

Communicating Biodiversity Conservation to Forest Owners in East-Central Europe Major Issues and Model Communication Strategies





I U C N Programme Office for Central Europe

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1. INTRODUCTION

Political changes in Central-East Europe (CEE) have led to a large-scale privatisation of forests – up to 50 per cent of forest area in some countries. As a consequence, there are now close to three million, mostly new, forest owners in the region, who often have insufficient experience and knowledge of sustainable forest management practices. State forest extension services are not fully prepared to face this challenge and forest owners' associations are still relatively weak. Newly privatised forests are thus at risk, both as an economic resource and a biodiversity reservoir. The IUCN Programme Office for Central Europe (IUCN-CE) is implementing a project to address these threats, as part of a broader initiative of IUCN, FAO (UN Food and Agriculture Organisation) and CEPF (European Confederation of Forest Owners). The project aims to strengthen private forestry and promote sustainable forest management practices in CEE. The role of IUCN in the project is to address biodiversity conservation issues.

In the years 2003–2004, the focus of IUCN work was on assessing specific conservation needs and formulating communication recommendations for the private forestry sector in selected new EU member countries: Estonia, Hungary, Lithuania, and, to some extent, Latvia, Czechia, and Poland. Representatives of forest owners associations, extension specialists, as well as IUCN communication and biodiversity experts met in Riga, Latvia in December 2003. The goal was to review biodiversity conservation issues in private forests and up-to-date sociological information on forest owners. Communication of biodiversity conservation to forest owners was identified as a major challenge.

Subsequently, country working groups from Estonia, Hungary, and Lithuania took part in a strategic planning exercise moderated by Frits Hesselink, former Chair of the IUCN Commission on Communication and Education and communication expert. The team consisted of representatives of Forest Owners Associations, Pro Silva, communication and conservation experts. Strategies presented in this publication are intended to be concrete, realistic, and well-justified. They are designed to be implemented in the day-to-day work of the organisations. We hope that the strategies will serve as a model to those responsible for communicating with forest owners on biodiversity issues.

The chapter on biodiversity conservation issues, inspired by the Riga meeting discussions, was written and extensively discussed by IUCN experts. This is not a full assessment of biodiversity status in the region – rather a checklist to help decision makers identify major challenges. Conservation recommendations in clear cutting and the concept of Woodland Key Habitats were presented in more detail. Special attention was given to the close-to-nature forestry, as it offers a set of forest management tools that are particularly useful in biodiversity conservation. Background for this issue is provided in the chapter on biodiversity, the Hungarian strategy deals with the communication aspects and additional materials are provided in the Appendix.

2. PRIVATE FORESTS AND THEIR OWNERS IN EAST-CENTRAL EUROPE

Forest owners in the Baltic countries and Hungary are a diverse group. The main differentiating factor seems to be the size of a forest holding. Forest property is highly fragmented. Average holding size is 4.5 ha in Lithuania and 1.3 ha in Poland. In Estonia, with an average holding size of 10–12 ha, properties of less than 5 ha constitute 61% of the holdings and cover only 19% of the total private forest area (table). Additional significant parameters include sources of non-forestry income of the owner, his/her age, education level, and social stratum (these are often interrelated). Forest owners largely lack forestry-related education.

Ownership structure in the concerned countries (data from presentations at seminar in Riga, December 2004).

Country	State forests	Non-state forests	Under owner. transformation	Avge. private holding	Number of forest owners
Lithuania	50%	31 %	19%	4.5 ha	203 000
Latvia	49%	51 %	-	8.2 ha	150 000
Estonia	37%	32%	30%	10–12 ha	60 000
Hungary	60%	40%	-	2.8 ha	248 000
Poland	83 %	17%	-	1.3 ha	ca. 1.5 mln

Based on the above factors, the private forest owners in the countries in question can be divided into three groups:

- 1. The first group consists of business-oriented forest owners, who, as a rule, possess larger tracts of land (hundreds, at least tens of ha). Some of them want to generate profits right away, some have a long-term profit perspective and understand the need for sustainable forest management. If their contribution to nature conservation affects profitability, they expect compensation.
- 2. To the second group belong those who manage their forests for household and farm needs (firewood and timber) and their holdings are usually small. They have neither sufficient yield nor interest to enter the market, so profitability is not their primary consideration. These owners cut trees selectively, according to their needs. As long as these needs are satisfied, they can accept nature conservation measures. However, they may be forced by their own financial situation to clearcut the forest.

3. The third group are "uninterested" forest owners, whose connection to their property is very weak. They often live away from their forest, usually in cities. They do not expect profits from their property, and if they do, they tend to sell it (then it is often logged). However, in Latvia only 2% of forest owners are planning to sell their holding. This group is rather open to conservation values – they often appreciate the landscape and ecological role of their forests. In Hungary, where group ownership is very common, many co-owners find it difficult to relate personally to joint property and, as a result, remain passive and uninterested.

Among the forest owners elderly people prevail, as in Lithuania, where persons over 60 constitute majority of the sector. Most of them are men (in Latvia and Hungary ca. 2/3 of the total number), living in rural areas (in Hungary – 2/3 of the total number). However, in Lithuania women constitute 52% of all private forest owners. Majority of the owners do not financially depend on forest – they are paid employees or pensioners. In Estonia over 50% of forest owners do not receive any monetary income from this source. Many of the forest owners in the region have become impoverished due to the collapse of collective farms and state-owned industry.

The diverse groups have diverse motivations and production goals – some of them want to maximise profits, however, most of them never enter the market. They also differ in emotional ties to their property, although this factor is difficult to predict. In countries with uninterrupted history of forest ownership (Western Europe, to some degree Poland) forest is often treated as a family asset, a source of long-term sustainable revenues and an endowment for owner's children. In those countries many owners take pride in managing their forest in sustainable way. In the Baltic countries and Hungary development of such attitudes among some groups of private forest owners will require time and education.

3. BIODIVERSITY CONSERVATION IN PRIVATE FORESTS

3.1. PRIVATE FORESTS – ARE THEY GOOD FOR BIODIVERSITY?

There is certainly no one simple answer to this question. The impact of any form of property on biodiversity depends on a variety of external and internal factors, such as the economic status of the owners and the structure of ownership. Small properties can be good for conservation, since whatever management decision a particular owner makes, it has a limited impact. Thus these holdings form a mosaic of habitats. Many small forest owners follow in fact the traditional *Plenterwald* silvicultural system. Although looked down upon by forestry professionals, private forests are a reservoir of "unwanted" genotypes – irregular forms, forked or twisted trunks. Often old trees, of no commercial value, are left to live their natural life span. Woody debris is removed only if used as fuel.

On the other hand, it takes generations to form traditions of sustainable use of family forest and a sense of owners' ethics. These values can be put at risk through contemporary erosion of traditional values. At a time of economic transition, many owners are tempted to cash in on their property. There are very few owners who have any forest management knowledge. Usually supervision over private forests is weaker than over state forests.

Larger private properties, that are regularly managed, are influenced by traditions of even-age silviculture. This, as in state forests, leads to simplification of ecosystems and loss of biodiversity. Management mistakes in large properties have greater impact and are more difficult to rectify.

On the following pages we review a number of biodiversity conservation issues relevant to private forests. The picture is not clear and it varies from country to country. There is a need for more detailed assessments reviewing the situation in particular countries. In further chapters we propose conservation recommendations for clear cutting, present the concept of Woodland Key Habitats (WKH), and discuss various aspects of close-to-nature forest management.

3.2. MAJOR ISSUES¹

The issues presented below were identified by project participants from Czechia, Estonia, Hungary, Latvia, Lithuania and Poland as important for the sector in these countries. The proposed levels of relevance are a subjective judgement of the authors. Evaluating the impact of particular threats is difficult, since the situation varies from country to country, from region to region, and from property to property.

Written by Darius Stoncius – conservation ecologist and project manager, Lithuanian Fund for Nature, with contributions of Ants Varblane, Tibor Standovár, Béla Varga, František Urban, Tadeusz Zając, and Piotr Tyszko.

For example, clearing a property of 0.5 ha will certainly have a lesser impact on biodiversity than in the case of a 100 ha estate. Small forest owners are also less likely to manage their stands at all.

This is not a full assessment, rather a checklist for people interested in biodiversity conservation in private forests not only in the countries concerned but also in other countries of the region. It should help them to identify and further explore the problems that local private forests face.

Poor understanding of biodiversity as a value Priority – very high

The concept of biodiversity is poorly understood both in society at large, and within the group of forest owners. Appreciation of the role of elements of the ecosystem is missing – many owners do not see that forest is not just trees. Forest owners often understand a need to protect game, birds (not so much raptors), some rare flowers. However, they do not appreciate the significance of less spectacular creatures – snails, insects and other invertebrates. They rarely recognise biodiversity conservation as an important element of sustainable forest management. Biodiversity conservation is often understood as something imposed by conservationists or, sometimes, by Western European countries. Conservation activists and officials, on the other hand, often fail to communicate biodiversity values in a clear and acceptable manner.

Lack of, and/or, difficult access to data on protected species and habitats Relevant for Lithuania, Hungary Priority – very high

Without basic distribution data on forest biodiversity it is impossible to ensure adequate species and habitat conservation. The available information is often dispersed among various scientific institutions, organisations or private persons. Centralised databases or registers are not available in institutions responsible for implementation and control of conservation regulations in forestry activities. This is partly caused by limited public access to information, for instance on nests of rare birds. The extent of public availability of this information should be discussed among stakeholders and clearly defined in order to prevent destructive impact from photographers, egg and nestling collectors, poachers etc. Presently, forest owners have very limited knowledge about natural values of their properties.

Another issue is the quality of data collected. More often than not, collection of too detailed data entirely absorbs scarce resources. Preparation of management plans is costly and time-consuming. A solution could be the use of indicator species to identify and protect valuable areas. The WKH concept is an effective tool in this respect.

Inflexible and conservative forest management regulations Relevant for Lithuania, to some degree other countries Priority – high

Forest management regulations in Lithuania do not allow any freedom from precisely described regulations for felling, reforestation, thinnings and etc. Deviations from the rules result in penalties for both foresters managing state forests and forest owners. The regulations are meant to assure adherence to principles of sustainable forest management. However, they are based on the intensive, even-aged model of forestry. Indiscriminate application of the same felling and regeneration rules leads to destruction of valuable habitats that do not fit the regulations and to homogenisation of forests.

For example, felling regulations focus on maintaining the soil and renewing the forest stands. However, the soil is disturbed in site preparation operations. In Estonia, legislation is moving towards increasing the role of tree species that regenerate naturally, such as aspen, birch and willow. Regulations on scattering branches evenly all over the felling area rather than piling them up in heaps, are being drafted. New legislation should also target the increasing role of the forest owner in biodiversity conservation.

Unfinished restitution and privatisation of forest land Relevant for Lithuania, Poland, Estonia, Czechia Priority – very high

In several Central and Eastern European countries, forest land restitution and privatisation are not completed yet. This poses both a threat and opportunity to biodiversity conservation.

Governments of these countries have a good chance to avoid spending large sums from their state budgets on compensation in order to achieve legal protection of the forests most important for biodiversity. In the course of land restitution, responsible institutions can exchange forests important for biodiversity conservation or located within protected areas for productive commercial forests. Another solution is to stop privatisation of such forest areas. Country-wide inventories of WKH and preparatory work for designation of Natura 2000 sites provide a good basis for these steps. Otherwise, it will be difficult to ensure adequate protection under private ownership without compensation in a very dynamic forest market. Estonian experience shows, that $\sim 70\%$ of timber originates from forest holdings that have had a change of owners. New owners want to get a return on invested money. The reason for that was partly tax policy that encouraged owners to sell forest with land rather than earn money from forest management.

In Czechia, restitution in the areas of national parks and nature reserves was stopped in the early 90^s. However, the new law on municipal properties lifted the ban on restitution in such areas. The exchange of forest land is usually rejected by State Forests and by small owners. They prefer to receive compensation

from the state, but this does not function properly. Poland is a special case. Small holdings were not privatised by the communist government and now they constitute 17% of forest land, with 1.5 million owners. Restitution of large properties, however, is still pending. Only small-scale restitution of church properties took place.

Absent or poorly functioning compensation mechanism Priority – very high

Effectiveness of such conservation tools as Natura 2000, Woodland Key Habitats, or protection of Red List species in private forests depend strongly on compensatory mechanisms. In addition, compensations or subsidies are needed to support change in forest use from clearcutting to other, more nature-friendly systems. Despite that, in the majority of Central and Eastern European (CEE) countries, development of compensation mechanisms lags behind the economic pressures on private forest owners. On the other hand, the developing economies of CEE countries are not able to provide substantial financial resources to compensate forest owners for losses caused by biodiversity conservation restrictions.

Payments are not the only solution, though. Governments of the countries, where forest land restitution and privatisation have not been completed yet, are able to carry out exchange of land important for biodiversity conservation for commercial forest stands. First of all, recognition of the problem and political will is needed to solve this issue. However, in Estonia, exchange of land is considered a time-consuming and expensive process, especially for the state (land demarcation and evaluation are expensive). Financial compensation may be more effective in the end.

Low living standards and high dependence on forest in rural areas Priority – high

In the majority of new member states rural areas are least developed with high unemployment and low living standards. Locally, forestry can be an important job provider and a significant source of income. Rural areas do not offer many employment alternatives to agriculture, therefore, pressure on private forests is increasing. EU funding for rural development programmes should be used to develop alternative forest-related activities, to minimise dependence on just selling timber.

Prevalence of clearcutting as a harvesting method Relevant for Lithuania, Estonia, Hungary Priority – medium to high

More than half of the timber harvested in Lithuania comes from clearcuts, which is driven both by a tradition of even-aged forestry and by silvicultural regulations in

force. This type of felling has a drastic effect on the forest environment on the site and in surrounding stands as well. Clearcuts increase fragmentation of already fragmented and transformed forests in agricultural landscapes. Companies preparing management plans often push owners that need just a few cubic metres of timber to carry out clear fellings. Also, the introduction of modern logging equipment leads to a further spread of clearcutting. Obviously, this problem impacts mostly large and medium-sized properties and particularly those that have a new owner. It is much less of a problem in private forests in Poland, where average property size is close to 1 ha.

In order to reduce the prevalence of clearcutting, responsible authorities should encourage selective logging and continuous cover forestry in private forest holdings. Compensation or subsidies can help to encourage desired behaviour of forest owners. Recommendations for biodiversity conservation measures in clear cutting are presented in chapter 3.3.

Illegal and/or excessive logging Relevant for Estonia, Hungary, the Czech Republic, Poland Priority – medium

Low living standards and insufficient law enforcement stimulate the spread of illegal and excessive logging. The importance of this issue varies from country to country. For example, in Hungary, illegal logging is a region specific problem, but in Estonia it impacts significantly on forest resources (estimated 4–5% of extracted timber). In Czechia, some new forest owners, who obtained their forests through restitution and live in cities, sell their properties to specialised firms. The companies clearcut the forest, sell the timber, and do not care about regeneration (compulsory within five years). It is difficult to convict them since they present natural succession as a process of regeneration. As many owners live away from their properties, they cannot supervise them properly. In Poland, many forest owners "steal" timber from their own stands, because they do not want to go through the hassle of obtaining logging permits. In the early 90°s, many forest owners used a legal loophole removing control of the State Forests Service over management in private forests and cleared their properties entirely.

Illegal logging can be damaging to forest biodiversity and forest ecosystems, because it is often carried out without respect for regulations. Measures to protect soil and remaining vegetation are usually ignored. Illegal harvesting is often conducted excessively and impacts the productive capacity of stands. Forest owners get used to breaching the law and this may make enforcement of conservation regulations more difficult.

Illegal harvesting operations affecting large forest areas are a significant threat to biodiversity. However, even small-scale selective logging can cause serious damage, for instance removal of valuable tree species such as *Prunus avium*, *Sorbus torminalis*, *Pyrus pyraster* in some parts of Hungary and Czechia. Only moderate collection of firewood for personal needs of the owner can be accepted.

Destruction of woodland key habitats (WKH) Relevant for Lithuania, Estonia, Latvia Priority – very high

Woodland Key Habitat is a forest area with the non-accidental presence or high probability of occurrence of endangered, vulnerable, rare or care-demanding forest habitat specialist species. Habitat specialist species are considered not to be able to survive in commercially managed forests in the long term. Therefore, WKHs are very important for forest biodiversity conservation and especially for specialised rare lower flora and fauna species, which depend on structures typical in old-growth forests, long forest continuity and specific microclimate. A more extensive discussion of the WKH concept can be found in chapter 3.4.

The WKH concept as a tool for forest biodiversity conservation is used in Estonia, Latvia and Lithuania. In Estonia and Latvia, a national inventory of WKHs has been completed and they are under legal protection. In Lithuania, the field inventory of state, private, and reserved for privatisation forests, will be finalised by the end of 2004. Legal protection of WKHs is being discussed. In all three Baltic states, protection of WKHs in private forests is a challenge.

In Estonia, WKHs are established in commercial forests, i.e. outside of protected areas. Establishment of WKHs is thought of as part of good forest management practice (by leaving certain areas out of management, rather than establishing micro reserves for protected species and habitats). The conservation objectives are maintained by voluntary agreements between the state and the private landowner. This is the only Baltic country where forest owners can receive compensation for WKH protection. If risks to the sustainability of the WKH occur, other measures should be considered, such as establishment of a protected area.

An assessment of the extent of destroyed WKH in private forests has not been carried out, but they happed to be logged even within protected areas. In Lithuania, a major cause for destruction of WKHs is the inability of authorities to make a decision concerning their protection status.

Destruction of nests and breeding habitats of protected bird species Priority – high

The majority of the new EU member states still have a significant share of European populations of forest birds protected by the Birds Directive, for instance Black Stork, Lesser Spotted Eagle, Spotted Eagle, Honey Buzzard, White-tailed Eagle, Osprey etc. Therefore Central and Eastern European countries are crucial for the survival of these species in the territory of the EU. Most of these forest bird species are also protected by national legislation. For example, in Poland, regulations do not allow final fellings in protective zones around the nests of Black Stork and big raptors. Selective and sanitary fellings are not allowed during breeding season. Similar legal tools are available in Czechia and Lithuania.

Some of the nests located in logged stands are inadvertently destroyed because of lack of information on the location of nests, carelessness and lack of communication. Often authorities that issue felling permits do not have full information of nest locations. Unfortunately, some forests owners and companies working in private forests destroy nests in order to remove obstacles to get a felling permit. To make it worse, in rural areas of Central Europe, there is a wide-spread habit of indiscriminately destroying nests of birds of prey, who are perceived by farmers as their enemies.

In many countries approximately half of all forests belong to private owners. Moreover, the timber supply from private forests is increasing with every year. Therefore, if intentional destruction of nests is not controlled, it could have destructive consequences for populations of rare forest birds. Countering this threat requires educational work among forest owners, functioning compensation mechanisms and effective law enforcement. The Eagle Protection Committee, a conservation NGO, conducts such work in Poland.

Alien and invasive tree species Relevant for Hungary, Czechia, Poland Priority – very high in Hungary, medium in Czechia, Poland

Hungary is the country where the problem of alien tree species is the most acute. According to Forest Service data, in 2001, three of the most common non-native species covered half of the area in private and unsettled ownership forests.

Species	Area covered [thousands ha]	Non-state forests
Robinia pseudoaccacia	239.6	35.2
Populus spp. cultivars	69.8	10.2
Pinus nigra	28.1	4.1
Total	337.5	49.5

A large part of these areas was afforested in the past 100 years, as marginal agricultural land on dry sandy habitats. Robinia poses the biggest threat to native grassland and forest vegetation, as it is the most common, it aggressively changes site conditions, spreads spontaneously, and is hard to control once established. A typical robinia forest is extremely species poor, with only a limited number of species that are competitive under the enriched soil conditions caused by the symbiotic nitrogenfixing bacteria associated with robinia roots. Removal of Robinia plantations is very expensive, because damage to stems and roots increases propagation. Usually it is not possible without several applications of herbicide treatments, which causes additional damage to the ecosystem. Special government support would be needed to help forest owners to replace these plantations with native tree stands, where site conditions allow.

The problem of alien species in Hungary is likely to be aggravated by EU accession. There is an estimated 1 million ha of marginal land to be withdrawn from agricultural production, most of it privately owned and planned to be afforested. Special attention should be paid to the selection of sites and tree species for afforestation supported by either the national government or EU sources. There is a strong economic motivation to plant fast-growing non-native species (especially Robinia), since planting is easy and cheap and revenue can be expected within a much shorter time than with native tree species.

New drainage systems, roads Relevant for Lithuania, Estonia, Latvia Priority – low to medium

During the 20th century, many European countries lost more than half of their wetlands. Now wetland forests are recognised as valuable habitats, but the increasing demand for timber is again putting pressure on remaining areas. Development of new drainage systems in private forests is presently limited by high costs. In most cases, only shallow ditches affecting small areas are made. This, however, might become a significant issue in the near future. The situation could change if foreign forest companies establish long-term forestry holdings and forest owner organisations are successful in attracting EU funding for development of the private forestry sector including new drainage systems and road construction. Uncontrolled road construction may threaten biologically valuable sites and cause changes in local water balance. Draining adjacent agricultural land can also damage valuable forest ecosystems.

To prevent damage to biodiversity, the environmental impact assessment procedure should be implemented for drainage and road projects. This also applies to restoration of old drainage systems, which were designed without taking into account conservation considerations.

Slow progress of forest certification Priority – medium

Forest certification proved to be a good tool to promote adherence to sustainable forest management principles and biodiversity conservation measures not required by national legislation, for example creation of voluntary set-aside areas. FSC is progressing very rapidly in state forests, but not on private land. Few private forest properties in the region have so far been covered by the PEFC scheme. Relatively high certification costs, low demand for certified timber in export markets and lack of benefits for owners are the main causes of slow spread of certification in private forests. Fragmentation of private forests is a serious barrier to the introduction of certification schemes.

3.3. BIODIVERSITY CONSERVATION MEASURES IN CLEAR FELLING

Clear cutting is the main forest harvesting method in many CEE countries. For example, in the state forests of Lithuania, more than 2/3 of the entire volume of harvested timber comes from clear fellings conducted on 10 000 ha annually. A similar proportion is valid for private forests as well. The ratio of clear cutting in private forests of Hungary is even higher.

Clear felling does not correspond to any natural disturbance typical for forest ecosystems. Even fire and wind rarely totally destroy the entire stand. In the majority of cases, only a certain fraction of living trees that survives in the area is affected by a disturbance. Most forest fires are surface fires, that damage only a few trees in the stand. Therefore, usually a mixture of living and dead standing and lying trees occurs in a disturbed stand. Moreover, dead wood does not disappear from sites affected by fire, wind, or other natural disturbances. On the other hand, clear cutting changes the forest environment drastically not only on the site, but also in the surrounding stands. Therefore, it is a major threat to specialised forest organisms that have narrow habitat requirements and poor adaptations for dispersal.

Regulations for forest harvesting are usually production-oriented and not sufficient to create even minimum conditions for the conservation of forest biodiversity. The same rules are often applied in all forest types, under various conditions. Forest certification standards require improvements in forest management, including logging. However usually just a few aspects, like the amount of deadwood and number of standing trees, are addressed.

Stands that are healthy and and rich in biodiversity should contain a whole spectrum of tree development stages from a seedling to a decomposed log. The more diverse the species, age and deadwood composition, the more diverse a community of habitat specialist species can be developed and sustained. The negative impact of clear cutting on biodiversity can be reduced through leaving a certain number of living and dead trees on the site, as described below:

- 1. Some trees, productive and thick, should be selected from the dominant or target species in the stand.
- 2. Very old trees (>50 years older than the stand's average age) should be left irrespective of stand species composition.
- 3. The oldest living, thickest, productive and economically valuable trees can be left as seed trees. It is recommended that seed trees and their groups are left after the development of a new generation, preferably till their natural death.
- 4. Lying deadwood (>20 cm in diameter) should be left on site and not be placed in skidding tracks and covered with branches (as is the practice in some countries). It will allow the development of a high quality habitat for many fungi, insects, lichens and mosses dependent on deadwood.
- 5. To ensure the safety of visitors and workers, at a distance of one tree height along the roads and paths, only deadwood lying on the ground and snags up to 3 m high should be left.

- 6. Also in sanitary cutting, thinning and other intermediate fellings, it is recommended to preserve the oldest trees in the stand and a number of non-productive, dead standing trees, snags and lying deadwood.
- 7. General and specific recommendations for clearcuts should be applied also for the final cut in shelterwood systems.

Below we provide an example of specific recommendations for biodiversity-friendly clear felling in coniferous stands in Lithuania, developed by Darius Stoncius and Rimgaudas Treinys of the Lithuanian Fund for Nature, with input from harvesting contractors and forest owners. The number and types of trees left should be adapted to local conditions, natural disturbances, occuring habitat specialist species and their requirements, current forest management traditions and legislation in each country. In particular countries of Central and Eastern Europe differing recommendations were proposed.

These recommendations should be considered as basic requirements in order to improve forest biodiversity conservation in commercial forests in future, while not constraining significantly forest use activities. If consistently applied in practice, they shall create minimal conditions for the survival of specialised forest organisms and improvement of habitat quality for all species.

Recommended numbers of trees to be left in clear felling in coniferous forests on mineral soils in Lithuania

Categories of trees left in the stans	Spruce and mixed spruce forests: coniferous species at least 50% of stand. Spruce dominates.		Pine and mixed pine for coniferous species at least 50% of stand Pine dominates.	
	Species	Number of trees/ha	Species	Number of trees/ha
Living oldest, thickest trees	 Spruce¹ If present, could also be left: Broadleaved trees Pine 	3	PineIf present, could also be left:Broadleaved treesSpruce	3-4
Living of low economical value: slow growing, curved, used for resin collection, hollow trees, damaged by game, diseases, insects	 Spruce If present, could also be left: Pine Broadleaved trees 	1-3	 Pine If present, could also be left: Spruce Broadleaved trees 	1-3
Fire-scarred living and dead trees	-	-	Pine (living and dead oldest, thickest trees)	1-3

Living productive, economically valuable Middle aged, pre- mature trees	 Spruce¹ If present, could also be left: Broad-leaved trees 	4	 Pine If present, could also be left: Broadleaved trees Spruce 	2–4
Standing deadwood	Spruce (and broadleaved if present): • Dead standing trees ² • Snags > 1 m tall ² • High stumps > 0,5 m tall ³	5	Pine (and broadleaved if present): • Dead standing trees ² • Snags ² • > 0.5 m stumps ³	2–5
Laying deadwood	Spruce (and broadleaved if present): • Laying trunks, pieces of wind/snow broken trunks ² • Thicker ends of rot damaged logs are left in felling site ³	2-3	Pine (and broadleaved if present): • Laying trunks, pieces of wind/snow broken trunks ²	1-2

Notes

- 1. To be left along edges of clear felling site or in groups with other species of living and dead trees.
- 2. To be left: standing dead trees, snags, laying trunks or pieces > 20 cm in diameter. If not present, the ones of largest diameter should be left.
- 3. Applicable, if there are no > 20 cm in diameter standing dead trees, snags, lying trunks or pieces.

3.4. WOODLAND KEY HABITATS AND THEIR PROTECTION

Forest biodiversity in Europe is a result of centuries-long history of land use and forest management. Biodiversity values are usually found in fragmented and small areas, so-called "hot spots" in the forest, where biodiversity at species level is very high. They are called Woodland Key Habitats (WKH). These are forest areas with non-accidental presence or high probability of occurrence of an endangered, vulnerable, rare or care-demanding forest habitat specialist species. An area that can become a WKH in the coming 10–30 years, if it is managed to promote its biodiversity values, is called a Potential Woodland Key Habitat (PWKH).

WKHs usually constitute only a small percentage of forest area, but contain a high proportion of biodiversity, including rare or threatened species present in a land-

scape. A number of threatened species may often be found within the same WKH, but not at all in the surrounding forest. WKHs are very important for maintenance of forest organisms with a high degree of habitat specialisation and limited adaptations for dispersal, for instance lichens, fungi, mosses and insects.

Woodland Key Habitats do not occur at random in forests. They are determined by landscape structure, land use history and sometimes by specific site conditions. WKHs and organisms dependent on them are usually sensitive to changes in management, or the lack of management, that formed it as a WKH. The quality of a WKH, if destroyed, takes a long time to restore. Structures such as very old trees and a large amount of deadwood are formed over hundreds of years. Clear felling of a spruce wetland forest, with long forest cover continuity, causes changes that are irreversible in a perspective of several generations.

Nowadays, WKHs are like islands in a matrix of sites unsuitable for many threatened specialists. They are distinguished from other forest habitats by features uncommon in commercial forests, for example, very old trees, a large amount of standing and lying deadwood at various stages of decomposition, or specific forest use history (fire, grazing). The size of a WKH is not limited. It can vary from a single, very large oak to a forest area of many hectares. As a WKH is mapped, certain elements with specialist and indicator species present and stand structures needed for their survival are identified. These structures are called Key Elements, for example, biologically mature trees, sun-exposed old trees, hollow trees, large dead trunks, etc.

WKHs provide a tool for maintaining a large share of forest biodiversity in a cost-effective way. Results of a WKH inventory could be used in conservation planning, development of management plans and proposals for zoning schemes in protected areas. Mapping of WKHs is required by forest certification schemes. The inventory gives new data about presence and distribution of threatened and rare organisms in forests. It helps to educate foresters on how forest species, habitats and forestry interact.

The WKHs should not be considered as the only measure needed to preserve threatened biodiversity in forest landscapes. The area and distribution of WKHs might not be sufficient to ensure long-term survival of species communities that also depend on other, non-forest habitats. WKHs might be too isolated from each other or too small to support viable populations. Certain forest types might be poorly represented in WKHs due to intensive management in the past. Modifications of ordinary forestry activities are also required to provide conditions for species dependent on a mosaic of forest and open areas. Maintenance of traditional low intensity forest use including hay making and grazing may be crucial in some cases.

Management recommendations for WKHs

Every WKH is unique and should be assessed individually in the field before making decisions on its protection and management regime. General recommendations

for several selected Woodland Key Habitats in Lithuania are given only as an illustration of the conservation approach.

Pine and mixed pine forests on mineral soils

The most important Key Elements in the WKH of pine forests are old, large-diameter pines, sometimes birches, natural snags and logs, varying in their degree of decomposition. Typical for pine forests is a large amount of standing deadwood, often in dry and sun-exposed sites. Sun-exposed aged trees, natural snags and logs are particularly valuable. Fire-scarred trees and burned deadwood are more rare, while pines, resinated after fire, are a more common Key Element, since they can persist for more than a century as a substrate. In many cases, because of elimination of forest fires for a very long time, pine forests on dry and mesic ground today have a high content of spruce.

The best management is no management at all. In forests where spruce is expanding to the extent that it is threatening the biodiversity values, cutting it in order to favour the pines and deciduous trees is recommended. In some cases controlled burning is needed to maintain pine stands. No dying trees or woody debris should be removed from the stand.

Wooded grassland and former meadow or grassland

Wooded grasslands are sparse natural stands where trees and shrubs are often distributed in quite small irregular patches or are irregularly scattered. Key Elements in these WKHs are open areas with grass cover typical of meadows and biologically old trees and shrubs that grew in open areas. Open places and a mosaic structure with edges and other ecotones are an important habitat for Red listed insects, lichens and fungi.

Since these WKHs originated in former agricultural landscapes, they generally need active management to be preserved. To maintain the biodiversity of these WKHs:

- 1. Spruce and small-leaved deciduous trees, shrubs invading open areas should be removed.
- 2. If the area has a mosaic pattern it should be preserved. Open areas should be kept open and the edges should be preserved.
- 3. Old trees and old bushes should always be left.
- 4. No dying trees or woody debris should be removed from WKH, except along roads and paths.
- 5. Mowing or grazing is needed for maintenance of biodiversity values. If species indicating long continuity of grass vegetation still persist, restoration as a wooded meadow or wooded pasture should be considered.
- 6. Fertilisers or pesticides should not be used.

Solitary giant tree or a group of giant trees

A giant tree that is a tree that is large enough by itself, or together with a group of similar neighbouring individuals, to contain a sustainable population of a habitat specialist species. Very old and large, solitary broadleaved trees, live or dead (including those lying on the ground), standing alone or in a group, might contain Red

listed habitat specialists. The age and size of the tree, the occurrence of cavities, dead branches and specialist, indicator species, are the most important features considered when a tree is being evaluated as a WKH. Large broad-leaved solitary trees on sun-exposed sites are crucial habitats for a large number of Red listed epiphytic lichens, wood-inhabiting insects and fungi.

If giant trees originated in an open area, then the trees themselves and the dependent species need good sun exposure. In order to preserve biodiversity values, other surrounding trees and bushes have to be cut and removed. There should be at least a 2 m wide free space from the outermost branch tip of the giant tree to the surrounding stand. If a giant tree has its origin in a dense forest, the stand around it should be left untouched. No dead branches should be removed, even from the ground, except along roads and paths.

3.5. ON NATURE-BASED FOREST MANAGEMENT²

Close-to-nature forestry stems from a traditional way of managing small forest properties in Central Europe. Refined by practitioners and equipped with a theoretical basis by ecologists, it is a viable alternative to even-aged silviculture. A stand managed according to close-to-nature forestry principles provides sustained revenues for the owners, excellent habitat for a great diversity of rare species, and a full range of other services to the society.

In this section we introduce basic ideas underlying the concept of close-to-nature (nature-based, ecological, low-input, continuous cover) forestry, as they relate to biodiversity conservation. We do not deal with the intricacies of terminology or differences between particular concepts, but concentrate on a few common basic principles. The fundamental principle is:

Nature-based forest management is inspired by the structures and processes that occur in natural forests.

In more practical terms: nature-based forestry attempts to mimic the structure, composition, and processes of natural forests. This means that forests are stocked with native, site-adapted species and restocked after felling via natural regeneration. Age distribution and patterns of felling vary from one forest type to another, reflecting and following diverse natural disturbance regimes.

European foresters who advocate forest management based on natural processes formed Pro Silva association in 1989 (see Appendix).

¹ Written by Tibor Standovár – woodland conservations, Eötvös University in Budapest with contribution of Béla Varga.

Underlying ecological principles

There are several basic ecological assumptions behind this concept. Here we present only a few of them:

- 1. All forms of life are a result of **evolution**. The principal mechanism of evolutionary change is **natural selection**: from a great number of variants within a population, the best adapted ones are the most successful in passing on their genes to the next generation.
- 2. In complex ecological systems, like forests, an immense number of life forms and interactions among them evolved. As a result, **original forest biodiversity** includes natural *genetic* variation within and among populations, the range of naturally occurring *species* within the area, and the multitude of *ecological* structures and functions within a naturally heterogeneous landscape.
- 3. Natural systems remain in a dynamic equilibrium and natural disturbances occur in all ecosystems. Natural disturbances are discrete events that are primarily not of human origin and which alter ecosystem structure and resources availability. The structure of forests at the tree, stand and landscape levels are shaped by abiotic and biotic events such as wild fires, windstorms, volcanic eruptions, floods, landslides, drought, pest outbreaks, diseases, herbivory, etc. The characteristics (type, intensity, extent, patterns, frequency) of these natural disturbance agents combine to define a natural disturbance regime of the particular landscape in question.
- 4. The **natural disturbance paradigm** states that native species have evolved under the natural disturbance regime of the particular landscape, therefore, maintaining sufficiently similar conditions is the best way to support the species.
- 5. **Stability** (resistance and resilience) of an ecosystem is strengthened by natural heterogeneous structures and processes, in other words, biological diversity at all levels.

Practical consequences

1. Particular species have adapted to specific conditions (c.f. 1 and 2 above), for example, to early and late succession stages:

Parameters	Early successional species, e.g. birch	Late successional species, e.g. beech
Seed dispersal	wind-dispersed, far	short-distance dispersal
Seed weight	light	heavy
Germination stimulated by direct light	yes	no
Germination impeded by far infrared light (characteristic under closed canopy)	yes	no
Life span	shorter	longer
Pre-reproduction phase	shorter	longer
Height growth	fast	slow
Photosynthesis light-saturation	at high light intensities	at low light intensities

- 2. It is a general observation that natural and semi-natural forests are more resistant to catastrophic abiotic disturbances like wind (c.f. 5 above). Catastrophic windstorms of the past 15 years in Hungary caused the greatest damage in even-aged plantations of exotic species (e.g spruce) and pure stands of native broadleaved species.
- 3. Mimicking natural processes not only supports greater biodiversity, but also reduces costs of wood production by letting nature do the hard work. For example, regenerating beech in small gaps is much easier than in large clearcuts where we have to protect it from competitive light-demanding species.
- 4. A few remnants of natural forest (or other long unmanaged forests) in Europe are recognised as important regional references for nature-based forestry. They should be preserved and used for research, case studies, and field excursions for foresters, nature conservationists and scientists.

Why close-to-nature forestry?

There are several reasons to apply nature-based forest management principles. Below we list only a few of them stressing those reasons that have special importance for private forest owners.

- 1. Forestry is currently undergoing a fast transition due to changed expectations from society. The Rio Summit 1992 (UNCED 1992, Forestry Declaration and Agenda 21) stressed the importance of sustainability and biological diversity in forestry.
- 2. A nature-based approach helps to reduce costs of forest management, since the forces of nature are put to work more efficiently.
- 3. A forest managed following nature-based principles provides society with all forest functions and services, and a sustained, regular income for the owner.
- 4. Close-to-nature stands are better able to buffer ecological changes, including climate changes, and to fulfil the future needs and aspirations of mankind (which are often difficult to predict). In other words, nature-based silviculture reduces both ecological and economic risks in forestry.

How to implement it?

There is no single answer on what we should do if we decide to follow the nature-based approach. It is useful to emphasise that we need to work at three key levels. At the stand level, we talk about *nature-based silviculture*, i.e., the art of producing timber and tending a stand, and the theory and practice of controlling its establishment, composition, structure and growth. At the forest estate or enterprise level we talk about *nature-based forest management*, which includes long-term planning and economic considerations with a multitude of trade-offs. At the regional, national and international levels, *nature-based forestry* represents a broad perspective on forest resource policies and institutional framework.

Nature-based forestry implies different actions in different forest ecosystems that remain under specific natural disturbance regimes. Various traditional forest

management systems (clear cutting, shelterwood, group selection, single tree selection, etc.) represent varying levels of conformity with nature-based principles, depending on site conditions. For example, large-scale clear-cuts in moist temperate beech forests are considered more at odds with the principles than those in drier Scots pine forests of the boreal region.

Finally, we consider "nature-based silviculture" as a set of possible tools rather than a fixed and well-defined silvicultural system. The tools from the nature-based toolbox can be used in different combinations depending on site characteristics, stand history, ownership structure and management priorities (wood production, conservation, recreation, protecting ecosystem functions, developing a new type of urban forest, etc.). The table below shows pairs of tools considered typical for a "regimented", versus nature-based silviculture. It should be stressed, however, that tools from the two boxes can easily be combined, i.e., one approach to forestry does not exclude the other.

Silvicultural toolboxes		
"Regimented" forestry set	Nature-based set	
Even-aged stands	Uneven-aged stands	
Monoculture	Species mix	
Exotic species allowed	Native species only	
Stand management	Single tree management	
Use of pesticides	No pesticides	
Salvage cuts	Leaving dead wood	
Clearcuts	Continuous cover	
Harvest when economically ripe	Preserving old trees	
Draining for production	Keeping wet habitats	
Preventing fire	Possible use of fire	
Excluding unproductive species	Keeping unproductive native species	

Application limitations in European private forests

The concept of nature-based silviculture is relatively easy to apply in large, compact forest areas, stocked with native species, where the natural disturbance regime is well pronounced. However, most of Europe's forests are small, contain many exotic species and have been managed for so long that their natural disturbance regimes are hardly known.

While implementing the whole range of nature-based concepts one needs to consider different levels: from tree, through stand, to landscape. Individual private forest owners can usually do it only up to the stand level, since most of private forest holdings are small.

Nature-based silviculture cannot be practised where the density of large herbivores is too high, since this can impede the application of natural regeneration. Control of game density, or more preferably, a comprehensive regulation of wildlife-forestry-hunting relationships is a prerequisite of widespread application of nature-based silviculture in many European countries.

Implementation of the full range of natural disturbance regimes in the densely populated European landscapes could lead to a clash with other interests and needs of societies. The best strategy for maintaining forest biodiversity and achieving other goals of nature-based forestry in transformed European landscapes would be to approximate natural disturbance regimes, possibly within the range of their natural variability (excluding extremes).

Long-term maintenance of viable populations of forest-dwelling species cannot be ensured solely by setting aside protected forest areas. The survival of most species will depend on how we manage surrounding commercial forests. Introduction of elements of traditional forest management systems that emulate natural disturbance regimes will boost biodiversity conservation, but is not sufficient. This is because all these systems exclude certain structures and functions typical for natural forests (such as standing dead trees). For this reason, additional measures need to be taken, like retention of dead trees and of old giant trees. Further, a wider range of successional stages and tree species combinations needs to be preserved in the managed forest landscape.

Practical aspects of introducing the nature-based approach into forestry

Successful implementation of close-to-nature forestry requires, first of all, committed personnel who share this philosophy and understand natural processes. Enthusiasm and persistence are the key factors. A partnership has to be formed with authorities and stakeholders: foresters, nature conservation offices and NGOs, hunting associations, game management units.

Pro Silva principles (see Appendix) should be applied first of all in locations where traditional (regimented) forestry practice is undesirable or not allowed (protected areas, mountains). Expectation of regular and continuous yield on the part of the owner, as in private forests, is another criterion.

The basic purposes of felling operations are to maximise yield and income, stimulate transition of the stand closer to nature, and enhance biodiversity. Cuttings should support the development of an economically and ecologically optimal standing crop, species composition and stand structure. Trees and groups of trees of outstanding ecological and/or economic value are to be promoted. Trees and groups that are ecologically and economically unwanted should be removed. Old and standing dead trees are retained. Preferably, cuts are conducted at least every five years, but if a continuous yield is needed, they can be repeated annually. Tree selection should be conducted with the assistance of trained and experienced colleagues. The border of the sample plots and trees selected for cutting are marked with ribbons of bright colour.

Gap creation initiates the process of switching towards uneven-aged forests. The optimal initial gap diameter is maximum 1 tree length (100–1000 m²). The gap shape and orientation is a function of the light requirements of the species present, the desired tree species composition and structure, potential competition of herbs, and exposition of the site. It is best to create 1–2 gaps/ha every five years, while avoiding continuous understocking.

Gaps should be initiated where conditions for high quality regeneration are present or can be easily created, but also where removal of the group is desirable for economical or ecological reasons (low value trees, alien species, etc.). Gap creation should result in a desirable stand structure (regeneration, composition, vertical structure).

Regeneration in gaps generally only needs to be monitored. Traditional tending might be necessary to improve size, shape, and orientation of gaps, or the quality of regeneration. The main tool in tending is light, that is regulated – as in nature – by disturbance in the canopy. Effective defence against browsing by game is necessary. Regeneration appearing in the stand outside the gaps has usually no silvicultural relevance.

4. COMMUNICATING BIODIVERSITY TO PRIVATE FOREST OWNERS

4.1. PLANNING OF STRATEGIC COMMUNICATION¹

Strategic communication

Every manager communicates. It is almost 90% of his or her daily activities. However, in our projects, programs or policies we often see communication only as a matter of mass media.

"Help us outlining a movie to convince private forest owners to care about biodiversity, we should show them some dramatic visuals of the consequences of clear cutting, some animation of various scenarios, some pictures of a beautiful forest managed close to nature".

It is very tempting to embark upon such an approach. But it is only strategic if we can answer questions such as: would the movie reach all 200.000 or more private forest owners in our country? What would motivate them to watch? What would it change in them? It is highly probable that a movie will not change the behaviour of private forest owners to a more biodiversity friendly way of forest management. And communication should be seen in that wider perspective: supporting the objective of forests managed in a nature friendly way.

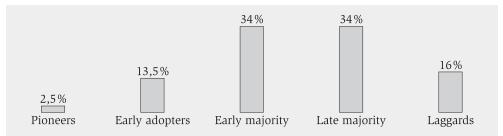


Figure 1. In the process to adopt an innovation mostly 5 different groups are identified. Some people are the first to adopt new clothing fashions, new farming methods, buy new products. Other individuals adopt the innovation much later. People can be classified into categories in the figure shown above. Pioneers are often venturesome, they are willing to try new ideas at some risk. Early adopters adopt new ideas but are more careful, they are guided by respect, they are opinion leaders in their community. The early majority are deliberate, they adopt new ideas before the average person, although they rarely are leaders. The late majority is sceptical, they only adopt an innovation after a majority of people have tried it. Laggards are suspicious and only adopt the innovation if it in itself becomes a tradition².

¹ Written by Frits Hesselink – a former Chair of the IUCN Commission on Education and Communication and a Communication Management Consultant (www.hect.nl).

² Based on Philip Kotler, Marketing Management, ISBN 0-13-261363-8, 1997, p. 335-342

Strategic communication emerges when we start seeing the issue of biodiversity and forestry not anymore as explaining the importance of biodiversity to private forest owners and trying to convince them to act accordingly. Strategic communication starts with seeing the issue as the introduction of an innovation among a large group of potential "customers". And to motivate them for a new way of forest management.

While introducing an innovation, we should first focus on pioneers, communicate to identify them, communicate to let them start experimenting with new management methods, communicate with key influentials to trigger supportive changes in the political and legal system (forest inspectors, state forestry enterprises, national parks, ministries). Once we have a group of pioneers "experimenting" with the "new" approach, we may focus on next groups (early adaptors, early majority, late majority etc.). The communication necessary to reach and involve these groups could be called strategic communication. In this approach, communication is integrated in the project or program as a management tool right from the start. Box 1. below shows the differences between an "uninformed" communication approach and a strategic communication approach.

Box 1. Communication approaches		
Strategic communication approach		
Managers analyze the wider system; plan		
strategically to achieve desired outcomes		
Interventions are focused on goals -		
audiences and messages determine media		
Communication is from the start integrated		
in the full scope of the project/program		
Target audiences are involved in planning;		
interventions are based on their values		

Planning

Popular wisdom on planning is very clear: it is important and we often forget to do so at our own expense. Planning is reducing risks. Managers all know one or more of these sayings:

"Failing to plan is planning to fail" (proverb)

"Good plans shape good decisions. That's why good planning helps to make elusive dreams come true." (Lester R. Bittel)

"The Plan is nothing. Planning is everything" (Dwight D. Eisenhower)

Planning contributes highly to success. It is recommendable to consider a number of key questions at the start of the process:

- Where are you now and where do you want to be?
- What will you need to do to get there?
- What role can communication play to achieve your goals?
- How will you learn from your experiences en route?

Even though most people rationally know the importance of investing in the starting phase of any project or undertaking, it often receives too little attention. Furthermore, in many cases the role of communication is disregarded or only considered after the planning stage. Practice shows that this pitfall reduces potential effects strongly. Box 2. below shows the various steps to plan strategic communication.

Box 2. 10 Steps to plan strategic communication

- 1. Analyse the issue from a wider perspective: redefine management objectives.
- 2. Outline the role of communication as support to management objectives.
- 3. Identify the main target groups.
- 4. Identify communication objectives (knowledge, attitudes, behaviour).
- 5. Identify strategy and messages.
- 6. Identify communication vehicles.
- 7. Budget communication activities.
- 8. Organise communication activities.
- 9. Plan communication activities.
- 10. Monitor and evaluate.

Situation Analysis

The most difficult is to make a good situation analysis. In most cases managers either assume they do not have enough time for it, or they assume they know all the details already. In both cases they act based on assumptions. A very risky affair, like

failing to plan! Often it is difficult to make a situation analysis: *because of the trees, we do not see the forest*. Specialists often have a difficulty in seeing an issue in a wider context, from different perspectives. However, most issues we want to solve, are dependent on a complex wider system. If we do not take that into account, our efforts, energy and money may be wasted. Communicating biodiversity to private forest owners, is, from a wider perspective, an introduction of an innovation: a new way of forest management. The turning point in effective strategic planning is to make sure one gets "that wider picture", and a more "system-based" approach. In order to get this wider picture it is often helpful to organize focus groups with opinion leaders from major stakeholders. Box 3. explains what a focus group is.

Box 3. What is a Focus group?

A focus group is a non-directive type of interviewing a specific social group: a segment of consumers, voters or stakeholders in a policy issue. It draws on group interaction to gain greater insight into why certain opinions are held. Focus groups are used to improve planning and design of new products or programs, provide means for evaluation and provide insights and qualitative data for communication and marketing strategies.

Usually, a focus group consists of six to ten people who are invited to spend a few hours with a skilled moderator to discuss a product, service, organization, policy measure or other matter. The moderator needs to be objective, knowledgeable of the issue and well versed in group dynamics and consumer or stakeholder behaviour. The participants are reasonably homogenous and unfamiliar with each other. In focus groups for commercial purposes they are normally paid a small sum for attending the focus group. For non commercial purposes the participants often receive a small present. The meeting is typically held in pleasant surroundings and refreshments are served throughout.

Focus groups are a useful exploratory means before designing large scale surveys or campaigns. Consumer goods companies, newspapers, hospitals, and other public service organizations have been using focus groups for years. Increasingly they are used in politics, policymaking and policy implementation. The results of focus groups must not be to easily generalized for the whole market or the whole country, since the sample size is too small and the sample is not drawn randomly. However, they produce a quick method for getting an idea of the feasibility of a proposition or feedback on its implementation.

For a focus group, one needs marketing specialists. That is not always possible. Sometimes simple face to face meetings can help. In Estonia the Union of Estonian Private Forest Associations organized – with the help of an external facilitator –

a session with opinion leaders from various stakeholder groups to scope the problem, the context and possible solutions.

In analysing the situation one also should decide how much participation is needed or possible. Any external communication raises expectations. Right form the start it should be clear to external partners or the public at large what degree of participation is envisaged. This often implies that the situation analysis cannot only be carried out on project or middle management level: it has to involve top management, e.g. to decide on the level of participation. Box 4. shows the various modes of participation.

Box 4. Modalities of participation

A forest area manager can involve stakeholder as follows:

- · as a client.
- as a partner in dialogue,
- as a producer of ideas,
- · as a co-producer of a policy or management plan,
- · as an agenda-setter,
- as a co-responsible (joint management),
- as a decisionmaker.

Role of communication

Once the situation analysis provides us with clarity about the issue and its context, we can define the role of communication. This role is different in the stage of preparing a new policy, program, project or approach to solve an issue than in the implementation stage. It is also important to realize that we should not forget about internal communication. Actually, internal communication precedes all external communication.

Box 5. The role of strategic communication in management

In preparing a policy, a management plan or an approach to solve an issue:

- Methods enabling creativity and intelligence of the organization to optimise the effectiveness of strategic planning (workshops, meetings, etc.).
- Modalities of internal communication to rally the organization around a new policy, management plan or issue (see box 6.).
- Methods of external communication to scope fears, emotions, motives and ideas of stakeholders and to involve stakeholders in problem definition and generation of ideas for possible solutions (visits, surveys, focus groups, meetings, interviews etc.).

In implementing a policy, a management plan or an approach to solve an issue:

- Modalities of internal communication to rally the organization around the effective implementation of the new policy, management plan or issue (see box 6.).
- Methods of external communication to generate public support and involvement in the implementation (joint planning meetings, events, free publicity, round tables, etc.).

Internal communication

It is crucial for the people within the organization to have the right information to perform their tasks effectively. When starting a new project, superiors and colleagues within the organization should be informed. The superiors have to give a go for the project. So they have to be informed on objectives, budget, risks and modes of participation. Colleagues have to be informed so that they can support the project. A receptionist should be able to answer questions or redirect them to the right specialist. A colleague dealing with the same target group should be able to act as an ambassador for the project. Box 6. shows the various modalities of internal communication.

Box 6. Modalities of Internal Communication

- **In-house Newsletter** (electronic or printed): regularly, short info about recent facts and events, easy to make, reproduce and distribute.
- In-house Magazine: less frequently than newsletter, more in depth articles, of interest
 to wider audience (relatives, former employees, etc.), sent to home addresses not to
 work.
- **Employee Orientation Manual** (electronic or printed): to introduce new staff, practical information on the organisation (regularly updated).
- **Policy Manual**: providing information on the history and mission of the organisation, its current policies and activities (regularly updated).
- **Orientation Programme**: introductory programme for new staff, so that they quickly get to know the organisation and its activities (it can include meetings, guided tours, mentorships etc.)
- **Bulletin Boards**: cheap and easy way to distribute info quickly. If placed at a strategic location (near the lift, photocopier, coffee room etc.), they are usually well read. Through bulletin boards one does not reach external or mobile staffs. They often look messy (the media is the message!), so they are not fit for all messages. Now there also exist digital bulletin boards and websites.

- Meetings: regular staff and work meetings are a good way to stimulate internal communication. They are useful if they allow for two-way communication: staff should have as much chance to put issues on the agenda as management. Meetings should not only be used to distribute information, but to generate more support in the organisation for its mission, priorities and current campaigns.
- **Social events**: excursions, dinners, pizza lunches, celebrations. They can be small and need not to be extravagant. They are very useful for two way communication and informal brainstorming and professional information exchange.
- Skill development: giving staff the opportunity for training makes them feel more
 at ease, and most training offers opportunities to develop negotiation and
 communication skills.
- **Awards**: schemes like "employee of the month" give staff recognition for important achievements, so do magazine or newsletter articles highlighting successes accomplished by employees.

Identifying target groups

Quite often managers, in analysing the situation, make a long list of stakeholders. It is important though to differenciate them. Some are more important than others. Most important are those who are legally or financially decisive for the success and those who are directly affected by the solution. Mostly these are groups. To com-

Box 7. Questions to ask in analysing target groups

- Which target groups are involved? Who is directly affected by the plan or activity?
- What is the composition of these groups in terms of demographical character (age, income, religion, gender, education, lifestyle)?
- Which roles and positions can be distinguished?
- Which interests do the target groups have regarding the problem and solutions? Who will benefit? Who will suffer damage or loss?
- Which level of knowledge do they have of the problem and solutions?
- What is the attitude of the target group towards the problem and towards proposed solutions? Can you expect resistance for change?
- Who is not directly involved, but can influence opinions?
- Which relationship does your organisation have with the target groups?
- How do they perceive you?
- What can they do to contribute to the solution of the issue?
- Which communication means do they use?

municate effectively it is strategic to target not the whole group but the opinion leaders in the group. Once opinion leaders agree, the rest will follow. By knowing the feelings, motives and ideas of opinion leaders, we know them for the whole group. Before communicating with stakeholders, it is important to analyse the target groups. Visits and conversation with opinion leaders can help here. The most difficult is to identify the opinion leaders. Starting with one's own relation networks is mostly the first step. Often it involves quite some "research". Meetings of stakeholder groups are also a means to analyse who is an opinion leader: not the one who speaks most, but the one who is listened to most. Box 7. provides some questions for the analysis of target groups.

Identifying communication objectives

It is essential that communication targets are clear, realistic and feasible. Communication targets can range from involvement in problem solving, to attention, knowledge, awareness, motivation, behaviour and skills. In most cases, communication will be used in combination with other instruments to achieve the desired results. Targets should be formulated in a clear and concrete way and should specify which results should be accomplished. Box 8. shows the criteria for the determination of targets.

Box 8. Criteria for the determination of targets

A target should be SMART:

- Specific
- Measurable
- Acceptable
- Realistic
- Time related

Targets should make clear which results one wants to achieve. These results should be realistic and acceptable: the target should motivate to take action (so it should neither be too ambitious or too "weak"). Also, the target should be specific and measurable; for instance the target "we want to increase consciousness about biodiversity among private forest owners in the coming years" is too vague: it will be impossible to determine whether the communication efforts are successful or not. The target "we want to achieve that 80% of the private forest owners have stopped clear cutting by 2008" is specific and measurable.

All communication targets are about knowledge, attitudes or behaviour. In this way the communication objectives are different from the overall objectives of the project, program or policy. Box 9. provides an illustration of the three types of communication objectives.

Box 9. The three categories of communication objectives

- Knowledge: target groups are not or insufficiently informed. They do not have information about the problem at hand, the cause and effect relationships and potential solutions. For instance: private forest owners do not realise that their management methods will harm the environment and will decrease chances of future income.
- Attitude: target groups have the "wrong" attitude toward the problem concerned or towards potential solutions: For instance, private forest owners have a strong preference of leaving no biomass after any form of cutting and distrust the alternative of leaving biomass.
- **Behaviour**: target groups stick to practices which harm environment or which prevent activities aimed at nature protection and solution of environmental problems while alternatives are available. For instance: private forest owners do their cutting in all seasons, and not only in winter. Thus, the damage to the site and stand, as well as the risk of pest infestation, are increased.

Identifying approaches and messages

The communication strategy illustrates the way an organisation aims to achieve the communication targets. The strategy describes fundamental choices about the methods which will be applied. The following questions can guide you when developing a communication strategy:

- Who took the initiative to tackle the problem at hand?
- Is it more effective to communicate directly with the target groups or is it more effective to communicate through intermediaries?
- Is it more effective to focus on sending messages (vertical approach), or is it more effective to initiate a two way process (horizontal approach)?
- Is it more effective to focus on an informative approach (information about functional aspects of the problem), an emotional approach or a combination of both?

When target groups are directly affected by the problem, they are aware of the problem and they already expressed their concerns, communication has a different starting point than in the situation where NGOs or governments wants to tackle a problem the target groups are not aware of. Each situation requires a different strategy. The "AIDA checklist" can be useful to determine the situation:

- Attention
- Interest
- Desire
- Action

When a target group has attention for and interest in the problem, the strategy focuses on the stimulating the desire to act. When the target group is unaware of the problem, the strategy focuses on getting attention and getting the issue on the agenda.

In many cases it is costly, complex and time consuming to communicate directly with the target group, especially when a large audience has to be reached and when many different target groups are involved. Communication through intermediaries can have the following advantages:

- It can be more economical.
- Intermediaries can have data bases with addresses and figures of the target group, so they can be reached effectively.
- Intermediaries can have support from a large audience or can have grassroots support.
- Intermediaries can have a reliable, solid image for the target group and authority based on expertise.

However there are also disadvantages:

- There can be a lack of control over the message.
- There can be a lack of control over the way the target group is approached.
- There can be a lack of control over planning and the communication process.

Weighing the pros and cons, for each specific situation an effective strategy can be chosen. In many cases it is most efficient and effective to develop relationships with organisations with similar missions and with organisations with missions and activities which can strengthen one's own mission and activities. An informative approach focuses on functional information about the problem, the causes and potential solutions, for instance, a local NGO distributes a brochure about pollution of the nearby lake and propose activities to solve the problem. An emotional approach aims to create an image and focuses on communicating values which appeal to the lifestyle and values of specific target groups, for instance a campaign of Greenpeace aiming to give chemical industry a negative image by showing pic-

Box 10. Approaches in messages			
Approach	Message (example)		
Information approach	Stop clear cutting, start selective cutting! It leads to reduction of costs, it saves ecosystems and species for future generations and it reduces the risks of pests and wind damage.		
Emotional approach	We need to save our forests for future generations, every human being has the right to a healthy environment.		
Behaviour approach	Start replanting your pine and spruce area with 20% broadleaf species. Do selective cutting during winter time to avoid the spread of spora of Heterobasidium Annosum.		

tures of enormous industrial complexes which appear frightening and alienating. An action approach focuses on the desired behaviour change of the target group, for instance, flyers with information about the damages of littering in a nature park which are handed out to visitors. In the Box 10., the different approaches is illustrated with concrete communication messages.

Identifying communication means

A well known slogan of "communication guru" McLuhan is: "the medium is the message". It is a fact that the combination of means and messages can either strengthen the effects of communication or weaken it. For instance, when a government distributes brochures to communicate that it values the opinion of citizens, while there is no possibility to react or give input (medium = one-way communication), the message lacks credibility and will have no or adverse effects. On the other hand, when a government official tells the government values the input of citizens during a public hearing during which the citizens have the opportunity to comment on a draft environmental policy plan (= two way communication), the message will probably have the desired impact.

The most important choice to make is: using face to face or interpersonal communication or mass media. Costs often play an important role. Decisive also maybe what in the perception of the audience is the most credible vehicle for communication. Finally important is what vehicle contributes most to the communication objectives. For example, when private forest owners lack knowledge about a certain issue and the objective is to provide this knowledge, group discussions, symposia or training sessions may be the most effective vehicles. Box 11. shows the various communication means.

Box 11. Communication means		
Personal communication means	Mass media	
 Focus groups Dialogues, face to face conversation Group discussions Conferences Symposia Tours Home visits Round tables Exhibitions Meetings Workshops Telephone calls E-mail information service (question and answer) 	 Newspapers Press releases Magazines Newsletters Manuals Brochures, booklets, flyers Letters Radio Tapes Television Video Posters, Stickers, Banners Billboards CD Rom 	
• Internet debate	• Website	

Organisation, planning and budgeting

Whether your communication plan will be effective, depends for a great deal on organisation. A clear division of tasks and responsibilities is essential for success. If these prerequisites are not met, one risks missing vital steps and deadlines. It must be clear how the team will operate and how activities will be coordinated. The following questions guide you on organisation and planning, when developing a communication plan.

- Which tasks need to be performed during the execution of the communication activities?
- Which persons need to be involved, in which way, during which phases?
- Who is responsible for specific parts of the plan?
- Who coordinates the joint efforts?
- Which milestones can be identified, and who is responsible for checking?

In budgeting the following elements need to be considered:

- Personnel: how many employees are involved and how much time do these employees have to work on the project.
- Personnel: do you need to hire external consultants and experts and if so, how much will this cost?
- Material costs: how much does it cost to design and produce the communication means?
- Distribution costs: how much does is cost to distribute the communication means?
- Media costs: how much does it cost to publish in newspapers, radio and TV?
- Organisational costs: office supplies, mailing costs, telephone costs, copying.
- "Safety budget": unexpected costs (there are always unexpected costs!)

Monitoring and Evaluation

Evaluation is aimed at assessing the effects of your communication efforts. Furthermore, evaluation can also be aimed at judging the processes during the preparation and execution phase (for instance: co-operation with partner organisation, decision making and implementation processes, etc.). When a project or programme is conducted over a longer period of time, measuring and monitoring effects is recommendable. Evaluation serves several purposes:

- Justification of communication efforts for the leaders of your organisation and its' stakeholders.
- Learning which methods of work are most effective and most efficient so you know which methods can best be applied in the future.
- Learning how you can organise and manage the communication process more effectively in the future.
- Assessing which future steps are necessary considering the results which have been achieved.

Experimenting with strategic communication

The next three chapters show how communication strategies have been developed to communicate biodiversity to private forest owners in Hungary, Estonia and Lithuania. These strategies follow more or less the steps outlined in this chapter. They illustrate the various principles explained above within the different national contexts.

Further reading

Website IUCN Commission on Education and Communication: www.iucn.org/themes/cec/

Sandra Rientjes (editor), *Communicating Nature Conservation*, European Centre for Nature Conservation, Tilburg 2000

GreenCom, Academy for Educational Development, *Heating up Society to take Environmental Action, a guide to effective environmental communication and education*, Washington 2002

Les Robinson, Andreas Glanznig, *Enabling Ecoaction, a handbook for anyone working with the public on conservation*, Humane Society, WWF Australia, IUCN, Sydney 2003

4.2. COMMUNICATING BIODIVERSITY TO PRIVATE FOREST

OWNERS IN HUNGARY³

A strategic approach

Situation analysis

After the privatisation processes of the last decade (1991–1998), the forest ownership structure in Hungary is today dominated by state and private property. State forests (60%) are managed by 22 state forestry companies (average size: 50 000 ha). Private forests (40%) have various management forms (see Table 1.

In Hungary, during many decades forests were managed from a purely technical perspective. Legislation and forestry practices did not take into account other disciplines and points of view. Forest management practices such as clear cutting, removal of biomass, planting of single species forests, etc. increasingly threatened and diminished the diversity of species, ecosystems and the various ecological and other services forests provide⁴.

³ Written by Béla Varga – President of Pro Silva Hungaria, László Zanati – First Engineer of the State Forest Company of Ipoly Erdo Rt., and Frits Hesselink.

⁴ See the study made for the project by Standovár Tibor, Varga Béla, and Csóka György, Guidelines for Biodiversity Conservation in Private Forests, page 1–8, IUCN Riga Workshop 2004.

In 1996, new regulations were adopted that provide a basis for a more holistic approach in forest management. The new legislation by itself did not lead to changes towards a more sustainable and nature friendly management practice. The tradition of the old approach was so strong that nobody changed practices because of the new law. Neither in state owned forests, nor in private owned forests. There were no incentives for state owned enterprises to replace their "business as usual" for new and multidisciplinary approaches. The economic pressures in the new free market economy often forced the new private owners to look for short term benefits and ask where possible for permission to clear cut their newly acquired forest. And one could say that the administration of the State Forest Service – responsible for management planning and permits – today still functions on the basis of the old law.

In this situation new initiatives were undertaken to strengthen the conservation of biological diversity in state owned and private forests. Pro Silva Hungaria (PSH) was established in 1999 with a mission to advocate forest management based on natural processes to reduce ecological and economic risks. The goal of Pro Silva is to change the way of thinking and to teach low-input methods to state and private owners. To realise its mission Pro Silva engages in the following activities:

- Exchange of information through publications and working groups,
- Establishment of demonstration sites,
- Meetings and excursions in demonstration forests,
- Co-operation with educational and scientific institutions and other bodies.

Pro Silva started its activities basically focussed on state owned forests. In 2002 the Ministry of Agriculture and Water Management started a FAO project on multifunctional forestry and the Ministry of Environment started an IUCN project on biodiversity in private forests. Both projects were combined and Pro Silva became the project manager. The new project made it possible for Pro Silva to explore a new strategic approach to introduce the concept of "close to nature forest management" by focusing first on the private owners, based on the assumption that the activity of the private sector makes the State companies realize the risks in large scale evenaged forestry and recognize their interest in "close-to-nature forestry". Close-to-nature forest management enables owners/forest managers to fulfil the ecological and social requirements, while increasing, rather than harming, the economical productivity of the forest. As an effect of this approach, nature conservation and other objectives can be merged into forest management.

The goal of the PSH-FAO-IUCN project is to increase the percentage of "low input" (close to nature or nature-based) forest area by at least 20% at the end of the project period (2006). A baseline study to determine how many hectares currently are managed in the desired manner has not been carried out. The estimation by Pro Silva experts is approximately 1000 ha. It is not possible to measure this at the moment through the Forest Management Planning System of the State Forest Service, as the legal basis for such designation has not been used so far.

Under the new regulations, an owner has to update his forest management plan every ten years. State Forest Service makes the plan in dialogue with the owner. From the owner's side and from the planner's side there was until recently no demand to introduce elements of low input forestry. The PSH-FAO-IUCN goal is to have, after four years, 1 200 ha of forests managed on a low-input basis. This will be measured through Forest Management Planning System by the State Forest Administration, under the new regulations.

At the start of the project, Pro Silva had 5 reference or demonstration areas (5–10 ha) in state owned forests. One year later there are now 10 reference areas, of which three are located in private forests. The total area of demonstration sites today is 100 ha, of which 30 ha in privately owned forests. The aim of Pro Silva is to have at the end of the project 100 ha of privately owned reference areas.

The challenge for Pro Silva is to fully involve a critical mass of pioneers in the innovation of low-input or close to nature forest management, who can become ambassadors for this approach at a later stage, when following groups of early adaptors and early majority will be targeted.

Stakeholders

Pro Silva analysed the range of stakeholders needed to be involved in the process to introduce this innovation. Primary Stakeholders are:

- Ministry of Agriculture and Rural Development responsible for forestry legislation and implementation,
- Ministry of Environment and Water Management responsible for biodiversity legislation and implementation,
- State Forest Service and its ten Regional Directorates responsible for forest management planning and supervision,
- Private Forest Owners responsible for the management of 40% of the Hungarian Forest.

Secondary and Tertiary Stakeholders are:

- Private Forest Enterprises specialized in subcontracting forestry machinery,
- State Forest Companies, who provide demonstration sites for low-input management,
- National Parks and Protected Areas, responsible for forest under nature protection,
- NGOs such as WWF, Hungarian Forestry Association, Hunters Association, and local NGOs, who could influence the innovation process.

The Hungarian Association of Private Forest Owners in a small study⁵ presented in the framework of this project, distinguished three groups of private forest owners:

⁵ Schiberna, Endre, Communicating Conservation Issues to Forest Owners, IUCN Riga Workshop 2004

The first possible group consists of forest managers who pursue business oriented forestry activity. They heavily rely on stable and sufficient benefits. Because of the orientation of their activity, their voluntary contribution to nature conservation cannot affect their profitability, or if so, they expect to be compensated.

To the second group belong those who manage their forests to satisfy their household needs. They have neither sufficient yield nor interest to enter the market, so their profitability is not the primary consideration. As far as household needs can be fulfilled, changes in forest management toward the enhancement of nature protection can be implementedt.

The third group is the group of uninterested forest managers, whose connection to their forest is very weak. Often their obligations and costs connected to their forests exceed the benefits to be expected. These can be people who inherited property rights or small shareholders in group-owned property. In most cases, the owners have no interest even to register at State Forest Service.

Another way to segment private forest owners in Hungary is presented in table 1. below.

Table 1. Structure of private forestry in Hungary by management forms (2001)

Management form	Area (1000 ha, %)	Average size (ha)	Number of units
Individual ownership	95 (12,1%)	7	13 570
Joint ownership			
Forest owners' association	121 (15,5%)	107	1130
Other company form	62 (8,0%)	97	640
Co-operatives	40 (5,1%)	119	340
Forest co-operatives	11 (1,5%)	210	55
Joint representation of owners	131 (16,8%)	15	8730
Unregistered/ Unsettled forests	320 (41%)	-	-
Total	780 (100%)	-	-

Source: FVM EH, 2002.

Communication Focus 1: pioneers among private forest owners

A group of "pioneers" had to be identified among those private forest owners who:

- Are opinion leaders in their communities.
- Have a background of forest engineer or technician.
- Are willing, able and in the position to change their management practices.

Pro Silva aims at a critical mass of 200 private forest owners actively involved in close to nature management by the end of the project period. They target therefore a group of 300 potential pioneers through a mix of communication interventions.

Traditionally private forest owners see the forest as a means to produce fire wood or timber, just to cover their household need. They perceive deadwood as a source of disease, insects as a plague and the officials of the State Forest Service as enemies, "who only make life difficult". They only believe other foresters and are not interested in other disciplines. So far they have no knowledge of low input management, and they are used to manage their forests in the traditional way.

Communication objectives for pioneering private owners

The communication objectives towards the pioneer group of private forest owners are to:

- Focus their attention on a new way of forest management.
- Raise their interest in broadening their knowledge of low-input management methods.
- Generate desire to get actively involved in applying the new methods to their management practice because of the various benefits of this method.

Messages towards pioneering private owners

The main promotional message Pro Silva formulated to introduce the new method of forest management to private owners/forest engineers is:

Lower costs, sustain regular income & provide benefits for nature and society.

Various elements of this message are supported by a set of more detailed messages such as:

- Artificial regeneration is 5 times more expensive than the Pro Silva methods.
- Selective cutting creates regular income (See Figure 2).
- Make 'natural' gaps for regeneration by selective cutting.
- Continue selective cutting only when regeneration follows in the gaps.
- The most important issue is to know "which tree to cut".
- State Forest Service Supervisors are not your enemies, but your advisors for selective cutting.
- Regulation of hunting means more undergrowth.
- Forest is not only your property, but also the property of all living beings.
- The thousands of species living on dead wood are vital for the immune system of the forest.
- Visitors are vour customers too.

Close-to-nature or low input forest management actually will lead close to the state of a natural forest, which is a mixed-species and uneven-aged. The table shows

some of the differences between an even-aged forest managed traditionally and an uneven-aged stand being a product of nature-based management.

Table 2. Benefits of Low Input Management (after Kynast, Rudi, 1995: Fichtenbestand zum Bergmischwald in FA St.Blasien. Mit der Uberfuhrungsdurchforstung zur Einzelstammnutzung. Allgemeine Forst Zeitschrift 19: 1038–1041).

Economic indices			
	A: even-aged,	B: uneven-aged	
Increment	1	1.3	
Density	1	1.5	
Volume	1	1.3	
Cost of cutting	1	0.6	
Cost of regeneration	1	0.2	
Other costs	1	0.4	

Communication Focus 2: Planners and Supervisors of the State Forest Service

As mentioned before, the State Forest Service in general still operates under the traditional paradigm. As the Service is instrumental for any management planning and supervision, they also have to change their practice of planning and supervision and become aware of the opportunities and benefits of low-input management. Moreover, without that change there are few opportunities for a real change in management practice by private forest owners. Traditionally, Forest Service planners and supervisors perceive private foresters as "people who just want to exploit the forest by ignoring the law and the administration" and not as their customers whom they should serve with management advice.

Each of the Regional Directorates employ on average 15 forest engineers responsible for the formulation of management plans and 18 engineers responsible for supervision (total of 330 country-wide). Pro Silva attempts to create a group of about 40 pioneers. PSH has good informal relations with the top management of the Service – some of the founding fathers of Pro Silva are Directors of the State Forest Service Directorates – and is able to identify the Directorates that are most willing to co-operate to help introduce the innovation of low input forest management.

Communication objectives towards State Forest Service

The communication objectives towards the planners and supervisors of the regional branches of the State Forest Service are:

- To focus their attention on a new way of forest management, beneficial for owners and society.
- To motivate them to learn more about low-input management methods.

• To generate desire to get actively engaged in advising private forest owners on integrating the new methods into their forest management planning and practice.

Messages towards State Forest Service

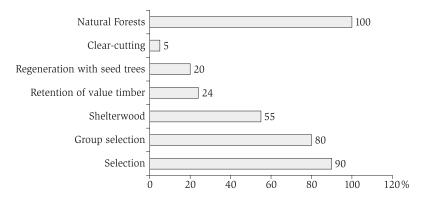
The main message towards this target group is:

The society expects forest service employees to be forest owners' advisors rather than law enforcement officers.

A range of sub-messages supports this message, many are similar to the messages to private owners on the content of low-input forestry, and some are specifically targeted to this group:

- Government has to meet the demands of society.
- Serve the interest of the whole society by applying the new Forest Law.
- Private Forest Owners need help and advice in matters of selective cutting.
- Multidisciplinary approach provides better results.
- Eagle, ant and frog are also your customers.
- There are various choices for forest management (See Figure 1).

Figure 1. Options for different management regimes



After Coats, K.D. and Steventon, J.D. 1995: Patch Retention Harvesting as a Technique for Maintaining Stand Level Biodiversity in Forests of North Central British Columbia, in: Proceedings: Innovatinge Silviculture Systems in Boreal Forests, Edmonton, Canada, Oct. 1994

Strategic communication approach

Pro Silva came to the conclusion that cooperation with the ten regional branches of the State Forestry Service to identify the pioneers among private forest owners was vital. The regional branches, through their planning and supervision activities, have the best information about potential pioneers among the various private forest owners in their region. A decision was made to grant the regional branches "coownership" of the communication intervention. They will be instrumental in the

selection and preparation of activities and, concurrently, in targeting their staff with the message.

To ensure sustainability of the innovation interventions, Pro Silva concluded that it was vital to keep the two Ministries involved and maintain good relations through networking and informal contacts. Messages to the Government (the two Ministries) are e.g.:

- Conservation and Forestry do not have to be in conflict.
- Close to nature forestry offers opportunities for sustainable development.
- Society demands that diverse values of the forests are maintained and the government has to meet those demands.
- Pro Silva offers tools needed to save these values.

The informal networking is also used to monitor progress and get feedback (see below).

The strategic communication approach also aims to diminish the distance and animosity between the State Forest Service and Private Forest Owners. Because of the interest of the nature conservation and bridging the gap with the "conservation world", the strategic approach also includes targeting representatives of national parks.

Communication means

Face-to-face communication is the most powerful means of communication. As the project aims to change knowledge, attitudes and behaviour, Pro Silva has chosen for a mix of communication interventions centred on a yearly series of regional promotional and training events targeted at private forest owners, planning and supervising engineers of the regional State Forest Service Directorates, and staff of National Parks.

Promotion and training events

Each event has a duration of two days and one night. The night is partly used for discussion and exchange of information. Of the twenty participants, 15 are private forest owners, the rest is either from a national park or from the State Forestry Service. Participants pay a symbolic fee, offer their time and pay their own travel costs. The Ministry for Environment pays for the meals and accommodation. The courses are prepared and delivered by Pro Silva. They offer a mix of theory and practice, lectures and field activities (see Appendix).

Invitations for the course are written on behalf of the host and organizer of the course. This can be a Director General of a regional State Forest Company, a Director of a National Park in the region or a Director of a Regional Directorate of the State Forest Service. The Forest Owner Association did the selection of the participants of the first events. It appeared they did not have enough knowledge to select real pio-

neers. Since then, the selection is conducted by the Regional Directorates of the State Forest Service (criteria: willingness, ability and conditions to change; opinion leaders; background in forest management).

Supporting Materials

Participants are provided with a range of materials to broaden their knowledge:

- Pro Silva manual on selective cutting,
- Brochure on Pro Silva principles,
- Publication on nature, forest, forest management,
- Poster with most important Pro Silva principles,
- CD Rom with facts and figures about Pro Silva, cases on natural forest in Europe, case studies from Pro Silva activities in Europe and Hungary, lectures etc.

Follow-up activities

The courses are followed up by the routine supply of Pro Silva activities. Back home and confronted with practical questions participants have the following options:

- Membership in Pro Silva; N.B. Pro Silva tries to be very selective in membership and have only members who can already demonstrate 100% commitment to the Pro Silva methods.
- Pro Silva helpdesk (practical questions by fax, telephone, email, mail); sometimes Pro Silva has the possibility for face-to-face discusions.
- Advice by the ten regional branches of State Forest Service (backed up by Pro Silva specialists).
- Advice from those State Forest Company Managers, who are either founding fathers of Pro Silva or members of Pro Silva.
- Dozens of Pro Silva events, e.g. field trips, excursions, meetings or lectures.

Monitoring

To monitor the progress that the pioneers and regional branches of the Forest Service are making in changing their practice, Pro Silva has the following sources of information available:

- Forest Management Plans for each owner, prepared once every ten years, and the yearly update of the plan by State Management Service (the plans are accessible for the public), providing a quantitative assessment.
- Informal reporting by State Forest Service to the Pro Silva network of experts providing a qualitative impression on progress.
- Informal reporting by individual owners to Pro Silva network of experts providing a qualitative impression on progress.

Criteria in these informal "reporting" or "debriefings" are e.g. the identification of a range of natural processes in the forests in the country, observed by government officials in the normal line of duty:

- Regeneration in gaps.
- Relation between undergrowth and hunting.
- Selective cutting and group selection during tending providing an increase in income.
- Cutting of an old, big tree or a couple of smaller ones providing light for natural seedlings instead of expensive methods of artificial regeneration.
- The economical and ecological quality and value of a forest managed on the base of Pro Silva principes are expected higher than those in traditionally managed, even-aged forests.

Evaluation

The 5 training events held so far were not formally evaluated. A regular evaluation, to check if the intended messages comes across to the target groups, is now being prepared for the next series of 5 training events per year. Pro Silva also plans to organize a yearly survey among all participants of the courses on current experiences in day-to-day practice.

4.3. COMMUNICATING BIODIVERSITY TO PRIVATE FOREST

OWNERS IN LITHUANIA6

A strategic approach

1. Situation analysis

The situation analysis describes the various aspects of the issue of communicating biodiversity to private forest owners and the challenge it poses to the Forest Owners Association of Lithuania (FOAL). The challenge FOAL sees for itself is to *enter into* partnership with the Ministry of Environment to start a joint process of a "guided experiment" in biodiversity friendly ways of forest management in twenty privately owned forests. The chapter on the situation analysis is followed by a communication strategy in which is described how FOAL strategically will approach this challenge.

⁶ Written by Aidas Pivoriūnas – a Member of the Forest Owners Association of Lithuania (FOAL) and Managing Director of the Lithuanian Forest Studies Centre (www.forestry.lt/msc), and Frits Hesselink.

Privatisation

30% (approx. 2 million ha) of Lithuania is covered with forests. 70% of the forest land is State owned, approximately 30% is private owned. This number may further increase to approx. 40% in the coming years when the Land Reform Act – a result of the transition from state planned economy to free market economy and democracy – is further implemented.

Threats to biodiversity

The Forest management practices in both state and private owned lands are often threatening biodiversity. In many cases it is common practice after clear cutting to regenerate the area with a single species⁷ instead of multiple species. Diseases⁸ and loss of species are the consequences. The management of state owned forests takes into account the protection of species that are officially under threat. In privately owned forests, clearcutting and deliberate destruction of nests threaten in many cases some rare birds⁹. There is also a need to protect a set of rare species of lichens, mosses, fungi, and insects¹⁰ in privately owned forests. Many of these threatened species – most are easily recognisable – are met in old-growth forests or in still used or in abandoned wooded meadows and pastures. Majority of these species are included in the Red Data Book of Lithuania.

Legal framework

The current legal framework for forest management is in many respects in conflict with biodiversity conservation requirements. Forest legislation (specifically Forest Act and Management Rules for Private Forests) for example prescribe the reforestation after clear cutting with the same species as before. As much of the privately owned land is single species forest, this leads, by default, to re-establishment of monocultures. Management plans are often formulated with the help of private consultants or inspectors of the State Forest Service. The inspectors usually expect regeneration to be performed according to the forest management plan. The result is that many officials provide private forest owners with advice that is purely compatible with the current legal requirements. Cutting to make an opening in the forest cover to stimulate regeneration and new growth is often not allowed by existing regulations. In many cases, forest protection regulations call for the removal of dead trees.

⁷ mainly *Pinus sylvestris* and *Picea abies*

⁸ i.e. Heterobasidium annosum

⁹ e.g. Ciconia nigra, Aquila pomarina, Accipiter gentilis, Dendrocopos leucotos, Picoides tridactylus, Picus canus.

¹⁰ Lichen Lobaria pulmonaria, Thelotrema lepadinum; moss Bazzania trilobata, Trichocolea tomentella; fungus Fomitopsis rosea, Fistulina hepatica; beetle Osmoderma eremita, Lucanus cervus.

Intermediate cutting

However, in reality there is often a difference between the forest on paper and the real one. Notwithstanding the legal requirements, only 35% of privately owned forests are properly replanted after clear cutting, 65% is not and usually undergo natural succession. Often owners just pay the fine and leave it at that. Today clear cutting by private forest owners is declining (at the moment 40%), thus the intermediate cutting by private forest owners is increasing (60%). At the moment an optimum may have been reached in percentages, but in practice the various methods of cutting are practiced often for the wrong reasons.

In Lithuania intermediate cutting is subdivided into "clearing for commercial purposes" up to age of 5 years, "thinning for second commercial benefit" (5–20 years), "intermediate thinning" (20–30 years) "cultivation cutting" (30–45 years) and sanitary cutting at any moment there is a need to prevent disease. Private forest owners are not aware of the rationale for these cuttings, let alone of intermediate cutting for reasons of biodiversity.

Management information

From the perspective of biodiversity conservation one can say that private forest owners often take not well informed management decisions. They can receive advice from the Forest Owners Association of Lithuania (FOAL) or other extension organisations, like Private Forest Extension Center and the Forest Studies Centre. However, these organizations only reach a small part of private forest owners, most of them either get advice from state authorities or manage their forest themselves as they see fit.

Most of the private forests are middle aged, established on former agricultural land. In the post war period there were approx. 300 thousand ha of pure pine and spruce stands established. Usually these forests are less resistant towards strong winds, invasions by insects or diseases. Private forest owners are increasingly concerned about the spread of diseases or increasing wind damages. The 'well informed' recommendation for private forest owners is to introduce at least 20% broadleaf species. A mixed stand is much more stable. Another advice would be to do the intermediate cuttings in those areas during the winter time, when the average temperature is below zero (thus limiting the spread of spora of *Heterobasidium annosum*). However, for reasons given above, this kind of recommendations are not available to a broad group of private forest owners, because of the lack of information and a supportive legal framework.

Biodiversity friendly management experiments

At the moment, in almost half of the 42 State Forest Enterprises experiments are underway with biodiversity friendly ways of forest management. They are often connected with the Natura 2000 process. Only a very small group of private forest

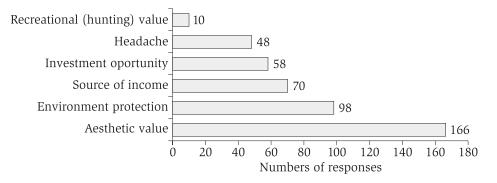
owners is involved in practicing biodiversity friendly forest management. The FOAL estimates that of its' 3000 members, approximately 80 private forest owners (or 2,6%) are actively involved in biodiversity friendly forest management. The profile of this group can be characterised as follows:

- Academic background (not in forestry),
- Other sources of income than (only) forestry,
- Average of approximately 15 ha forests,
- Often living in bigger cities,
- Independent thinkers, critical to regulations,
- Good relations with State Forest Inspectors.

Profile of private forest owners

Today there are 200 000 private forest owners in Lithuania¹¹. The members of FOAL are among private forest owners who are most motivated to invest time, energy and money in the management of their forest. They are willing to learn and, if needed, willing to change their practices. Many of them have about 10–15 ha, are retired and have the time needed. They perceive a range of values in their forest as shown in the figure below.

Figure 1. What does the forest mean for it's owner?¹²



The profile of the FOAL member is in sharp contrast with that of non-members. Most of them look at their forest from a short term economic perspective only and lack interest in any management information, let alone biodiversity friendly ways of management. As the FOAL represents only 1.5% of the private forest owners, it is therefore unlikely that the group of private forest owners involved in biodiversity friendly management practices is much larger than the mentioned above 80 members of FOAL.

FOAL conducted several surveys between 1999 and 2003 on profile and needs of private forest owners in Lithuania through FAO projects, e.g. "Development of the Private Forest Sector in Lithuania, 2000", "Need Assessment of Non-Industrial Private forest owners in Lithuania", 2003.

¹² FOAL report to the IUCN Riga Conference on Communicating Biodiversity to Private forest owners, Riga 2004.

The role of the Forest Owners Association Lithuania

The FOAL (www.forest.lt), established in 1991 by a group of concerned citizens as part of the privatisation process, has a mission to unite forest owners in Lithuania and to help them with their management tasks. FOAL aims to do so by providing effective forestry services (consultancy, training courses etc.), representing the interests of its members, advising authorities on matters of legislation and regulation and cooperation with other public and private organisations.

Interventions needed

To address the problem of biodiversity loss in privately owned forests, FOAL proposes the following interventions:

- 1. The contradictions between biodiversity conservation and the forest management regulations should be addressed.
- 2. State forestry institutions should be informed on biodiversity friendly forest management practices, in order to improve their advisory services to private landowners.
- 3. Private land owners should be informed of biodiversity friendly methods of forest management in general and the rationale and methods for various types of tree cutting in particular.

The first two interventions are – at least for the moment – out of the reach of FOAL. The Ministry of Environment is launching new regulations to require private forest owners perform the intermediate cutting in obligatory manner. This process also will be impacted by Natura 2000 and other international obligations. As long as legislation is not changed, it is too early to use the state institutions as intermediaries to introduce biodiversity concerns into the management practice of private forest owners.

The challenge

As an organisation with a mission to promote the principles of Sustainable Forest Management, FOAL aims to increase the group of private forest owners who are experimenting with biodiversity friendly ways of management with 20% in the next 4 years. It uses its involvement in the IUCN/FAO project as a vehicle to realise this ambition. FOAL hopes that practical experiments and demonstration sites will in due time help to reconcile forest legislation with biodiversity concerns. It will also create a group of pioneers, who at a later stage can become ambassadors of this management style for early adopters.

Initially FOAL aimed to reach this goal by emphasising biodiversity issues in its regular courses for private forest owners. Reflection on strategic communication through the IUCN project led to an approach that would complement these activities through *entering into partnership with the Ministry of Environment to start*

a joint process of a "guided experiment"¹³ in biodiversity friendly forest management in twenty privately owned forests.

2. Communication Strategy

In this communication strategy FOAL describes how it will approach strategically the challenge to enter into partnership with the Ministry of Environment to start a joint process of a "guided experiment" in biodiversity friendly forest management in twenty privately owned forests.

Stakeholders

The following primary stakeholders were identified:

- Ministry of Environment, Department of Forests, responsible for forest legislation and regulations – needed as a formal partner as the experiment affects current and future forestry legislation – FOAL maintains good relations with the Department, every year an agreement is signed to provide extension services to private forest owners.
- Ministry of Environment, Agency for Nature Protection, Unit for State Forest Inspection, responsible for implementation of laws and regulations – needed as a formal partner as the experiment affects current and future forestry practices. The annual meeting of regional inspectors will be used to ask for help in identifying potential pioneers. FOAL has good relations with this unit, together they organised, several times per year, fieldtrips for private forest owners.
- Regional State Forest Inspectors, responsible for enforcement of regulations and management advice to private forest owners – as they know this group best, they are needed to help identify potential pioneers – FOAL has good relations with the inspectors through the yearly series of joint field trips (see above).
- Ministry of Environment, Department of Environmental Protection, Unit
 of the Strategy of Protected Areas (responsible for Natura 2000 N2k), Unit
 of Biodiversity needed to give advice on biodiversity and N2k related matters and conflicts between regulations and biodiversity. FOAL has to establish
 a working relationship.
- Ministry of Environment, General State Forest Enterprise, responsible for the commercial management of the 42 State Forest Enterprises of Lithuania and responsible for sanitary and fire protection in all Lithuanian forests. FOAL has to establish a working relationships.

¹³ Guided experiment is meant to be the process that enables IUCN/FAO and FOAL/MoE to be the developers and implementors of the management innovation project that is described in the paper.

- Directors and staff of the State Forest Enterprises, who are involved in experiments in biodiversity friendly forest management they are needed to share experience and show demonstration sites during seminars of the "guided experiment" FOAL has working relationships with directors and staffs of State Forest Enterprises in ten districts.
- Private forest owners, members of FOAL and non-members as the pioneers have to come from among this group. FOAL communicates regularly with its members. FOAL has to invest in establishing relationships with non members selected as pioneers.

Potential partners are:

- Lithuanian Fund for Nature (an NGO) needed to help with the advocacy and lobbying on the various issues FOAL has good relations with them, working together in several projects in the last four years.
- IUCN and FAO needed for a letter of support and advice on the project FOAL has close relations to both organizations from various projects.
- Forest Studies Centre, an NGO needed to help in the seminars FOAL has good relations with this newly established centre.

Milestones

The strategy of FOAL to implement the experiment has identified the following milestones:

- Partnership agreement with key stakeholders and partners August 2004;
- Identification of 150 potential pioneers (regional local leaders at FOAL, annual meeting of regional inspectors) October 2004;
- Selection of 80 candidates to participate in seminars (20 participants in each event) December 2004;
- 4 Seminars leading to a commitment of a total of 20 new "pioneers" to engage in the "guided experiment' in biodiversity friendly forest management May 2005:
- Evaluation December 2006.

Strategic Communication Approach

To reach the various communication objectives, FOAL has chosen a strategic approach that is targeted to key decision makers in organizations. It includes a combination of informal and formal communication interventions: face-to-face contacts, supported by personal letters and documentation, and telephone follow-up.

Internal communication

Internal communication is an important aspect of the communication strategy, as leaders of FOAL branches play an important role in identifying potential pioneers. The FOAL leadership has to be involved in the partnership agreement with the Ministry of Environment and possibly FOAL members who are already engaged in biodiversity friendly forest management may play a role in the seminars.

The strategy will be carried out as a project and its' organisation will depend on good internal communication with all the relevant actors within FOAL. Monitoring will be an important part of the internal communication.

Communication objectives

For each of the stakeholder audiences FOAL has identified communication objectives that address desired knowledge, attitude and action.

Target group	Communication objectives
Ministry of Environment, Director of Department of Forests	Knowledge of IUCN-FAO-FOAL project. Positive attitude towards the "guided experiment". Partnership agreement, advice and guidance during experiment.
Ministry of Environment, Agency for Nature Protection, Unit for State Forest Inspection	Knowledge of IUCN-FAO-FOAL project. Positive attitude towards the "guided experiment". Partnership agreement, invitation of FOAL representative to annual meeting, advice and guidance during experiment.
120 Regional State Forest Inspectors	Knowledge of IUCN-FAO-FOAL project. Positive attitude towards the "guided experiment". Identification of potential pioneers, moral support and advice during experiment.
Ministry of Environment, Department of Environmental Protection, Unit of the Strategy of Protected Areas, Unit of Biodiversity	Knowledge of IUCN-FAO-FOAL project. Positive attitude towards the "guided experiment". Moral support and advice with regard to conflicts between legislation and biodiversity.
Ministry of Environment, Director of General State Forest Enterprise	Knowledge of IUCN-FAO-FOAL project. Positive attitude towards the "guided experiment". Instruction to State Forest Enterprises engaged in experiments to support FOAL project, advice and guidance during experiment.

Directors and staff of State Forest Enterprises engaged in biodiversity friendly forest manage- ment experiments	Knowledge of IUCN-FAO-FOAL project. Positive attitude towards the "guided experiment". Participation in the experiment by sharing experiences, providing demonstration sites, giving advice to pioneers.
Selected potential pioneers among FOAL members	Knowledge of IUCN-FAO-FOAL project. Positive attitude towards the "guided experiment". Partnership agreement, invitation of FOAL representative to annual meeting, advice and guidance during experiment.
120 Regional State Forest Inspectors	Knowledge of opportunity to get involved in the experiment. Positive attitude towards broadening their management practice, participation in seminars, participation in the experiment.
Selected potential pioneers among non-FOAL members	Knowledge of opportunity to get involved in the experiment, knowledge about FOAL and its role in the "guided experiment". Positive attitude towards broadening their management practice, participation in seminars, participation in the "guided experiment".
Directors of IUCN and FAO	Knowledge about FOAL project and approach. Positive attitude towards experiment. Letter of Support to the various stakeholders in the Ministry of Environment.
Lithuanian Fund for Nature	Knowledge about the IUCN-FAO-FOAL project. Positive attitude towards experiment, willingness to provide moral support and advice. Use of the evaluation of the experiment for lobby activities towards improved legislation.

Communication messages

Communication intervention	Messages
Partnership with Ministry, inspectors and state forest enterprises	 Forest owners associations in Baltic States and Hungary with the support of FAO and IUCN are involved in efforts to include biodiversity, social, and cultural aspects in the con- cept of forest management.

	 This initiative is in line with national and international trends and developments (N2k, CBD, experiments in State Forest Enterprises). FOAL aims to set up the "guided experiment" with 20 pioneer private forest owners to explore broadening of forest management practices. Needed is your moral support, your advice, your experience and expertise, your networks and contacts, financial support.
Identification of participants (annual meeting of regional inspectors)	 Forest owners associations in Baltic States and Hungary, with the support of FAO and IUCN, are involved in efforts to include biodiversity, social, and cultural aspects in the concept of forest management. This initiative is in line with national and international trends and developments (N2k, CBD, experiments in State Forest Enterprises). FOAL aims to set up the "guided experiment" with 20 pioneer private forest owners to explore broadening of forest management practices. Forest Inspectors know best the individual private forest owners Needed is your practical knowledge of the target group to formulate the profile and help identify potential pioneers.
Invitation to seminar	 Modern forest management is not just about technology and economics; it takes into account biodiversity, social, and other aspects. FOAL is conducting the "guided experiment" to explore how these new management approaches can be applied to the practice of private forest owners. You have been selected as a conscious and progressive private forest manager to take part in a small seminar to explore this issue further. The seminar will take a day, all costs are covered by the organisers, the draft program is attached. We would like to know the two most important issues you would like to learn about biodiversity and forest management, your answers will help to formulate the programme.
Seminar	 Intermediate cutting can improve the value of your property The FOAL experiment will provide you the with a helpdesk and practical advice by a consortium of experts. Sign up for participating in the "guided experiment" to try out the modern forest management methods.

Communication Budget

Milestone	Communication interventions	Time in man-days	Out of pocket costs in EURO
	Logistical preparation of meetings	2	
	Support Letters of IUCN and FAO	1	
Partnership	Face to face meetings	2	
building	Leaflet on IUCN-FAO-FOAL project	1	8
	Follow-up correspondence	1	8
	Follow-up phone calls	1	8
Identification	Annual meeting inspectors	1	
lucitification	Form for filling in names		14
	Invitation letters for seminar	1	80
Selection	Follow-up telephone reminders	2	40
	Survey of learning needs	2	
	Information materials	2	40
4 Seminars	Lecturers and facilitators	8	1200
4 Seminars	Catering		1000
	Visits to demonstration site		1100
Guided	Helpdesk for pioneers	5	1100
experiment	Visits to pioneers	5	1100
	Survey among pioneers	5	350
Evaluation	Report on experiment	3	
	Distribution to opinion leaders	1	350
	Free publicity	1	
TOTAL		44	5298

Monitoring and Evaluation

FOAL will monitor the progress of the process by assessing each milestone and its' intended outputs and outcomes and taking necessary measures to reach in time the next milestone.

After each seminar an evaluation will be carried out to assess whether the messages have come across by asking the participants to write down the two most important

lessons they have learned and comparing those with the intended messages. This may lead to further refinement of the messages (and program) in the next seminar.

The final evaluation will focus on assessing input (human resources, finances, milestones) and outcomes (quantitative and qualitative). Evaluation will be carried out in partnership with the Lithuanian Fund for Nature and the Ministry of Environment to guarantee an unbiased assessment: some of the private owned forests that participate in the experiment will be visited and the owners will be interviewed. A final report will be produced for further distribution in hardcopy and through the web.

4.4. COMMUNICATING BIODIVERSITY TO PRIVATE FOREST

OWNERS IN ESTONIA¹⁴

A strategic approach

Situation analysis

This paper describes first the situation of biodiversity, forestry and forest management practice in Estonia. In the second part of the paper a communication strategy is developed on the basis of this situation analysis.

Location

Estonia is the northernmost of new EU members, located on the eastern coast of the Baltic Sea and biogeographically belonging to the boreal zone together with Finland, Northern Sweden, Latvia and Northern part of Lithuania. Estonia is the smallest country among the Baltic States, stretched across a territory of 45 000 km² and inhabited by 1,36 million people.

Forest cover

Estonia is rich in forests that cover about 50% of the country's territory. Forestry is one of the most important branches of economy in Estonia. In 2001, wood industry formed 1/7 of the total volume of manufacturing industry. From a social point of view, forestry has a special role in rural employment and is one of the main if not the only industry providing jobs and tax revenues for the municipalities in many regions.

¹⁴ Written by Ants Varblane – a director of the Union of Estonian Private Forest Associations, Kaja Peterson – a Programme Director of the Stockholm Environment Institute, Tallinn Centre, and Frits Hesselink.

Forest types and diversity

Most of Estonia's forests have not been planted but naturally regenerated. Conifers prevail: Scots pine and Norway spruce cover 32% and 18% of total forest area respectively. Estonian forests are divided into 23 forest site types. The diversity of forest ecosystems was demonstrated by several inventories carried out in the past 10 years. 7007 Woodland Key Habitats, with a total area of 19 059 ha have been identified in 1999–2002. A network of forest conservation areas was established in Estonia in 1997–2001 covering 81 064 ha. It comprises 51 888 ha in protected areas and 29 176 ha in areas outside of protected areas. In 2001–2004, sites for the Natura 2000 network were selected and proposed to the European Commission. Most of the 509 potential sites include forest habitats.

Ownership

The forest land is in state (60%) and private ownership (40%). There are about 60 000 private forest owners in Estonia. Dramatic changes in the forest ownership and forest management practices have caused a new situation. The first issue is ownership. There is now a large number of private forest owners forming a heterogeneous group of owners with different backgrounds and motivation for forest conservation and management. About 1000 of them are owning relatively large areas (more than 50 ha), where the impact on biodiversity is greater than on the areas owned by small owners. The larger forest properties are situated mostly in the North East and the South West of the country.

Forest machinery

The second issue is the machinery used today, which is as effective as never before. The logging equipment leaves no branches behind or standing snags. The latter are especially valuable for maintaining biodiversity of the forest ecosystem. Formerly highly regulated forest management has become a market driven economy aiming primarily at maximizing the net yield. The contractors are either individuals, small Estonian companies or large Finish and Swedish companies. The latter are used to remove all biomass when working in their own country. All contractors are paid according to quantity (cubic meters) and quality of the wood.

Legal framework

Followed by the results of the inventories of forest biodiversity and pressure by NGOs, Estonian Parliament adopted a new Forest Act in 1998. In §13 it says that "In the case of clear cutting, all trees are cut from the cutting area within one year after the beginning of the cutting, with the exception of: 1) seed trees and undergrowth; 2) old crop trees and trees which are necessary to ensure the biological diversity, or the preserved standing parts of such trees, with the total volume of stem wood of at least

5 solid cubic meters per hectare." This article provides the legal basis for ensuring the maintenance of forest biodiversity in commercial forests.

Forest management practice

The implementation of the legal requirement is far from satisfactory. The main problems are twofold: first, it has been difficult to define specifically what kind of trees should be selected to be left, and second, how to control that "the trees" have been actually left behind. It has been recognized by the authorities and NGOs that awareness raising and education could facilitate the implementation of this article of the law and by thus improve biodiversity in commercial forests.

Union of Estonian Private Forest Associations

The mission of the Union of Estonian Private Forest Associations (UEPFA) is to represent the interests of the forest owners' organisation in matters of legislation and implementation of regulations. UEPFA has been instrumental in the formulation of the new law. It is the policy of UEPFA to propagate biodiversity friendly ways of forest management to its members. The Union considers leaving an adequate amount of biomass in all forms of cutting as an indicator for biodiversity friendly management. Therefore, the UEPFA focuses on awareness raising and training on leaving biomass in all felling operations. It uses its involvement in the IUCN/FAO project as a vehicle to realise this ambition.

Strategy to communicate biodiversity

Below follows a description of the communication strategy developed by UEPFA on the basis of this situation analysis.

Preparation

Through participation in IUCN workshops in Riga and Vilnius, UEPFA started developing a communication strategy by analyzing the situation, the stakeholders and its own position. The membership of the UEPFA consists mostly of small and poor owners, with relatively low-production forests. Most impact on biodiversity is caused by management of large owners, currently not being members of the UEPFA. They deal with regional environment and forestry authorities in order to get a license for cutting. As the regulations are still unclear, these regional authorities are not yet in a position to act as intermediaries and to give guidance on the issue of leaving biomass after cutting.

Large owners outsource the management of their land to forestry contracting companies. The biggest impact on biodiversity have logging operations, hence the atti-

tude of operators of harvesting and skidding equipment is the key element. It is important to know how these companies look at the issue. That led to the first step in the communication process.

First step: communication with primary stakeholders to explore their ideas

UEPFA organized a meeting with primary stakeholders: the Forest School (responsible for training and continuing education of forest technicians), a large foreign machinery supplier, and a large forest operator company.

The participants of the meeting highlighted the following issues that prevent them from implementing the legal requirement fully:

- every item (stumps, trunks, branches) taken from the forest has a market value,
- they think that enough biomass is left in the forest after felling already,
- stumps are not removed in erosion-sensitive areas anyway,
- there is no quality control before and after operations except the timber volume control,
- the volume of biomass left should be estimated right in the felling area not afterwards in the site of collection of logs.

The participants also pointed out that the forest management rules adopted by the Minister of the Environment in 1999 regulates the use of felling residues. Branches of trees, fallen trunks etc. should either be put into heaps, burnt, scattered evenly or taken away. The regulation does not allow to leave the biomass where it is.

Approach advised by primary stakeholders

The participants advised UEPFA to target first the large private forest owners and the companies that manage their forest on contract basis and suppliers of machinery. Machinery operators have usually agricultural background and need to be trained in biodiversity-sensitive logging. At a later stage, the Ministry of the Environment should be approached in order to modify forest management legislation. The Forestry Act mandates leaving biomass only in clear cutting and the UEPFA would like to see all forms of felling to be covered by such requirement.

Strategic approach chosen

Step one: training course for machinery operators

First organise a pilot course for 20 operators of harvesters and forwarders. Involve the Forest School in this course, so they could on the basis of this experience start integrating the issue into their regular extension work for forest technicians. And at the same time the Forest School could integrate the biomass issue in their normal curriculum.

The pilot course should be professionally developed, implemented and evaluated. UEPFA would take the responsibility for project management and part of the project activities. Evaluation should be done by an outside consultant.

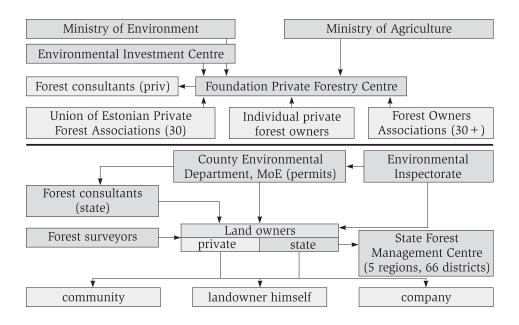
A high level Short Conference (half day, in the Ministry), targeted at decision makers in the Ministry and regional Forest Authorities would end the first step. At this meeting evaluation and recommendations would be presented and discussed. An external facilitator would lead the discussion and guide ideas towards concrete next steps. These could be a project to monitor the changes in practice of the trained technicians, a next communication project, or a curriculum development project etc. It also could start the discussion on the legal obstacles.

Step two: communication to form a partnership

Encouraged by the positive results of the first contacts with stakeholders, UEPFA proposes to establish a partnership with them.

Stakeholders analysis

In order to decide on whom to approach for the partnership, a strategic assessment of various stakeholders involved was carried out. In the figure below the stakeholders involved in biodiversity issues and forestry are mapped out.



For the strategic communication process, the following stakeholders are important target groups:

- Ministry of Environment, Department of Forests, officer for Private Forests –
 responsible for development of forest legislation and regulations regarding private forests needed as a formal partner, as the pilot course affects current
 and future forestry legislation and practice and this person advises the
 Ministry regularly on new legislation and regulations. UEPFA maintains good
 working relations with the Department in general and this person in particular.
- Ministry of Environment, Deputy State Secretary for Forestry and Nature Conservation, responsible for forestry and nature conservation in the Ministry

 needs to be informed of biodiversity and forestry initiatives and to support
 the project proposal to be submitted to the Environment Investment Centre
 and to give permission to use the facilities of the Ministry for the Short
 Conference. UEPFA has good personal relations with the good personal rela tions with the Deputy State Secretary.
- Ministry of Environment, Department of Nature Conservation, Director, responsible for biodiversity legislation and biodiversity conservation in forests

 needs to be informed about biodiversity initiatives and to support the project proposal to be submitted to the Environment Investment Centre. UEPFA has good personal relations with the director.
- Ministry of Finance, Environmental Investment Centre, responsible for the financing environmental initiatives – needed as a donor for the pilot project. UEPFA has already established relations with this Centre through projects supported in earlier years and has good working and personal relations with the Head of the Council of the Centre, the Minister of Environment.
- Foundation Private Forest Owners, responsible for capacity building of private
 forest owners and their associations by providing training and advice and for
 the management of the state support scheme to private forest owners. UEPFA
 works in close cooperation with the Foundation.
- Forestry School, responsible for training new generations of forest managers, also providing extension education and issuing qualifications' certificates. The involvement of the school is needed for upgrading the school curricula on sustainable forest management. UEPFA has good working contacts with the school.
- A company supplying forest machinery to large contractors and responsible for training employees of a contracting company on how to operate the machines and interested in a positive image as responsible corporate citizen needed for integrating biodiversity components in their training scheme and practical experience. UEPFA has no relations yet with the company other than participation in the strategic planning meeting.

- A contracting Company, responsible for the practice of felling according to contracts with large private forest owners. UEPFA has no relations yet with the company other than the strategic planning meeting.
- Large Private Forest Owners, are needed to become involved in the project because usually support schemes are easier available for small forest owners and the large owners are expected to cope themselves. The large forest owners can afford modern and effective forest harvesting machinery and use trained operators. UEPFA does not have direct working contacts with them yet.

The challenge for the next step in communication

UEPFA has formulated the following goal: to enter into a strategic partnership with the Foundation Private Forest Centre, a large Company selling forest machinery, a large Contracting Company, a few large Forest Owners and the Forestry School to start a joint project in developing, implementing and evaluating a pilot course for 20 operators of harvesters and forwarders which can become the basis for curriculum development for the Forest School and new professional certification.

Milestones

To implement the joint pilot course to introduce the routine of leaving biomass after any form of felling, UEPFA has identified the following milestones:

- Partnership agreement with key stakeholders and partners September 2004;
- Draft project proposal agreed by partners November 2004;
- Decision by Environment Investment Centre March 2005;
- Development of the pilot course June–September 2005;
- Implementation of the pilot course October December 2005;
- Evaluation of the pilot course December 2005 January 2006;
- Mini-conference with all stakeholders on evaluation January 2006;
- Proposals for follow-up towards certification, curriculum development and monitoring March 2006.

Communication methods chosen for the strategic communication approach

To reach the first objectives of establishing the partnership and formulating a joint project proposal, UEPFA has chosen the following communications methods, targeted to key decision makers in organizations:

- Face to face interventions, supported by personal letters and documentation, telephone preparations and follow-ups.
- Combination of informal and formal communication interventions, as UEPFA knows almost all of the decision makers on a personal basis.

Communication objectives

For each of the stakeholder audiences UEPFA has identified communication objectives in terms of desired knowledge, attitude and action.

Potential partners	Communication objectives
Foundation Private Forestry Centre Forestry School Large private owners	 Understanding the need to change the behaviour of machinery operators. Positive attitude towards "pilot training course". Partnership agreement, advice and guidance during development, implementation and evaluation.
Machinery Supplier Contracting Company	 Understanding the need to change the behaviour of machinery operators. Positive attitude towards "pilot training course". Partnership agreement, advice and guidance during development, implementation and evaluation. Co-financing by each company of approximately.

Communication messages

For the communication interventions towards potential partners and stakeholders in the pilot project UEPFA developed the following messages, almost the same for each target group, as in this stage they need to be informed of the background and context of the project, for which their cooperation is asked.

Messages

Forest owners associations in Baltic States and Hungary with the support of FAO and IUCN are engaged in exploring to broaden the concept of forest management to include more perspectives, e.g. biodiversity, social, cultural etc.

Messages

- Leaving behind biomass after any form of felling is an indicator for biodiversity friendly forest management.
- In Estonia of the 60.000 PFO, 1000 owns more than 100 ha. Focus on this group will make the largest impact on biodiversity.

- This group of forest owners employs forest contracting companies, which operate
 mostly with operators of harvesting machines and forwarders who have no forestry
 background, but come from the agricultural sector, they need training into methods of
 leaving biomass.
- UEPFA aims to set up a 'pilot course' for harvesters and forwarders on which curriculum development and extension activities by the forest school and future certification can be built to be financed by the Environment Investment Centre.
- UEPFA intends to develop, implement and evaluate the course in partnership with the Foundation Private Forest Centre, a large Company selling forest machinery, a large Contracting Company, a few large Forest Owners and the Forestry School.
- This initiative is in line with national and international trends and developments (Natura 2000, CBD, experiments in State Forest Enterprises, state forest management plan).
- Needed is your moral support, your advice, your experience and expertise, your networks and contacts, your participation as a partner in the joint pilot course and a contribution to the project as co-financer (NB Environment Investment Centre requires monetary co-financing of 10% of the total costs, the two private companies are likely to co-finance (see the budget below).

Monitoring and Evaluation

UEPFA will monitor the progress of the strategic approach by assessing each milestone and its intended outcomes and taking the necessary measures to reach in time the next milestone.

The evaluation of the pilot course will be carried out by an independent consultant. The consultant will monitor from the start the project activities and will assess input (human resources, finances, milestones), outcomes (quantitative and qualitative) and recommendations for next steps. Evaluation will be supervised by the partners in the joint training course. A final report will be produced by UEPFA on behalf of the partnership for further distribution in hardcopy and through the web. During the Short Conference the results of the joint course will be presented to decision makers in the Ministry and other relevant stakeholders.

Budget: time, human capacity and money

UEPFA has the necessary capacity to start the dialogue with the potential partners on the joint pilot course. Within its current project portfolio UEPFA can make time and money available necessary to realize the partnership and project proposal. It is

estimated that the total number of workdays needed will be 20 days and the total amount of out of pocket costs will be approximately 64 €.

Activity	Days	EURO
Personal communication with potential partners on the idea of a joint pilot course (costs of telephone)	8	3
Development of draft proposal for joint pilot course on the basis of input of feedback of partners	10	
Meeting to finalise the proposal, follow-up and submission to Environment Investment Centre (costs of catering for 10 people)	2	61
TOTAL	20	64

Draft pilot course budget

As co-financing has to be discussed, UEPFA already prepared a draft budget (approximately € 15 000) for the pilot course development, implementation and evaluation and the mini conference.

Activity	Days	EURO
Developing of the pilot course (UEPFA)	30	4 800
Course materials		960
2 lecturers for 3 days	6	960
Hotel: 20 participants, 1 night		1 280
Catering: 25 people, 3 days		1 280
Bus for fieldtrip		130
Monitoring, evaluation report, recommendations for follow-up, facilitation of the short conference by external consultant	30	4 800
Project Report (100 copies, 25 pages)		450
Short conference, catering		190
Sub total		14 850
15% overhead for project management UEPFA		2 230
Total project costs	66	17 080
10% co-financing by two commercial companies of partnership		1 710
Financial support from Environmental Investment Centre		15 370

5. APPENDIX

5.1. PRO SILVA HUNGARIA TRAINING COURSE

ON CLOSE-TO-NATURE SILVICULTURE

Training approach

The main obstacles in introducing close-to-nature forest management are ingrained stereotypes, stemming from the even-aged forestry paradigm. The so-called regimented silviculture implies high inputs of energy and labour and is associated with high level of technology. In most cases it leads to creation of uniform stands with low biodiversity and low resistance to stress factors. The close-to-nature forest management minimises interventions and inputs and uses natural processes to the maximum.

It is impossible to transform the way of thinking of foresters and forest owners solely by words – written or spoken. It is necessary to show them convincing examples and openly discuss arising questions. Therefore, the lectures in the Pro Silva course are often interactive, presentations are given using visual techniques. Half of the time is spent on visits to demonstration plots. Flexibility and improvisation are major elements of Pro Silva teaching. Importantly, trainers are always experienced practitioners and practically-oriented scholars. Optimal number of participants is 20 persons, of which 15 represent private forest sector (owners and managers) and 5 come from State Forest Service and nature conservation authorities. See also pages 45–46,

Outline of the course

Day 1

Module 1, indoor: Introductory lectures (10:00–12:00)

- Change of paradigm in contemporary forestry.
- Ecological basis of forest management.

Module 2, outdoor: Field trip (13:00–16:00)

- Ecological processes in various forest stands.
- How to use forces of nature to grow trees.

Module 3, indoor: Presentations and discussions (16:00–18:00)

- New approach to forest protection.
- Economic aspects of low-input forest management.
- Legal basis of close-to-nature forest management.

Module 4, indoor: Visual presentation (19:00)

- Examples of Europe's virgin forests, forest reservations, selecting forests, and Pro Silva model plots.
- Informal discussion follows.

Day 2

Module 5, outdoor: Field trip (8:00-12:00)

- Practical training in close-to-nature silviculture on demonstration plots.
- Practicing tree selection.

Module 6, indoor: Wrap-up (12:00-13:00)

- Summary of the workshop, take-home messages.
- Distribution of notes, materials.
- Adjourn.

5.2. PRO SILVA FORESTRY PRINCIPLES

Pro Silva is a European federation of foresters who advocate forest management based on natural processes. Pro Silva was founded in Slovenia in 1989. The Principles are available on the Pro Silva homepage: http://ourworld.compuserve.com/homepages/J Kuper, and at: http://prosilva.free.fr.

General principles

Pro Silva promotes forest management strategies which optimise the maintenance, conservation and utilisation of forest ecosystems in such a way that the ecological and socio-economic functions are sustainable and profitable. The general approach to management which is advocated by Pro Silva, includes market and non-market objectives, and takes the whole forest ecosystem into consideration.

With reference to sustainability in its broadest sense Pro Silva believes that forests provide four categories of benefits to society. These are:

- 1. conservation of ecosystems;
- 2. protection of soil and climate;
- 3. production of timber and other products;
- 4. recreation, amenity, and cultural aspects.

1. Conservation of ecosystems

The maintenance of ecosystems provides a basis for the protective, productive and recreational functions of forests, and however society may wish to utilise the forest, the vitality and inter-relation of lifeforms within the forest ecosystem provides the foundation for all the other functions of the forest. The preservation, and if necessary the restoration, of the ecosystem is, therefore, the first priority.

Elements of ecosystems are:

- Local and regional diversity of flora and fauna (species diversity);
- Genetic diversity within the local population of each species, providing the possibility for evolutionary development (genetic diversity);
- Local and regional diversity of ecosystems (spatial and temporal diversity in structure);

- The occurrence of ecological processes (natural and semi-natural forest dynamics);
- The ecological network;
- The ecological interactions of forests in relation to the environment (world-, regional- and local climate, and interaction with surrounding landscape).

Pro Silva recommends the following essential methods to allow forest ecosystems to function:

- Paying serious attention to (i.e. maintaining or restoring) the natural forest vegetation pattern, while making use of the forest;
- Maintenance of soil productivity, through continuous cover and through the maintenance of biomass in the forest (including dead wood);
- Propagation of mixed forest with special attention to rare and endangered species;
- Restricting the use of exotics to cases where this is an economic necessity, and then only if the exotics can be mixed with the indigenous vegetation pattern within certain quantitative and qualitative limits;
- In special cases, forgo any harvest.

The elements of the conservation of forest ecosystems, as stated above, correspond to the declaration on biodiversity which was made at the Rio conference in 1992.

The protection, production and recreational functions of the forest are all based on the conservation of the ecosystem; and they are all, in their own way, important to society.

2. Protection

Essential elements of the protective function are:

- Protection or restoration of the natural soil fertility and soil structure (soil protection):
- Protection of natural forest types (biotope protection);
- Protection of typical and rare or endangered species (species protection);
- Protection against erosion (erosion protection);
- Protection and cleaning of water (water protection);
- Protection or improvement of forest climate and its impact on surrounding landscape (local and regional climate protection);
- Maintenance and improvement of carbon storage (world climate protection);
- Protection or improvement of air quality (emmission protection);
- Protection against noise (noise protection);
- Concealment of visually disturbing elements in the landscape (visual protection).

Most elements of the protective function are, at the same time, an integral part of the conservation function of forest ecosystems. They cannot be considered or dealt with separately.

Pro Silva considers the following methods essential to achieve the benefits from the protective functions of the forest:

- Adopt a holistic approach involving perpetual forest cover;
- Achieve specific biological protective functions by specific measures; for example, limits on exploitation, use of exotics, fertilizer, harvesting methods, drainage, etc.;
- Establish a regional network of protected forest areas of various kinds, including some non-intervention areas;
- Adopt specific strategies for physical protective functions such as prevention
 of erosion, conservation of water supplies, visual aspects, and capture of
 pollutants.

3. Production

Pro Silva regards sustainable forest ecosystems as the proper basis of economic sustainability. Protection and production are both important to society. For sustainability in the broadest sense, continuing and optimal productivity is only possible if the protective function remains intact. This precludes production strategies that ignore the protective function.

Pro Silva supports the management of forests and the use of renewable resources of timber.

With regard to the general principles of sustainability, the following are essential elements of the productive function:

- Maintenance of the soil fertility:
- Guaranteed continuity of the forest ecosystems and timber production;
- Maintenance of the natural energy and mineral cycles.

As methods for achieving the functioning of these elements Pro Silva recommends:

- Continuous forest cover to protect soil productivity;
- Full use of natural dynamic forest processes:
- Adding value by selection felling and tending at all stages of development;
- Maintaining growing stock at an optimal level;
- Working towards a balance between increment and harvesting in each management unit (i.e. in each compartment);
- Increase forest stability, and consequently reduce production risks, through stabilisation of single trees and groups of trees;
- Paying attention to the function of every single tree in tending and harvesting;
- Avoidance of clearcuts and other methods which destroy forest conditions;
- Abolition of rotation age as the instrument for determining when a tree should be cut;
- Undertaking renewal of the forest as an integral part of forest tending.
- Spontaneous forest renewal and forest development, through single tree harvesting and group harvesting with long regeneration periods, involving:
 - use of natural regeneration,
 - use of natural stem number reduction:
- Harvesting methods which do not harm the soil or the stand;

- Use of appropriate machines, which suit the structure and features of the forest:
- Minimise the use of additional materials (fertilisers, plant protection materials);
- Restoration of densities of game species to levels which are in balance with the carrying capacity;

Tending and harvesting should be the main features of management, and these should not be unduly influenced by the need to obtain regeneration.

4. Recreation, amenity, and cultural aspects

Pro Silva recognises the increasing importance of the forest for physical and mental health, especially in densly populated countries in Europe.

Essential elements of the recreational function of forests are:

- Suitability of forests for quiet, "eco-friendly" forms of physical and mental recreation;
- Suitability of forests as part of traditional emotional attachment of people to forests and nature (forest of secrets, myths, fairy tales);
- Suitability of forests as custodian of cultural traditions (forest as a theme in painting, poetry, music).

Pro Silva recommends the following methods for development of forests for their recreational function:

- Giving priority to quiet forms of recreation, by providing appropriate trails and other facilities;
- In so far as is needed, the concentration of recreational facilities in specific zones:
- Establishment of quiet areas of the forest, for experiences of the senses (a place for consciousness, for thinking, for dreaming, for becoming absorbed by nature)
- Encourage attractive trees, groves and other features (colours, flowers, fruits, shrubs, herbs etc.):
- Maintenance and creation of attractive forests by varied forest structures;
- Establishment of non-intervention areas where nature is left to follow its course:
- Maintenance of forest meadows, valleys, rocky outcrops, water features, views, etc.

Pro Silva is convinced that the recreational function generally stems automatically from the type of forest management which is proposed above. Only in exceptional circumstances will extra measures be needed.

Paying attention to the recreational function in forest management may assist in providing a counterweight to the living conditions of modern man, who is living in an increasingly urban and technical society.

5.3. SELECTED LITERATURE ON NATURE-BASED FORESTRY

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NOTES



Founded in 1948, The World Conservation Union brings together states, government agencies, and a diverse range of non-governmental organisations in a unique worldwide partnership; over 1000 members in all, spread across some 140 countries.

As a union, IUCN seeks to influence, encourage and assist societies throughout the world to conserve the integrity and diversity of nature and to ensure that any use of natural resources is equitable and ecologically sustainable.

The World Conservation Union builds on the strengths of its members, networks and partners to enhance their capacity and to support global alliances to safeguard natural resources at local, regional and global levels.

EUROPEAN PROGRAMME 2005–2008

IUCN - THE WORLD CONSERVATION UNION

The IUCN European Programme mission is to contribute to a sustainable Europe by influencing policy development and implementation for biodiversity and landscape conservation, restoration and sustainable use inside and outside Europe. In practical terms, the mission translates into the following objectives:

Supporting the Union in Europe and the EU – Improved support framework for the global work of IUCN through the EU and other European partners; improved European membership services, including capacity building

Understanding the main drivers of biodiversity change – Improved knowledge of biodiversity change and effective conservation measures at landscape, ecosystem, habitat and species levels

Financing nature conservation – Efficient incentive frameworks for biodiversity conservation and sustainable use are available and understood

Linking education, science, policy and practice – National and supranational (EU) policies, multilateral agreements, processes and institutions are more supportive of biodiversity conservation and ecologically sustainable use

Managing our natural heritage – Ecosystems are managed in a sustainable manner, reconciling social, economic and biodiversity objectives

The European Programme seeks to make IUCN's voice heard through providing authoritative information and policy products, whilst applying the expertise in the European constituency of IUCN. These will be the result of integrating the diverse expertise of the Commissions, members and the worldwide IUCN secretariat to address the key drivers of biodiversity loss. The IUCN European Programme provides the platform for bringing the expertise together, coordinating development of the products and obtaining financial resources.

The IUCN Programme Office for Central Europe – current fields of activities

The IUCN Programme Office in Warsaw has a ten years experience in providing information on current topics related to biodiversity management. The office's expertise in compiling and disseminating information to key societal actors currently serves four major fields of activities:

- Ecological Networks development of the ecological network in Ukraine. Uniting world experience to support a Global ECONET
- Agriculture integrating environmental and consumer organisations of the CE region into the discussion of the European agricultural policy reform, and Integrating biodiversity protection concerns into the development of rural areas by linking instruments of the future Natura 2000 sites with Rural Development Plans in the CE region
- Forestry raising awareness and building capacity among private forest owners in the CE region, developing nature conservation guidelines for afforestation projects
- Fishery sustainable management of fresh-water fisheries in 19 countries of Central and Eastern Europe

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