

BY RISTO PITKÄNEN PHOTOS BY SEPPÖ SAMULI AND MIIKA KAINU

# Voluntary conservation works

Compulsory protection of biodiversity is not the best option if the forests are privately owned and for the most part in commercial use, as they are in Southern Finland. New versatile means of voluntary conservation will form the basis for strengthening the protection of biodiversity substantially in Southern Finland.

**A**ccording to an international evaluation, Finland's conservation area network is basically good, but there is a regional imbalance. The conservation areas are mainly located on state-owned lands in Northern Finland, while it is generally recognized that more protection is needed in Southern Finland where conservation areas account for slightly more than two per cent of total land area, as against over twenty per cent in Northern Finland.

Two things rule out simple solutions. The forests in Southern Finland are predominantly privately owned, and the vast majority of them will remain in commercial use even in the future. Several new means of combining protection of biodiversity and commercial forest management have been studied and tested in practice in the Finnish Government's METSO

Forest Biodiversity Programme for Southern Finland (2002-2007). The aim is to conserve forest habitats and ecological structures that are crucial for forested landscapes and threatened species.

The news means include trading on nature values, and nature management, which combines conservation and restricted forest management. Sites can be offered for fixed-term or permanent conservation or sold to the state on a voluntary basis.

The METSO programme comprised three extensive research programmes and various testing and fact-finding projects. In state-owned forests basic information was collected to lay a foundation for future planning, and in conservation areas forest was regenerated by such means as controlled burning and damaging of trees designed speedily to bring about ecological features of

(From left) Finnish Environmental Institute's Kimmo Syrjänen, Metla's Paula Horne and WWF Finland's Harri Karjalainen are looking forward to the roll-out in the field of the new voluntary means of enhancing the protection of forest biodiversity in Southern Finland.



old-growth forests in a commercial type forest.

Senior researcher **Paula Horne** of Finnish Forest Research Institute (Metla) and senior researcher **Kimmo Syrjänen** of Finnish Environmental Institute (Syke) who led the monitoring and evaluation of the ecological, economic and social impacts of METSO, say that the new conservation alternatives are helping Finland meet its international commitments. Finland has signed the 1992 UN Convention on Biological Diversity and is as a member of the European Union committed to the goal of halting biodiversity loss by the year 2010.

Research has of old played an important role in the transacting of forest matters in Finland and METSO continues the trend. One third of the EUR 62 million budget was allocated to research which comprised in addition

### Research interlinks with policy-making

to ecological studies, studies of social and economic aspects of conservation. “The new means of voluntary conservation developed with a view to private forest owners have attracted most attention, but steering through legislation was also explored in the course of the programme, as was counselling and communication, which have a big practical impact on forest management,” Kimmo Syrjänen says.

Designed to clarify the impacts of the different alternatives, METSO research helped build up solid grounds for policy decisions. According to Paula Horne, the new conservation means developed during METSO are of international interest.

“Various means of voluntary conservation have been tried in many countries. What was new in METSO is that the alternatives were systematically tested before taking them into broader use. I’m sure this is a good principle.”

Juniper is one of the forest species that has been getting rare in Southern Finland.



Conservation sites were selected on the basis of three types of habitat-specific ecological criteria. Criteria related to the ecological structure of habitats, such as the volume of decaying or burnt wood, water economy or surface vegetation, help determine the ecological representativeness of a site.

Criteria related to the extent and location of a habitat reflect the significance of the size and location of the site for biodiversity. Examples of these criteria are notable size or location in the vicinity of a conservation area. Supplementary criteria constituted the third type, exemplified by a habitat’s hosting of rare or threatened species and the ease of maintaining or restoring the habitat.

All experimental projects attracted many times more sites that met the criteria than could be acquired with the funds available. As the ministers responsible for future funding, the minister for the environment and the minister for agriculture and forestry agreed in connection with the unveiling of the results of METSO first phase that a total of EUR 65 million needed to be earmarked annually for forest conservation in Southern Finland during the next ten years. If the government taking office after the general

election in March 2007 confirms the stand, all is set for achieving an impressive impact.

Paula Horne stresses the flexibility of the new voluntary means of conserva-

tion. An agreement can be made with the forest owner on permanent or fixed-term conservation. The agreement can concern development of a specified structural feature, such as preservation of a designated tree species. The agreement on permanent conservation can be such that the state buys the growing stock, but the owner retains his title to the land, or alternatively, the state can buy the land, too.

“The land owners like it that they are free to decide what to do when the fixed-term conservation contract comes to an end. From the conservation point of view, the good thing is that most owners want to continue conservation after the contract period. In some cases fixed-term protection can serve the biodiversity needs. This is the case for example, in the case of species that thrive in burned wood.”

According to Kimmo Syrjänen, it is often relatively easy to reach conservation agreements because many ecologically valuable habitats are of minor value for commercial forestry. The largest number of agreements was concluded with owners who have actively managed their forests and consequently know well the ecologically valuable sites, too. The level of compensation did not appear to be the decisive factor, but the forest owners were certainly interested in the



financial options offered by the new conservation means.

There was no opportunity to test in the field the interesting alternative known as nature management. Commercial forest management is allowed in nature management areas, but the methods used are softer. For example, no clear cutting is practiced. The forest owner receives compensation for the reduction in logging income. Nature management offers an interesting option for owners who want to put their forests to a multiplicity of uses, and the number of this type of forest owners is growing. Such owners still want some income from selling wood, but place value on preservation of the landscape and are willing to trade with the state on conservation against fair financial compensation.

METSO programme charged the state enterprise Metsähallitus, which administers state-owned land in Finland, to enhance consideration, inventory of sites important for nature conservation, protection on designated natural resources planning and landscape ecological planning sites, and on sites bordering on conservation areas.

Action involved inventory of some 340,000 hectares of state-owned commercially managed forest, including field work on 32,000 ha. The evalua-



tion resulted in conservation of nearly 5,000 ha of land meeting the ecological protection criteria of METSO. By far the largest category of the additional protection area was constituted by heathland forests with plenty of decaying wood.

Action by Metsähallitus also included restoration of a total of 14,500 ha forests and mires in protected areas. Restored areas had previously been under commercial use and were lacking in such natural features as dead wood. Restoration involved burning, increasing the volume of dead and decaying wood and creating small felling openings. Mire restoration typically involves blocking drainage ditches and removal of trees.

The modest figures confirm that the ecologically most important sites in state-owned Southern-Finnish forests have been protected under previous conservation programmes or under landscape ecological planning. Consequently, the additional conservation has a marginal impact on conservation percentages, but it enabled making locally important small-scale protection decisions.

Preservation of forest biodiversity has an important place in Finnish legislation, forestry guidelines, and in the national forest certification system. The Forest Act lists a number of habitats critical for preservation of biodiversity. These key biotopes must be spared in management operations in commercial forests. Particularly valuable sites can

be taken into protection based on legislation, with the owner receiving a statutory environmental subsidy. In METSO the focus was on voluntary conservation suitable for privately-owned forests and conservation solutions extending beyond single biotopes.

Decaying wood is one of the key factors of forest biodiversity and forestry recommendations as well as the criteria of forest certification give guidelines on its increase in connection with logging. The positive impact could be increased if substantially more trees and deciduous trees in particularly, were left standing. At the moment the forest owner in effect pays the price of sparing

trees from cutting. **Motivating conservation** Syrjänen says society should encourage the owners to increase

the numbers of spared trees. “As biodiversity benefits the whole of society, means should be found for compensating the owners. That would increase the ecological effect.”

According to Horne, economic steering needs to be backed with steering through information. Studies indicate that the forest owners do not always understand why trees are left uncut in fellings, for example. It has been a common belief that the trees left standing are seed-trees and can be removed when they keel over, that is, precisely when they begin to be ecologically valuable. More training and counselling is needed, as is needed more cooperation with the different actors in the forest sector. The owners know and trust in regional forest centres and local forestry associations having dealt with them in forestry and timber sales matters.

The environmental authorities have their say in forest matters, too, on the strength of the Environmental Protection Act. In the minds of the forests owners, the environmental authority, which acts on province and region level, is often linked with ‘compulsory’ conservation implemented on the

### Compensation for conservation

Compensation paid for conservation is determined locally. The basis is normally the potential timber income from the site. In nature values trading, compensation is paid directly for nature values which all carry an individual price tag.

national level without hearing the land owners. The creation of the EU Natura 2000 conservation network tended to reinforce the bad name of such top-down conservation. One of the METSO trials, the MetsäVasus project, with its local origins and municipal-level implementation, produced positive experience of tightening collaboration between the forest owners and the different authorities in conservation matters see (p. 38-40).

The researchers stress that commercially managed forests play an important role in the protection of biodiversity in Southern Finland.

The majority of the species live in the whole forest landscape that comprises side by side protected forests and commercial forests. In view of the fact that commercially managed forests will even in the future account for over 90 per cent of the forest land in Southern Finland, however much conservation is increased, it is very important to be

### Commercially managed forests in key position

able to maintain certain structural features in forests under commercial management. These include decay-damaged old deciduous tree spread across the broad forest landscape.

Southern Finland is a large area that comprises ecologically very different types of forests. According to METSO recommendations, the conservation focus must be decided regionally on the basis of the most vital habitats of each region. This involves thinking out why a certain type of habitat should be protected and how that can be done most effectively.

"In some areas it may be possible simultaneously to maximize conservation of biodiversity and economic return. If we want extensive conservation areas of old-growth forests, their creation must be initiated with a minimum of 50 years' time perspective.

It needs to be decided now where the building of foundations for conservation is started, and this can be done using voluntary means of conservation," Kimmo Syrjänen says.

METSO studies indicate that the overall cost of increased conservation is small in comparison to the total output of the forest sector. The overall impact on employment is small,

**Forest industry will foot the bill** too. However, effects can be significant on the local level. For example, the impact of conservation on the price of wood essentially

depends on whether imported wood can compensate for the decrease in the supply of domestic wood.

According to one estimate, the raising of the conservation rate from the current 2.2 per cent to 10 per cent in Southern Finland would decrease fellings by 3 per cent and increase the stumpage price of wood by the same amount. If the new conservation means developed in METSO are taken into use, the impact on logging and wood prices would be even lower. It is clear, however, that the wood-using industry will have to foot the bill of increased conservation through higher wood prices. On the other hand, a commitment to the safeguarding of biodiversity should enhance the competitiveness of the forest industry through increased acceptability of its products among the consumers.

On the local level, extensive protection of raw material sources could spell difficulties for sawmilling and employment related to it, for example. The researchers stress that taking account of the local social and economic impacts is of prime importance for acceptability of increased conservation.

There exists broad consensus on the need of increased conservation in the forests of Southern Finland. All the actors down to the forest owners' interest



**HERB-RICH WOODLANDS ARE AN ECOLOGICALLY VALUABLE FOREST HABITAT THAT CAN BE FOUND IN SOUTHERN FINLAND ONLY.**

organizations approve of extending voluntary conservation. Most environmental NGOs have reservations on exclusively voluntary conservation. They welcome new ideas, but have doubts about the quality of a fragmented conservation network.

It is hard to find extensive conservation targets in Southern Finland because the mosaic structure of the forests consists of small stands of coeval trees.

**Broad consensus** During the METSO programme, the conservation area increased by 9,300 hectares. The removal of state-owned forests from commercial

use to conservation accounted for half of that. Of the new privately-owned conservation area over one half was acquired into permanent conservation.

The European Union has set the target of stopping the loss of biodiversity by the year 2010. According to the researchers, it is generally recognized in Europe that the target will not be reached in such a short time by any member country. In most countries it is not even known how far there is to go to the target.

"Finland is one of the few countries where the matter has been properly studied. For example, a National Strategy and Action Plan for the Conservation and Sustainable Use of Biodiversity 2006-2016 has been drawn up. The preparation included evaluation of the previous programme period and its impact on the biodiversity situation. We are moving towards the target by focusing conservation on habitats where the majority of endangered species live," Paula Horne states.

Unlike for example Sweden, Finland has not set a quantitative target for conservation. The qualitative target is that the conservation network must be ecologically relevant both nationally and locally. The goal is an interlinked network of protected and commercially managed forests, with action designed to promote biodiversity being taken in all parts of the network.

# More shades to the conservation palette

Depending on how one defines forest, the forest area under strict conservation in Finland is either under five per cent or over eleven per cent of all forest land. Harri Karjalainen, Forest Manager of WWF Finland, says that percentages are not meaningless in determining the objectives and resources for conservation, but specific targets are best set regionally rather than nationally. Similarly, conservation should be focused on areas where there still exists untouched forest in which demanding animal and plant species are struggling for survival.

“There’s still a need to increase strict conservation, in particular to safeguard the survival of the most demanding old-growth forest species. Many nature values can, on the other hand, be protected through temporary conservation or long-term nature-focused forest management, such as sparing significant number of trees in fellings and exclusively small-scale logging.”

WWF is the only environmental NGO participating in the METSO program. Harri Karjalainen says the three-year research and test phase produced much useful knowledge on new methods of protecting forest environment in Southern Finland where the bulk of forests are privately-owned commercial forests.

Karjalainen says emphatically that protection of forest biodiversity should not be made the responsibility of private owners alone. Other owner groups, that is, the state, forest industry companies, municipalities and parishes should be equally involved. The thin and fragmented conservation

network of Southern Finland can be strengthened by actively linking national parks, founded on state-owned lands, with private conservation areas. For example, national parks are often enveloped in state-owned commercial forest, which may in its turn be bordered on a private conservation area. Clear cutting in the enveloping forests would put paid to the creation of an integrated conservation network.

According to Karjalainen, it is time to put the new models into practice. The goods on offer are interesting, ranging from permanent to temporary con-

**Time for action** servation and to trading where the state buys only the growing stock and the title to the land remains with the owner. But the private owners need encouragement to enable them to see voluntary conservation as an attractive alternative.

“Conservation needs to be turned into an attractive alternative to cutting the forest and pocketing the money.”

According to Karjalainen, the message about the conservation options can be best got through to the owners by prioritizing it in forest counselling. Focusing the marketing of the new conservation means on areas contiguous to existing conservation areas would help in the creation of an integrated conservation network. The growing group of city forest owners merit a campaign directed exclusively at them.

Karjalainen takes the view that voluntary conservation was categorized under unnecessarily large number of name tags in METSO. It would

be simpler for the forest owners if all conservation were packaged under the name of nature values trading, with the option of concluding either a temporary or a permanent sale agreement.

Temporary protection proved very popular in the experimental projects, but according to Karjalainen, it does

## Trading suits transitional values

not suit all circumstances. Suppose a ten-year temporary conservation agreement is made for a valuable old-

growth forest. During the ten years, the value of the forest grows, and the government will find itself facing an endless spiral of rising costs. According to calculations, buying such a forest straight out is a better deal for the government than continuous hiring for conservation in a perspective of 10-20 years.

Karjalainen has been working on the idea that nature values that are of their nature temporary are ideally suited for nature values trading with a view to temporary conservation. Burnt areas are an example. When there is a fire in a privately-owned forest, the government could step in to buy the burnt and charred trees, which would be left in place. The forest owner could continue forestry in the area as the species attracted to burnt forest are not interested in saplings. The same approach could be applied to forests damaged by storms.

The lump-sum purchase of a temporary conservation value does not jeopardize the forest owner’s prospects of selling timber after the temporary conservation either. As it is, tempo-



WWF Finland's Forest Manager Harri Karjalainen (in the middle) sees a very useful role for nature management, which combines commercial forest management and conservation. METSO Program's evaluators Kimmo Syrjänen and Paula Horne say it's a pity test stage funding did not allow the approach to be tested in the field.

rary conservation easily becomes permanent because the forest companies are hesitant to buy timber from an old forest that has previously been under temporary conservation, anticipating the risk of negative publicity.

Karjalainen says that the value of nature management areas has risen in his eyes during the METSO program.

## More shades to the palette

Previously, there have been basically two alternatives: strict conservation or “normal” nature management of commercial forests, which has meant taking account of key biotopes in management operations.

Many old commercial forests that do not qualify as old-growth forests could satisfy the ecological METSO criteria. Establishing a nature management area could be a suitable solution in such cases, particularly if the forest is located near an existing

conservation area. The owner would receive compensation for reduced timber income owing to curtailed and conserving logging.

According to Karjalainen, the options of forestry designed to preserve a more unified forest landscape and establishing nature management areas could suit, in addition to private forests, municipalities and parishes. They already use their forests as recreation areas that have no timber production objectives and consequently no need for clear cutting.

Forest conservation based on nature management is a more common alternative in continental Europe than strict conservation. For example in Germany, small-scale commercial forest management is practiced in most forest conservation areas.

“Many species of northern boreal coniferous forests do not necessarily require strict conservation, but they suffer from the currently predominant

practice of regular clear cutting, resulting in stands with a homogenous age structure,” Karjalainen states.

Karjalainen says that forest conservation in Southern Finland is a marathon race, not a sprint. Conservation takes its time in the same way as changing people’s attitudes.

“If we put all the forests in Southern Finland under strict conservation this very minute, it would take 50 years before nature would seethe in them.

There is an urgent need to act, but one cannot call nature back by rushing it.”

The inevitable slowness of nature gives the forest owners, too, time to adapt to conservation over a long period. As the forests become more varied, they also become an increasingly attractive recreational and visiting destination for the increasingly urban population.

# Nature values grow slowly



The pines on the ridge of the rock have grown shield bark. The oldest could well be a century and a half old, muses land owner **Pertti Hirvonen**. The bottom of the steep rock face is level with the shore meadows of the lake that hails close-by. The rock face is dotted with junipers, becoming rare in Finland, a rich spread of moss, featuring rare species, and other ecologically valuable plants.

At the bottom of the rock there is a narrow zone of herb-rich woodland. Rare plants thrive in the chalky soil and the shadowy location. There grow oaks, hazels, rare in Finland, a few ancient Norwegian spruces, too big for saw logs.

The ridge with its old pines overlooking the lake and sheltering the herb-rich woodland at the bottom is situated on a large island of the Lohja lake in the town of Lohja no more than 60 kilometres west of the Finnish capital of Helsinki.



The land owner has sought his way to the ridge countless times over the decades. No question of felling trees here. METSO-Programme's MetsäVasu project came tailor-made for Pertti Hirvonen. He offered his favourite rock into nature values trading in the summer of 2004. Towards the end of 2005, an agreement was reached on the protection of the nature values of the 0.6 hectare area for the period of ten years.

The compensation for such a small area was no big money, but the most important thing for Hirvonen and his fellow forest owners is that they get some recognition for nurturing nature values. Those values owe their existence to the fact that the owners have known to treasure them through the generation.

The objective of the MetsäVasu project, implemented in 2004-2006, was to test in practice how forest biodiversity can be protected by developing the cooperation networks of the various actors in the forest sector.

The majority of Finnish private forest owners are members of their regional forest management association (FMA). The associations look after the owners' interests and give guidance in timber sales, forestry and forest planning. The West-Uusimaa FMA had management responsibility for the MetsäVasu project and it actively

sought cooperation with the municipalities and other actors in the region with an interest in forest biodiversity. Helsinki University's Suitia teaching and research estate was among the parties.

During the project the forest owners were informed about voluntary conservation option in open meetings, forest excursions and through printed leaflets. Project Manager **Hanna-Mari Partanen** says that heathland forests with plenty of decaying wood were the dominating habitat type offered. Owing to the limited financial resources, it was possible to purchase for conservation only the best and most representative examples.

Finland's Forestry Act lists a number of habitat types that are particularly important for preservation of biological diversity and decrees that such habitats, known as key biotopes, must be spared in forest management and forest use. Ridges with their bottom forest are among the listed habitats.

Pertti Hirvonen could in fact have applied for an environmental subsidy for preservation of his site. Instead, the choice was an agreement under which the state bought the nature values of the site for temporary conservation for the period of ten years. This type of voluntary conservation is aimed at maintaining and enhancing the nature values of the contracted site and does not categorically rule out forestry and management action. A forestry plan was drawn up for Hirvonen's



Lohjansaari island with its rich flora and idyllic scenery used to be the summer paradise of botanists, writers and artists. Pertti Hirvonen's father used to row around photographer J.K. Inha, looking for views that, thanks to his work, have become instilled in Finnish minds as aspects of the Finnish national landscape.

conservation area, focusing on helping oaks survive in the herb-rich woodland part of the area. Action has involved thinning out spruces growing near oak saplings.

Forest land can in principle be subject to compulsory purchasing under the Forest Act or the Environmental Protection Act. When Finland joined the European Union's Natura 2000 conservation network, compulsory purchasing was used to some extent to acquire private lands contiguous to existing conservation areas. No forest owner likes to be told by somebody what he or she should do with their forests.

"Once is enough to kill trust," Pertti Hirvonen declares.

The forest owners in Lohja were preparing for the worst when a noted nature activist was nominated as the town's environmental specialist. Their fears proved unfounded. The enthusiastic and cooperative official quickly won the owners' trust and joining of forces resulted in, among

**New instruments** other things, a web-browser-based environmental map of the region. The application makes available valuable information on the ecological features of the forests. Materials in its data archive include the extensive reports on nature values in whose production Pertti Hirvonen was instrumental as the chairman of the central council of the regional planning association.

According to Hanna-Mari Partanen, the map application gives a fair reflection of MetsäVasu's spirit in that it does not pry too deep into the forest owners' territory. For example, the habitats designated in the Forest Act have been marked on the openly accessible application and are included only in the FMA's, that is, the forest owners' own body's information system. Sites of threatened or rare species have been indicated by type of organism. The map tells you that it's a case of, say, a moss or a bird. If you want to know more, you'll have to inquire at the town's environmental protection office.

Pertti Hirvonen has retired from farming and has hired out his fields. The forests are the apple of his eye, and he has gone actively out to test new nature management methods in his forests. In accordance with the forest plan drawn up in connection with the nature values agreement, densely growing aspens have been girdled, that is, a band of bark has been removed from near the bottom to cause slow withering. The objective is to clear more room for bigger trees.

"This has not been tried previously and we don't know yet how it works. So much is clear that an aspen cannot be snuffed out quickly."

**Project Manager Hanna-Mari Partanen says that herb-rich woodlands are only found in a narrow zone in Southern Finland. Oak, hazel, lime and other broadleaved trees rare in Finland flourish in these woods.**



## Nature values trading

The forest owner makes an offer to the regional forest centre for the conservation of a specified habitat for an agreed period that is at least 10 years. Compensation is paid as a lump sum at the beginning of the contract period. In agreements signed during the MetsäVasu project the average compensation was EUR 214/ha/a.

The METSO program defined on conservation biological grounds a number

of habitats as important. They were:

- herb-rich woodlands
- spruce mires
- sandy eskers and moraine features
- heathland forests with plenty of decaying wood
- swampy woodlands and wooded flood meadows
- woodland pastures and wooded meadows
- natural forests along emerging coastlines

Core nature values of these habitats include:

- decaying wood
- burnt or charred wood
- large aspens and other mature broadleaved trees
- location near an existing conservation area
- hosting of threatened or rare species
- exceptional microclimate or topography
- springs, brooks and other natural water features