolation, by enhancing landscape connectivity and creating and maintaining ecological corridors/linkages that allow gene flow through the modified landscape;
- restoration of species and their biotopes;
- creation of new values in the natural world through various forms of management of biological diversity resources;
- subordination of the rules of natural resource management to maximisation of environmental effects.

The implementation of such an approach requires consolidation of ECONET/PEEN and NATURA 2000 networks, plus coherent action plans for the sustainable development of rural areas into spatially and economically sound regions.

NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

Delimitation Of Priority Areas For Implementation Of Agri-Environmental Schemes Using The AgroGIS Application

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Introduction

One of the main consequences of full liberalisation of the agricultural market in Poland is far reaching changes in the economic conditions in rural areas, transforming farming and organisational structures. The present economic and social considerations, and trends in European agriculture, are factors which determine changes from the traditional management approach to a new approach based on wider functions of the areas that are used for agricultural purposes and a better understanding of these rural areas.

One of the elements of the Common Agricultural Policy (CAP) in the EU member states is, apart from subsidies for agricultural production, compensation payments for changing to an environmental approach by farmers. In most cases, such approaches relate to protecting soils against erosion by exclusion from production (lying fallow), conversion of arable land into grasslands on steep slopes, and aforestation. Other forms are landscape and bio-diversity protection programmes that maintain "extensive" farming, and land management which helps the environmental equilibrium and preserves the traditional social structure of the rural areas. For example, in England such programmes are implemented in the upland areas where there are limited employment possibilities outside the agricultural sector.

Initiating appropriate agri-environmental schemes requires prioritising areas based on environmental and socio-economic criteria using a spatial approach. Objective decision making requires the use of spatial analysis tools known as Geographic Information Systems (GIS). GIS systems have a major advantage over

descriptive methods used in traditional expert studies, by allowing fast delineation from the specification of objective characteristics of the areas. Furthermore, these systems are easily changed, verified, and then displayed automatically in map format.

In preparation for the introduction of agri-environmental schemes, the Polish Ministry of Agriculture and Rural Development ordered a GIS application to define priority areas. The AgroGIS application allows assessments to be made by evaluating agricultural and natural criteria. These take into account landscape, biodiversity of agri-ecosystems, protected areas, environmental threats connected with degradation of the soil by chemical pollution, acidification and erosion by water. The system is written in ArcView 3.1 (ESRI, Redlands California) and facilitates interactive analyses by the user. AgroGIS is a part of the Integrated Information System for Agricultural Areas developed by the Institute of Soil Science and Plant Cultivation in Puławy (IUNG) [Zaliwski 1999].

Data characteristics

The system integrates spatial data in numeric form. The spatial data are obtained from different sources and formats, and define various aspects of agricultural areas. The system delimits priority areas for implementation of agri-environmental schemes on the general scale, enabling proper decision making, at the national and regional levels. Such resolution is compatible with data at 1:500 000 scale. The basic system includes the following textual and geographic databases.

1) Agricultural value of soils (dominant types and profile information);
2) map of soil contamination with heavy metals;
3) soil reaction map (soil pH);
4) map of potential water erosion of soils;
5) map of protected areas: national parks, landscape parks, national and landscape parks protection zones, protected landscape areas, bat colonies, fauna, communities, habitats, geomorphology, landscape, archaeology and palaeontology;
6) map of natural refuge areas, designated for different reasons, such as: flora, invertebrates, fishes, amphibians, reptiles, birds, stork colonies, and mammals;
7) core areas of Econet network;
8) area of arable land in municipalities;
9) administrative boundaries of regions and municipalities.

The basic databases were prepared by the IUNG, the Institute of Nature Conservation, and the Institute of Environmental Protection. Integration of the data and development of the GIS application was done by IUNG's experts.

Principal functions of the GIS system

The main aim of the GIS is to define sets of polygons which meet criteria specified by the user. The window structure of the application is demonstrated in Figure 1. The simplest example of defining an area is merging all areas treated as "naturally valuable" and "threatened" (nature refuge areas, protected areas, ECONET areas, areas of soils exposed to erosion). We show a map of the priority areas so delineated (based on medium and strong water erosion, protected areas, natural refuge zones) in Figure 1 (Annex), where polygons from the given thematic layers have been joined.

This joining creates a new layer which is a sum of all listed areas, presented as a thematic map. The calculation of the percentage of delimited areas, in relation to the area of arable land in all municipalities in Poland, is a continuation of this ana-

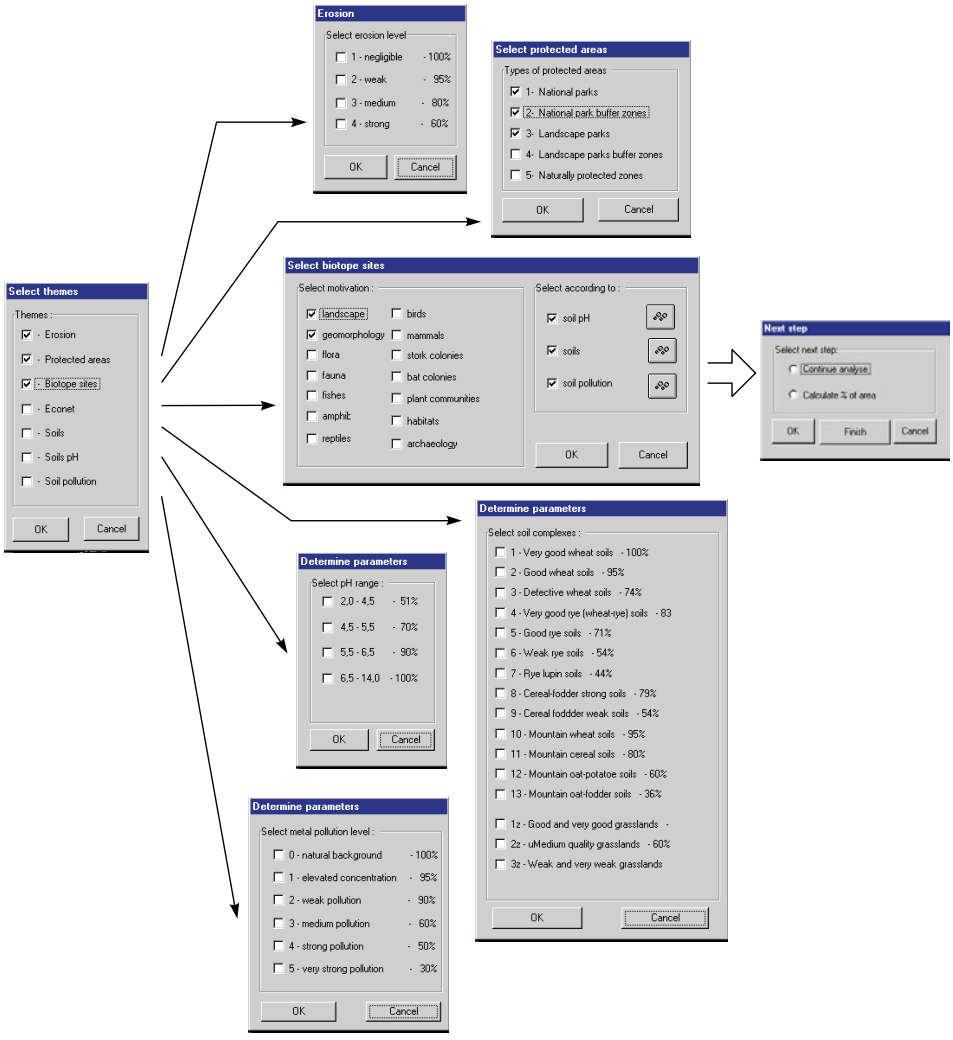

Figure 1. Window structure of AgroGIS – selection of themes

lysis. The municipalities are finally classified under four groups defined by quartiles of "percentage important areas", as follows:

1) municipalities with low percentage of priority areas (<25%)
2) municipalities with medium percentage of priority areas (25 to 50%)
3) municipalities with high percentage of priority areas (50% to 75%)
4) municipalities with very high percentage of priority areas (>75%).

Figure 2 (Annex) shows an example for agri-environmental classification of municipalities based on the same criteria as used for Figure 2. Further analysis summarises the results by larger regions (voivodships) in which the priority areas cover at least 50% of arable land (Figure 3 Annex). The criteria for dividing municipalities and regions into groups of a specified priority may be changed by the user.

This application also allows more complicated analyses for any chosen set of criteria. For example, it is possible to delimit the areas connected with: (i) the existence of protected areas (parks, protective zones, etc; and (ii) with soils of specific complexes of agricultural capability; which are (iii) subject to a certain degree of erosion (the soil criteria may include contamination with metals and degradation through acidification). In case of a complex analyses, the various polygons (selected from different thematic layers by choosing a particular set of attributes) cut through each other (GIS "intersection") to give a new set of polygons having all the chosen criteria.

Decisions about financing agri-environmental schemes should also be based on the evaluation of social and economic conditions. It is assumed that, particularly in Polish conditions, the socio-economic and regional factors which mould the types of farms will be taken into consideration when determining priority areas for schemes. An example of areas of particular environmental and socio-economic importance are upland and mountain areas. In order to take social and economic factors into account, the GIS was connected with a spatial database from the Central Statistics Office. This database contains comprehensive information on municipalities, such as: demographic statistics; incomes of the population; unemployment; crops and agricultural production; information on emissions and pollution; and environment protection. The user can now use these sociological data as further criteria for the analysis and delineation of areas.

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NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

Natural Sites Of European Importance In The Agricultural Landscape Of Poland

Anna Dyduch-Falniowska and Małgorzata Makomaska-Juchiewicz

Diagnosis

The main task of nature conservation these days is maintaining the abundance of life forms in the conditions of increasing human impact. As with the protection of species in the past, the classical concept of 'habitat' protection also turns out to be insufficient. Currently there is a need to protect biodiversity in areas that are used by man and, simultaneously, by species of conservation interest. Thus one of the important trends in nature conservation nowadays is the identification and maintenance of those forms of human activity which preserve biodiversity and, sometimes, even increase it. One example here is fish farming in fishponds, which may be bird sanctuaries, sometimes of national and international importance (see Gromadzki et al. 1994). But perhaps most important of all is extensive, traditional farming. This form of agriculture still covers a significant part of Poland, especially in the southern and eastern regions. It contributes to the creation of a mosaic-like landscape where, among fields and pastures, there are woodlots, tree belts, small water courses or ponds with their bank vegetation, swamps, etc. Such mosaics enable the existence of many plant and animal species, including rare and threatened taxa.

There is a concern that in market economy conditions, traditional agriculture will disappear since it is not able to compete with the intensive forms of farming. From the point of view of biodiversity conservation there is an urgent need to find to what extent the existing natural richness of Poland depends on maintaining the existing structure of the agricultural landscape. The results of such analyses are necessary not only for developing the nature conservation strategy but also for determining the direction of development for rural areas. They should also be taken into account in the economic strategy of the country when assessing the legitimacy of favouring the intensive farming model. The question may be asked whether, in the long term, the intensive farming really pays out. To answer this question one should assess to what extent the existing agrocenoses support the biodiversity of our country.

It should be emphasised that only in very few cases may we refer to species which are closely confined to agricultural areas or particular crops: an example would be Camelina alyssum (Miller), which grows on flax fields. Much more often these are the species which stay in farmland despite its agricultural use and despite other human activities fragment habitats. Sometimes, as a result of human activity new habitats are created. They may be occupied by species new to a given area, increasing the local biodiversity.

The method

A key issue here is the selection of a method for assessing the role of agricultural areas in biodiversity conservation. The method should guarantee the coherence of data both in the spatial system and with regard to different levels of ecosystems' organisation. Presently the only databank which offers standardised information, as needed for such a purpose, is the CORINE biotopes database (Dyduch-Falniowska *et al.* 1999). It allows also the assessment of the importance of agricultural areas for the potential nature sites within NATURA 2000. This study gives a review of the natural sites of European importance in Poland (CORINE sites which are the potential elements of NATURA 2000 system) from the point of view of selecting (and delimiting) the sites where the programme of biodiversity conservation in agricultural area will be implemented in the immediate future. This is one of the aspects of the agri-environmental programme.

When identifying sites within farmland among all Polish CORINE natural sites, the following issues were taken into consideration:

- human activity in a site (land cultivation, live-stock breeding);
- types of habitats (arable fields, pastures and mowed grasslands);
- phytocenoses present in a site;
- general character of a site.

The amount of farmland in natural sites varies greatly, ranging from several to several dozen percent of their area. They were divided into three categories, with high, medium and low proportions of farmland.

Significance of agriculture-related sites for habitats and some groups of species of European importance

Among the natural sites of European importance (potential NATURA 2000 sites) in Poland (Dyduch-Falniowska *et al*. 1999), 46% are sites with farmland. In particular voivodships their numbers range from 15 (Kujawsko-Pomorskie voivodship) to 42–46 (Mazowieckie, Warmińsko-Mazurskie, Podkarpackie and Lubelskie voivodship). Generally, most of such sites are found in the south-eastern and north-eastern regions of Poland (Figure 4, Annex). A relatively large number of sites with farmland is also in the two voivodships in the western part of the country (Wielkopolskie and Dolnośląskie voivodships).

Most of the natural sites with a large share of agrocenoses were identified in the Lubelskie and Podlaskie voivodships, where they constitute more than half of all the sites with farmland and also in the Warmińsko-Mazurskie, Dolnośląskie, Wielkopolskie and Mazowieckie voivodships (Figure 5, Annex). The natural sites with small proportion of agrocenoses prevail in the Świętokrzyskie and Pomorskie voivodships (more than 50% of all the sites with farmland).

The natural sites with farmland have different importance for conservation of particular natural values. In the case of the landscape, birds, or animals in general, the proportion of sites having such values to all sites with agrocoenoses is higher than their proportion to all CORINE sites (Figure 6, Annex). It is just the opposite for floristic sites. Their share in all sites with agrocenoses is smaller than their share in the total number of CORINE sites, which shows the lower importance of agricultural sites for the protection of flora than in case of the landscape or birds.

In view of the implementation of NATURA 2000 network, it is necessary to determine the importance of agricultural areas as natural sites supporting habitats and species listed in Annex I and II to the Habitats Directive and Annex I to the Birds Directive. We refer here only to some general groups of species and habitats.

The share of natural sites covering the habitats from Annex I of Habitats Directive in all sites with farmland is relatively large and in many voivodeships it exceeds 50% (Figure 7, Annex).

For the plants listed in Annex II to the Habitat Directive the agriculture-related sites have much less importance as their refuges. Among all sites with farmland the share of those containing NATURA 2000 listed species is on average 20% in most of the regions (Figure 8, Annex).

The share of refuge areas containing bird species listed in Annexes to the Birds Directive exceeds 50% and in Lubuskie, Warmińsko-Mazurskie, Opolskie, Kujawsko-Pomorskie, Mazowieckie and Podlaskie voivodships – 80%. Thus the importance of sites with farmland as refuges of rare and endangered bird species is very high (Figure 9, Annex).

Nature's refuge areas in the agricultural landscapes

Among the natural sites with no enclaves of farmland there is a large number of small sites (from several to dozen or so hectares) surrounded by agricultural land. These are for example, lakes and ponds, peat bogs, ravines, single hills. The method of farming on the areas surrounding them is very important for their functioning. Small isolated water reservoirs are exposed to eutrophication resulting from fertiliser runoff from the fields. An example here may be the site of Kacapka Lake – a nesting place for endangered bird species such as *Chlidonias leucopterus, Ch. niger* and a breeding place for amphibians. Use of herbicides on the surrounding areas may destroy vegetation on the edges of sites: this threatens the only Polish biotope of *Serratula lycopifolia,* located on the steep slopes of the Wąwóz ravine in Skorocice, below the fields. Use of herbicides affects the inverebrate fauna, especially interesting and valuable in the sites with xerothermic grassland, such as Wały, Krzyżanowice, Skowronno in the Miechów and Pinczów districts.

Characteristics of the species and habitats of European importance connected with agriculture-related sites

As mentioned earlier few species in Poland rely on agricultural land as a preferred biotope. There are, however, many others that find substitute habtiats in the patchy (mosaic) agricultural landscape, which are now of high importance for their populations. We now briefly review species of nature conservation interests, by systematic groups, that are connected with various types of farmland.

- **mammals**: species confined to grassland habitat, like sousliks (*Spermophilus citellus* and *S. souslicus*), common hamster (*Cricetus cricetus*), or root vole (*Microtus oeconomus*) and a variety of species that may find refuge in mid-field enclaves of non-agricultural habitat, e.g. *Sicista betulina*.
- **birds**: species for which agricultural land may constitute:
  - main nesting biotope (*Emberiza hortulana*, *Crex crex*, *Circus cyaneus*, *C. pygargus*);
  - a subsitute for nesting biotope (species whose primary biotopes were steppes or marshes: *Gallinago media*, *Acrocephalus paludicola*, *Porzana porzana*, *P. parva*);
  - feeding grounds (*Ciconia ciconia*, *C. nigra*, *Coracias garrulus*);
  - or part of the territory important for mating (*Tetrao tetrix*, *Philomachus pugnax*, *Grus grus*).
- **reptiles**: species connected with warm, sun-heated patches of grassy habitat (like snakes and lizards); they may be numerous in mid-field enclaves of non-cultivated habitat (woodlots, swamps, patches of waste land with piles of stones, balks, escarpments etc.); *Emys orbicularis* may occur in water reservoirs and slowly flowing rivers in agricultural landscape, burrowing their nests in sandy escarpments, sandy road-sides etc.
- **amphibians**: these species, which are strictly connected with water during breeding period, may use and rely on even the tiniest water bodies left in agricultural landscapes.
- **fish**: they may occur in different water bodies and water courses in agricultural landscape; their occurrence is limited by water pollution and eutrofication (field runoff).
- **invertebrates**: only certain groups are sufficiently known to be placed on CORINE and NATURA 2000 lists, such as dragonflies and butterflies. Butterflies may occur in different types of grassland, hay-meadows, patches of wasteland, swamps, bogs. Dragonflies may inhabit small water courses and large rivers flowing through agricultural landscape and different water bodies, which may be enclaves of non-cultivated habitat in agricultural landscape. A numerous group of invertebrate species (representing mostly Pontic--Pannonian element in our fauna) is connected with xerothermic grasslands – semi-natural habitats that require moderate grazing, mowing or other measures preventing natural succession.

- **vascular plants**: weeds connected with arable fields; species connected with various types of grassland and wetland habitat (e.g. *Gentiana uliginosa, Orchis coriophora, O. palustris*); water plants which may occur in mid-field water bodies. It is important that the occurrence of species connected with semi-natural habitats depends on the maintenance of their traditional use (e.g. grazing in the case of *Campanula serrata* or *Coeloglossum viridae* – species of mountain meadows).
- **habitats**: hay-meadows (e.g. the *Molinietalia order*); *Nardus* grassland in mountain areas; habitats occurring as enclaves in agricultural landscape: grasslands of the class *Festuco-Brometea* (important e.g. for some orchids), bogs, mires, and sporadically flooded and grazed salt marshes.

Delimitation and design of the NATURA 2000 sites related to agricultural areas

In the previous sections we have shown to what extent farmland contains different species and habitats of conservation interest. We now address the question: how far it is possible to reconcile the agricultural use of an area with biodiversity conservation? This way of linking various forms of space use requires an appropriate method of delimitation. The method must take into account natural and semi-natural phenomena as well as urbanisation and agriculture. In ideal conditions it should be based on the mapping of biotopes of the country; next, the criteria and distribution of species listed in Annex II to the Habitats Directive should be taken into consideration, followed by identification of sites, preferably using modern, computerised, Geographic Information Systems.

In Poland the CORINE biotopes data bank may certainly be a source of information on biodiversity, giving the distribution of species and habitats: it provided the data our analysis above. In view of the importance of land use for delimitation of ecological units, a useful layer will be CORINE land cover. The third layer to be used is ECONET-PL. This layer will be helpful to optimise the NATURA 2000 system and, first of all, to ensure its functional coherence. ECONET-PL provides information on natural links in the environment (ecological corridors), that is why it may also be used to identify Pan-European Ecological Network sites (PEEN) in Poland. In addition, GIS-based delimitation of the NATURA 2000 sites on areas used for economic purposes should include both soils and 'potential vegetation' data sets. They are necessary to ensure the adequacy of the conservation goals proposed from biogeographic conditions and to work out suitable economic instruments to protect the appropriate structures of the landscape.

Conclusions

Development intensive agriculture threatens the natural richness of the country seems. Extensive agriculture, however, allows preservation of biodiversity. Based on the analysis of the situation in Poland, the relations between the agricultural use and preservation of biodiversity may be described as follows.

- The majority of species of European importance occurring in agricultural land are connected with different types of extensively cultivated grassland (semi-natural habitats) and a variety of mid-field enclaves of non-cultivated biotopes (woodlots, small water bodies, swamps, waste land, unploughed field margins, escarpments etc.). That is why low-intensity (extensive) farming, which create patchy (mosaic) agricultural landscapes, is favourable for biodiversity conservation.
- The existence of semi-natural habitats, and consequently of species connected with these habitats, depends on the maintenance of their traditional use (extensive grazing or mowing which prevent natural succession).
- It is of great importance to find tools that will help to promote extensive farming in view of the economic transformations in CE countries.
- Intensification of agriculture poses serious threats to many NATURA 2000 species (affecting biodiversity of many areas) in different ways:
  - The establishment of large farms results in the elimination of mid-field enclaves of non-cultivated land, which are biotopes of many species;
  - field drainage lowers water tables and eliminates small water bodies, patches of swampy habitat etc., which are biotopes of many species;
  - overse of pesticides and fertilizers affects species directly (poisoning) or through pollution of their environment (e.g. pollution and eutrophication of water bodies);
  - mechanisation results in the killing or injuring of animals.
- In agricultural landscapes formed by large-scale farming it is necessary to recreate ecological corridors connecting still existing biocentres [e.g. through restitution of woodlots, coppices among fields (stepping stones) or rehabilitation of scrub and trees along streams and rivers].

In certain regions of Poland, such as Małopolska or Podkarpacie, the patchy agricultural landscape has been created over a long-period of socio-political changes. Its characteristic features are: specific physiographic conditions, high fragmentation of farms and a large share of privately owned forests. Thanks to extensive methods of culliration, with small fields and varied crops, wildlife in these regions is not subject to such strong human pressure as in other areas of Poland, despite their high density of people. These circumstances are especially favourable for preservation of the biodiversity in the agricultural landscape.

Due to the political and economic transformation of the country, vast areas previously occupied by large state owned farms became subject to fragmented in the last few years, thus creating a patchy land structure. Nature conservation on agricultural areas should consist in maintaining the **right forms** of their use. The large arable fields constitute ecological barriers. To enable contact (genetic exchange) between the isolated biocentres (fragments of non-agricultural ecosystems), even small patches of natural habitats among fields, should be maintained, or reinstated. This means the introduction of patches of trees, small ponds, etc., at such a distance from each other, that will allow their use as 'stepping stones' in ecological corridors by a large number of species.

The function of the framework project for undertaking the activities providing coherence of different forms of protection may be fulfilled by EECONET-PL system.

Integration of nature conservation and agriculture requires many legal and administrative instruments and a solid scientific background. There is an urgent need for detailed studies for particular regions, taking into account their biogeographic and socio-cultural character.

NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

Forests And Ecological Network In The Baltic Countries

The needs of the forestry sector, in terms of spatial planning, to introduce nature conservation concerns to its policies and practices

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The forestry sector in Latvia has been understood as management of forests for a whole range of benefits – economical, ecological and social. In this way nature conservation is involved in forestry policy and management practise. The situation is similar in other Baltic countries. Moreover, in Estonia and Lithuania, forestry even comes under the responsibility of the Ministry of Environment.

This paper briefly describes the importance of forests in the Baltic countries, presents some key facts about relevant international law, introduces some basic nature conservation concepts used in the forestry sector and describes existing and proposed links between regional and forestry planning, focussing mainly on Latvia.

Forests and forestry in the Baltic countries

In the Baltic countries forests are a keystone ecosystem for providing wide range of benefits – economical, ecological and social.

In comparison to average forest cover of the EU (32%, Anon., 1997) the proportion of forest in Baltic countries is high: more that 44% in Estonia and Latvia, and about the same (30%) in Lithuania (Fammler *et. al*., 1998).

Today pine, spruce and birch are the most dominant species in the Baltic States. These species cover approximately 80 to 95% percents of total forest area of the Baltic countries (Fammler *et. al*., 1998, Anon 1999a, Anon 1999b). About half of the Baltic forests grow on wet mineral or peat soils, of which about 50% are drained (Anon 1999a, Anon 1998). In the very near future about half the forests in the Baltic states will become privately owned. Average holdings are rather small, being only 10–50 ha in Latvia and Estonia (Phare project zz9613, 1998), while in

Lithuania they average less than 5 ha (Anon. 1999b). Consequently there is large number of forest owners – in Lithuania about 110,800 owners, in Latvia over 150,000 owners.

The forestry sector is a very important as industry in the national economy of Baltic countries, especially in rural areas (employment in forestry work, small sawmills, etc.). The forest sector in Latvia comprises 12–16% of the Gross National Product and forest products represent 38–39% of total export income. (Anon, 1999a).

Forests are also of high importance as habitats for rare and vulnerable species, for example black stork (*Ciconia nigra*), lesser spotted eagle (*Aquila pomarina*), etc. The forests protect water quality and quantity and provide other environmental services, they also have an important role as recreation areas for urban dwellers.

Legal background for nature conservation in the forests

In the Baltic countries some forests that were important areas for nature conservation had already been protected during soviet times, or even from beginning of twentieth century. After regaining independence in 1990s, the Baltic countries entered the international arena at different scales (from global to regional) regarding the protection of forests and their values. International treaties and agreements became a basis for elaborating national strategies and management recommendations.

Global scale

The Baltic countries signed **The Convention on Biological Diversity** together with other 152 countries at the United Nations Conference on environment and development in Rio de Janeiro in 1992. Among other things the participating countries adopted a "non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests". This "**Forest Declaration"** outlines basic principles for forest protection and management and has, since the Rio conference, formed a broadly accepted international framework for regional and national initiatives for development and implementation of sustainable forest management practices.

Pan – European scale

At a pan-European scale there are three main issues, directly or indirectly are related to forests: the Bern Convention, Ministerial conferences on protection of forests in Europe and the Ministerial conference "Environment for Europe".

Bern convention (1979) obliges participating countries to conserve wild flora and fauna and their habitats. Some of those species are forest dwellers and consequently some forests are defined as protected.

At the second **Ministerial Conference on the Protection of Forests in Europe,** in Helsinki, the Ministers responsible for forests adopted a General Declaration and four new resolutions among them:

H1 General Guidelines for the Sustainable Management of Forests in Europe.

H2 General Guidelines for the Conservation of the Biodiversity of European Forests.

At the third conference (Lisbon, June 1998) a resolution on six criteria and indicators for sustainable forestry was adopted, together with a set of operational guidelines for sustainable forest management. It was also decided that a "Work--Programme on the Conservation and Enhancement of Biological and Landscape Diversity in Forests" should be initiated as a co-operation between the Ministerial Conferences on Forest Protection in Europe and the Pan-European Biological and Landscape Diversity Strategy (PEBLDS; agreed by the Environment Ministers at the third Ministerial Conference "Environment for Europe" held in Sofia in October 1995).

The two Ministerial Processes share similar sets of goals, and there are similarities between the objectives expressed in the Helsinki Resolutions and in the PEBLDS. The emphasis on landscapes in PEBLDS provides a link to forests, which are a major element of European landscapes. Similarly, the link between the two processes is a compromise, rather than a perfect match.

Regional scale (Baltic 21, EU)

At the Visby summit of environmental ministers (Sweden, 1996) it was decided to elaborate a regional 'Agenda 21' (**Baltic 21**), which laid down an action plan for the sustainable development of the Baltic Sea region. The Baltic 21 programme is sector oriented, and the plan for the forestry sector aims to "focus on sustainable forestry practises which would contribute to the preservation of biodiversity".

The Sector Report on Forests outlines a rather detailed action programme for the forest sector. One important topic is the environmental aspects of sustainable forest management, including, among other goals:

- Conservation of biological diversity by appropriate forest management practices and necessary measures outside the forest sector.
- Identification of key biotopes and habitats of particular ecological significance, and adaptation of forest management practices for these special areas.
- Collaboration and share of responsibility between environment and forestry sectors, for setting of operational goals for the conservation of biological diversity.
- Having a network of different types of forest conservation areas that corresponds to the domestic and international conservation objectives.
- Both the quantity and quality of the protected areas should be considered in setting objectives for the protection of forests.

In the future all the Baltic States are going accept Directive 79/409/EEC (**EU Birds Directive**) on the conservation of wild birds, and establish a scheme for the protec-

tion of migratory wild birds and their habitats. Another important directive is the **Habitats Directive** (Directive 92/43/EEC) which, in principle could be recognised as a detailed implementation of the Bern Convention in the EU, (in many ways the Habitats Directive has the same content as the Bern Convention). But, in addition the Habitats Directive obliges EU countries define special areas of conservation (SACs) and to list threatened habitats and species whose habitats need especial protection. Such species and habitats must be protected through the designation of conservation areas.

The aim is to have a coherent European ecological network of special areas of conservation under the title *Natura 2000* when the directives have been implemented. The Natura 2000 Network includes the special protection areas classified by the Member States pursuant to the Birds Directive.

National scale (example of Latvia)

Policies related to nature conservation and forestry

All three Baltic countries elaborated a set of national policies, which directly or indirectly affect the forestry sector. The most important are forest policies, environmental policies and territorial planning strategies.

The **Forest policy** of Latvia was elaborated in 1998 and accepted by the Cabinet of Ministers. Estonia accepted its Forest policy in 1997. In both policies the emphasis is on the sustainability of forestry, taking into account ecological, economic and social functions of forests.

The **National Environmental Policy Plan for Latvia,** 1995, identifies the decreasing biological diversity as a priority problem requiring immediate solutions.

A National Spatial Plan for Latvia. This 1998 plan sets objectives, structures and guidelines for spatial and physical planning process in Latvia. One of the goals has been set as environmental protection, rational use of land and nature resources, and the management and protection of nature. Protected nature areas of national significance, including the territories of nature network (NATURA 2000), should be specified in this National Planning process.

Legal acts

Forest management

The most important legislative acts regarding forest land are the laws on **Forest Utilisation and Management (1994), Regulations on Final Cutting** and **Regulations on Thinning** (Cabinet of Ministers, September 12, 1996), as well as **Final Cutting Rules** and **Thinning Rules** accepted by the Ministry of Agriculture, State Forest Service (April 24, 1997**).** These normative acts were developed to ensure long-term sustainable use of forest resources, balancing efficient use and ecological requirements.

Nature conservation in the forests in the Baltic countries is actually based on division of the forest lands into the categories according to their economic, ecological and social values (management goal). Unfortunately, at least in Latvia, the classifi-

cation system used by nature conservation legislation does not correspond to that used in the forestry legislation. Consequently, misunderstandings arise during implementation, especially with regard to protected areas. However, a new law on Forests is being prepared, which it is hoped will preclude that discrepancy.

Nature conservation

While the Law **On Species and Biotope Protection** is being developed (which will include the obligations from international conventions, as well as from **EU Directives – Bird Directive and Habitats Directive),** the 1987 Council of Ministers Regulations **On particularly Protected Nature Objects in the Territory of the Latvian SSR** is in force.

The 1993 Law **on Specially Protected Nature Territories** defines protected nature territory categories, procedures for their establishment and protection and other related matters. The Law regulates property ownership and land use in specially protected areas. The Law groups the protected areas into 6 categories: State Nature Reserves, National Parks, Nature Reserves, Nature Parks, Natural Monuments and Protected Landscape Areas. In 1997 one new category, Biosphere reserves, was approved by law. Protected territories which depend on a main management goal could be divided into functional zones.

The 1997 Cabinet of Ministers passed Regulations **on Specially Protected Nature Territories and objects** which define the land-use regulations in these areas. The act is the basis for the planning of activities in these specially protected nature areas. Detailed regulations for each area, depending on specific conditions and needs, are developed as individual nature protection plans.

An important legislative act in nature protection is the Law **On Protection Belts,** which, beside other things, establishes protected belts along the Baltic Sea and Gulf of Riga, and around lakes and rivers, and regulates the status and protection. The disposal of mineral fertilisers, pesticides, oil products, chemicals, and other materials is prohibited, except for specially arranged places.

Territorial planning

In 1998 Latvia's Cabinet of Ministers approved new Regulations on Physical Planning. These regulations define the development of physical plans at national, regional, district (Rajon) and local (Town and Pagast (rural municipality)) level.

At **national level** a plan is intended to determine the interests of the State in the use of territory and is binding on the State sector, which must observe its provisions in relation to protected and other special areas and objects, infrastructure provision of a strategic nature, areas of strategic national defence significance and other items having national significance. No such national plan currently exists.

Regional plans are not mandatory. They may be devised by mutual agreement of municipalities within a planning region, which is a 'territory adopted by decision of government or local government for preparation of development planning and/or land use planning'.

The regulations specify that a **Rajons plan** must have a time horizon of at least 12 years, co-ordinates the interests of State Institutions, the Rajons and its territo-

rial, social, economic and cultural interests and the interests of Pagasts which transcend the boundaries or the competence of any one Pagasts or one town municipality.

Towns or Pagasts may adopt detailed plans, which deal with zoning, density, specific objectives and building regulations, and may be categorised as action area plans.

The set *Territories of national significance* are determined in the Concept of National Plan for Latvia (adopted in January, 1998). Among them, most relevant to the forest sector, are:

- especially valuable agricultural lands and forestry areas,
- *protected nature areas of national significance including territories of the nature network – eco-corridors,*
- cultural and historic territories of national significance,
- areas of national significance at high risk (eg flooded areas; errosion and weathering of rocks; areas endangered by glen erosion, landslides; territories at high risk of pollution of underground waters; areas of high fire hazard; explosive objects hazards),

Recommendations for ECONET development

Main principles for NECONET planning

The Latvian Project working group proposed (unpublished report 'ECONET Development in CEECs' (IUCN Project No 75598X/Latvia, 1999) that both aspects of ECONET – biological and ecostabilising – should be considered adequately.

At the state level, planning and introduction of ECONET will be ensured by a National Spatial Plan. At the regional and local community level it will be ensured by special planning rules and guidelines.

The project work group has elaborated the following description of the ECONET components:

Core area – territories with high biological and landscape diversity or territories of Latvian and European importance.

Core areas for National ecological network should be selected as:

- Existing protected areas of national importance;
- Potential protected areas of national importance (these will be designated according to the National Spatial Plan):
- Compensation areas (restoration territories) e.g. in Zemgale plain;
- CORINE biotopes sites;
- Important bird areas (potential NATURA 2000 sites);
- Areas designated under International Conventions (Ramsar sites).

In this respect the **National Spatial Plan** proposes new criteria for the designation of protected nature areas. Those criteria considered relevant for designating core areas include:

Uniqueness (rarity); Naturalness; Representative (typical); Biological diversity; degree of threat; Ecological stability; Size; Location in system of protected nature areas; Cultural value; Protection possibilities; Scientific value; Educational value.

The **landscape ecological principle** is main principle to be used in planning of **ecological corridors and buffer zones**.

Buffer zones – territories which ensure the protection and functions of **core areas** and **ecological corridors**.

The designation of **buffer zones** should be based on the following principles:

- The structure of land use;
- The flow of material and energy;
- Ecological factors (level of unfavourable impact from surrounding territories).

The size of such buffer zones should be determined by different local factors (landscape, ecological and anthropogenic).

Ecological corridors:

- Protected belts along banks of rivers or territories with low river density;
- "Steps";
- Linear landscape features;
- Areas of groundwater;
- Linear landscape areas in "Green zones" around cities;
- Linear landscape features within the sensitive areas of wind or water erosion.

The existing tool for introduction of **ecological corridors** will be carried out according to the **Law on Protection Belts and Regulations on Physical Plans.**

Proposals for classification of the forests

Forests comprise only part of the ecological networks. Taking into account the multiform importance, existing legislation (law on specially protected nature territories, law on protected belts) as well as drafts of a law on protection of species and biotopes, the project group on 'Revision of Latvian Forest protection system' (Donis, 1999) proposed a classification system of the forests and appropriate recommendations for management regimes (see table 1). Forest management has to differ between forests in the specially protected nature territories (core areas) and out side them (multiple use forests). In first case, forests are managed to meet goals of specific large functional zones (protection of ecosystems, recreational, educational opportunities) while in the other case (multiple use forests) the main function, at least at present, is timber production while fulfilling minimum ecological considerations (leaving "eternity trees", etc). Within both types of territories specially protected areas and special management areas could be considered as areas of different primary management aims, which have to provide protection of nature, amenity or other values, if general management regimes do not already se-

cure it. For example, if key woodland biotypes (habitat of rare species etc.) are found on particular parcels of land in the neutral zone of the National park (the main goal of the management in this zone is to mitigate the impacts of highly populated areas and provide sustainable management), then specially protected areas, with additional restrictions on use of natural resources, have to be established to ensure their maintenance.

Table 1 Classification of the forest

Multiple use forestry territories	Specially protected nature territories
General management regime	General management regime of the functional zone
Specially protected areas (key woodland biotopes, habitats of protected species, protected biotopes)	
Protected belts, and their functional zones	
Other special management areas* 1. Other specially protected forest biotopes (e.g. dispersal islets) Separate stands Forest clumps in the agriculture lands Islets of bogs, streams and lakes	
2. Transition zones and buffer zones around bogs Forest edges bordering with agriculture lands Buffer zones around micro-reserves Seasonal preserves around micro-reserves	
3. Genetical preserves of tree species	
4. Anti-erosion forests	
5. Recreation forests	
6. Urban environment protection forests	
7. Objects of long term research	

*Part of the special management areas are, functionally, some of the protected belts. For example, protected belts around the shores of watercourses, and along streams, are spatially almost the same as one of the special management areas (transition and buffer zones).

Relation of the forest management planning and planning of territorial development

In the process of elaborating the forest management plan, the development plans of corresponding areas have to be taken into account. Otherwise, different interest groups might simultaneously set conflicting management goals for the same area. In the planning process management priorities should be agreed between interest groups, taking into account the long term goals of economic development, state environment protection programs, programs of development of different industries, etc. The law on the planning of territorial developments states that it is necessary to indicate forestry lands of national importance, which should be respected in regional plans.

The degree of detail depends on the size of the area as well as the time scale of the planning. A strategy for the development of the forestry sector (necessarily a long term plan) has to be integrated into the development plan of the region. Forest

management plans also have to take into account development plans of specific areas. Depending on the size of the property, or its geographical location, forest management may be limited to the level of national, regional, or local (district, city or pagasts) planning. Management of forests within specially protected nature territories may be additionally limited by individual conservation and utilisation regulations.

Therefore, limitations determined by the existing and prospective territory development plans should be clarified before development of the forest management plan in municipalities of the corresponding level. The most precise information is available in the general plans of cities and pagasts, where, among other items, information relevant to forestry planning is available:

- The permitted utilisation of land sites and corresponding utilisation aims of the real estate;
- Forest territories;
- Territories on which land transformation is planned and permitted;
- All kinds of protected belts;
- Specially protected nature areas and their functional zones;
- Specially protected cultural and historical sites;
- Areas with available resources for the establishment of health resorts;
- Recreation and tourism sites and areas,
- Areas endangered by water and wind erosion.

To ensure optimum economic output as well as the best forest management, it is important to plan the forest management, especially on the larger properties. Short-term and long-term forest management plans have to ensure the achievement of economic as well as ecological and social aims.

Conclusion

The forest sector in the Baltic States serves many economic, ecological and social functions. Baltic countries have well established conservation traditions, and the existing legislation already has some elements of networks (protected belts along lakes rivers, protected areas, forest categories etc). Unfortunately, instead of a *system* of protected territories, there is only a set of areas. One of urgent tasks is to elaborate and implement such system (ECONET network), which has to provide efficient nature conservation in the forests while taking into account all aspects of forest utilisation, demands of international treaties and national conditions.

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NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

Tourism On Protected Areas In Poland

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One of the main functions of protected areas, apart from protection of the most precious natural values, is also making such areas available to tourists. The network of protected areas in Poland largely overlaps with the areas that are most attractive for tourism and includes, particularly, mountains, the seashore and lakes.

Estimates from 1997–1998 show that the protected areas in Poland were visited by the total of 21 million tourists from Poland. This figure should be supplemented by the increasing number of foreign tourists, which is rising every year. According to the World Tourism Organisation, almost 20 million of foreign tourists visited Poland in 1999, unexpectedly making it seventh most frequently visited country in the world. Even if we assume that many of these foreigners came to Poland for business purposes, there is still a large group of several millions of "true" tourists, and many of them visited protected and valuable natural areas.

Poland is very attractive for tourists, especially nature lovers from Western Europe, because it is not far away from their countries and because natural environment in Poland is much richer and less changed. A person from Germany, Netherlands or France has, after only a dozen or so hours of driving, a chance to see areas and ecosystems in natural, or close to natural conditions, which they cannot see in their home country as they were changed a long time ago as a result of anthropisation. Some Polish areas are among the most famous natural areas in Europe and there, as for example in Biebrzański National Park in the summer, foreign tourists outnumber domestic tourists.

Poland's glory is a well developed (one of the best in Europe) system of widely-spaced protected areas, with national and landscape parks comprising the most valuable elements. These attract tourists interested in nature, to the regions which are the most; the number of domestic and foreign tourists visiting protected areas is growing continuously.

The extent of this rapid rise in tourism to the naturally valuable areas has two important consequences. Firstly there are threats to the natural environment connected with mass tourism, especially in the places where many visitors can damage

fragile and unique ecosystems, (e.g. sea shore or high mountain areas). The second aspect is the possibility of obtaining significant economic income from increased tourism in these protected areas, especially in national parks and landscape parks. The gains from tourism are, in line with the world trend, growing systematically and the fact that eco-tourism has become fashionable causes areas with unspoiled natural environment to be favourite destinations. Thus, while the continuously increasing concentration of domestic and foreign tourist in Poland's protected landscape and nature reserves could become a "gold mine" for Polish economy, at the present time these possibilities are very little exploited.

The reason for this is that Polish protected areas are not well adapted for tourist traffic and the increased interests of tourists with nature. This is because of the outdated (several decades old) view of tourism at the protected sites, which is changing very slowly. This model of tourist needs, which was in force first of all in the national parks, was based, under the pretence of protective regulations, mostly on limiting numbers of visitors and enforcing prohibitions which made it difficult for the visitors to see the most valuable parts of protected areas; consequently, the tourist felt like an intruder rather than a welcome guest.

The results of such an approach to tourism were often opposite to those intended. Many prohibitions became unenforceable, while the lack of the appropriate services and laws for the developing tourist traffic resulted in widespread unregulated changes, sometimes to the detriment of the natural environment. A much better solution is often to appropriately channel tourist traffic at the protected areas in a manner that allows better presentation of the most precious natural values, while allowing control the traffic in a manner that reduces damage and also earns financial profits, a part of which may then be allocated for protection purposes.

The main negative aspects of the current condition of tourism on the protected areas in Poland are first of all:

- clear domination of passive "stay-only" tourism, such as short term holiday recreation,
- insufficient popularisation of educational, specialised and activity tourism (with qualified instructors),
- excessive tourist traffic on the most popular areas,
- insufficiently developed tourism infra-structure,
- low standard of basic accommodation,
- low ecological awareness of tourists,
- lack of modern, comprehensive, tourist service-centres in national and landscape parks,
- lack of any concept for managing tourism on the protected areas.

Of course, the development of tourism on the protected areas must not be allowed to take place at the cost of increasing threats to the natural environment, and must be subject to certain limitations. One of the best methods for preventing such threats is to promote different forms of sustainable tourism, which allow negative consequences of tourism for the environment to be reduced and, at the same time, give a full chance of complete regeneration of the natural environment.

The Sejm of the Republic of Poland, in its resolution dated 19 of January 1995 on the policy of sustainable development, proposed sustainable tourism as one form of eco-development. The term "sustainable tourism" (defined also as ecological tourism (eco-tourism), alternative, soft or environmentally friendly tourism), refers mostly to the philosophy of organising the stays of tourists. According to this philosophy, the most important factor is the manner in which the tourist uses the natural and cultural environment, the organisation of its infrastructure, and its functioning in the local socio-economic, cultural and natural conditions. Thus sustainable tourism puts emphasis on a full respect of the local values, which the tourist should treat with reverence, without causing, if possible, any negative effects. This then clearly becomes the most desirable type of tourism for protected natural areas, and all form of tourism now operating on these areas should be converted into different forms of sustainable tourism.

Sustainable tourism may have different forms, which are based on the principle of symbiosis between the natural and cultural values and tourism. To fully enjoy the benefits of tourist areas, in particular those that are especially sensitive to any disturbance, (i.e. vulnerable natural areas), sustainable tourism is designed for very delicate usage of those resources which guarantee that they will last for many years. This means the development of tourist activity with consideration to long-term effects and not the short-sighted acquisitive exploitation of local natural resources, which leads to rapid degradation. The examples of such "developments" are all too numerous, with many warning examples in form of the tragic fate of many seaside resorts: formerly "virgin" places, now crowded with hotels; or extensively developed mountain resorts. Both have resulted in the necessity of defining a new form of tourism. That's why the concept of reducing the costs of recreation and increasing income by increasing the number of places in the tourist resorts was abandoned.

Given the catastrophic consequences of mass tourism, one switched to renewing the contact between tourists and their natural and cultural surroundings. This is how the concept of sustainable tourism was developed, understood as a form of recreation which requires a higher level of awareness, both from tourists and from organisers of tourism, including local people.

The most important objectives of sustainable tourism are:

- rational usage of nature's resources and natural and cultural environment without damage,
- conversion of the (recently dominating) forms of group tourism into individual, family or small group tourism,
- organisation of stays of tourists by small regional offices or family businesses, and not by large tourist offices from big cities,
- conversion of passive forms of stay-only tourism into forms of active and specialised tourism,
- change of the basic form of tourist accommodation from accommodation in large recreational centres and hotels to accommodation in private premises, agro-tourism houses, flats or camps,
- dispersion of tourist traffic and reducing it in the areas with excessive concentration of such traffic,

- extension of the tourist season beyond the summer,
- development of tourist infrastructure through numerous small scale investments requiring small funds, instead of several large investments involving large amounts of money,
- reducing the price of tourist services,
- increasing the possibilities of using different tourist attractions and sight seeing attractions as well as learning the specifics of the area,
- providing more opportunities for direct contact with nature,
- increasing direct contacts with landlords renting the premises and local communities,
- retaining the profits from tourism in the area where such tourism is developed and using them to improve the economic situation of the local communities.

Sustainable tourism is aimed at a high quality of services, understood as an authentic feeling of contact with both nature and with the local people and their culture. Because of this, tourists are looking for, and expecting, a special "*exotic*" experience, and not a standard luxury; many are ready to pay higher prices to stay in traditional surroundings, for local food, for learning authentic aspects of local culture and nature. Local communities also gain a lot, because, apart from increasing revenues, they have direct contacts with people who are interested in their life, culture and surroundings. This raises local awareness and appreciation of local traditions and culture, which in turn, leads to more respect for their own history and natural environment. In such situations the protection of the environment becomes particularly important; it results from an understanding that fulfilment of ecological requirements assists the functioning of local tourism; it becomes a necessity of life and, furthermore, may become a reason for local pride.

The philosophy of sustainable tourism requires it to be fully compatible agro-tourism, sight-seeing, qualified tourism (active), nature and culture oriented tourism, i.e. those which have the greatest potential for development in the protected areas. Such forms are well worth promoting and developing on the territory of national and landscape parks. Furthermore, other forms of tourism at the protected areas, which currently don't have the character of the sustainable tourism (such as stays in holiday centres), may, and must be, converted in such way that they too will meet the criteria of the environmentally friendly tourism.

NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

The Agriculture And Protection Of The Biodiversity In The Czech Republic

Katerina Brandová

NATURA 2000

The legal framework for NATURA 2000 is the Commission Decision 97/266/EC of 18 December 1996, concerning an information format for proposed NATURA 2000 sites. The Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora is also relevant.

Both of them are partly covered by the Czech legislation – act 114/1992 Coll. – Protection of nature and landscape, but this act will be amended to achieve better compatibility. The responsible body is the Ministry for the Environment, but the Ministry of Agriculture is concerned as well, through the act on hunting, an act on forestry and an act on fishing. All these acts should have been amended by 2002/2003, to be compatible with the European legislation.

The Czech Republic asked to participate in the network of NATURA 2000, but a transitional period will be necessary (probably till the year 2005). We will request the addition of new protected species into the enclosure list.

Protected areas and national parks in the Czech Republic

The first protected area in the Czech Republic, and the second in Europe, was founded in 1838, by the decision of the owner. It was in the South of Bohemia, Zofinsky prales and Hojna voda. The real development of nature protection started after 1945.

In the Czech act 114/1992 Coll. we can find 6 categories of protected areas – after the scale of the area:

- national parks = 3
- protected landscape areas = 24

- national nature reserves +
- national nature monuments = 217
- nature reserves +
- nature monuments = 1603

The example of the protected landscape area "Bile Karpaty"

This area was established as a protected landscape area in 1980. Later on, in 1996 it became a biosphere reserve of the UNESCO. The topograpy of this area is very hilly, from 180 to 970 meters above sea level. The total area is 74 500 ha and it covers three districts. 45% of the land is afforested and the rest are mostly meadows and pastures. We call these meadows "white Carpatien flowering meadows" because of their very rich flora. Stepic flora occur as well as wetland species, but they are especially famous for theirs orchids.

The system of exploitation in the protected areas

As a suitable exploitation for this kind of environment we can consider the system of organic (ecological) agriculture, because it respects the balance of the flows of material and the energy within the system and the pollution of environment is excluded. The Czech Republic has almost 4% of agricultural land under organic agriculture. Organic farming is supported by the government through support for the 'non-production functions' of agriculture. The legal basis for such support is the Act on Agriculture 252/97Coll. and its governmental decree. The form of support is non-investment, direct non-returnable subsidy for these programmes:

1) Management of agricultural land, that contributes to keep the landscape in a proper state (there is a criterion of livestock unit intensity 0,30–1,5 LSU/ha);
2) Compensation for losses due to the ecological methods of operations of the applicant (to this belongs the support for the organic agriculture);
3) Liming of agricultural lands with arable soil having pH up to 5.5;
4) Fertilisation of agricultural lands with arable soil by organic fertilisers (this means the use of composts in agriculture, it doesn't mean a support to fertilisation by manure);
5) Change in structure of agricultural production by means sowing grass;
6) Non-food utilisation of agricultural land;
7) Change in structure of agricultural production by means of aforestation;
8) Establishing of elements of the territorial system of the landscape ecological stability;
9) Mud removal from the lakes (ponds) and their revitalisation.

The number of applications for these type of subsidies was 18,482 and the national budget corresponded to a total of 94 billion EURO in 1998.

At the present this time we prepare a new system, compatible with the new Agenda 2000, Council Regulation 1257/1999, including agri-environmental measures, LFA and the ecologically limited areas, aforestation and enforcing adaptibility and development of rural areas.

Concrete examples are available from the pilot project in Blaník and Bílé Karpaty:

The pilot project was managed by three NGO organisations: AVALON, IEEP and VEEN ECOLOGY and it concerns all candidate countries. It is financed by the Netherlands government. In the Czech Republic it covers two areas, protected landscape area Bile Karpaty and Blanik. This pilot project has three main purposes:

- to prepare pilot programs for protected areas;
- to elaborate recommendation for national agri-environmental measures (A-E M);
- to make a conclusion for A-E M in the Central and Eastern Europe.

The project has three phases:

1) To create the working team, including the ministerial level, local level and the regional co-ordinator;
2) To take inventories of the area, of the actual agricultural methods which are used there, and to formulate the aims, measures, and suitable agricultural activities (for example change the cultivation in permanent grasslands);
3) Economic calculations of payments for farmers, for their environmental services to the landscape, final preparation of pilot programs and a draft of contracts between farmers and the state.

In Bile Karpaty there are about 40 thousand ha of agricultural land and the project is run on 15 thousands ha. Firstly, initial information was collected from the farmers, and about 35 of them now participate in the project. During the project there are three size categories screened (up to 2 ha, up to 500 ha and more then 500 ha). Farmers should have only 0.3 LSU per ha and maximum of 30 animals in one group of them.

NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

Wetland Areas In The ECONET-Poland System In The Context Of The Rural Areas Development Policy

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Introduction

Conservation of the environment and nature's resources has been recognised by the Polish Ministry of Agriculture and Rural Development as an integral part of the state policy of rural areas development. This document contains a proposal for addressing the necessity of active protection and the conservation of nature by subsidising forms of agriculture oriented towards the protection of natural values. These proposals are based on EU legislation. A major part of the natural values of rural areas that require protection are concentrated on different types of wetlands, i.e. wet meadows, river floodplains, peatlands and other marshy areas. The high contribution of wetlands to the wildlife value of agricultural areas was demonstrated in a pilot project to evaluate biodiversity in north-eastern Poland.

The high conservation importance, which is currently given to natural and nearly natural wetland areas, results to a high degree from the fact that such areas have become rare, particularly in Western Europe. This resulted primarily from drainage of wetland areas to adapt them for farming. At the same time riverbeds were modified and river levels regulated, thus liquidating the periodical floods which are necessary to maintain many riparian habitats. Due to excessive drainage, and the degradation of hydrogenic soils connected with this process (see Okruszko 1993), the natural wetland vegetation was replaced by plants typical of meadows and pastures.

It is estimated (Dembek *et al*. 1999, Ilnicki *et al.* in prep), that natural and transformed wetlands cover 13.9% of the area of Poland, of which 40% is now excessively drained and where mire and swamp vegetation has been replaced by meadows and pastures. While moderately drained and extensively farmed areas (meadows mowed once a year) are characterised by high biodiversity, the intensively drained areas are characterised by poor flora and fauna.

Today a large number of rare or threatened species of plants and animals are associated with natural or slightly transformed wetland ecosystems. Furthermore these ecosystems are characterised by high biodiversity, on the community level as well as in terms of numbers of plant and animal species. A special importance is given to sites rich in waterfowl, which rely on wetlands during the breeding period. Wetlands also provide temporary refuge areas for numerous species of birds that are normally associated with other biotopes but which depend on mires and swamps during their annual migrations. In Poland most bird migration routes follow the main river valleys or the Baltic coast, where wetlands are common. This function of wetlands as refuge ecosystems should be taken into account when planing the network of protected areas.

The particular importance of wetlands in the ECONET system

Ensuring the high spatial continuity of ecosystems is one of the requirements for the effective protection of biological resources. The continuity of sites is also necessary for dispersal gene-flow between the meta-populations of core areas, and also significantly increases the stability of ecosystems (Banach *et. al.* 1979; Richling, Solon 1997). These issues are fundamental to the European Ecological Network (EECONET) concept, which aims to integrate existing and proposed protected areas into a spatially and functionally coherent system (Liro *et. al*. 1995).

The components of the ecological network in Poland (ECONET-PL) were developed by a team from the national IUCN office (Liro *et. al.* 1995, 1996). The EECONET network was defined as comprising two basic structural units: core areas, which are characterised by especially high biodiversity and abundance of landscape forms; and refuge areas and ecological corridors, whose main function is to provide links between the core areas. Further information shows which parts of the network (both core areas and corridors) are of national or international importance.

When it comes to natural biodiversity, the EECONET is not a uniform structure and contains both very valuable natural areas as well as areas greatly modified by man. The latter are, first of all, the ecological corridors whose delimitation was forced by the location of core areas. Taking into consideration the large-scale transformation of wetland ecosystems in the country (Dembek *et al*. 1999) it is important to know the condition of the wetlands in ECONET-PL. In particular, one has to examine the scope in which wetland areas fulfil their expected functions, especially within the ecological corridors (Dembek and Oświt 1998). Finding answers to these questions was the main task of a project carried out by a joint team from Department of Nature Protection in Rural Areas (IMUZ) and the Dutch Institute of Forestry and Nature Research IBN-DLO (Kotowski 1998, 1999).

The condition of wetlands in the ECONET system

Two data bases were used in analysing the degree of transformation of wetlands in the ECONET-PL system, both developed at the IMUZ: (1) "Polish Wetland and Grasslands Database" which is a computer development of the Map of Polish Wetlands (Okruszko *et al*. 1994); (2) "Computer Data Bank of Peatlands of Poland "

(1996). In order to obtain the information on particular segments of the ECONET-PL network, their boundaries were added to the databases. The boundaries of ECONET-PL structures were marked on 1:100 000 scale source maps and the peatlands within them digitised. The boundaries of ECONET-PL were digitised into the Wetland and Grassland Database from 1:500 000 scale maps. The new coverages gave information on wetland areas in all parts of the network. This established a basis for an analysis of the proportions of different wetland types, according to their degree of 'naturalness'. This was done by comparing the types of hydrogenous sites with their present vegetation.

The total area of hydrogenous sites in the ECONET-PL system is 2,450,644 ha, which constitutes 17% of the whole network and 56% of the hydrogenous areas in Poland (Kotowski *et al*. 1999). This percentage is similar to the paludification index (percentage of wetlands) for the entire country, which is 13.9%. This may result from the fact that a large number of the wetlands are in the valleys of small streams, which are not included in the ecological network. There is a larger difference between the percentage of peat lands in ECONET-PL and in the entire country: there are 28,436 peat deposits within ECONET-PL that cover an area of 833,622 ha (67% of the area of Polish peat lands) and 707 open deposits of gyttja with a total area of 18.259 ha (72% of the area of gyttja-mires in Poland).

Details of the plant communities in particular types of hydrogenous habitats, averaged for the total area of ECONET-PL are given in Table 1, while Figure 1 compares these proportions between core areas and ecological corridors (excluding various forest and scrub communities).

The vegetation types requiring high levels of moisture (reedbeds, sedge communities, sedge-moss communities and moss communities) cover, in total, a mere 11% of hydrogenous areas (13% of non-forest wetlands) and 18% of peatland areas (22%

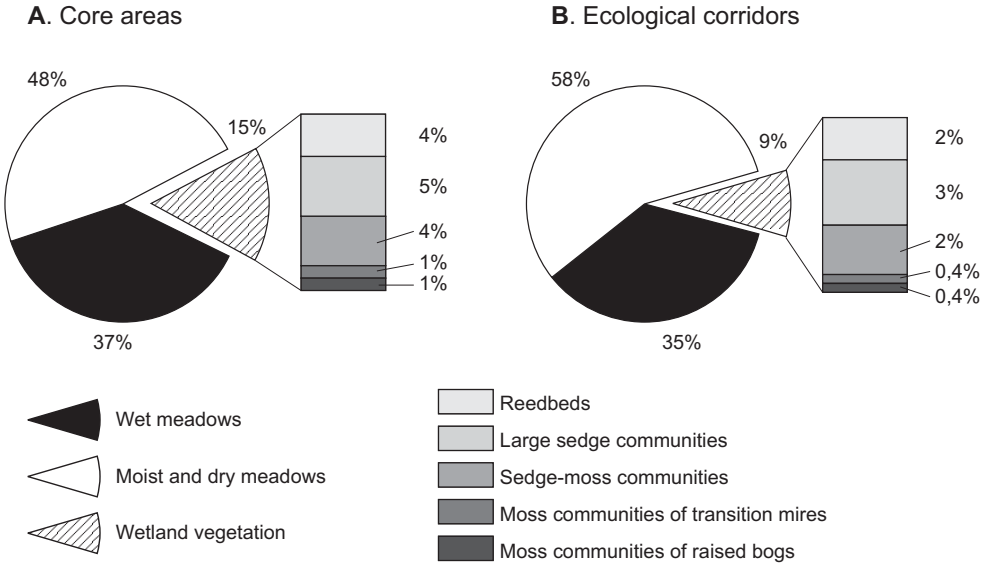

Figure 1. Percentage of selected vegetation types in the area of non-forested hydrogenous habitats in core-areas and ecological corridors of ECONET-PL

Table 1. Percentage of selected vegetation types in various hydrogenous sites of ECONET-PL network

		Area occupied by vegetation types (ha)										
		Reedbeds (*Phragmition*)	**Large sedge communities (*Magnocaricion*)**	**Sedge-moss fen communities (*Caricetalia fuscae, C. davallianae*)**	**Transition mire communities (*Scheuchzerietalia palustris*)**	**Raised bog communities (*Sphagnetalia magellanici*)**	**Wet meadow communities (*Molinietalia*)**	**Dry and moist meadows (*Arrhenatheretalia*)**	**Forest and scrub communities**	**Total area (ha)**	**Percentage in ECONET-PL area**	**Percentage of hydrogenous areas**
Type of hydrogenous habitats	**Peatlands**	27 398	45 576	54 260	10 694	11 084	343 509	187 454	153 647	833 622	**5,69**	**34,02**
	– fens	26 549	44 567	53 485	3 246	1 007	330 332	186 304	120 897	766 387	**5,24**	**31,27**
	– transition mires	312	840	680	7 184	218	7 320	527	11 427	28 508	**0,19**	**1,16**
	– raised bogs	537	169	95	264	9 859	5 857	623	21 323	38 727	**0,26**	**1,58**
	Others	35 817	46 706	20 789	6 548	2 416	392 213	828 693	283 840	1 617 022	**11,05**	**65,98**
	Total hydrogenous sites	63 215	92 282	75 049	17 242	13 500	735 722	1 016 147	437 487	2 450 644	**16,74**	**100,00**
Share in peatland area		**3,29**	**5,47**	**6,51**	**1,28**	**1,33**	**41,21**	**22,49**	**18,43**			
Share in peatland area excl. forests		**4,03**	**6,70**	**7,98**	**1,57**	**1,63**	**50,52**	**27,57**	–			
Share in hydrogenous areas		**2,58**	**3,77**	**3,06**	**0,70**	**0,55**	**30,02**	**41,46**	**17,58**			
Share in hydrogenous areas excl. forests		**3,14**	**4,58**	**3,73**	**0,86**	**0,67**	**36,55**	**50,48**	–			

of non-forest peatlands). Most of the *potential* wetlands area is currently occupied by meadow communities (71% of all hydrogenous areas and 87% of the area of non-forest wetlands), the majority of which are dry or slightly moist meadows. The frequent existence of meadow communities within hydrogenous habitats confirms the consequences of the excessive drainage as well as the direct effects of agricultural cultivation. When considering the proportion of meadow communities, the hydrogenous sites in the network do not differ significantly in comparison to the hydrogenous sites in Poland. However, the status of non-forested peat lands is much better: 22% are covered by wetland communities and 28% by dry or slightly moist meadows; for the entire country the values are 10% and 56% respectively (Figure 2). Most of the ECONET-PL peat lands that have been converted into meadow communities are seasonally flooded, and so have greater natural value than the converted meadows elsewhere in Poland, which are mainly cultivated, dry and slightly moist meadows.

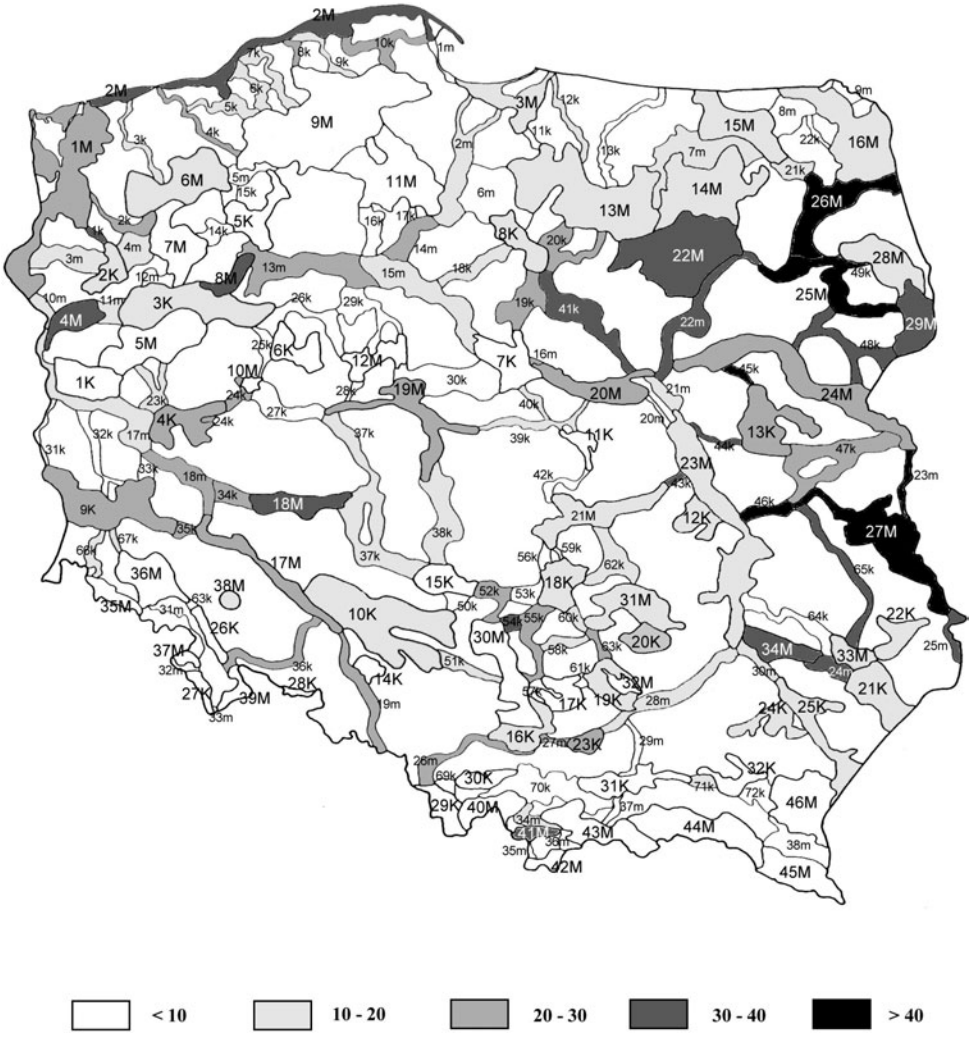

Figure 2. Percentage of hydrogenous habitats in the area of ECONET-PL segments

The hydrogenous habitats of ecological corridors are more transformed than those of the core areas (Figure 1 and 2). This confirms the expectations resulting from the different status of these two components in the ECONET system and the different basis for their delimitation. The rank of core area was given to the areas recognised as having special natural values, which in most cases were already subject to different forms of protection. On the other hand, delimitation of "ecological corridors" was to a certain extent forced, and thus some of them may not yet ideally fulfil their assigned functions.

This investigation differentiates between segments of the network with different proportions of wetlands (Figure 2) and with different 'natural types' of wetland. However, to fully analyse the functions of the wetlands in the conservation of biodiversity it will, in most cases, be necessary to conduct studies at smaller scales. One will need to consider the degree of modification by man, as well as the need for ecological corridors provided by wetland ecosystems, in the context of local landscape and ecological conditions.

Implications for planning the development of rural areas

One of Poland's largest national ecological problems is the practice of abandoning wetland areas that were previously used as pastures or hay-meadows. The traditional, extensive farming procedures that have been followed over several centuries, contributed greatly to the creation of some unique species-rich plant communities. After abandonment, these areas undergo rapid secondary succession, and the species rich meadows are replaced, initially, by scrub. This process is accelerated by the excessive drainage of habitats and the related increase of soil fertility. Thus the breeding habitats of waders and waterfowl are rapidly decreasing.

These findings confirm the urgent need to create legislative- and practical mechanisms to protect natural and semi-natural wetlands. Subsidies paid to farmers to enhance biodiversity by specific management could be an effective solution.

This analysis of the wetlands in the ECONET system provides valuable information to help determine management priorities for regions that are rich in wetlands. In our opinion, a detailed analysis of the condition of wetland ecosystems, and their function in the landscape, is necessary for the formulation of plans for the spatial development of rural areas, especially when taking into account the needs for active protection and ecological restoration.

Apart from the importance for biodiversity, we should also emphasise other important functions of wetlands, such as retention of surplus water or the natural purification of water containing excessive levels of nutrients. Such possibilities should also be taken into account when planning the development and management of river valleys and other areas with a high percentage of wetlands. The method used in this project, based on the comparison of actual vegetation with the habitat types of wetlands, allows one to estimate the ability of ecosystems to fulfil these functions.

Poland is obliged to protect wetlands by numerous international conventions, (Ramsar Convention on Wetlands of International Importance; EU Habitats Directive; the Bonn Convention on Migratory Species of Wild Animals; Rio Convention on Biological Diversity). These obligations are reflected in *the Act of Nature Conservation* and the *National Enivironmental Policy* of Poland, which is currently being amended. We hope that these laws will also be applied in practice and thus contribute to the more effective protection of these rapidly vanishing ecosystems.

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NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

Further Development of National Ecological Networks in Central and Eastern European Countries

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Introduction

Increasing environmental threats of local, regional, national and international kind requires territorially unified nature conservation system in Europe, allowing combination of individual countries' efforts in preservation, reproduction and growth of natural resources. The concept of ecological network represents the process of integration of conservation and environmental aspects into different sectors, such as agriculture, regional planning, transport, etc.

Central and Eastern Europe has a special opportunity. These countries have relatively low population densities and large areas of relatively wild and diverse habitats. Few years ago, IUCN decided to adopt the EECONET concept as a guiding principle for its East European programmes. In 1993, a project called "National Nature Plan" in four countries i.e. Hungary, Poland, Czech and Slovak Republic was started, during which National Ecological Networks for these countries were developed.

In the end of 1998, two new IUCN projects – "ECONET development in CEEC" and "Development of national ecological networks in Baltic countries in the framework of Pan-European Ecological Network" – have started. The first one was completed in 1999, while the second one will be completed in three years. This paper will focus on first results and perspectives of the above projects.

One of the goals of the project is to create operational concepts of national ecological networks (NECONETs) in Lithuania, Latvia and Estonia, as well as their implementation strategies that conform to European standards. The implementation of ecological network is necessary for ecologically balanced development of the region and for implementation of the principles of sustainable development, maintenance of landscapes and biodiversity, as well as implementation of the EU Habitat and Bird Directives (NATURA 2000 areas), Agri-Environmental programmes, as a process of the EU accession, and also Biodiversity and Bern Convention

(EMERALD network). Development of the national ecological networks will provide each of the three countries and the region as a whole a tool for setting priorities in biodiversity protection and will start integration of general and cross-sectoral policies, applying concepts of European and Regional Ecological Networks.

Up to now, evaluation of the existing legal, economic and administrative basis for development and implementation of NECONETs, as well of identification of threats and benefits resulting from land use policies was made. This resulted in some conclusions and raised certain problems.

National experiences

Good conservation traditions, especially national systems of protected areas, legislation and results of completed and ongoing projects create favourable conditions for designing NECONETs in Estonia, Latvia and Lithuania. However, there are significant differences in various fields that have to be taken into account when creating a regional ECONET.

While Latvia is starting to create ECONET only now, Estonia and Lithuania were amongst the first countries in Europe where the concept of ecological network has been developed and implemented in practice.

In Estonia, the concept of an Ecological Network has been developed and implemented in practise in 1980s. The existing network covers areas of protection with different regimes, as well as buffer zones and extensively used agricultural areas. The first principles of the concept of ecological networks at regional level in Estonia were developed already in late 1960s. The following studies could be mentioned:

- The map of the compensating areas in the North-East Estonia was compiled by Heino Luik and Veljo Ranniku
- The system of green corridors in Tartu region was worked out (Parker and Eilart, 1969).

Estonian national ECONET is a network of compensating areas resulting from the concept of polarised landscape bringing together the development of nature and human culture. This concept means functional zoning of landscape elements into natural zones (or ecological compensating areas) that polarise the anthropogenic poles of intensive land use and centres for human activity. The meaning of strongly polarised system is to reduce entropy and to increase self-regulation of the region. The ecological compensating areas make a hierarchical multilevel system with natural core-areas, buffer zones and corridors. The various functions of "ecological compensation" areas include, i.a.:

- saving material and energy, minimising pollution, recycling resources,
- providing refuges for wildlife, giving possibilities for migration of biota,
- being a barrier or filter for fluxes of material and energy,
- supporting framework for human settlements,
- providing recreation areas,
- compensating outputs from human society.

In case of Lithuania, a Nature Frame was developed and legally established as a kind of national ecological network. The Lithuanian nature Frame has a purpose to create an integral system of natural ecological compensation zones and to ensure natural connections between different kinds of protected areas. Topographic localisation of Nature Frame was based on analysis of migration links of natural landscape elements (first of all, hydrography), estimation of gravigenic structure of nature complex, and conservation and increasing bio-ecological stabilisers in geosystems. It consists of geo-ecological divides, areas of inner stabilisation of geosystems, and migration corridors (riverbeds, valleys, and pitgrooves where intensive geodynamic and biological information flow is occurring). The Lithuanian Nature Frame connects areas with various purposes, e.g. strict nature reserves, managed reserves, national and regional parks, protection zones and protected sites of natural resources. The purpose is to ensure natural connections between the different categories of protected areas (conservation, preservation, restoration and integration). The Nature Frame includes all natural and semi-natural ecosystems, covering about 60% of the Lithuanian territory in total. The concept has now been enshrined in the 1992 Law on Environmental Protection (as amended in 1996) and the 1993 Law on Protected Areas.

In Latvia, scientific and planning Institute "Pilsetprojekts" elaborated "Complex territorial scheme of nature protection in Latvia" in 1990. This was first attempt to carry out comprehensive summary and analysis of factors influencing natural resources. There were prepared more than 20 thematic overview maps, among them map on system of particularly protected nature areas in Latvian SSR. This is also the first time when concept of ecological network is introduced – "axis of ecological activities" in contrary to "priority areas of urban development" are designed on the maps.

These existing initiatives make a good background for developing NECONETs in the region. Nevertheless, ecological network based on concept of the Pan-European Ecological Network (PEEN), Emerald and NATURA 2000 networks can not be developed only on the basis of existing networks of compensation areas. For instance, although one of the aims of Lithuanian Nature Frame is to ensure landscape stability, it was created on the basis of geomorphologic criteria. Present network of protected areas in this country does not cover all the species, ecosystems and their diversity which ideally should be protected. Concept of Ecological Networks is based on conservation of rare and endangered species and vulnerable habitats by forming necessary structure of landscape elements. Therefore, NECONETs to be developed by the Baltic countries, on one hand, have to comply with European requirements, while on the other one, to fit in national conditions.

Let's take Lithuania's example. From methodological point of view, ecological network and nature frame have different specialisation level and extent, but from organisational point of view they are analogical functional territorial formations that are understood as continuos hierarchical combinations of concentration centres of certain functions and connecting axes. Both they are based of buffering compensation and biodiversity conservation areas from economic activities.

According to their main purpose, ecological network and nature frame are in principle compatible. Nature frame fulfils wider ecological functions – both geoecological and bioinformation. Though compensation geoecological function seems to

be priority one, purpose of nature frame foresees also creation of preconditions for biodiversity conservation.

From the point of view of structure and development, identification of nature frame and ecological network is actually possible, because the most important functional units are identical. On the highest level, structures are based on the same large forest areas, lake and wetland complexes, river valleys. both networks cover main protected territories. Indeed, nature frame does not distinguish elements of European importance, and includes urban areas. Both networks will lack natural high level links between elements. Structure and localisation of the nature Frame in principle created favourable preconditions for transboundary links of protected areas' networks. So, territorial compatibility is favourable.

It is likely, that the biggest functional compatibility is expected on national and regional levels. On the local level, links of ecological network can be created on the basis of elements of nature frame, especially since all networks include restoration possibility.

Taking into consideration purpose, structure and territorial structure of the networks, it may be considered, that ecological network would exist as functional change of nature frame, more designed for biodiversity conservation needs. Main measures of linking nature frame with ecological network are identification of core zones of European importance (from the point of view of biodiversity values) and reorganisation of development of nature frame on the local level, attributing more clear functional migration character to territorial distribution of the frame elements. The latter activity could be supported by some statements justified in earlier landscape planning and management methods (on density and configuration of small agrolandscape elements in the need of protection).

Ecological network in current environmental policies

A wide range of research and implementation capacities exists in the Baltic countries. However, until recently no remarkable legislative and institutional ones have been developed. Currently in the National Environmental Strategies and in the National Environmental Action Plans the notion of ecological network is presented in Latvia, Lithuania and particularly in Estonia.

The National Environmental Policy Plan for Latvia defines decreasing biological diversity as a priority problem requiring immediate solutions. National policy on conservation of biological diversity in Latvia is planned according to Rio de Janeiro Convention on Biological Diversity. The Plan allows developing and implementing a complex of activities related to biological diversity, for example, for the protection of internationally important wetlands and characteristic (for Latvia) landscapes.

The following actions are recommended by Environmental Action plan for Latvia:

- development of a unified protected area system including buffer zones and corridors. A concept of ecological corridors is required in Latvia, which could be integrated into physical planning.

- A model or system of protection of biological diversity also needs to be developed both for outside protected areas and those used by different sectors of economy.

To achieve this, the following actions are required:

- harmonise the legal system in respect to responsibilities and rights of the State, local governments, businesses and private persons regarding their economic activities;
- efficient control of land use;
- development of management instructions, and recommendations for land and forest service personnel, land users, landowners and environmental protection workers.
- development planning and territorial planning (spatial planning);
- territorial plans as instruments to regulate economic activities;
- public participation in territorial planning, development projects and environmental impact assessments;
- conservation of landscapes;
- the Law on Regional Development to regulate management and conservation of landscapes in all regions of Latvia.

Concept of National Spatial Plan of Latvia determines goal, objectives, structure and guidelines for National Plan and spatial/physical planning process in Latvia. Environmental protection, rational use of territory and nature resources, management and protection of nature has been set as one of the goals. Protected nature territories of national significance including territories of nature network should be specified in national planning process.

Since Lithuanian strategic policy documents were elaborated a few years ago, they include concept of nature frame as national ecological network. Priorities set up in the National Environmental Protection strategy include:

- preservation and creation of national Nature Frame;
- improvement of land use structure;
- increasing area of ecosystems regulating ecological balance;
- increasing forest cover, first of all in the main zones of Nature Frame;
- stopping invasion to ecologically sensitive and the most natural places.

The same strategy foresees territorial planning as one of the means of its implementation. The aim of such planning is to create preconditions for sustainable development of the country, to use natural resources sustainably, to preserve natural and cultural values of landscape, and general landscape stability, etc. For elimination of causes of negative effects, one of the most important prevention measures in the field of protection of natural resources and landscape is creation of a system of environmental territorial planning.

The national actions set in the action plan include:

- preparation of Nature Frame schemes on local level in agricultural and urbanised areas (Scale 1:10 000);

- for conservation of biological diversity, preparation of cartographic schemes for territorial network of ecotopes (habitats) in the Nature Frame on national and regional levels of territorial planning.

The Nature Frame action plan set in the National Biodiversity Conservation Strategy and Action Plan of Lithuania, as priority actions, includes:

- approve Nature Frame regulations;
- develop recommendations for the bioecological structure formation of the Nature Frame;
- incorporate the Nature Frame into the country's general plan (scale 1:200 000);
- incorporate the Nature Frame into the general plans of districts (scale 1:100 000);
- delimit distribution areas which are most important biologically within the Nature Frame at state and regional level.

In case of Estonia, the status of ecological network concept is much better in contemporary strategic planning documentation, like Estonian Environmental Strategy and the Estonian Environmental Action Plan. For instance, in Estonian Environmental Strategy is written that Estonia should *establish /by the year 2010/ a network of nature reserves corresponding to EU recommendations where zones of strict protection have to cover up to 5% of the terrestrial area of Estonia*". The Estonian Environmental Action Plan (1998) sets for the period 1998–2000 such actions as development of the Landscape act with a) setting principles for ecological network design, b) define elements of econet and for the period of 2001–2006 to update and develop the ecological network concept on the national and regional level, make an economic analysis of the Econet implementation scenario as well as launch GIS for Econet analysis.

In the planning document **"Estonia - vision 2010"** is stated:

Ecological network is a coherent system of extensively used areas in a comparatively good natural state that helps to maintain biodiversity and the stability of the environment. It consists of bigger core areas and narrower corridors connecting them. Biotopes with suitable area and location of natural and environmental importance as well as areas acting as buffers against the external environmental influences are suitable for being enlisted as core areas. The large range of forests and wetlands guarantees sufficient compensation for human activities. The core areas are linked with corridors, that are comprised of linear elements in the landscape, e.g. river valleys and valley flats, as well as interconnected parts of forests and coppices. Corridors bind the core areas into a structural whole, which makes the spread of species and exchanges in the gene type of the association possible, thus undoing the local damage to the nature and recreating biodiversity.

Since 1999 the concept of ecological network is a part of county spatial planning process in Estonia. The minister of environment signed the regulation what is defining the main objectives for the second phase of county planning, one task is to design "green network" of county.

The Estonian Ministry of the Environment, the department of spatial planning declared that the main tasks of the second phase of county planning (a period 1999-2001) are:

- To design the green network at county level (our planners are using a term „green network" instead of „ecological network")
- To define valuable cultural/historical landscapes

We can add that the county plan has a legal power (we are considering the county spatial plan as a main development plan, which sets legal framework for other activities inc. land use plans).

Network planning at county level is oriented at achieving the following goals:

- to maintain the natural self-regulation of the environment at the level necessary for human existence
- to protect valuable associations
- to allow sustainable economic management, way-of-life and recreation as well as guarantee the availability of natural zones to the public
- to maintain and promote historical, cultural and esthetical identity and awareness of the areas of natural and cultural inheritance

The county plans also include:

- general specification of core areas of international and national importance and the corridors linking them as well as making propositions to add new protected areas to the existing ones with the aim of extension;
- defining the conflict areas threatening the internationally or nationally important core areas and finding strategic solutions in principle to avoid conflicts;
- guaranteeing sufficient coherence with the over-all network linking the countries at the Baltic Sea;
- guaranteeing the existence of the entailed total area of the ecological network;

Current gaps and problems for ECONET development in the Baltic countries

National legislation of the three Baltic countries supports so far indirectly the ecological network elaborated earlier. The legislation gives possibilities to handle core areas and also buffer zones of the protected areas as part of the ecological network. Also it gives possibilities to handle the natural and semi-natural areas outside protected areas as part of the ecological network. But the need for natural corridors as the pathways for species distribution is not addressed in the legislation yet. For recapitulation, it should be concluded that the current legislation in that country supports only selected aspects of a potential ecological network (e.g. coastal areas, shores and banks, sites of species conservation value, areas of existing legal protection etc.) and no comprehensive operational mechanism has been worked out yet.

Gap assessments have been carried out for both the Wild Birds Directive (79/409/EEC) and Habitats Directive (92/43/EEC). It is clear that the existing nature protection laws in Estonia, Latvia and Lithuania are insufficient to meet the

requirements of EU legislation, in particular those contained in the Habitats and Wild Birds Directives, notwithstanding the countries' ratification of the Bern Convention, on which those two Directives are based.

Whilst a system of protected areas of different categories has been established in the Baltic countries, the criteria for their establishment do not correspond to the criteria provided in the Wild Birds Directive and Habitats Directive respectively. Provision will therefore need to be made in national legislation of the Baltic states for the identification and designation of sites which comply with the criteria laid down in the respective EU legislation and international conventions and for a register of such sites to be compiled. In particular, there will need to be rules on the selection of sites eligible for identification as sites of Community importance based on the criteria set out in Annex III (Stage I) to the Habitats Directive, and relevant scientific information.

It may well be that some of the currently existing protected areas may be suitable, in whole or in part, to be proposed for inclusion on the list of sites of Community importance. But in general, creation of national ecological networks in Estonia, Latvia and Lithuania will be an important step to implementation of the EU Birds and Habitats Directives.

It has been agreed, that all NATURA 2000 sites shall be included in the ecological networks. In all the three counties, there are ongoing approximation projects under different titles dealing with preparation for implementation of the EU Birds and Habitats Directives. In the field of species and habitat protection and regulation of hunting, the following activities are planned: finalisation of the translations of the relevant directives; preparation of an implementation plan for NATURA 2000 (national action programmes); planning of other activities under the directives; inventories of species and habitats for the purpose of working out proposals for NATURA 2000; preparations for formulating the proposals. A proposal for NATURA 2000 will be prepared for pilot areas.

Implementation of NATURA 2000 by the time of Estonia's, Latvia's and Lithuania's accession to the EU is not realistic. Among the most important tasks for the implementation of the EU requirements regarding habitat protection is the preparation of national list of sites and all related duties. Estonia is asking in its Position Paper for transition period until 2005 to prepare the lists of sites. The other two countries might do the same.

After the inventory all designated NATURA 2000 sites will be digitised and analysed in the framework of the concept of Ecological Network. Sites, which are valuable, large enough, which are situating in the core areas etc. will be proposed as the SCI. Since the inventory of the NATURA 2000 sites will not be finished until few years later, and the timeframe of the ECONET project is 2001, it is not realistic to expect full incorporation of NATURA 2000 sites into national ecological networks.

Regarding application of the PEEN guidelines and criteria in the Baltic states, some problems may arise, since the PEEN was designed mostly for West European conditions that differ from those in Central and Eastern Europe.

The Baltic region can be classified as an area with a medium impact of human activity on nature. Cultural landscapes (fields, settlements, and industrial land-

scapes) are not unmitigated, but is many cases they are structured with forests, wetlands and water bodies that function as ecologically independent systems. Formation of such "natural sanctuaries" with low-intensity economic activity has been mostly spontaneous. Thus, due to abundance of areas of natural and semi-natural state, ecological network in the main part should be not constructed, but drawn from the reality by "developing and legalising" existing structures. Natural preconditions of a well functioning ecological network in the Baltic states are fairly good, comparing with those in the Western Europe. For instance, in Estonia the obtained network will be inter-related and spacious, covering more than 50% of the territory. This is the foundation ecological network will be systematically elaborated from. Seashores and the sea shelf as well as the waterside of bigger lakes must be included in the network by applying planning and protective measures on them.

The general structure of ecological network – core areas, corridors, buffer zones and stepping stones – is accepted in the region, but in Estonia the concept has another character. Landscape structure in the Baltic states differs from the West European one – the land use pattern in many regions is rather consisting of open fields in a forest, than woodlots in the matrix of agricultural land. This trend is very much increasing going from the south (Lithuania) to the north (Estonia). Therefore, new structures of the ECONET might be developed in the course of the Baltic project.

Then there is certain diversity of applied terminology (national terminologies versus European terminology, semantic meaning of different terms etc.), that is creating problems currently.

The PEEN criteria themselves seem to be not fully applicable in the local conditions of CEE countries. In existing nature conservation practices, naturalness and biodiversity are not the first and legally established criteria for selecting areas for protection. More or less it is generally accepted that the preconditions of taking nature object under protection are its endangeredness, rarity, representativeness, scientific, historic-cultural, nature conservation or aesthetic value, or an obligation arising from an international agreement. Criterion biodiversity might cause methodological difficulties, since most often simple lists of species' numbers are used. Moreover, it looks that the PEEN criteria have been designed for biodiversity network hence for nature conservation practitioners primarily. The ecological network should include both wider context of criteria and assemble variety of sectors to implementation. Land use and planing, water management, forestry and agriculture would be the principal sectors to be motivated in implementation of the ecological networks. One of the complications in implementation (even, if we have theoretically fit algorithm, how to do it) will be how to get weighted priority lists for the whole Pan-Europe and for the distinct regions and countries like Estonia, Latvia and Lithuania separately. Finally, guidelines for implementation of the PEEN criteria in regions and countries would be useful for designing NECONETs in future.

Criteria for planners (size of core areas etc.) are still problematic. Substantiated criteria to define core areas of international or national importance do not exist in the Baltic coutries yet. The application of at least two criteria — area (shows the over-all compensatory ability) and protective value (priority of associations or pro-

tected species on the international level) is thought necessary. In the further elaboration of planning strategy the specification of essential environmental criteria (on the basis of species, habitat, associations, landscape, the compensation of human impact, etc) for selecting elements of national importance seems to be a primary necessity.

Among other problems concerned with Baltic national ecological networks, we should mention the areas of cultural and natural inheritance, pointed out by Estonia. The increase in the awareness of natural and cultural heritage values has brought forth the need for their inventory. Valuable samples of such landscapes should be preserved. Landscapes of natural and cultural heritage have several functions. They are essential as historically set forms of sustainable land use of spontaneous origin, as pillars of regional identity and as well as tourist attractions.

There are also some strategic problems in elaborating on the ecological network, like:

- maintaining ecological network in the regions of high load of human activity – in the vicinity of settlements are highways; In this case we are mostly talking about fine network patterns and that is the terms of reference of general or county planning.
- maintaining the continuity of networks in places where highways penetrate the large compensatory areas. The key issue here is not the impact of the road itself on the nature but the fact that intensive traffic is a prerequisite for the development of business and administration, which brings about an increase in the density of population in a comparatively wide corridor. Putting these trends into practice would disperse the core area into smaller pieces and diminish its value. In such regions, besides taking protective measures, strategic planning should guarantee the maintenance of the present natural state of core areas and the passage of corridors.

Difficulties for planning ecological networks are created also by incompleteness of information sources for designing ecological network at county level (for instance there are not full-coverage of aerial photos); kinds of maps, aerial photos that should be used for designing cross border ecological network; different data standarts in existing databases – ornithological data are collected according to UTM grid, botanical according to special botanical grid system; and integration of “landscape” and “species” approaches.

Finally, land reform and both legal and practical complications will be one of the principal difficulties during the implementing the concept of ecological network in Estonia, Latvia and Lithuania. Extremely complicated task will be to get legal backing for the building up the system of corridors between the core areas, especially if transit cross technical infrastructures are the cases.

Conclusions

The application of the strategy of compensatory networks in planning helps to reveal, evaluate and exploit the impact of protected and sparsely populated areas on the environment in the broader sense. Taking into account the requirements of nature conservation and the needs of associations, additional possibilities to com-

pensate harmful effects the society has on nature crop up. And the means for developing an ecologically sound environment improve.

In spite of numerous problems described here, work on developing ecological networks in Estonia, Latvia and Lithuania is progressing with elaboration of principles, criteria, inventories and feasibility studies. Species and Habitat directives in Latvia already served as background for "Law on species and habitat protection" and practical designation of new potential protected areas will be carried out by creating EMERALD network. Thus there will be again created a network of separate areas like already existing protected areas, CORINE biotopes and IBA's. Our opinion is that main task of ECONET project is to provide adequate planning system for ecological corridors to achieve connectivity of the areas designated as EMERALD or NATURA 2000 network.

We hope that at its final stage the current project will be able to contribute significantly to the PEEN development and succeeds to combine Baltic countries' systems of protected areas, ecologically compensating territories and nature frame into one united pan-European system of ecological network which by virtue of their habitats and mutual ecological relatedness constitutes the natural heritage of Europe.

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NATURA 2000, Rural Development and Ecological Networks

Agata Zdanowicz

Policy tools

There are several ways in which environmental concerns can be incorporated into European and national policies. But there is always a question about which way, and what combination of various instruments, can bring the *best effects* in solving each of the specific environmental problems.

The most commonly used instrument is that of imposing *legal obligations*. Environmental policies consist mainly of legal obligations on the users of natural resources, in both in national legislation and in the legislation of the European Union. The latter often requires the Member States to incorporate obligations recommended by the EU into national laws. And such obligations are needed to show a clear bottom-line of the respect for the natural environment that needs to be followed by all.

Such obligations are, however, only effective if there are enforcement instruments, and these are usually too weak. The special "police" forces, that would be needed to ensure compliance with all such legal obligations concerning the environment, would need to be immense and very powerful. But when the relations between the government services and entrepreneurs resemble the relations of the policeman and law-breaker they do not create a positive attitude of respect for the environmental and are unlikely to foster co-operation over environmental protection.

Recommendations are a gentler form of legal communication to establish the baselines for environmental respect in economic operations. A good example of such recommendations are the 'Codes of Good Agricultural Practice' concerning the issue of water pollution by nitrates, which should be issued by the governments of all European Union Member States, as required by the Nitrate Directive. They do not form an absolute obligation (apart from the Nitrate Vulnerable Zones, where they are obligatory) but they provide a clear statement of what minimum requirements shall be adhered to by all agricultural operators. There is not yet a legal requirement by the EU to develop in the Member States codes of practice giving baseline requirements concerning bio-diversity. But such recommendations would certainly help farmers as a reference to how their agricultural activities should be conducted to reduce the negative impacts of farming on bio-diversity, or to actively enhance it.

The next step up in persuading economic operators to take environmental concerns into account in their operations is the application of *incentives* for them to do so. Agri-environmental schemes, introduced by the European Union in 1992, are an encouraging example of how the provision of economic incentives, for those who are following specified 'environmentally friendly' prescriptions of farming operations, can be persuaded to help maintain, or enhance, the environment. Since the introduction of these schemes in 1992, about 20 per cent of farmers in the EU have enrolled in them, and hence 20 percent of the agricultural area in the EU benefits from such benign management. This method seems to be both very effective and to foster a more positive attitude to environmental concerns in every- day farming operations; the farmers' actions are based on a positive will and are more likely to permanently change their awareness of the interactions of farming with the environment.

Support for '*raising the environmental awareness*' of both private individuals and economic operators is perhaps the most "gentle" policy instrument. But it builds solid foundations, or, one might better say, prepares a fertile soil, for the permanent consideration by those concerned about the effects of their every day operations on the environment. The potential of increased awareness is vast.

Structural Funds of the European Union – potential for the positive and negative effects of their use on nature

Structural Funds are the financial instrument of the European Communities, designed to facilitate achievement of two main objectives: to foster economic and social cohesion in the Community (reduce regional disparities) and to help realise the potential of all regions. Structural Funds constitute about one third of the total EU budget. However their value in proportion to the GDP of the Member States is gradually decreasing, in 2000 it will be 0.4 per cent of the EU15 GDP, whereas in 2006 it will only constitute 0.31 per cent. Nevertheless, Structural Funds remain an important instrument for supporting regional development in the EU, including rural regions, to which some funds are specially dedicated.

Some of the Structural Funds' resources are clearly dedicated to environmental actions, and among them are actions aimed at nature conservation or nature-friendly management. In other cases actions supported from these funds have indirect positive effects on the mainting or enhancing the environment. But, as Structural Funds support a wide range of investments, including those in rural areas, they might potentially have an adverse effect on the environment, and their use needs to be closely monitored for adverse environmental impacts. The main areas supported by Structural Funds, and the resources earmarked between 1994-9 for actions aimed at environmental improvements, are presented in the Table 1.

Member States whose per capita GDP falls below 90 per cent of the EU average are also entitled to financial support from the Cohesion Fund. As its environmental component does not apply to actions aimed at nature conservation or management, we will not discuss it in detail. However, special attention needs to be paid to the environmental impact of large-scale investments of Cohesion Fund money on transport networks, as well as on facilities to protect the environment, such as waste-water treatment works.

Table 1. Main areas of support and forecasted expenditure in the period 1994–99

Abbreviation – full name of the fund	Main areas of support	Per cent of the total SF expenditure forecast 1994–99
ERDF – European Regional Development Fund	Productive investment and business support, basic infrastructure and local endogenous development in disadvantaged regions	46.9%
ESF – European Social Fund	Vocational training and recruitment aid	33.5%
EAGGF – European Agricultural Guidance and Guarantee Fund	Adjustment of agricultural structures; rural development in disadvantaged regions	17.4% (Guidance Section)
FIFG – Financial Instrument of Fisheries Guidance	Adjustment of structures in the fisheries sector	2.2%
Total SF allocation for the years 1994–1999		about 160 billion ECU
Expenditure for projects clearly marked as aimed as environmental improvements		about 9 billion ECU

Special support for agricultural and rural development

A part of the resources put into the European Agricultural Guidance and Guarantee Fund (EAGGF) are dedicated to actions supporting rural development, and within its scope come 'structural improvement in agriculture'. There are several measures supported from this fund, which can indirectly enhancement the environment in rural areas, and some measures directly focused on such objectives. They are all listed in the Table 2, with an indication of their potential environmental impact.

The European Regional Development Fund and European Social Fund may have similar environmental consequences to the EAGGF. Under those two funds a special priority is given to developments which create sustainable jobs, including those in rural areas. Priority areas, and actions eligible for co-financing from these funds, are listed in the Appendix 1.

Both those funds apply to various regions in with particular difficulties, including rural regions. They complement actions funded under EAGGF.

Ways to ensure that Structural Funds are used in ways which lead to nature environment maintenance and improvements

The use of Structural Funds is guided by four basic principles: concentration, additionality programming and partnership.

The principle of *concentration* is reflected in three objectives which determine the use of the Structural Funds at the Community level. Objectives 1 and 2 refer to defined geographical areas where structural problems are most severe. Objective 3 has a horizontal character and applies to the whole area of the EU. These objectives, and the coverage of them in terms of the total EU population, are presented in the Table 3.

Table 2. Actions eligible for EAGGF Guidance and Guarantee Sections funding in the Objective 1 area (Council Regulation 1257/99)

Standard Measure	Potential positive effect on nature values	Potential negative effect on nature values
• Investment in agricultural holdings	Direct and indirect	Possible
• Support to young farmers	–	Possible
• Improving processing and marketing of agricultural products	Indirect	–
• Promoting the adaptation and development of rural areas:	–	Likely
• Land improvement	Direct	Likely
• re-parcelling	–	–
• setting up farm relief and management services	Indirect	–
• marketing of quality agricultural products	Indirect	–
• basic services	Indirect	Possible
• renovation and development of villages	Direct & indirect	Possible
• diversification of agricultural activities	Direct & indirect	Likely
• agricultural water resources management	Indirect	Likely
• development and improvement of infrastructure linked to the agricultural development	Indirect	Possible
• encouragement for tourist and craft activities	Direct & indirect	Possible
• protection of environment, agriculture, forestry, landscape conservation and animal welfare	Direct & indirect	–
• restoring agricultural production potential damaged by nature disasters	Direct	Possible
• financial engineering	Indirect	Possible
Common Agricultural Policy Accompanying Measures		
• Aid for Less Favoured Areas and Areas of Environmental Restrictions	Direct & indirect	Possible
• Agri-environmental aid	Direct	–
• Afforestation aid	Direct & indirect	Possible
• Early retirement aid	Direct & indirect	Possible
Community Initiative LEADER	Direct & indirect	Possible

The principle of *additionality* obliges Member States to use Structural Funds as a source of finance which supplements national resources, and does not replace it. Application of this principle is expressed through different rates of the eligible EU co-financing, as given in Table 3.

The principle of *programming* means that the use of Structural Funds must be planned in a formalised way by each of the Member States or regions (depending on which of these geographical level is more appropriate in each case) for each of so called programming periods (these are the same periods as the periods of the multi-annual budgetary perspectives agreed in the EU).

Table 3. Objectives of the Structural Funds for the programming period 2000–2006

Objective	% of the EU population	EU co-financing rates
Objective 1: development and structural adjustment of the regions whose development is lagging behind: • NUTS II regions with GDP per capita <75% of the EU average • The most remote regions (overseas) • Present Objective 6 areas	22.2	 75% 40% 35% + extra 10%*
Objective 2: promotion of economic and social conversion of areas facing structural difficulties: • Industrial and service dependent areas • Declining rural areas • urban areas • depressed areas dependent on fisheries delineated according to common criteria	18	 50% 25% 15% + extra 10%*
Objective 3: support to adaptation and modernisation of policies and systems of education, training and employment outside Objective 1 • share of each MS dependent on the total population yielded by common indicators		

* In specific cases higher rates of the EU assistance can be applied, the rates can be increased by extra 10% for the projects undertaken in the Cohesion Countries, or in case of investments made by private companies for the projects undertaken by Small and Medium Size Enterprises

This planning exercise involves the following stages:

- European Commission decides on eligible areas and allocates funds;
- Member State/Region prepares the National Development Plan in consultation within the government and with regional-local communities and with socio-economic partners. The NDP covers:
  - diagnosis of the situation,
  - strategy,
  - quantified objectives,
  - main priorities,
  - indicative funding.
- European Commission decides on the Community Support Framework:
  - CSF combines all SF,
  - defines general priorities,
  - quantified objectives,
  - EU funding allocation,
  - forms of support.
- Member State/Region prepares, in consultation within the government and with regional-local communities and with socio-economic partners, draft operational Programmes consisting of:
  - requests for assistance,

  - draft financial table,
  - priorities,
  - quantified objectives.
- European Commission approves the Operational Programmes, for each of them:
  - Structural Funds (one or more),
  - financial table,
  - quantified objectives,
  - operational measures.

The last step involves a publication of the Operational Programmes in the Official Journal of the European Communities, and results immediately in budgetary commitments on the EU side and advance payment from the Community Budget to the Member State or region in question.

It is *during the programming exercise that the environmental concerns*, or more particularly measures to safeguard or improve the environment, can be incorporated into the planned use of the Structural Funds. As the environmental improvements are eligible for the Structural Funds support in many direct and indirect ways, it is only a question, but a key question, of the *weight of preference given to environmental matters* when the wider situation of the country/region is assessed, the strategy for action determined, objectives and priorities chosen and funding proposed.

The programming phase for the use of the Structural Funds *is the most crucial time for those concerned with the environment and nature to take initiative and action*.

The last principle, the principle of *partnership* allows for various parties to voice their concerns about the nature and the wider environment.

The partnership principle was developed to ensure that all parties involved can have their input to the process of determining how the Structural Funds will be used. The partners which should be involved in the programming process are the European Commission on one side and, on the other side, the Member State or region, with its competent authorities and bodies, including economic and social partners, as well as private sector partners sharing the costs.

All Operational Programmes must be prepared in partnership to ensure: *complementarity* of various sources of funding, availability of information and involvement of all relevant actors, acceptance of the programmes and support/participation in their implementation, careful monitoring and evaluation of the programme implementation.

Rural Development Policy and Common Agricultural Policy

European Union Rural Development policy and its potential for environmental improvements cannot be discussed as a subject separate from the EU's main-stream Common Agricultural Policy (CAP), as the latter applies to most of the agricultural area of the EU and has a very strong effect on its environment. So far the CAP pro-

vides many strong incentives for farmers to be conventional, with only rare and marginal requirements as to the effects such farming has on the environment.

There have been several attempts at the Community level to relate CAP incentives to the 'conventional farmer' with the minimum requirements for the environmental 'soundness' of farming operations. At present these requirements are to be determined by each of the Member States individually, and are unlikely to lead to significant changes in the farming practices. E*fforts to make the CAP more environmentally friendly need to be continued and enforced*.

Conclusions

Many possible actions can be undertaken to increase the importance of environmental concerns in shaping the rural development policies in both the European Union and the Applicant Countries. Raising public awareness can have the broadest reach of them all. Throughout all levels and dimensions of life in society, awareness of environmental values, or more specifically nature conservation values, can be broadened. Also awareness of the possible positive and negative impacts that the actions of private individuals and businesses may have on nature and the environment can be similarly improved. This awareness is a vital foundation for practical actions that can be taken by rural dwellers in the areas where they live, and for tax payers to influence the way in which their contributions to national and EU budgets are used. Such awareness is also vital before members of parliaments will initiate and pass new laws giving provisions for enforcing, or encouraging environmental protection. Local and regional authorities need this awareness so that their decisions on the development of the areas under their custody takes into account environmental values, and so that they can influence the development of new legislation and policies and tools for the enforcement of such laws.

Public awareness is especially important amongst government officials. They most often prepare the proposals for new legislation and policies and thus create conditions in which environmental improvements are, or are not, achieved. Unfortunately the high *environmental* awareness, eagerness and professional qualifications of the officials working in *environment ministries* are much less common in the governmental offices responsible for policies on the key economic sectors. There is a lot of scope for a much more active dialogue between various parts of the government and its administrative structures, especially for the dialogue between environmental ministries and other departments. Also, within environmental ministries, nature conservation concerns need to become more popular 'horizontally' (across sub-departments).

Environmental awareness of non-governmental organisations is usually high, but the awareness on the ways in which this can be transferred into policy decision-making is far from satisfactory, and a lot could be achieved in this area.

Scientists can play a special role in raising public awareness, starting from research into the interactions between human activities and the environment, through to disseminating this knowledge, to the active co-operation with all the parties listed above.

Awareness of those environmental and conservation issues that can be readily influenced by all of us, everyday, allows those of good will to take them into account voluntarily: such values will not be respected by the less-willing without laws or special incentives. But a sufficient level of public awareness and environmental sympathy must be achieved before society, in general, will provide the necessary laws and incentives.

Appendix 1. Priority areas and actions eligible for financing under European Regional Development Fund and European Social Fund

ERDF – European Regional Development Fund

ERDF priority areas:

- productive environment, especially increasing competitiveness and sustainable investment by firms (especially Small and Medium Enterprises) and making the region more attractive, especially by improving standard of its infrastructure,
- R&D with a view to promote introduction of new technologies and innovation and improving R&D capacities strengthening regional development,
- the development of information society,
- the development of tourism and cultural investment, including the protection of cultural and nature heritage if it creates sustainable jobs,
- protection and improvement of the environment, in particular to enhance precaution and prevention action in economic development, the clean and efficient use of energy and the development of renewable energy sources,
- equality between men and women in the field of employment,
- trans-national, cross-border and inter-regional co-operation on sustainable regional and local development.

ERDF will co-finance:

- productive investment to create and safeguard sustainable jobs,
- investment in infrastructure,
  - which in Obj. 1 regions helps to increase the economic potential, development, structural adjustment and creation of sustainable jobs,
  - which in Obj. 1 & 2 areas or under Community Initiatives concerns the diversification of depressed and declining areas (industrial, urban, rural, dependent on fisheries),
- the development of endogenous potential by measures to encourage and support local development and employment initiatives and activities of SMEs by:
  - assistance to services for enterprises,
  - financing transfers of technology and implementation of innovation,

  - improvement of access by enterprises to finance and loans – financial instruments,
  - direct aid to investment,
  - the provision of infrastructure on a scale appropriate to local and employment development,
  - aid for structures providing neighbourhood services to create new jobs (not funded form ESF),
- technical assistance measures.

ESF – European Social Fund

ESF priority areas:

- active labour market policies to fight unemployment,
- promotion of social inclusion,
- development of lifelong education and training systems,
- improvement of systems to promote skilled, trained and adaptable working force,
- equal opportunities.

ESF will co-finance assistance to persons undertaking:

- education and vocational training,
- employment aid (incl. self-employment),
- development of new sources of employment.

ESF will co-finance assistance to create/improve structures and systems for:

- training, education and qualification systems,
- employment services,
- anticipation of skills needed.

ESF will co-finance additional measures:

- services for beneficiaries,
- capacity-building,
- information and publicity.

Appendix 2.

The objectives and the major actions on the approximation strategy for nature conservation

Primary Objective	Major Activities	Target Outputs	Time frame
Development of the legislative framework	Promotion of the Law on the planning lands use, including Section III Capitol of Protected Areas	Established the Protected Areas within the Protected Areas National Network	1999
	Ratification and/or adhesion of the following International Agreements, under the Convention on the Conservation of Migratory Species of Wild Animals: • Agreement on the Conservation of Cetaceans of the Black Sea, Mediterranean Sea and Contiguous Atlantic Area; • Agreement on the Conservation of African-Eurasian Migratory Water Birds; • Agreement on the Conservation of Bats in Europe	Ensured a favorable conservation status of the migratory species of cetaceans, birds and bats.	1999–2000
	Signed and adopting the Agreement on the Conservation and Management of Great Bustard Populations (*Otis tarda*) in Middle Europe	Setting up the favorable conditions for Great Bustard population's conservation	2001
	Elaboration and promotion of the Law on natural protected areas and conservation of wild species of flora and fauna	Established the conservation measures of the biological diversity, designed the Special Areas of Conservation (SAC) and Special Protected Areas (SPA) and integrate their in the Protected Areas National Network. Will be established, also, the plans and the administrative structures required for appropriate management of the existing protected areas	2001

Primary Objective	Major Activities	Target Outputs	Time frame
Conservation of the natural habitats and wild flora and fauna species.	Elaboration and implementing of pilot projects for management of certain protected areas tips:		
	• GEF project (4,5 millions USD) on the"Danube Delta" Biological Diversity Conservation	Conservation of the Biological Diversity within the "Danube Delta" Biosphere Reserve	1996–2000
	• GEF project (5,5 millions USD) on the *Management of Biological Diversity Conservation* aiming the up-dating of the legislative framework concerning the protected areas management, developed of the institutional capability for bio-diversity conservation, at local and national level. By this project will be elaborated the management plans and will be established the administrative structures for Retezat (national park and biosphere reserve), Bucegi and Piatra Craiului (natural parks) This represents the pilot projects, extended at the other reserves. Also, will be developed a program for reintroduction of the in Vanatori Neamt	Strengthening the institutional capacity at central and local level and ensuring the appropriate management of this reserve tips	1999-2004
	LIFE-Nature Projects:		
	• Integrated Management Plans for the "Small Island of Braila"	Established the management plan and develop the capacity building required for their enforcement	1999–2002
	• Conservation of the Natural Wet Habitat "The Bogs of Satchinez"	Rehabilitation of the wet habitat, especially as habitat of wild waterfowl	1999–2001
	• Habitat Conservation in the Bucegi National Park	Reconstruction and conservation of certain natural habitat in the Bucegi National Park	1999–2002
	• Enhancement of Piatra Craiului National Park	The appropriate management of the large carnivores	1999–2002
	• Survival of *Romanichthysvalsanicola*	Established and applied of the "in situ" and "ex situ" conservation plans for ensure the favorable conservation status of the *Romanichthys valsanicola*, endemic specie	1999–2004
	• Conservation of an Euro-Siberian Wood with Oak (*Quercus robur*)	Establishing and implementing the integrate management plan for ensure the favorable conservation status of the wood	1999–2001
	• "In situ" Conservation of the Romanian Meadow Viper (*Vipera ursinii*)	Establishing and implementing the management plan for conservation of the existing natural population	1999–2002

Primary Objective	Major Activities	Target Outputs	Time frame
	LIFE-Environment Project:		
	• Combined Actions for the protection and the development of the Apuseni Mountains natural heritage	Protection of the karstic areas	1999–2002
	• Setting up The Green Corridor in the inferior basin of Danube	Biological Diversity Conservation by set up the ecological corridors for species disperses, wetlands reconstruction, improvement of the water quality in Danube River and Black Sea	1999–2002
	• Organization of the Protected Areas National Network in order to cover all the types of ecosystems and habitats, and all the plant and wild animal species which are of special interest	"In situ" conservation of the wild species and of the natural habitats	2000–2005
	• Organisation of the network for the conservation of genetic resources of flora and wild fauna outside the protected areas	"Ex situ" conservation of the species	2000–2005
Economic department strategies which integrate objectives of the National Strategy for Biological Diversity Conservation.	• Revision of the technologies and management of biological resources in concordance with the objectives for biological diversity conservation	Conservation of biological diversity	until 2005
	• Implementation of new management systems and alternative technologies which conserve biological diversity	Conservation of biological diversity	2000–2010
	• Establishment of criteria and indicators for biological diversity monitoring of economic sectors extracting and using natural resources	Monitoring of biological diversity	2000–2005
Conservation and enhancement of biological diversity by the reduction of the negative impacts as well as the ecological restoration of altered ecosystems and habitats	• Prohibition of the unselective use of pesticides as well as the promotion of biological pest control	Prevention of the decline in biological diversity	Permanently
	• Identifying and ecologically reconstruction of ecosystems degraded by over-exploitation, pollution, etc.	Enhancement of biological diversity	Permanently
	• Afforestation as well as the planting of arable lands strongly eroded, on cleared lands covered with waste deposits	Restoration of biological diversity in degraded habitats	Permanently
	• Restoration of vegetation clusters and the creation of protective curtains on arable lands	Restoration of biological diversity	Permanently

Primary Objective	Major Activities	Target Outputs	Time frame
Protection, conservation and restoration of the biological diversity specific to agro-systems through the implementation of the technologies which favour sustainable agriculture	• Inventory and mapping of arable lands non-profitable for intensive exploitation	Monitoring of biological diversity in agriculture systems	Permanently
	• Elaboration of projects to enhance biological diversity on arable lands whose use has been changed (SAPARD)	Enhancement of biological diversity.	2000–2010
	• Reconstruction of arable lands that are no longer used to enhance biological diversity and promoting the biotechnology to conserve the biological diversity in the agriculture systems (SAPARD)	Conservation and reconstruction of biological diversity.	2000–2010
Specialists and general population trained and educated in biological diversity conservation principles.	• Creation of a centre for professional training of specialists who will work in the biological diversity conservation field	Specialist training	This activities are beginning and have the permanently and continuos character
	• Organising the education of the population in biological diversity conservation principles through mass media	Awareness and informing of the population.	
	• Publishing materials for biological diversity conservation	Awareness and informing of the population	
Participating of NGOs and local communities in programmes for biological diversity conservation	• Elaboration of economic instruments that can involve local communities in biological diversity conservation	Stimulating the participation of biological diversity conservation activities.	This activities are beginning and have the permanently character
	• Involvement of NGOs and local communities in the implementation of management projects for the protected areas	Biological diversity conservation	
	• Involvement of NGOs in monitoring biological diversity	Biological diversity conservation	
Special research and development programmes for biological diversity conservation	• Development of a national programme for research on ecological, species and genetic biological diversity	Up-dating the state of the natural capital, elaborating the Red Book of wild flora and fauna species and designating the protected areas	This activities are beginning and have the permanently character
	• Conduct research regarding the necessary density and structure of green corridors	Up-dating the state of the natural capital	
	• Assessment of biological diversity in areas insufficiently or not at all studied	Evaluate the state of the natural capital.	
	• Development of research for the elaboration of new systems and technologies for a sustainable management of biological resources needed to ensure biological diversity conservation	Biological diversity conservation	
	• Research for the elaboration of measures to intervene in the protected areas in order to maintain biological diversity	Biological diversity conservation	

NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

The Use Of ECONET Principles As A Planning Tool To Integrate Biodiversity With Local Economics

Danny Eijsackers and Joost Kingma

The Netherlands

Introduction

A main theme of this project, was the implementation of ecological network (ECONET) objectives at a local level. It concerns the Szentendrei-island, an area of about 6000 ha, situated north of Budapest, between two main branches of the Danube.

In 1992 a Dutch-Hungarian project, funded by the Dutch Ministry of Foreign Affairs under the PSO-programme, was started in co-operation with a Hungarian NGO, the Göncöl Foundation in Vác. The goal was the preparation and eventual establishment of the Duna-Ipoly National Park, which was established in 1997. In the frame of this project much research was performed on the ecological values and condition of this region, but also proposals and recommendations had been formulated for the construction of a regional ecological network and of local land use practices. This project was completed in 1996.

As a separate part of this project, a case study was elaborated in 1995, on the area of the Szentendrei-island on the feasibility of this ecological network and the formulated land use recommendations on a local policy level.

On the basis of this, it was concluded that an ecological network, ECONET objectives and nature conservation in a broader sense, could only be implemented and function properly, if integrated in (1) the area's overall spatial structure, in (2) the land use and economy of the area and finally (3) in local society, culture and economy.

On the basis of these conclusions in 1997 we started the project „Integrated Land use Planning and Sustainable Development for the Szentendrei-island", also funded by the Dutch Ministry of Foreign Affairs. It was implemented by KNNV,

SBW Consultancy & Research and the Göncöl Foundation as the Hungarian counterpart.

In this project we approached the goals of ECONET implementation from a different side than nature conservation. In other words we started to devise an overall land use development plan, aiming to strengthen the nature conservation sector (among others) and with it ECONET implementation. In this respect, we achieved an integration of the interests of (1) different land use sectors (physically), (2) different (sectoral) interest groups involved in the area, and (3) the local communities/inhabitants of the area. Nature conservation was only one interest among many.

Implementing ECONET objectives required the following:

- the setting up and execution of the integrative, participative planning process and organisation;
- co-operation, consultation and negotiation during this process;
- the role, need and methods for raising understanding and awareness about nature conservation and ECONET among local communities;
- integration of the spatial development, local land use practice and policy in the land use development plan.

The planning process

At the start of the official project, 10 representatives of four land use sectors – agriculture, water, nature and tourism – and the mayors of four municipalities were involved. Three out of four land use sectors were represented by both authorities in the field, and civil or commercial entities, together making up a fairly mixed group of backgrounds. They were: two agricultural co-operatives' directors, one private farmers' representative; representatives from the nature conservation directorate, the water management authority, a drinking water supply company, a forestry company and a nature conservation NGO; and two tourism representatives who established a tourism society during the course of the project.

Although the planning process was necessarily flexible, and individual members would hold their responsibilities, a central body fulfilled the co-ordinating and decision making role, based on consensus, where the final plans were always discussed in 'Round Table' sittings.

For a proper understanding of the added value of the planning process, it is important to note that the process featured five distinctive steps.

1) The first stage we called the Initiative stage. The functions were: assuring co-operation of participants; setting the agenda for the planning process; establishing the plan process frame. This stage took one month to finish, and resulted in the Agenda Document.
2) The next stage was the cognitive stage, with the objectives: determining the shared planning objectives; inventory of the sector planning objectives; producing sector profiles (one for every sector); determining specific issues

needing integration; establishing a GIS database. This stage took 4 months, and was closed when the Guide Plan document was accepted.

3) After that came the Productive stage, intended to: determine land use zoning; find firm integrated solutions; decide on joint actions and co-operation options. This took us 5 months, and resulted in a list of agreements.

4) The Formalising stage, was meant to: conclude overall development direction; determine sector development initiatives; prepare the land use development plan and integrated regional development concept; produce two sector profiles; arrange inter-sectoral co-operation. This stage lasted 4 months and resulted in the main document of the planning process, the Szentendrei--island Development Plan.

5) The last stage was, and in many ways still is, the Continuity stage, meant to: determine detailed development steps; recommend land use forms; finalise future co-operation methods. In the project this stage took around 4 months, and resulted in the Implementation Plan.

During the planning process the project group was in continuous contact with the Round Table participants through individual meetings, sector meetings, mixed meetings and Round Table meetings. Furthermore, local people were actively involved in the conclusion of objectives at various stages.

Our project group facilitated the planning process. We planned the procedures and the activities, managed the information and the decision making steps, supported participants in their tasks, prepared and facilitated the Round Table meetings, and prepared the various plan documents.

The experts from the sectors gradually, and in a structured way, informed us and each other about their ideas, problems and solutions. Much effort was put in continuous and participatory planning of the next steps, involving the Round Table group members in designing the planning process.

The basic idea of the planning process was to work in stages towards more and more detailed and harmonised development perspectives for every land use sector. The process went from abstract to concrete, and from individual perspectives, via 'sector' perspectives, towards integrated perspectives.

For every stage of the project objectives were set as to what the desired output of the stage should be. For every sector, in parallel, we went through the phases of: target setting; developing a sectoral perspective; confronting each perspective; defining situations of overlap, conflict and indifference; discussing integrated solutions.

Useful communication and organisation tools during these steps were the 'sectoral profiles' – meant as documents representing the different sectors' points of view. They were sector-specific documentation files, containing background information and answers to standardised questions. They also contained the imagined land use maps for every sector – as they evolved during the process of approximation between the sectors.

Throughout the stages there were issues that had our continuous attention. Certain issues were identified as central principles – like ECONET, sustainable develop-

ment and public participation. Such principles were explicitly elaborated and dealt with throughout the different stage procedures.

In this approach, the ECONET principle, as put down in the Guide Plan, became an elaborated, intrinsic part of the Nature protection's sector profile. This sector perspective, again, was input for the integration and negotiation process in the later stages.

The participants agreed to work towards a Szentendrei-island Development Plan that would be applied in all sector development initiatives to follow.

The following is an illustration of the trickle-down effect of the planning process. Especially because the participants committed themselves to the joint result of the planning process, the chances are high that the relevant prescriptions for every sector will be incorporated in the lawful sector policies.

One can look upon the planning process as a trial for rearranging particular land use forms and regional development needs based on the given local resources and inter-sectoral carrying capacity. The plan was therefor not intended as a blueprint for local land use plans. It was more important that the various sectors learned of each others needs and problems, and that the plan could be used as an indicative plan, stating the frame and the points of departure for follow-up sector development.

The ecological network and the land use development plan

As already mentioned, the Szentendrei-island is about 6000 ha large and situated north of Budapest. It holds about 6000 permanent inhabitants, increasing by many thousands in the holiday season. It is a long shaped area, between two river arms. The area is of Pleistocene and Holocene origin. It formerly existed as several smaller islands, which in very recently times (1960s) merged into each other as the river deposited silt between them. There are two main land-forms. One is sand--dunes, areas of Pleistocene and Holocene wind-blown river sand, up to almost 25 meters high. The other is floodplains. The total area is the most northern stretch of the Great Hungarian Plain and, in this respect, significantly differs (ecologically and in climatically) from the surrounding hilly areas.

The area is a part of the agglomeration of Budapest, an officially determined territorial unit of communities in a belt around Budapest. In this agglomeration the area takes a very special place. Due to it's island character, it has always remained rather isolated and untouched by the significant urbanisation pressure from Budapest. This isolation on the one hand obstructed economic and social developments, but on the other preserved the area's open character, tranquility, natural values and cultural traditions.

In the two landscape types the following ecosystems or naturally valuable areas occur. Note that large parts of the most valuable areas have been National Park since 1997, but not all of them.

The higher floodplains (Pleistocene terraces) have been largely cultivated. As a result of this on the higher floodplains, the original vegetation of hard wood gallery forests has completely vanished. However, due to the situation in the agricultural sector, natural values are returning to the agricultural lands also. This varies from an increasing diversity of agricultural habitats, to small landscape elements and extensively used or abandoned fields. The higher floodplains are in theory protected against floods, though in practice some parts are flooded, once or twice in ten years. This increases the chances for development of more extensive agricultural here too.

- Natural habitats remain on the lower floodplains: flood-meadows (many of them also used for extraction of drinking water), some remnants of marshy meadow, and some extensive soft wood gallery forests (besides cultivated plantations) and marshes.
- The sand dune are mainly dry habitats. Originally large areas of very open oak forests existed, of different types (sand oak and mesofil oak). These forests have disappeared or are replaced by exotic species plantations or simply overgrown with *Robinia*.

Valuable areas of sandy grasslands remain, of two main types. The largest portion are steppe meadows, a grassland type characteristic of the Hungarian puszta. On the driest places, the higher sand dune areas are of very open-structured sand grassland. These are very rich in protected plant and insect species (including some sub-species endemic to Hungary (eg of beetles).

Agriculture is the main likvelihood of the local communities. The agricultural lands have, after political changes, been almost completely privatised. The two agricultural co-operatives that still operate in the area have almost completely lost their original function. It means that often there is a lack of management capacity of agricultural lands. This is causing an increasing extensivation of agricultural management, abandoning of lands, but also diversification of the agricultural area and the re-occurring of other types of management like grassland management or orchards. In general the holdings are very small scaled (about 1 ha.).

Forestry is not very important in the area, though some is present. Most of the forest has been privatised. The forests are not intensively managed and profitability is very low, due to the poor dry soils.

Recreation is a growing sector and offers the best economic possibilities and future. The area is part of the Danube Bend, Hungary's second most important tourist region. This is bringing with it a rapid growth of holiday house complexes, on the island too. These complexes in fact separate a part of the area from the rest. Visitors hardly use, or even know of, the rest of the area, and modern facilities hardly exist elsewhere. Growth of these complexes only threatens valuable natural areas, instead of presenting them to a wider public. However, new types of recreation do have outstanding possibilities in this relatively open and undisturbed area so close to Budapest.

The extraction of drinking water plays a very important role. About 80% of the drinking water of Budapest and it's agglomeration comes from the area's aquifer. Large parts of the area are owned by the drinking water company and are closed to the public. On the one hand this conserves these areas, but on the other hand it

causes protest among the local communities, who regard the island as their land. They can not use this land and, furthermore, outside the waterworks, the island is part of many different water quality protection zones, and so under strict land use regulations. In addition, extraction of drinking water causes local depression of groundwater levels.

The nature conservation plan evolved from the overall planning process

Szentendrei-island functions as a corridor in the wider ECONET network. In the Hungarian system this means that this area is not a continuous 'core-area' of prime habitat complex and that its function in the ecological network requires the quality of its habitats to be improved. For us this meant a detailed elaboration of the corridor habitats at a local level. We started by determining the island's current naturally valuable areas, their location, their ecological and spatial structure, and their condition.

On the basis of research on the area's ecological and spatial structure and conditions, natural processes and current land uses, we determined the (physical) nature conservation potential. We next created sectoral land use plans, on the basis of extensive negotiations and consultations. On the basis of the agreements on land use development that resulted from the previous step, we could also determine the realistically achievable situation of a network of protected and unprotected areas, and the target habitats to be reached in short or medium term.

The plan fostered developments such as agro-environmental management, nature (friendly) management of agricultural lands, biological agriculture and forest development compatible with the proposed ecological network and it's desired habitats.

The project achieved:

- Local implementation of ECONET objectives of habitat conservation and biodiversity in protected areas;
- Protection of values and implementation of ECONET objectives outside the protected areas;
- Landscape ecological goals of rehabilitation and migration possibilities;
- The integration of these objectives into local policy through the involvement of local policy makers;
- Increased awareness and knowledge about the area's natural values, through the participative planning process.

Implementation of the plan

Three important events occured after the project closed in January 1999. They were: initiatives in the tourism sector; the application of the ESA-scheme; and the establishment of the 'Round Table' land use co-ordination body.

The tourism sector is expected to provide significant alternative income for the population. The situation is quite favourable: the island is located close to the capital, and relatively unspoiled with attractive natural scenery. The Szentendrei-island Development Plan proposes extensive, 'green' tourism: nature-related touring (bicycle, hiking, horse riding), village tourism and restricted water tourism.

The planning process succeeded in getting people to develop tourism, and a tourism association has been established. The planning process emphasised that tourism development requires zoning, and ECONET considerations have been incorporated in this zoning, too. However, it should be mentioned that comprehensive planning proved to be a slow process.

Recently a tourism development project initiative for the surrounding region of the Szentendrei-island started. It is promising that the National Park Directorate is a party in this project, too, and supports the initiatives undertaken.

As in case of the 'Environmental Sensitive Areas' system, the ECONET-principle, as applied in the Szentendrei-island planning process, provided a most direct link. Agri-environmental schemes are expected to contribute significantly to biodiversity goals in Hungary and Szentendrei island is a pilot project in this approach.

The packages of measures that the farmers can apply for voluntarily are chosen using the integrated land use development plan prescriptions. Applying the results of the habitat and ECONET maps introduced before, we distinguished the different agricultural areas in which specific extensive agricultural management can contribute to maintenance or establishment of certain habitats.

At present, we can not foresee to what extent the local farmers will apply for the measures. However, the involvement of the two co-operative directors in the planning process guarantee some involvement.

A very interesting option for the longer term stems from the fact that local people, including the mayor and co-operative directors, support the rehabilitation of a former wet meadow area. This implies the restoration of a natural inland floodplain. During the planning process it turned out that strong local support existed for this, and it has accordingly been incorporated into the nature protection plan for future development.

Although the financial situation at Szentendrei-island probably makes it unique, we conclude that such mid-level political bodies, with mixed local representation, have a distinct future in helping to arrange land use development initiatives. We have already seen this happen in the SAPARD planning process, where in some cases NGO's have a role in the 'development foundation' which arranges the planning processes. Such land use associations are formed throughout Hungary, and often foster nature conservation goals. The incorporation of ECONET-principles into such associations' articles should be strongly promoted.

NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

The Slovak Republic

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State of the Environment

Slovakia is a country with a relatively well preserved natural environment and rich biodiversity. The territory of Slovakia is bordered by the Carpathian Mountains in the West, North and East, and by the Pannonic lowlands in the South, features that promote the unique presence of a number of endemic species. In the context of conserving European fauna and flora, Slovakia is an important stabilising element for significant populations of large carnivores and endangered birds.

The Slovak Government is a contracting country to all relevant nature conservation agreements, including: Bern, Bonn, Washington, Ramsar, and Biodiversity Conventions, European Bats Protection Agreement. Currently, Slovakia is accessing the AEWA Convention.

Approximation to EU conservation legislation

The main tool for nature conservation in Slovakia is the Act No. 287/1994 on Nature Protection that is being amended according to the requirements of accession negotiations with the European Commission (screening meetings were held in May 1999). Full legislative compliance with the EU directives is expected by the end of 2001. The indicative list of Slovak Important Bird Areas (IBAs) is already in place, the maps are being digitalized. Final inventories of SPAs and SCIs will be finalised before 2004.

Institutional Background

The national authority for nature protection is the Ministry of Environment which comprises: 7 national park directorates, Show Caves Headquarter, ZOO Bojnice, Museum of Nature Protection and Caves, and the Nature Protection Inspectorate. The Ministry involves the Slovak Environmental Agency's Centre for Nature and Landscape Protection, which manages 16 Protected Landscape Areas. Practical conservation of state organisations is strongly supported by non-governmental organisations and scientific institutions.

Nature conservation in Slovakia employs about 500 people and it is highly desired to double this number of employees at national, regional and local levels in the near future. However, achieving this will be constrained by training and financial opportunities.

Ongoing Activities

Slovakia started to establish NATURA 2000 in December 1999, by beginning to develop the 'Emerald' network. Database will include information from: the CORINE biotopes database, the grassland inventory, the Important Bird Areas and Wetlands inventory (to be completed by the end of March, 2000). The Emerald pilot project will be based on the core areas of European importance and their prime zones will be included in the National Ecological Network (NECONET) areas, listing details on habitats and species occurrence.

In the meantime, the proposals for amendments of Annexes of Birds, and Habitats Directives are being developed. The Emerald pilot project should end by December 2000 (the pilot Emerald database will include data on 10% of the final network).

Opportunities to improve information flow will be enhanced by the development of a "Clearing house" which will collate information about research, monitoring and management of the different areas. The results will be published on a publicly available web site.

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A Concise Review Of The Biodiversity Conservation Legislation And Initiatives

Dimitrov Dimitar Dikov

Existing ecological legislation

The Protected Areas Law, adopted at the end of 1998, and the Environmental Protection law, last amended in 1998, and Nature Protection Law are particularly important. At present a law for the "Amendment and Addition to the Protected Areas Law" is being presented to the Parliament for further consideration, as the boundaries of the three National Parks need to be determined and established, and the country's natural reserves have to assigned to appropriate categories (reserve or managed reserve).

A Regulation on "Environmental Impact Assessment", as a part of the Environmental Protection Law is also an important ecological power in this connection.

Ecological legislation under preparation

The Law about 'Biological Diversity' is being prepared. This law is a complex expression and focus of all the prior legislation. The current stage of preparation is a concept, which needs working up. The great importance of this new law is illustrated by the fact that the 'Nature Protection Law' might and all its ideas and principals might be assumed into the new Law on 'Biological Diversity'.

A National Ecological Network is included in the Law of Biological Diversity, which means that such a network is being considered at a high political level.

The National Ecological Network is a coherent system of legal, institutional, geographic, economic and scientific assured and joint areas, including aquatic areas, of highest nature conservation significance, where co-ordinated and consistent activities for long-term and sustainable conservation and management of biodiversity will be implemented.

It will contain and merge with the protected areas of the present system of protected areas (determined in the Protected Areas Law) and either objects or potential ones of CORINE BIOTOPE, EMERALD, NATURA 2000, etc.

National Action Plan for Biodiversity Conservation

A National Action Plan for Biodiversity Conservation was adopted by the Council of Ministers on August 3, 1999. This is a fundamental document, which consists of about 100 activities and tasks to be undertaken by 2003.

A new principle for Bulgaria is established here. It is the involvement of all activities and tasks of Biodiversity Conservation into all social and economic sectors. Relevant responsibilities of every social and economic sector are of highest importance for the implementation of the plan.

Harmonisation with the European ecological legislation

Basic European principles and ideas of environmental protection are considered in existing Bulgarian legislation and especially in that under preparation. We realised that conforming with such principles would facilitate the process of harmonisation and approximation to the European legislation.

All this applies entirely to the Habitats and Birds Directives, which are largely considered in the concept of the new Law of Biological Diversity, especially in the part dealing with the National Ecological Network and its reference to EMERALD and NATURA 2000.

Conventions and strategies

Bulgaria was one of the first countries officially joining the Convention on Biological Diversity and is a party of some international conventions, such as:

- Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention);
- Convention on Wetlands of International Importance especially as Waterfowl Habitat (Ramsar Convention);
- Convention for Protection of the World Cultural and Natural Heritage;
- Convention on International Trade in Endangered Species of wild fauna and flora (CITES).

Bulgaria is the first country in Central and Eastern Europe, which has developed and adopted a National Biological Diversity Conservation Strategy.

EMERALD Pilot Project and relation with NATURA 2000

An EMERALD Pilot Project has started and been going for about two months. Existing CORINE BIOTOPE sites have been transformed into EMERALD sites since then. Bulgaria is bound to supply to the Secretariat of the Bern Convention, by the

end of this year, 10% of the existing CORINE objects, converted into EMERALD sites and made up.

Since EMERALD and NATURA 2000 comply to the same principles and legislative assets, but the latter supposes stronger restrictions, we consider NATURA 2000 as a further extension, an element and a result of the National Ecological Network as EMERALD would be treated.

NATURA 2000, Rural Development And Ecological Networks
15–18 December 1999 in Konstancin n/b Warsaw

Natural Capital of Romania

Liviu Timotin

Overview

In 1993, our country ratified the European Agreement instituting an association between the Romania, on the one part, and the European communities and their member states, on the other part, signed at Brussels, 1 February 1993. The parts recognize, through this agreement, that the approximation of the Romanian present and further legislation with the European Union is a important condition for Romanian integrating in European Community.

Natural Capital of Romania

As a consequence of its geographical setting, Romania is a country with a unique and high bio-diversity at ecosystems, species and genetics level.

Natural and semi-natural ecosystems cover 47% of the country's area. As a result of the studies by CORINE Biotops Program, 783 habitat types were identified in 261 areas covering all the country:

Main habitat types	**Number**	**%**
Coastal	13	5.0
Wetland	89	34.1
Grassland	196	75.1
Wood	206	78.9
Marsh	54	20.7
Rock/Sand	90	34.5
Agriculture	135	51.7

The high habitat/ecosystems diversity reflects the high level of flora and fauna species diversity, including:

- 3700 higher plant species, among them 23 species are declared as natural monuments, 74 species are extinct, 39 species are endangered, 171 species are vulnerable and 1253 are rare species. Grassland species include 37% of the total species represented. About 600 species of algae and a total of over 700 species

of marine and coastal plants exist. A very high percent of the plant species (4%) are endemic. In total there are 57 endemic taxa (species and subspecies) and 171 sub-endemic taxa (with their range mostly in Romania).

- over 33802 animal species, comprising 33085 invertebrates and 717 vertebrates. The vertebrates include 191 species of fish, out of which 9 are endangered, 20 amphibian species, out of which 9 are endangered, 30 species of reptiles, out of which 6 are endangered, 364 species of nesting and migratory birds (312) and 102 mammals species.

The Romanian Ornithological Society, with the technical and financial support of the BirdLife International, identified over 60 important avifaunal areas, in concordance with the provisions of the Directive 409/79/EEC on wild birds conservation.

At present, the system for biological diversity assessment is not ready, but some wild species and natural habitats are the subject of the research programs and projects developed by universities, museums, research institutes and non-governmental specialized organizations.

In Romania 584 protected areas were designated, in concordance with the rules of International Union for Conservation of Nature (IUCN) and on the basis of the studies elaborated by the Romanian Academy. The protected areas covering a total surface of 1,140,590 ha, represented 4.8% of the national territory. Of this area 580,000 ha, with a unique and high biological diversity, is in the Romanian Danube Delta, has a triple statute (Biosphere Reserve, Ramsar Site and Site of World Natural and Cultural Heritage).

The legislation and institutional framework for nature conservation

The Romanian legal and institutional framework for nature conservation

Environmental protection has a long history in Romania, developed in concordance with the specific concerns of the local population. Beginning with the XIV century, the old Romanian laws include rules and institutions for protecting game and other forest resources.

The special interest for nature conservation began in the 20th century, when the first *Law for natural monuments protection* was adopted, in 1930. This law set up the first *Committee for natural monuments protection,* under the Ministry of Agriculture and Lands, and moreover other regional institutions in this field. The activities of this strucure have been a scientific research character, realised in studies, notes and works forming a basis for the activities of nature protection (36 reserves covered a total surface of 15.000 ha, among which the Retezat National Park, designated in 1935; 15 plant species and 16 animals species like natural monuments). In the same context the technical rules for law enforcement were elaborated in practice.

The legislation for nature conservation

The basis of the Romanian legislation is the **Constitution**, the fundamental law with bigger juridical power and the source for environmental rights. The constitution stipulates the state's obligation to ensure the exploitation of natural resources in concordance with the national interest, to conservation and rehabilitation of the environment, as well as to maintain the ecological balance, like correlative obligations of the rights on environmental protection.

The other juridical acts for the regulate nature conservation are:

- **The Treaties, Conventions and International Agreements** – in conformity with the Romanian Constitution this get part of the internal right (internal laws), by ratifing or adhering.

In the field of nature conservation, the following ***treaties/conventions/agreements*** are in force:

- ***The Treaty on Antarctica (Washington 1959)***, ratified by Decree 255/1971, is a legal instrument establishing the action, by which the contracting parts, can use Antarctica, exclusively for peaceful purposes including the measures for protection of the flora and fauna. One principle of this treaty is ensuring the freedom for scientific research in the frame of the international cooperation, including the participation of the international organizations.
- ***The Convention concerning the protection of the world cultural and natural heritage (Paris, 1972),*** accepted by ***Decree 187/1990***, whilst fully respecting the sovereignty of the state on whose territory the cultural and/or natural heritage is situated, as well the property right provided by national legislation, the states party to this convention recognize that such heritage constitutes the world heritage, for whose protection it is the duty of the international community as a whole to cooperate.
  On the "World Heritage List", Romania was put down with approximately 75% of the Danube Delta (360.000 ha).
- ***The Convention on wetlands of international importance especially as waterfowl habitat (Ramsar, 1971),*** ratified by ***Law 5/199.*** The purpose of this convention is designation, by the Contracting Parties, of the wetlands of international significance in terms of ecology, botany, zoology, limnology or hydrology and ensuring the appropriate state of the conservation for these areas.
  The Danube Delta was declared a Ramsar Site.
- *The Convention on the conservation of European wildlife and natural heritage (Berna, 1979),* which Romania accepted by ***Law*** *13/1993*. The purpose of this convention is to ensure the conservation of the wild flora and fauna and their natural habitats, in particular those species and habitats that requires the cooperation of several states.
- ***Convention on biological diversity (Rio de Janeiro, 1994)*** ratified by ***Law 58/1994.*** The objectives of this convention are the conservation of the biological diversity and the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resource, especially by appropriate access to these resources and by appropriate transfer of relevant technologies.

The main measures set out for bio-diversity conservation and sustainable use of its components are to develop national strategies, plans or programs or adapt for this purpose existing strategies, plans or programs, as well integrate as far as possible and as appropriate the conservation and sustainable use of biological diversity into relevant sector or cross-sector plans, programs or policies.

- ***The Convention on international trade with endangered species of flora and fauna (Washington, 1973),*** which Romania accepted by ***Law 69/1994*** ensuring the protection of the endangered species by regulating trade in them.
- ***The Convention on conservation of migratory species of wild animals (Bonn, 1979),*** ratified by ***Law 13/1998,*** is a universal instrument, developed following Recommendation 32 from the Action Plan elaborated by the Stockholm Conference. This convention recognizes that management for effective conservation of migratory species require both the states cooperation and community actions within the national territory in relation to migration routes, including wintering, staging, feeding, breeding or moulting areas.

- In the field of nature conservation, are in force the following ***laws:***
  - ***The Laws of ratification or adhesion at the conventions above mentioned;***
  - ***Law 82/1993 on setting up the Biosphere Reserve "Danube Delta"*** have at purpose the setting up the Reserve Administration as public institution with a legal identity, under the Ministry of Waters, Forests and Environmental Protection.
    The Reserve Administration is lead by a Scientific Council, with an Executive Board to enforce their decisions. The Scientific Council includes local people proposed by County Council. The Govenor and members of the Scientific Council are appointed by the Government on the recommendation of the MWFEP, with the approval of the Romanian Academy.
    The Corps of Inspection and Wardens are included within the Reserve Administration and shall supervise the whole territory of the Reserve and prevent any breaches of the bylaws established by the Reserve Administration.
    The expenditure is covered by an allocation from the budget of the central state administration, from grants and from its own revenue.
    On the recommendation of the Reserve Administration, MWFEP adopt regulations concerning tourism and economic activities in the reserve, having regard for maintaining ecological balance, and guaranting the maintainance of traditional custom of the local people.
    The individuals or legal entities owing lands within the reserve are obliged to manage them according ecological or traditional means permitted by the scientific authorities. The resource exploitation of the economic zones are possible to the awards of concessions for economic activities to legitimate companies or local people within defined areas of the reserve.
    This law establishes activities that are prohibited and illegal and appropriate penalties.
    Environmental Protection Law 137/1994. The object of the present law is the regulation of the environmental protection, an objective of major public interest, based on the strategic principles and elements that lead to the sus-

tainable development of the socio-economic system. Among these principles is that concerning the bio-diversity conservation and of the specific ecosystem for the natural bio-geographic frame. Objectives include:

- To adopt the environmental policies, harmonized with the development programs;
- To enforce the obligatory character of the environmental impact assessment in the initial phase of the projects, programs or activities, including those which change the natural frame of a zone, the trade with wild flora and fauna species etc., to have in view the technical solutions to maintain the natural habitats, to conserve ecosystem functions;
- To correlate environmental planning with the territorial planning and urbanisation;
- To solve, on competency levels, the environmental problems, according to their degree;
- To introduce the economic instruments as incentives or as means of correction;
- To promote the basic and applicable research in environmental protection;
- To train and educate the population, and encourage Non-Governmental Organizations to participate in the decision making process.

The environmental protection is an obligation for the central and local public administration authorities, as well as for all the natural or juridical persons, and the responsibility concerning the environmental protection falls under the central authority for the environmental protection and its territorial agencies.

Based of this law, the central authority for the environmental protection, consulting the central specialized authority responsible, elaborates the technical regulations on the biological diversity protection and conservation and for sustainable use of the natural resources.

The holders, with any title, who apply the conservation measures established by the central authority for the environmental protection, are tax exempt; the private holders are compensated, according to the value of the restoration works done.

The protection of the wild species or natural habitats and setting-up the protected areas, as well as the measures established by the environmental protection authorities, are priorities in respect with other interests.

For the conservation of the natural habitats, of the biological diversity which defines the bio-geographical frame of the country, as well as the natural structures and formations with ecological, scientific and landscape value, the national network of protected areas and natural monuments are maintained and developed. The protected areas and natural monuments are declared through acts or regulations with normative feature, including the forest planning; that declared up to the enforcement date of the present law keep this quality.

The local public administration authorities, based on the documentation approved by the Romanian Academy, can put new areas under provisional protection, with the aim future full designation as protected areas or natural monuments.

Plant gathering and trades, trapping by any means, holding and trade animals declared as natural monuments, as well as dislocation, holding, and trade of miner-

als, speological and paleolontological pieces from places declared natural monuments are forbidden.

Further to these provisions, are stipulate the prerogatives, the responsibilities and the sanctions, according to the case.

- ***The Forest Code (Law 26/1996)*** has the aim to establishing the administration of the national forest fund and the forest vegetation outside it. The national forest fund, in public or private property, constitutes a good of national interest and is the subject to the forest management rules. The forest administration constitutes a system of technical, economic and legal rules with regard to the arrangement, culture, exploitation, protection and safety of this fund, aiming to ensure the long term careful management of the forest ecosystems.
  The administration of the State's public property forest fund is achieved through the National Company of Forest and the administration of the private property forest fund is made by its owners individually or in associations, but in according with technical rules and with technical support of the National Company of Forest.
  The conservation of the biological diversity and of the woodland scenery are ensured mainly by the constitution of national parks and other protected areas in the forest fund and in the forest vegetation outside it. Their constitution is made at the proposal of the specialized institutes and or other scientific bodies on the basis of researches undertaken to this end and shall be approved by law.
  Violations of the provisions of the Forest Code involve disciplinary, material, civil, contravention or criminal responsibility according to the law.
- ***Law on hunting fund and protection of game (Law 103/1996)*** aims to conserve the diversity of wild fauna and maintain the ecological balance of the hunted species, by management of the hunting fund. This law establishes the annual harvesting quotas, the technical rules on hunting, as well as the wild fauna whose taking and killing are prohibited.
  Violations of the provisions of this law involve disciplinary, civil, contravention or criminal responsibility.

- In the field of nature conservation, are in force the following *Governmental Decisions:*
  - ***Governmental Decision 26/1991 on accepted the European Convention concerning animal protection in international transport;***
  - ***Governmental Decision 127/1994 concerning sanctioning the contraventions at the Norms for environmental protection;***
  - ***Governmental Decision 248/1994 for adopting the measures for implementation the Law 82/1993;***
  - ***Governmental Decision 989/1998 on the payment of Romania with end in view to participate at the LIFE Program of the European Commission***, based for signed the ***Decision 1/1998*** *for association between the European Commission and their member states, of the one part, and Romania, of other part, concerning the conditions and the modalities for participation of the Romania at the Community's financial instrument for environment*.

- Governmental Decision 104/1999 concerning the organization and functioning of the Ministry of Waters, Forests and Environmental Protection, as the body of the central public administration specialized and with responsibility for establishing, promoting and application of the Govern's strategy in the field of management of the water, forest and environmental protection.

- In the field of nature conservation, are in force the following *Orders*:
  - ***MWFEP Order 7/1990 al MAPPM on setting up the national parks;***
  - ***MWFEP Order 125/1996 for approved the Procedure for regulating the economic and social activities which have environmental impact;***
  - ***MWFEP Order 278/1996 for approved the Regulation on attested about the elaborating the studies for environmental impact and environmental audit;***
  - ***MWFEP Order 201/1997 for approved the authorization procedure of the activities of harvesting, trapping and holding of the animals and plants from the wild flora and fauna within the national territory, with a view to internal comercialization or export.***

The institutional framework for nature conservation

The Ministry of Waters, Forests and Environmental Protection is the body of the central public administration specialized and with responsibility for establishing, promoting and application of the Government's strategy in the field of management of the water, forest and environmental protection. At Ministry's orders, under authority or coordinated by the Ministry are the following entities:

- **Entities at MWFEP's orders:**
  - *Public insititutions financed by budget of the central state administration, with a legal identity:*
    - 42 Environmental Protection Agencies at county level, descentralized public duties;
    - Administration of the "Danube Delta" Biosphere Reserve.
    - These institutions have 2 368 posts.
  - *Entity for documentation and information, with a legal identity and extra-budgetary financed*.
- **Entities under MWFEP authority:**
  - National Company "Romanian Waters";
  - National Company of Forests;
  - National Company "National Institute of Meteorology, Hidrology and Waters Management".
- **Scientific research entities coordinate by the MWFEP**, with a legal identity and extra-budgetary financed:
  - National Institute of Research-Development for Environment Engeneering, Bucharest;
  - National Institute of Marine Research, Constanta;
  - "Danube Delta" National Institute of Research-Development.

Within the MWFEP is the Directorate of Nature and Biological Diversity Conservation, under the secretary of state. At local level this is represented by similar departments within the territorial Environmental Protection Agencies with functions regarding the activities of biological diversity conservation and sustainable use of its components.

Under the Directorate of Nature and Biological Diversity Conservation are the following offices: Office of Biological Diversity Conservation/National Authority CITES, Office of Management of the National Network of Protected Areas/National Focal Point UICN, Office of Agriculture, Rural Development and Ecological Reconstruction/Duty FAO, Office of Environment and Public Health, Office of Ecological Informating and Education/National Duty NATUROPA). This directorate has the following main prerogatives and responsibilities for:

- coordinating the activity of nature conservation, elaborating the policies and the strategies for biological diversity conservation and sustainable use of its components;
- coordinating the management of the protected areas and natural monuments, by the territorial Environmental Protection Agencies;
- funding, elaborating, and proposing for enforcement or promotion, in cooperation with Romanian Academy, measures and normative acts for biological diversity conservation and for management of the National Network of Protected Areas;
- proposing the normative acts projects for including in the National Network of other protected areas or natural monuments which justifies it, together with Romanian Academy and specialized institutes;
- participating in the approval of the ecological impact studies and assessments for the works of planning use, of the investments and of exploitation of some natural resources, in respect with the conservation of the natural habitats and species diversity;
- elaborating, publishing, up-dating and distributing the "Protected Areas and Natural Monuments Catalogue" and "Red Book of national endangered plants and animals species" together with the Romanian Academy;
- acting for applying the legal measures concerning the sustainable use of the components of biological diversity;
- proposing and coordinating, elaborating the research programs for knowledge and assessment the state of the natural habitats (technique and scientific), wild species and other goods of the national natural heritage, financed by budget of the central state administration or other sources.
- funding and developing the special projects on protection, conservation and rehabilitation/reconstruction of the natural habitats and species diversity;
- ensuring and survey the enforcement of the provisions and recommendations stipulated in the international conventions and agreements in the nature conservation field;
- representing the technical and scientific secretariat for the international conventions and agreements in the nature conservation field.

In the field of the nature conservation, the Environmental Protection Agencies have the following main prerogatives and responsibilities:

- knowledge of the areas of the plant and animal species from the wild flora and fauna and enforcement, the necessary measures for their protection and conservation within the county territory;
- periodicaly assessing, surveying and analyzing the state of the protected areas and natural monuments within the county territory;
- ensuring, coordinating and survey enforcement of the natural monuments protected areas management plans;
- authorizing, at the request of the natural and juridical persons, harvesting of the plants and animals from wild flora and fauna, according with the legal provisions and with the ability decided by the ministry;
- collaborating with the territorial authority responsible for agriculture and forestry, and other local administration authorities to keep records of the deteriorated lands and their afforestation, as well as setting up protective zones, in accordance with the law on land fund;
- identifing the affected aquatic and terrestrial areas, requesting and analyzing the proposals for their ecological reconstruction and approved these projects;
- analyzing and approving, from the point of view of biological diversity conservation, the studies elaborated aimed authorized the economic and social activities, within the county territory.

EU legislation for nature conservation

The EU legislation is based the **European Communities Treaty** which established the main principles concerning the environmental policies. In addition to this treaty there are in force three mandated forms of European Union law: directives, regulations and decisions.

- In the field of nature conservation, the following ***Directives*** are in force:
  - ***Directive 92/43/CEE on the conservation of the natural habitats and wild flora and fauna*** aims to maintain or rehabilitate the favorable conservation status of the European biological diversity through specific measures, taking into account the economic, social and cultural conditions of the member states.

    To this end an ecological network of "Special Areas for Conservation" will be established, at European level, known as *NATURA 2000*, including the sites within are integrate natural habitats tips or wild species of community interest and which request the special measures for their conservation. All sites protected under the Directive 79/406/EEC are also included in the *NATURA 2000* ecological network.

    Land use planning should take into account and integrate the appropriate management plans for this sites to ensure the ecological coherence of the *NATURA 2000* network, especially those which enable species migration, propagation and genetic exchange.

    This directive is elaborate in the annexes, which establish the natural habitats types and wild flora and fauna species of Community interest and their con-

servation needs, and to designate special areas (Annexes I and II), the criteria for identify the sites of Community interest (Annex III), the flora and fauna species which request the strict protection (Annex IV), as well as the species which are subject of special management measures (Annex V).
Implementation considerations:
- Assessment of the biological diversity status and designate the sites that can be subject to the special management, with a view to ensure their favorable conservation status;
- An appropriate assessment of any plan or project likely to adversely affect the integrity of the sites concerned and, in the absence of alternative solutions, to ensure the compensatory measures necessary;
- Establish management plans, including the monitoring system, designating the responsible authorities with enforcement powers, as well as appropriate sanctions will be apply for violation of the legal provisions.

- ***Directive 79/409/EEC on the conservation of wild birds***, as well as ***Directive 85/411/EEC amending Directive 79/409/EEC on the conservation of wild birds, Directive 91/244/EEC amending Directive 79/409/EEC on the conservation of wild birds, Directive 94/24/EEC amending the Annex II of Directive 79/409/EEC on the conservation of wild birds, Directive 97/49/EC amending Directive 79/409/EEC on the conservation of wild birds*** aimed the conservation of wild birds. To maintain the population of all species of naturally occurring birds in the wild state at a level that corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements.
  This promotes the special conservation measures, including preservation, maintaining, and rehabilitation of the habitats supporting these species, by designed the Special Protection Areas (SPA) included in the *NATURA 2000* network. Special mention is given to wetlands in this regard.
  Implementation considerations:
  - Encourage research and any work required as a basis for the protection, management and use of the population of wild bird species and designate the Special Protection Areas to ensure their favorable conservation status;
  - Establish the management plans, including the monitoring system, designating the responsible authorities with enforcement, as well as appropriate sanctions will be apply for violation of the legal provisions.
- ***Directive 83/129/EEC concerning the importation into Member States of skins of certain seal pups and products derived therefrom*** and ***Directive 89/370/EEC amending Directive 83/129/EEC concerning the importation into Member States of skins of certain seal pups and products derived therefrom*** aimed prohibit commercial import of certain seal products, excepted the products resulting from traditional hunting by the Inuit people.
  Implementation considerations:
  - Establishment of certification procedures for imports of allowed seal pup products and inspection and enforcement procedures for the control of prohibited products;
  - Establishment the coordination and consultation procedures between the responsible authorities (Environment, Customs, Police).

- In the field of nature conservation, are in force the following ***Regulations:***
  - ***Regulation 3943/90/EC on the protection of the Antarctic*** adopts the observation and inspection procedures called for under the Convention.
  - ***Regulation 348/81/EEC on common rules for imports of whales or other cetacean products*** established the procedure to issue the import licenses for import of whales or other cetacean products, used for commercial purposes.
  - ***Regulation 3254/91/EEC prohibiting the use of leghold traps in the Community and the introduction into the Community of pelts and manufactured goods of certain wild animal species originating in countries which catch them by means of leghold traps or trapping methods which do meet international humane trapping standards*** and ***Regulation 35/97/EEC laying down provisions on the certification of pelts and goods covered by Council Regulation 3254/91/EEC*** prohibited the trade (import, export, re-export) with pelts or other goods (listed in Annex II) from certain wild species listed in Annex I and catch by means of leghold traps or trapping methods which do meet international humane trapping standards.
  - ***Regulation 338/97/EEC on the protection of species of wild flora and fauna by regulating trade therein,*** as well as ***Regulation 938/97/EEC amending Regulation 338/97/EEC on the protection of species of wild flora and fauna by regulating trade therein, Regulation 2307/97/EEC amending Regulation 338/97/EEC on the protection of species of wild flora and fauna by regulating trade therein, Regulation 2214/98/EEC amending Regulation 338/97/EEC on the protection of species of wild flora and fauna by regulating trade therein, Regulation 939/97/EEC laying down detailed rules concerning the implementation of Council Regulation 338/97/EEC on the protection of species of wild flora and fauna by regulating trade therein, Regulation 767/98/EEC amending Regulation 939/97/EEC, Regulation 1006/98/EEC amending Regulation 939/97/EEC*** aiming to protect wild flora and fauna species which are or may be affected by uncontrolled trade, through protection, regulation or monitoring.
    This Regulation is elaborate based of the annexes which show the flora and fauna species which request conservation through limited their trade.
    Implementation considerations:
    - Designation of competent authorities (scientific and management) responsible to issue the permits and certificates requested for trade (import, export, re-export) with wild species and their specimens. Customs officers must be given the additional responsibility of conducting checks as well as dealing with the issuance of import and export permits;
    - Establish and/or develop import and export permit procedures authorization and documentation;
    - Establish and/or develop monitoring procedures of trade with their species;
    - Enforcement procedures including prosecution for unauthorized trade in species.
- In the field of nature conservation, the following ***Decisions*** are in force:
  - ***Decision concerning a site information format for proposed NATURA 2000 sites;***

- ***Decision 82/72/EEC on the conclusion of the Convention on the conservation of European wildlife and natural habitats;***
- ***Decision 82/461/EEC on the conclusion of the Convention on the conservation of migratory species of wild animals;***
- ***Decision 1/98/EEC concerning the association between the European Community and their member states, of one part, and Romania, of other parts, in the view of participation at the LIFE Program of European Community.***

The concordance between the European Union and Romanian

The objectives and the action on the approximation strategy for nature conservation

Taking into account the present status of biological diversity in Romanian, and the European provisions for nature conservation the following priority objectives were established:

1) Development of the legislative framework and strengthening the institutional capacity for biological diversity conservation and sustainable use of its components;
2) Organisation of the national network of protected areas and ensuring their efficient and adequate management for the natural habitats protection and biological diversity conservation;
3) Conservation of threatened, endemic, and/or rare species with a high economic value "in situ" and "ex-situ";
4) The integration of the National Strategy for the Biological Diversity Conservation and Sustainable Use of its Components within the National Strategy, as well as within the departmental and local strategies, plans, programmes and policies for the national and local sustainable development;
5) The protection, conservation and restoration of the terrestrial and aquatic biological diversity outside protected areas through (1) reducing the negative impacts of pollution, natural resources overexploitation and inappropriate land-use practices and (2) restoring altered ecosystems and habitats;
6) Protection, conservation and restoration of the biological diversity specific to agro-systems through the implementation of the technologies which favour sustainable agriculture;
7) Training specialists and the general population in the spirit and techniques of biological diversity conservation and sustainable use of its components;
8) Involvement of NGOs and local communities in programmes and actions for biological diversity protection, conservation and restoration;
9) Conducting of special research and monitoring programmes for improving the knowledge of the biological diversity status.

To attain these objectives many priority actions have been established, as listed in the following tables:

Legislation for nature conservation

Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora – legislative provisions

Directive 92/43/EEC	Existing national law	Fully in accord (Yes/No)	Planned year for full implementation
Art. 1	Law 58/94 art. 2; Law 137/95 Annex I; Law 13/98 art. 1	No	2005
Art. 2	Not applicable until accession		
Art. 3.1–2	Law 82/93 art. 3; Law 137/95 art. 54, 55;	No	2005
Art. 3.1	Law 5/91 art. 2; Law 82/93 art. 3; Law 137/95 art. 54, 55	No	
Art. 3.3	Not applicable until accession		
Art. 4.1	Decree 187/90 art. 3; Law 5/91 art. 2; Law 58/94 art. 7 a); Law 26/96 art. 111, art. 112; Law 13/98 art. III par. 1, 2, art. IV par. 1, 2, art. VI par. 1, 2.	Yes	
Art. 4.2–4.5	Not applicable until accession		
Art. 5	Not applicable until accession		
Art. 6.1	Decree 187/90 art. 5 a); Law 5/91 art. 3 par. 1; Law 13/93 art. 4 par. 1, art. 5, art. 6, art. 7 par. 1, 2; Law 82/93, art. 4, 5, 6; Law 58/94 art. 6 a), b), art. 8 b); Law 26/96 art. 20; Law 13/98 art. III par. 4, art. IV par. 4, art. V par. 1, 2, 5 b), e).	Yes	
Art. 6.2	Decree 187/90 art. 5 b); Law 13/93 art. 3 par. 1, 2, art. 4 par. 2; Law 58/94 art. 8 c); Law 137/95, art. 58, 54; Law 13/98 art. III par. 4 b), c).	Yes	
Art. 6.3	Law 58/94 art. 7 c), art. 14 par. 1 a), b); Law 26/96 art. 32, 54, 60, 61, 62	Yes	
Art. 6.3	Law 58/94 art. 9, 10, 12, 14	Yes	
Art. 6.4	Law 5/91 art. 4 par. 2; Law 82/93 art. 6 j; Law 58/94 art. 14 par. 2; Law 26/96 art. 32, 55, 56, 57, 58, 59, 60	Yes	
Art. 6.4	Not applicable until accession		
Art. 7	Not applicable until accession		
Art. 8	Not applicable until accession		
Art. 9	Not applicable until accession		
Art. 10	Not applicable until accession		
Art. 11	Law 58/94 art. 7 b), c); Law 137/95, art. 55; Law 26/96 art. 117.	Yes	
Art. 12.1	Law 13/93, art. 6; Law 82/93, art. 14 c, art. 23; Law 137/95 art. 59; Law 26/96 art. 83; Law 103/96 art. 23; Law 13/98 art. III par. 5	Yes	
Art. 12.2–3	Law 13/93 art. 6 e); Law 82/93, art. 16; Law 58/94 art. 59; Law 103/96 art. 23 d), k), l), m).	Yes	
Art. 12.4	Law 13/93 art. 8; Law 26/96 art. 41, 84, 85, 86; Law 103/96 art. Art. 12, 13	Yes	

Directive 92/43/EEC	Existing national law	Fully in accord (Yes/No)	Planned year for full implementation
Art. 13.1	Law 13/93 art. 5; Law 82/93, art 14 c), 23; Law 137/95 art. 59; Law 26/96 art. 37, 38, 40, 77; Law 103/96 art. 29	Yes	
Art. 14	Law 13/93 art. 7 par. 3; Law 26/96 art. 26, 30, 31, 37, 38, 41, 42, 45, 71, 73, 74, 76, 88, 89, 92; Law 103/96 art. 8, 19, 20, 21, 22, 30, 31, 34, 35	Yes	
Art. 15	Law 13/93 art. 8; Law 103/96 art. 24 par. 2, 3, art. 32	Yes	
Art. 16.1	Law 13/93 art. 9; Law 103/96, art. 28, 29; Law 13/98 art. III par. 5	Yes	
Art. 16.2	Not applicable until accession		
Art. 17	Not applicable until accession		
Art. 18.1–2	Decree 187/90 art. 5 c), e); Law 5/91 art. 4 par. 3; Law 13/93 art. 11 par. 1 b); Law 58/94 art. 12 b), c), art. 14 c); Law 13/98 art. II par. 3 a).	Yes	
Art. 19, 20, 21	Not applicable until accession		
Art. 22	Law 13/93 art. 3 par. 3, art. 11 par. 2 a), b); Law 58/94 art. 8, art. 9, art. 13; Law 137/ 95 art. 5, art. 64; Law 26/96 art. 21, 22, 23, 24, 25, 27; Law 13/98 art. III par. 4 c).	Yes	
Art. 23	Not applicable until accession		
Annex I		No	2005
Annex II	Law 13/93 Annex I, Annex III; Law 13/98 Annex I	Yes	
Annex III		No	2005
Annex IV	Law 13/93 Annex II; Law 103/96 Annex II; Law 13/98 Annex II	Yes	
Annex V			
Annex VI	Law 13/93 Annex IV; Law 103/96, art. 32.	Yes	

Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora – enforcement of the legislative provisions

1. The comprehensive assessment, at national level, of the existence and location of sites hosting the natural habitat types listed in Annex I to the Directive and the species listed in Annex II, that are native to the national territory	At national level has been undertaken a assessment of the existence and location of natural sites and species listed in Annexes I and II, like the inventory by CORINE Biotops and EMERALD Programs, and also the researches programs of the Institutes. The inventory of these sites exist, bat is not comprehensive for the moment.
2. Assessment, on the basis of the criteria set out in Annex III (Stage I) of the natural habitat type listed in Annex I and the species listed in Annex II, with a view to selecting those sites which are eligible for identification as 'sites of Community importance'	The priority habitat types have been identified and are included in the national network of protected areas. The species find again in the Annexes of Bern's, Ramsar's, and Bonn's Conventions.
	Has been already identified more 60 Important Birds Areas.

3. Determined whether the national territory includes any important natural habitat types and/or species not currently listed in the Annexes to the Directive	Will be proposal to amend the Annexes, because in Romania in this moment exist the species (in particular endemic species) and habitat type of Community importance not currently listed in the Annexes of this Directive.
4. Establishment a monitoring system to monitor the conservation status of those natural habitats and species which have been identified at national level as 'of Community interest'	The integrated monitoring systems will be established by the *Law on protected areas and wild flora and fauna conservation* (2001)
5. Assessment of the animal species listed in Annex IV(a) and/or plant species in Annex IV (b) are present on the national territory	An inventory (bat not comprehensive yet) of the animal/plant species and, in some cases, the protection programs.
6. the measures undertaken to establish a system of strict protection for the Annex IV(a) animal species and/or Annex IV(b) plant species	An inventory and protection programs. GEF Projects for Biological Diversity Conservation in "Danube Delta" Reserve, in Retezat, Bucegi and Piatra Craiului National Parks, the LIFE-Nature Projects and other projects financed by national and international programs.
7. Assessment of the species of fauna and flora listed in Annex V to the Directive exist on the national territory	An inventory in process.
8. Assessment of the species of fauna and flora listed in Annex V require any specific measures to be taken to ensure that their population is maintained at a 'favorable conservation status	See question no. 6
9. Steps undertaken to promote education and general information to the public on the need to protect species of wild fauna and flora and to conserve their natural habitats	Publications (newspapers, TV, radio), NGO's activities, movies (media), etc.
10. The timetable for achieving compliance with the Directive's requirements been developed	*2005*

Directive 79/409/EEC on the conservation of wild birds – legislative provisions

Directive 79/409/EEC	Existing national law	Fully in accord (Yes/No)	Planned year for full implementation
Art. 1.1–.2 Art. 2	Decree 187/90 art. 4, art.5; Law 13/93 art. 1 par. 1, art. 2; Law 58/94 art. 4; Law 137//95 art. 34; Law 26/96 art. 83; Law 103/96 art. 2	Yes	
Art. 1..3	Not applicable		
Art. 3.1–2	Law 5/91 art. 4 par. 1; Law 13/93, art. 4 par. 1, 2, 4; Law 82/93 art. 1, 3; Law 58/94 art. 8 a, b, c, d, e, i	Yes	
Art. 4.1	Law 13/93 art. 3 par. 1; Law 137/95 art. 54	Yes	
Art. 4.2	Law 5/91 art. 3, 4; Law 13/93 art. 1 par. 2, art. 4 par. 3; Law 82/93, art. 2; Law 137/95 art. 54, 55, 57; Law 13/98 art. II par. 1, 2	Yes	
Art. 4.3	Not applicable		
Art. 4.4	Law 13/93 art. 3 par. 2; Law 58/94 art. 7 c), art. 81; Law 13/98 art. II par. 3 b), art. III par. 4		
Art. 5	Law 13/93 art. 6 a), b), c), d), e); Law 137/95 art. 59; Law 103/96 art. 23 b), c), f), g), i), j), k), n), p); Law 13/98 art. III par. 5	Yes	

Directive 79/409/EEC	Existing national law	Fully in accord (Yes/No)	Planned year for full implementation
Art. 6.1	Law 13/93 art. 6 e); Law 103/96 art. 23 l), m).	Yes	
Art. 6.2	Law 13/93 art. 7 par. 3, art. 8; Law 103/96 art. 14 par. 1, 2.	Yes	
Art. 6.3–4	Not applicable		
Art. 7.1	Law 13/93 art. 7; Law 137/95 art. 52 h); Law 103/96 art. 24 par. 1, 2, 3	Yes	
Art. 7..2–3	Not applicable		
Art. 7.4	Law 13/93 art. 10; Law 26/96 art. 86; Law 103/96, art. 19, 23 b), f), g), h), j), n), o).	Yes	
Art. 8.1	Law 13/93 Annex IV; Law 103/96, art. 32 a), b), c), f), I), j), k), l), m), p), s), t).	Yes	
Art. 8.2	Law 103/96 art. 32 n).	Yes	
Art. 9.1	Law 13/93 art. 9 par. 1; Law 103/96 art. 8 g), i), j), art. 22 par. 1, 2, art. 24 par. 3, art. 28.	Yes	
Art. 9.2	Law 13/93 art. 9 par. 2	Yes	
Art. 10.1–2.	Law 5/91 art. 4 par. 3; Law 13/93 art. 11 par. 1; Law 58/94 art. 7 a) and b), 9 b), 12 b); Law 13/98 art. II par. 3 b).	Yes	
Art. 11	Law 13/93 art. 11 par. 2 b); Law 58/94 art. 8 h).	Yes	
Art. 12	Not applicable until accession		
Art. 13	Law 5/91 art.4 par.4		
Art. 14, 15, 16, 17, 18, 19	Not applicable until accession		
Annex I	Law 13/93 Annex II; Law 69/94; Law 103/96 Annex 2; Law 13/98 Annex II	Yes	
Annex II	Law 103/96 Annex 1	Yes	
Annex III	Law 69/94 Annexes I (art. VII par. 4), II and III; Law 103/6 Annex 1		
Annex IV	Law 13/93 Annex IV; Law 82/93 art. 7, 14, 22, 23; Law 103/96, art. 32.	Yes	
Annex V			2005

Directive 79/409/EEC on the conservation of wild birds – enforcement of the legislative provisions

1. Assessment of the presence on the national territory of the bird species mentioned in Annex I, including regularly occurring migratory species.	In Romania, exist approximate 364 birds' species including 312 bird migratory species. A great number of these species presents on the national territory are mentioned in Annexes of the present Directive.
2. Measures taken to preserve, maintain or re-establish a sufficient diversity and area of habitats for naturally occurring wild bird species in accordance with the Directive.	At national level have been decided, in order to conserve habitats specifically for wild bird, the following measures: creation of protected areas, protection zones surrounded by intermediary zones, establishing the integrated management plans approval by scientific councils, the possibility of implementing this plans, etc.
3. Evaluation of the special conservation measures required protecting the habitats of vulnerable or rare species.	Have been undertaken the special conservation measures take into account the status of this species, in accord and with technical and financial support of BirdLife International
4. Assessment of existing protected areas and any other areas on the national territory which are potentially suitable for classification as special protection areas (SPAs) for the conservation of bird species listed in Annex I.	Has been already identified more 60 Important Birds Areas.
5. Specific assessment of the existence of areas which are important for regularly occurring migratory species (not listed in Annex I) and, in particular, wetlands of national and/or international importance.	The Danube Delta was declared Ramsar Site. In addition, are more wetlands of national importance that habitat of the migratory species occurring the national territory.
6. Assessment of the practical application of national hunting rules to wild birds	The hunting is developed in according with the enforcement legislation, special with the provisions of the Law 103/1996. Annex 2 of this law establishing the bird species prohibited for hunting (listed in Annex I of this directive). In Annex 1 are listed the species of hunting interest and hunting periods, within the limits of the approved harvest quota and of the technical regulation with regard to the organization and practice of hunting.
7. Determined whether any species of wild bird hunted at national level are <u>not</u> listed in Annex II to the Directive	No
8. Steps to ensure that any hunting of the bird species listed in Annex II does not jeopardize conservation efforts in their distribution area	The measures are developed in the law 103/1996 and are in fully concordance with the Community provisions in this field.
9. Steps to encourage research and/or work on the protection, management and use of naturally occurring wild birds on the national territory	At present has been taken studies to identify the wild bird species occurring the national territory, as well as some Important Birds Areas. By LIFE-Nature Program will be developed, beginning with 1999, the projects of integrated management for wild birds conservation.
10. The timetable for achieving compliance with the Directive's requirements	*2005*

Regulations on the protection of species of wild fauna and flora by regulating trade therein – enforcement of the legislative provisions

1. The competent authorities designated for performing the duties arising from this Regulation?	The management authority is the Ministry of Waters, Forests and Environmental Protection (MWFEP) and the scientific authorities are the Romanian Academy and the Forest Research and Management Planning Institute. Responsible for: • issuing permits and certificates is the MWFEP; • controlling commercial activities and internal commercial activities are the MWFEP in collaboration with the special offices of the Ministry of Internal, Ministry of Industry and Trade; • borders controls is the special customs authorities under the Ministry of Finance; • controlling the movement of live specimens are the MWFEP and the Police; • registering scientist and scientific establishments is the MWFEP in consultation with the Romanian Academy.
2. The permitting system for the import of specimens listed in the Annexes	Romania was ratified by Law 69/1994 the Convention on international trade in endangered species of wild fauna and flora (CITES). This is the reason for all the measures concerning the import of the specimens are in place in concordance, in particular, with the provision of the CITES. The forms used are completed in concordance with the CITES provisions, bat are not in concordance with the art. 3, par. 3, 4, 5, 6 of the Directive 939/97/EEC. The import permits are valid not exceed 12 months, depending of the species. The holders have the obligation, under the Romanian legislative provisions, to return the expired or unused permits (the original and all copies) to the management authority (MWFEP). For ensure the proper retrospective issue of permits are in place the procedures established by CITES.
3. The permitting/certification system for the export/re-export of specimens listed in the Annexes	Romania was ratified by Law 69/1994 the Convention on international trade in endangered species of wild fauna and flora (CITES). This is the reason for all the measures concerning the export/re-export of the specimens are in place in concordance, in particular, with the provision of the CITES, including the completed and the used of the forms. The period of validity of export/re-export permits shall not exceed six months, depending of the species. The applicants have the obligation, under the Romanian legislative provisions, to return the expired or unused permits to the management authority (MWFEP). In the cases where a permit is cancelled, lost, stolen or destroyed, it is impossible to obtain other permit.

4. The procedures for processing relevant forms as specified in Sections 2–6 of Regulation EC/939/97	The import and export permits and the re-export certificates and the import notification are issue of the applicants by the management authority, on the basis of the favorable avis of the Romanian Academy. The avis of the Academy is given after the analysis of the documentary evidence needed in this field. The procedures are in concordance also with the CITES provisions and also with the provision of the law 137/1995 on environmental protection concerning the bio-diversity conservation and the procedure for environmental impact assessment.
5. The system to monitor the issuance of export permits and actual export of specimens from Annex B	The management authority on the basis of the analysis and the assessment of the information needed for this reason (state of the species) granted by the scientific authority can limiting the issuance of the export permits (if the scientific data emphasis that conservation state of the species is inappropriate).
6. The system to control commercial activities	Controlling of the commercial activities and internal commercial activities are supported by the MWFEP (Directorate of Nature and Biological Diversity Conservation, Directorate of Ecological Control, Directorate of Hunting and the territorial agencies under the Ministry) in collaboration with the special offices of the Ministry of Internal and Ministry of Industry and Trade. These controls are in concordance with the CITES and also with the provision of the other internal laws in this fields.
7. The system established for the determination of specimens born and bred in captivity and artificially propagated specimens	No
8. The procedure established for ensuring that live specimens are marked	No
9. The system to control the movement of live specimens during import and export to the Community	The management authority approves the authorizing of the movement of species listed in Annex A in concordance with the provisions of the Convention on international transport with species, ratified by the Romania. It is ensuring the adequately informed of the accommodation, equipment and practices and also the preparation of any live specimens before transport or during transit or transshipment, so as to minimize the risk of injury, damage to health or cruel treatment.
10. The custom offices designated for carrying out the checks and formalities for the introduction into and export of the specimens listed in the Annexes	The checks and formalities for the introduction into and export of the specimens listed in the Annexes are accomplished in all the border customs. The staffs are not sufficient and adequately trained in this field. The documentation is checking only at the border customs office.

11. The inspection system to control compliance with this Regulation	Has been set up an inspection system to control. The procedures are established in concordance with national legislation in this field and it is supported by the personal of the special offices under the MWFEP and Ministry of Internal (Policy). The bodies for criminal prosecution, according to the legal competence shall do the ascertaining and investigation of the offences. The people have the right of lawsuit with the view of environmental protection, including the trade with the wild species, irrespective of who suffered from the prejudice.
12. The system been to inform the public and make them aware of the provisions of this Regulation	For the public is given the general information on the trade with the wild species of flora and fauna, by mass media. For the interested people with trade of the wild species is given the detailed information about the formalities required, by the personnel's customs offices and of the MWFEP's directorates.
13. The procedure to supply the information required by the Commission under Articles 39 and 40 of Regulation EC/939/97	Is supplied all the data on imports into and exports and re-exports from Romania that have taken place on the basis of permits and certificates issued by the management authority. The information is supplied to magnetic support. The management authority collects the data and, communicate the information on the trade with CITES species to the Convention Secretariat.
15. The system of sanctions	The majority of the facts mentioned are constitute offences and are punished with imprisonment, in concordance with the Law 137/1995 on environmental protection and Law 103/1996 on hunting fund and protection of game. The system allow for the seizure and confiscation of specimens is specified only for the CITES species.

Annex

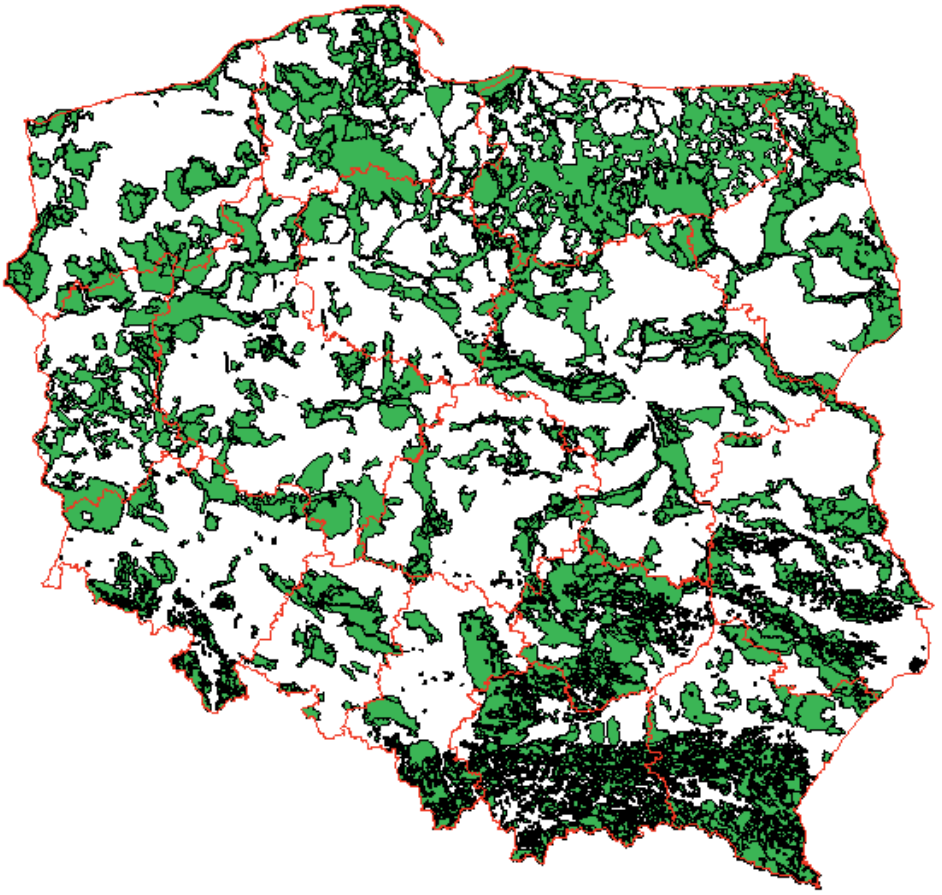

Figure 1. Priority areas delineated based on potential water erosion, protected areas and biotope sites

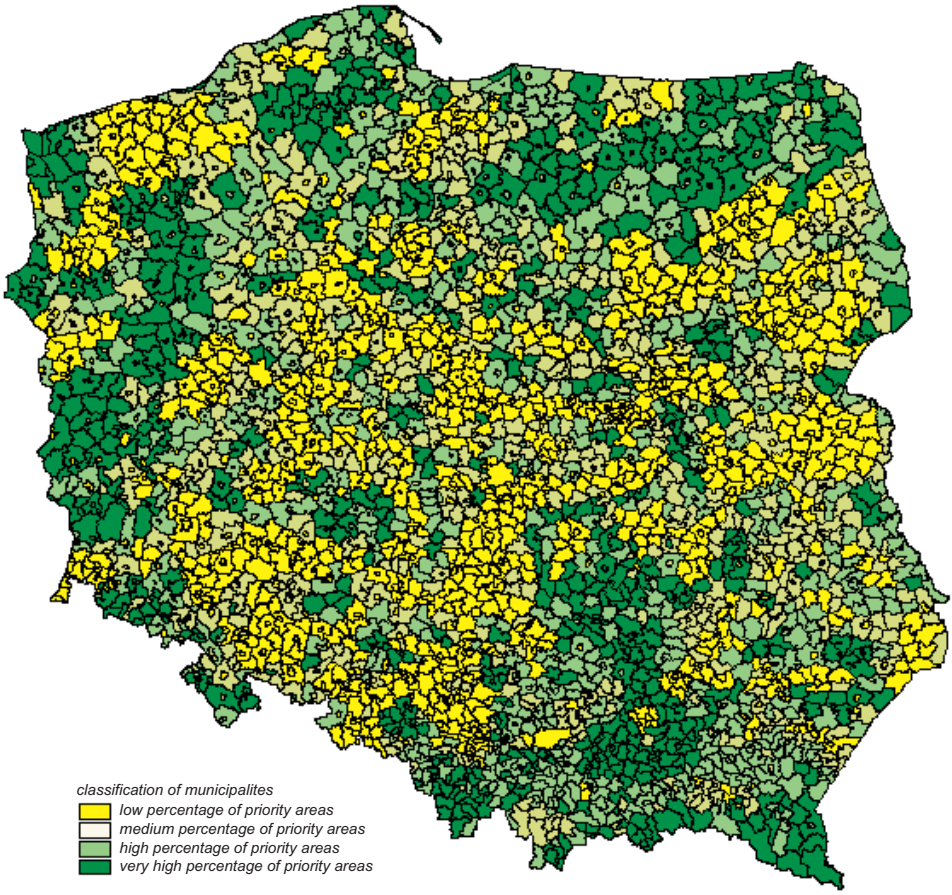

Figure 2. Distribution of priority areas in municipalities

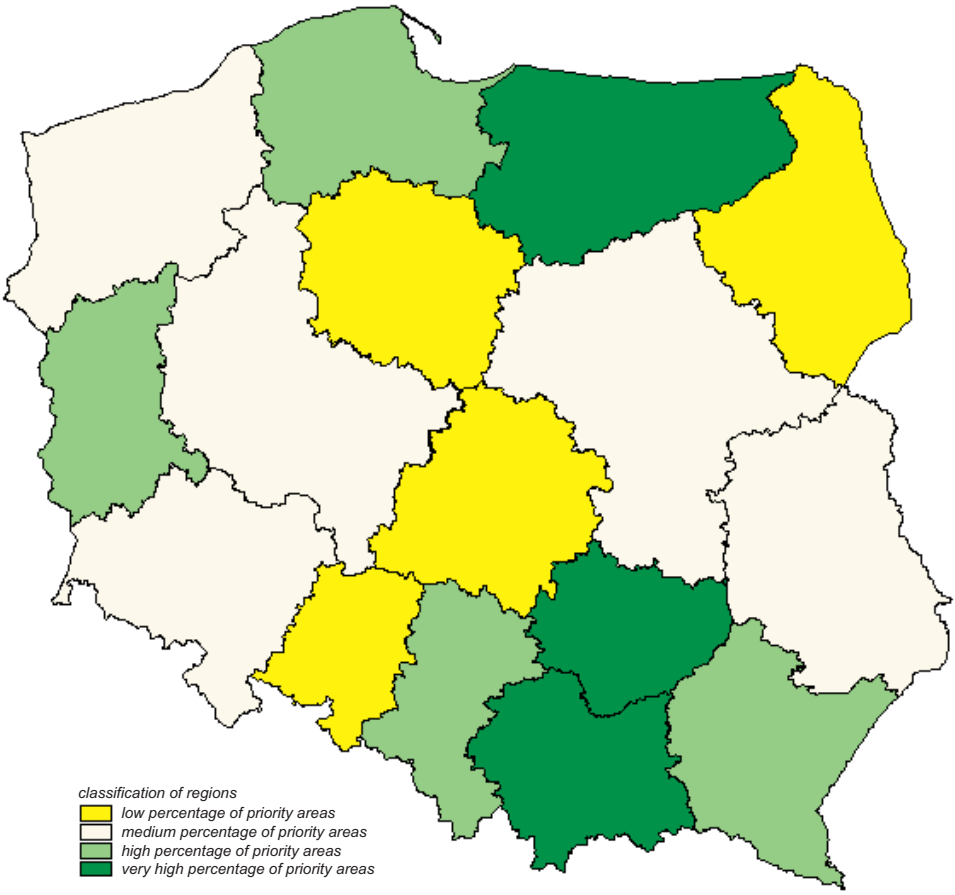

Figure 3. Distribution of priority areas in regions

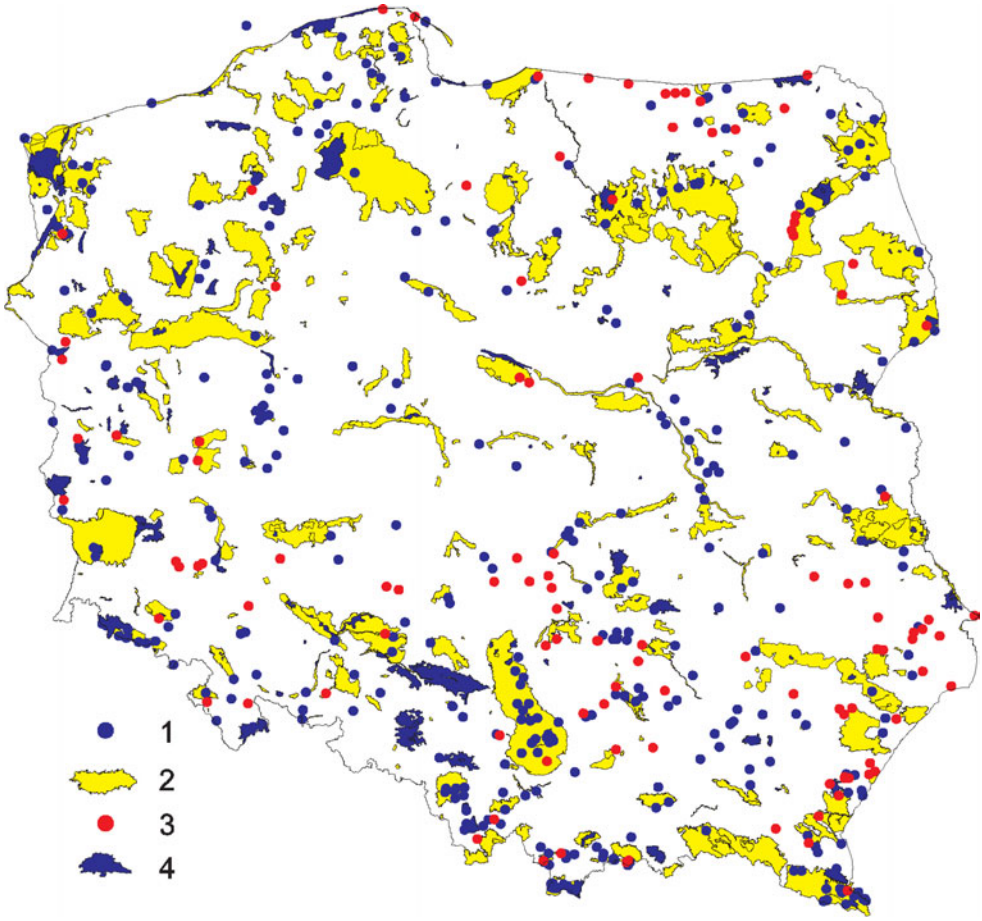

Figure 4. Natural sites of Poland. 1 – sites <100 ha with farmland, 2 – sites >100 ha with farmland, 3 – sites <100 ha without farmland, 4 – sites >100 ha without farmland (after Dyduch-Falniowska *et al*. 1999. Ostoje przyrody w Polsce. Instytut Ochrony Przyrody PAN, Kraków).

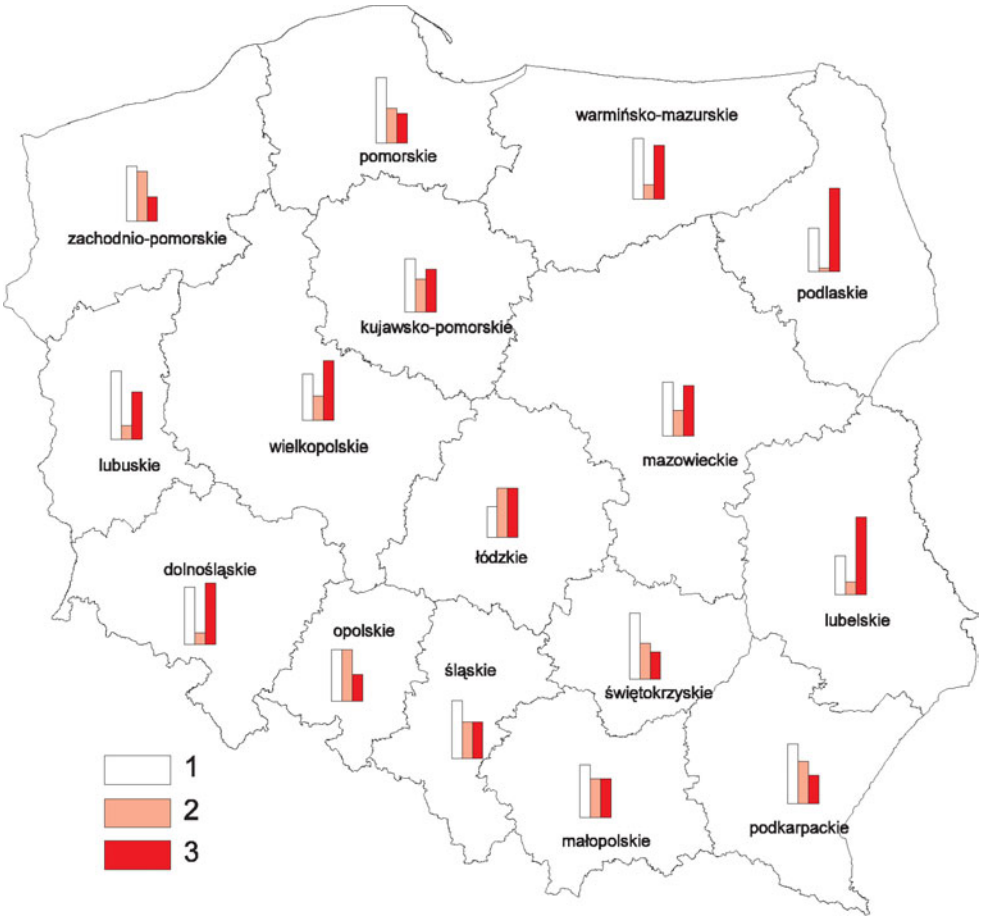

Figure 5. The share of farmland in the natural sites of Poland: 1 – small, 2 – moderate, 3 – high.

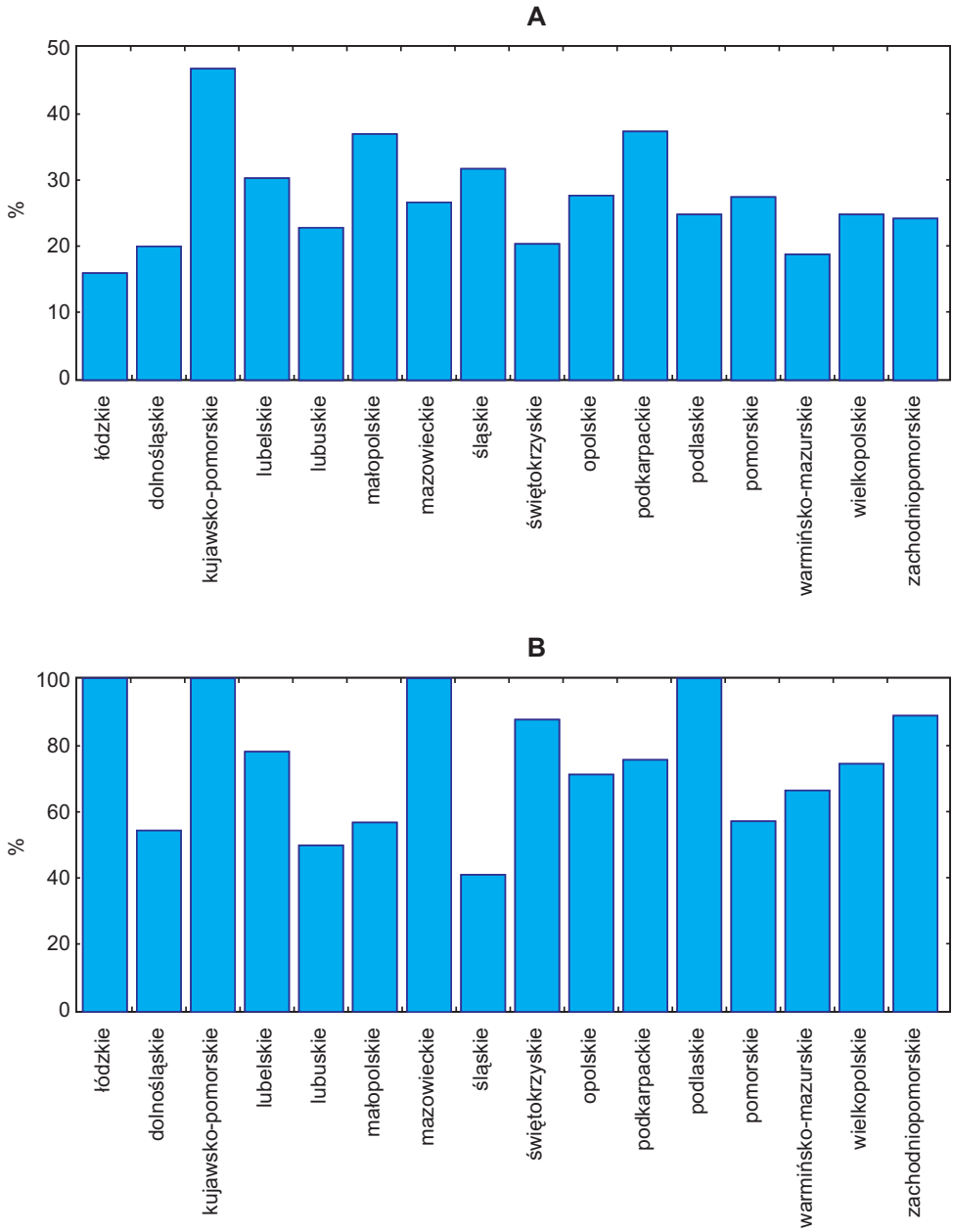

Figure 6. Proportion of natural sites with farmland and landscape of conservation interest to all CORINE sites with farmland (A) and to all CORINE sites with valuable landscape (B) in particular provinces of Poland.

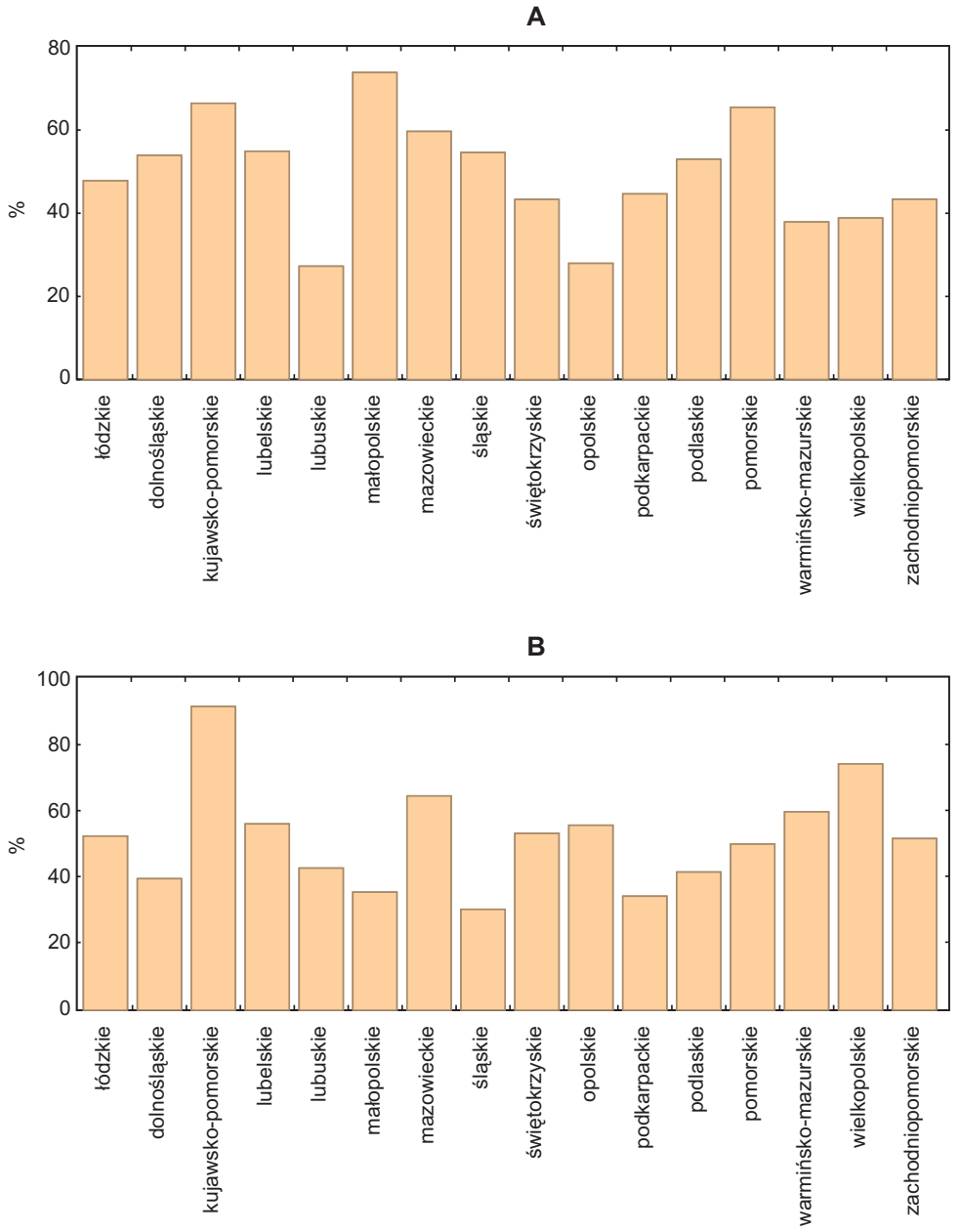

Figure 7. Proportion of sites with farmland, comprising **habitats** included in **Habitats Directive** to all CORINE sites with farmland (A) and to all CORINE sites with **NATURA 2000 habitats** (B) in particular provinces.

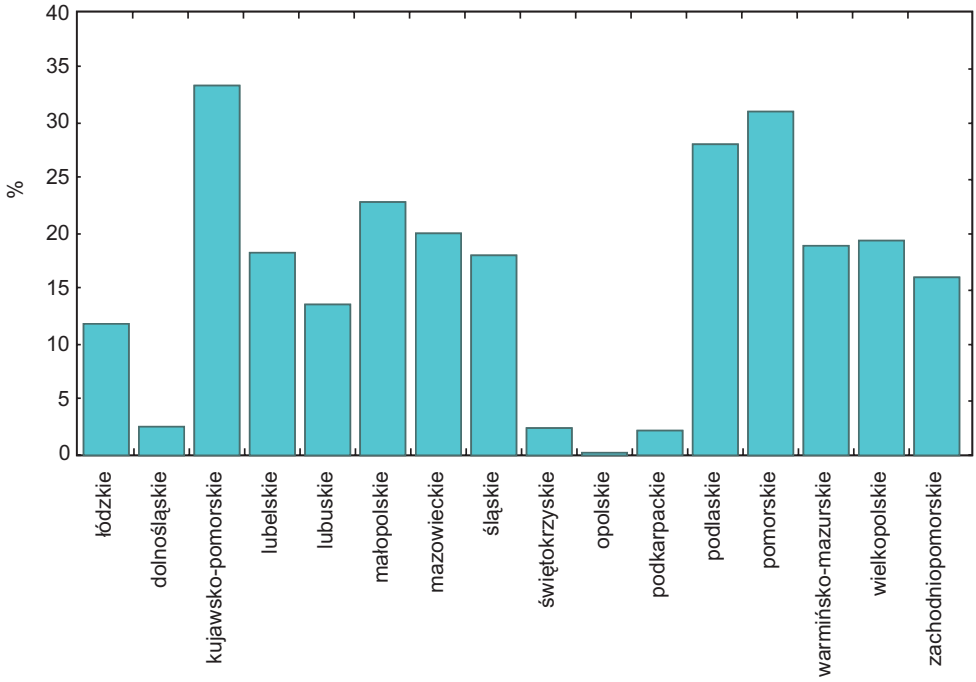

Figure 8. Proportion of sites with farmland, which support NATURA 2000 plant species to all CORINE sites with farmland in particular provinces in Poland.

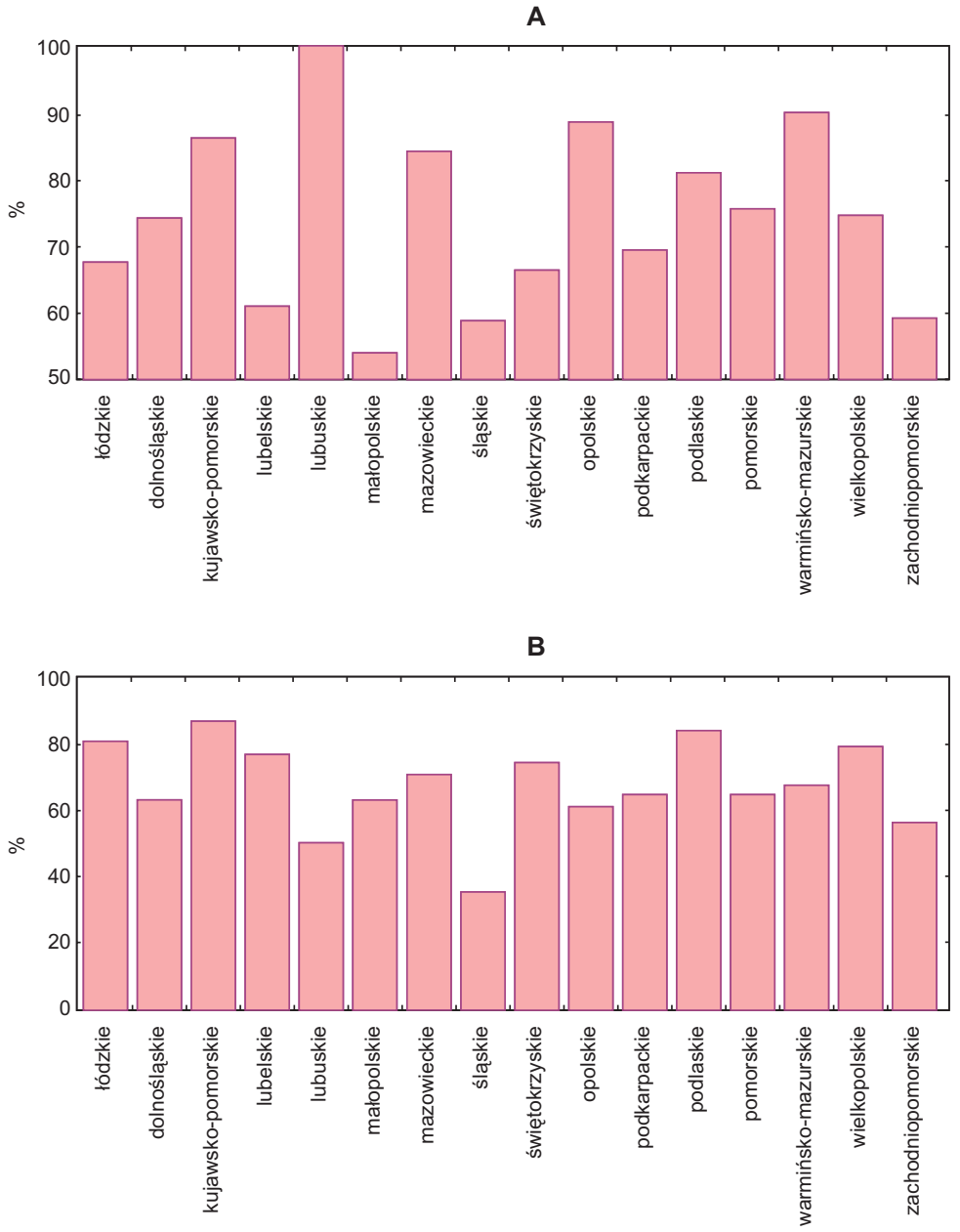

Figure 9. Proportion of sites with farmland, which support **Birds Directive species** to all CORINE sites with farmland (A) and to CORINE sites with **NATURA 2000 bird species** (B) in particular provinces of Poland.

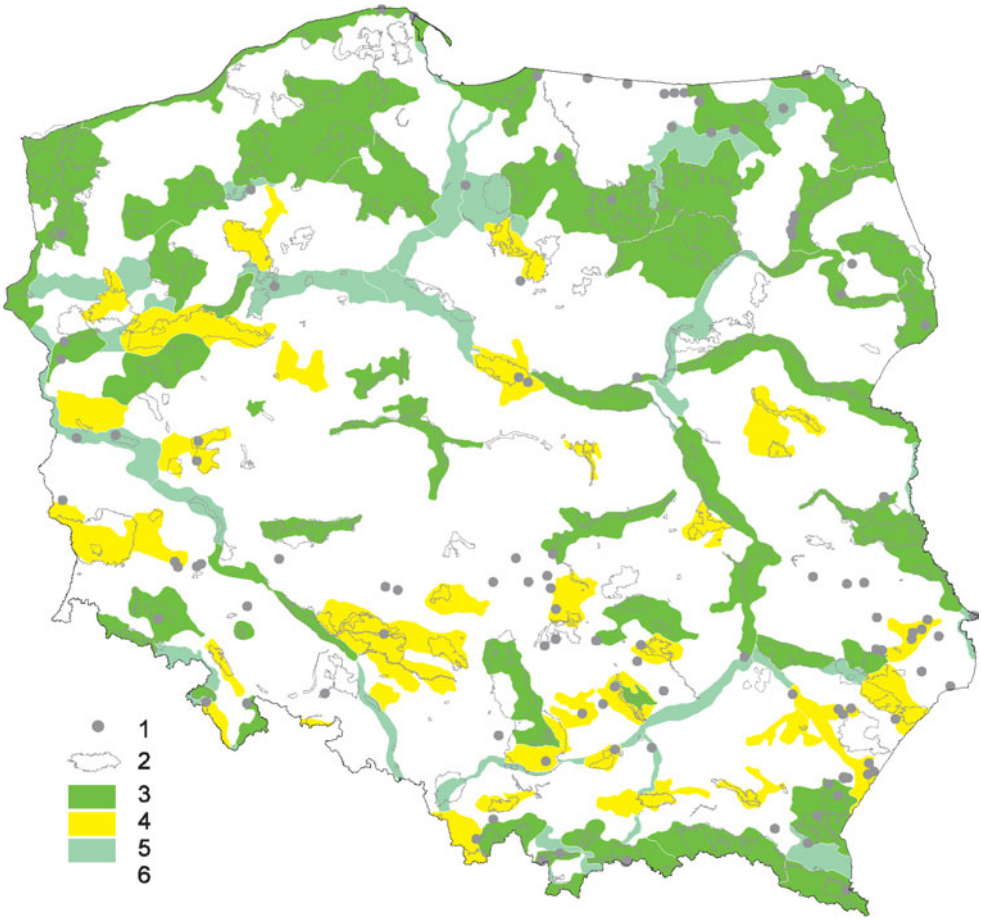

Figure 10. Correspondence between natural sites with farmland and ECONET-PL network. 1 – sites <100 ha with farmland, 2 – sites >100 ha with farmland, 3 – international core areas, 4 – national core areas, 5 – international ecological corridors, 6 – national ecological corridors.