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Woodland Key Habitats in Latvia



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Old trees with hollows, large dimensional fallen woody debris in different decomposition stages, sun exposed natural birch snags, areas of small springs, polypores, lichens, mosses and a number of other living organisms are all important features for biodiversity. These terms describe individual subsites of a forest known as Woodland Key Habitats (WKH).

In Latvian forests we still find places where the conditions are suitable for species that require very specific habitats. However, intensive forest management practices leads to a reduction in the number of forest sites where the above natural features, and species connected with a long continuity of such features, are still found. A special method is now available to find and identify WKH's - the sites where the conditions and species composition resemble those of the virgin forest. This work is done within an international co-operation project "Inventory of Woodland

Key Habitats", undertaken by the respective Latvian and Swedish forest sector organisations and agencies.

PROJECT

The pilot phase of the project was launched on 1 August 1997, and completed on 31 August 1998. It resulted in a consensus among the various stake holders of the principals of the WKH's and a WKH inventory methodology. The second stage, involving a full-scale inventory, starting in the state forests, has continued since then.

The project involved a number of organisations, representing different interest groups; State Forest Service (SFS), the Latvian Fund for Nature, the WWF Latvian branch, the Ministry of Environmental Protection and Regional Development, the Gauja National Park, the Ķemeri National Park, the Forest Department of the Ministry of Agriculture, the Forest faculty, the Forest Inventory Institute (now reorganised) other agencies and independent experts. The co-operation was a success, resulting in consensus on a variety of main points.

Figure 1.

A typical Woodland Key Habitat has trees of a diverse age structure and a large amount of fallen woody debris.

BACKGROUND

For many reasons, including forest history, we have in Latvia so-called “hot spots” of biological diversity, where the concentration of nature values is extraordinarily high. These hot spots account for a small proportion of the total forest area. Of the proportion of living places for rare and threatened species, these hot spots comprise a very high percentage. This is why it is essential to identify WKH’s, to preserve them, or apply conservation management practices.

DEFINITION

A Woodland Key Habitat is defined by the project as: an area which contains such habitat specialists, that cannot sustainably survive in stands managed for timber production. A well-founded expectation that a habitat specialist exists is a sufficient criterion for designating the area as a Woodland Key Habitat.

A habitat specialist is generally a species that specialises in a certain habitat. Within the WKH inventory the habitat specialists are principally threatened species that require special forest features and forest structures e. g. old trees or deadwood.

“A well-founded expectation that a habitat specialist exists is a sufficient criterion for designating an area as a Woodland Key Habitat” means that it is not necessary to find a habitat specialist before an area can be assessed as a WKH. The time and knowledge needed to find these species in every case makes this an impossible task. Instead, a well-founded expectation, based on earlier findings and experience, is enough.

There are exceptions to the above-mentioned definition. An area with a habitat specialist is not a WKH:

- If the biodiversity values in an area have recently been severely damaged (for example by sanitary cutting) and a non-sustainable residual population of a habitat specialist still survives.
- If the habitat specialist clearly shows up merely “by accident” in an area, which in no way resembles a WKH.

HOW TO FIND WKH’S

Research and experience shows that the majority of threatened species have specific ecological requirements. Some of them, defined as habitat specialist species, require for their survival special features and forest structures, defined as key elements. These might be old trees, fallen deadwood of different tree species, dead standing trees, natural snags or wet and flooded places. The key elements serve as good indicators for evaluating if the particular locality meets the WKH criteria. The availability of deadwood - a crucial feature for a large variety of species, including habitat specialists, is considered the most important key element. Hundreds of insect and plant species may live on fallen spruce stems, while others prefer pine in a similar condition. Different species inhabit logs lying in wet conditions in comparison to those lying in a dry place. Again there is a difference



Figure 2. The lichen *Lobaria pulmonaria* is a redlisted species in Latvia which was not known from many places before the Woodland Key Habitat inventory. Since the inventory it is now known from 478 places in Latvia. Photograph by Mats Rosengren.

in species composition if the tree growth has been fast or slow before the tree falls. A standing dead tree may be exposed to light or in a shady position etc. There are similar variations in the locations of living old trees, and the species inhabiting them.

As well as the key elements, species presence is another criterion for deciding if the particular forest site is WKH or not. The presence of indicator species of lichens, mosses, polypores, insects, molluscs and vascular plants is assessed. The list of species to be searched for during field work is based on the experience of the WKH inventory gained in Latvia, Estonia, Sweden and other Nordic countries, as well as on the ‘state-of-the-art’ knowledge of species ecology. The indicator species used in the WKH inventory method are mostly linked to a long continuity of the above features of the forest or some special micro-habitats, most commonly old, decaying or dead trees, natural springs etc. This is the only environment where certain living organisms can survive. It has taken them millions of years to adapt to living in conditions such as these. These species can no longer survive when modern forestry practices start and where such features are not created and may even be actively removed. In some cases though, old agricultural landscapes created conditions where these species could survive or even flourish. Such man-made biologically valuable features, such as old solitary trees in wooded meadows, are quite common in for example southern Sweden and western Estonia, but rare in Latvia.

WHY BUILD AWARENESS AND PROTECT WKH?

There is always a reason why a forest site is a WKH. It may depend on the historical background of the particular forest or the site conditions. Often the

same WKH includes a number of threatened species, which may be almost non-existent in the adjoining forest. Normally, WKH's are highly sensitive to abrupt changes in management practices. If the habitat is destroyed, it takes a very long time before it is restored again to the same quality. For instance, felling a wetland spruce forest several hundred years old will cause irretrievable changes in condition that cannot be created within a human life span.

Although the WKH protection is by no means the only solution to the problem of forest diversity conservation, it is one of the cornerstones for the preservation of forest biological value. Thus, to avoid accidental mistakes and to preserve the values of the forest, it is of paramount importance to know how much and what types of WKH are present and where they are to be found.

IS NON-INTERVENTION THE WAY

TO PRESERVE WKH'S?

As to the most suitable management regime for WKH's, the opinions of Latvian experts fall into two extremes - those favouring no management intervention whatsoever, and those favouring a special management regime to maintain forest biological diversity. The thought behind the management of WKH's is generally primarily not to improve the situation for certain species found in the specific habitat, but to mimic natural disturbance regimes, or old agricultural management regimes, typical for the habitat type. In this way most species will probably also be favoured.

If a boreal dry WKH comprises sun-loving species connected to pine but the site is, for example, invaded by spruce and becoming increasingly shady, we should interfere to retain the original microclimate, provided that our aim is to preserve the above species/habitat.

If we cut the spruce we will mimic the natural disturbance regime of a forest fire.

It might be possible to carry out prescribed burning, but this is generally difficult, and may not be advisable in small habitats.

Another example could be an oak-tree that has grown to maturity in an open landscape later to find itself within a vigorous growth of young trees. It is not beneficial to either the sun-loving species living in the bark of this tree or to the oak itself to be shaded. Neither the tree nor the species will be able to adapt themselves to the new environment and will gradually decline.

WHO IS SURVEYING WKH'S?

The WKH inventory is the duty of the foresters since they have a major responsibility for forest biodiversity conservation. It is the forester's duty to build up a knowledge of the processes under way in the forest and translate this knowledge into practical actions. Forest organisations are also the only bodies able to put to work a sufficient number of suitable fieldworkers.

Specially trained foresters within SFS have performed the inventory. During the first 2 years of full-scale inventory, 27-44 surveyors have been engaged. They have combined this with other tasks within SFS especially during the winter. In the beginning of the year 2000, 26 permanent jobs, so called ecological engineers, were established at the regional level of SFS (one for every regional forest district). Their first main task was to carry out the full-scale WKH inventory of all of Latvia.

The fieldwork will continue for several more years. At first, this job will be completed in the state-owned forests, as the state company Latvijas Valsts meži (JSC LVM) is now responsible for the management of state forest lands and has committed itself to ensure WKH protection.

RESULTS

The entire forest area in Latvia is 2 800 000 ha and around half of this is state forest. So far 523 300 ha (19% of the forest area) has been surveyed and 20 689 ha (approximately 10 000 sites) has been assessed as WKH (up to 31 October 2000). It is not possible to say how large the total area of WKH is in the forests, until the full-scale inventory has covered the whole region. Only in one region, Preiļi Regional Forest District, has the inventory in state forests been completed and the total proportion of WKH identified there is 2.3 %.

The project leaders estimate that the average proportion of identified WKH, after the full-scale inventory of the state forests of Latvia is completed, will be 2-3% and that an additional 1-2% will remain undiscovered by the full-scale inventory.

The results of the first years show a highly uneven distribution of WKH's over the territory of Latvia. However, all of them are of great value and should be regarded as a national asset and protected accordingly.

The inventory is already completed in the Gauja National Park, and is continuing in the Ķemeri National Park and the forests of the Riga Municipality. The forest owners, both legal bodies and individuals, show an increasing interest in the WKH inventory, as it will be an essential precondition for the forest certification.

The results of the WKH inventory are of great value not only to conservationists, but also to the companies dealing with timber. The combined outcome of the inventory of WKH's and the firm commitment from JSC LVM not to cut discovered WKH's minimize the risks that the timber will be cut from forests with high protection values.

A three-year period of joint effort between the Latvian forest sector agencies and individual experts can be summed up. In order to achieve the task seminars, workshops and training courses have been held, manuals prepared, a number of specialists trained, and the forest area surveyed. Yet, the most important element is the increasing knowledge and a change in opinion that has resulted in a consensus

being reached that the WKH inventory is a must for Latvia's forest sector. The information accumulated in the course of the inventory is increasingly used to demonstrate internationally the firm commitment of Latvia to the cause of forest biological diversity conservation.

The inventory has substantially contributed to the knowledge of the distribution and ecology of the threatened lower flora and fauna. Some striking examples include the Red Data book species *Bulgarica cana*, *Lobaria pulmonaria*, *Menegazzia terabrata* and *Neckera pennata* which before the inventory not were known from many places. Now, after less than two years of inventory, they are recorded in 104, 478, 179 and 1429 habitats respectively. A considerable number of species have also been found for the first time in Latvia or for the first time in a very long time, during the project.

Many of us may be fully convinced that our knowledge of the forest is sufficient, though in reality it may be restricted to distinguishing between a couple of tree species or having the skill to sharpen a saw blade. Unfortunately, our understanding of the forest biology, forest structures and microorganisms is very poor. The disappearance of many living species is associated with the loss of natural habitats required by them and this results from inconsiderate and intensive management activities undertaken by man.

It is our duty to preserve and increase the forest values, inconspicuous as they may seem, yet they are highly significant for man's welfare. Let us protect the forest wealth in the interests of both the forest and mankind.

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