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Natura 2000 and Forests

Part III – Case studies

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Natura 2000 and Forests

Part III – Case studies

Good practice experiences and examples from different Member States in managing forests in Natura 2000

1. Setting conservation objectives for Natura 2000. Experiences in some Members States

Conservation objectives can be set in documents linked to the designation of the Natura 2000 sites (e.g. SAC designating acts) and more specifically laid out in the management plans or conservation measures established for the sites. Some examples are presented below:

Belgium - Wallonie. Quantitative and qualitative objectives have been defined at regional level for all habitat types and species present in the Natura 2000 network in the Wallon region[1], which provide the basis on which conservation objectives at the site level should be set. These objectives are aimed at the maintenance or restoration of habitat types and species populations and are based on the parameters used in the article 17 reporting. Taking into account the current status and distribution of habitats and species, precise targets to be reached in 2025 are defined, e.g. the maintenance or increase (in ha) of the habitat area or the distributions of species populations (in grids of 1x1 km). Qualitative objectives include maintenance or improvement of habitat quality and precise criteria for the evaluation of habitat quality have been defined.

At the site level, quantitative and qualitative objectives are also defined for the habitat types and species of Community interest. E.g. quantitative objectives for habitats: a) to maintain the area of existing natural habitat types for which the site is designated; b) if necessary and with the agreement of the owner and the occupier concerned, extend the existing areas of the habitats by restoring new areas. Qualitative objectives: a) maintain the quality of natural habitat types for which the site is designated as assessed in the designation act or according to the best knowledge available. Quantitative objectives for species of Community interest and bird species: a) maintain in the site in question and subject to natural fluctuations and fluctuations due to external causes, the populations of the species for which the site is designated, as well as the areas of existing habitat for these species, as estimated in designation act or according to the best available knowledge; b) if necessary and with the agreement of the owner and the occupier concerned, strengthen, on the site concerned, the population levels referred to above or expand on the site concerned, the existing areas of habitat of the species concerned. Qualitative objectives for species: a) maintain the quality of the habitat for the species for which the site is designated, necessary to maintain the population levels referred to above; the quality is assessed on the basis of data on the conservation status of the species included in the designation decree, or according to the best knowledge available; the quality is also evaluated based on criteria set in an annex to the decree.

Denmark. Conservation objectives are included in the *Management plans* approved for each Natura 2000 site[2]. They have been formulated at site level for species and habitat types of both the Habitat and Bird Directives. The plans acknowledge that the overall goal is to maintain or restore at favourable conservation status the habitats and species for which the site has been designated and also set more specific objectives. These specific objectives define long-term goals for the condition of the individual habitats and species

[1] http://biodiversite.wallonie.be/fr/enquetes-publiques-offentliche-untersuchungen.html?IDC=5580
[2] http://naturstyrelsen.dk/naturbeskyttelse/natura-2000/natura-2000-planer/natura-2000-planer-2009-15/

habitats and set clear targets, e.g.: habitat type area to be extended on a specified percentage, ensure breeding habitats for certain species, maintain or increase populations, etc.

France. General and operational objectives are defined in the *Docobs* (*Documents d'Objectifs, i.e. site management plans*) for different components (e.g. natural grasslands, forests, littoral habitats, etc.). General objectives are defined in relation to the main habitat types and considering the human activities in the site, the current level of knowledge, etc. Operational objectives are defined in detail for the main environments (e.g. aquatic environments, grasslands, etc.). A prioritization is also set according to the degree of urgency[3]. The Docobs are approved by a Prefectural Order (*Arrêté*).

England. Natural England has published high level conservation objectives for most SACs in England[4]. The generic high level text is used for all SACs as follows: With regard to the natural habitats and/or species for which the site has been designated („the Qualifying Features" listed below).

- Avoid the deterioration of the qualifying natural habitats and the habitats of qualifying species, and the significant disturbance of those qualifying species, ensuring the integrity of the site is maintained and the site makes a full contribution to achieving Favourable Conservation Status of each of the qualifying features.
- Subject to natural change, to maintain or restore:
  - The extent and distribution of qualifying natural habitats and habitats of qualifying species;
  - The structure and function (including typical species) of qualifying natural habitats and habitats of qualifying species;
  - The supporting processes on which qualifying natural habitats and habitats of qualifying species rely;
  - The populations of qualifying species;
  - The distribution of qualifying species within the site.

The next steps is to produce (where possible) quantified targets linked to the qualifying features. These will be supported by mapped distribution of qualifying habitats and habitats of species within sites. Following consultation, Natural England has now finalised and published a Standard for European Site Conservation Objectives. The Standard sets out the approach Natural England will take to improving European Site Conservation Objectives and their content[5].

Wales. The conservation objectives for all the terrestrial SACs are within the *Core Management Plans*, which are available on the CCW website page on Natura 2000 Management Plans[6]. There is one conservation objective for each qualifying feature (each habitat type and species for which the site is designated). Each conservation objective is a composite statement representing a site-specific description of what is considered to be the favourable conservation status of the feature. These statements apply to a whole feature as it occurs within the whole plan area, although their relevance

[3] See, e.g.: http://www.franche-comte.developpement-durable.gouv.fr/IMG/pdf/Fascicule_4_objectifs_de_gestion-actions_17102012_cle0f1b18.pdf

[4] High level conservation objectives can be found at: http://www.naturalengland.org.uk/ourwork/conservation/designations/sac/conservationobjectives.aspx

[5] Available at: http://publications.naturalengland.org.uk/publication/6734992977690624

[6] http://naturalresourceswales.gov.uk/splash?orig=/ (go to: designated sites / Special Sites Project)

to individual management units is also specified. Each conservation objective consists of the following two elements: 1) Vision for the feature, 2) Performance indicators. The vision for the feature is the expression of the aspirations for the feature concerned. The performance indicators are what make the conservation objectives measurable, and are thus part of the conservation objectives. The performance indicators include the attributes (e.g. population, extent, condition) and their associated specified limits, together with factors (e.g. livestock grazing) and their associated operational limits, which provide the standard against which information from monitoring and other sources is used to determine the degree to which the conservation objectives for a feature are being met.

Sweden. Guidelines for setting conservation objectives are given in Swedish Environment Protection Agency's manual for the management of Natura 2000 sites[7]. The conservation objectives shall be set in the perspective of the role of the specific site for achieving or maintaining a favourable conservation status of species and habitats on the biogeographical level. The importance of relevant and reliable conservation objectives as references in Appropriate Assessments (according to the national legislation transposing Article 6.3) is pointed out. The guidelines also provide examples on how to formulate the objectives, with emphasis on the following:

- The objectives shall be clear and easy to understand.
- Primarily, they shall cover aspects that can be kept under control with relevant management measures.
- They shall be easy to monitor and verify, to a reasonable time consumption and cost.

It is recommended to phrase the objectives in terms of threshold values or intervals, rather than means or averages. It is also proposed to use indicators linked to the occurrence of typical species. Furthermore, the objectives should reflect the level for a stable favourable conservation status, but not any ambition above that. Some examples are given below concerning conservation objectives set for forest habitats types in a selected Natura 2000 site:

Habitat	**Surface area**	**%**	**Conservation objectives**
*9010 Western taiga	2116 ha	8 %	• Area to be maintained or increased • Percentage of dead wood to increase to ca 20 %[8] • At least two typical species shall occur at x % of the area.
9050 Fennoscandian herb-rich forests with *Picea abies*	88 ha	2 %	• Area to be maintained or increased • Percentage of dead wood to increase to ca 20 %. At least two typical species shall occur at x % of the area.
*91D0 Bog woodland	529 ha	12 %	• Percentage of dead wood to increase to ca 20 %. • Undisturbed hydrology. • At least two typical species shall occur at x % of the area.

[7] Natura 2000 i Sverige. Handbok med allmänna råd (pages 22-28); http://www.naturvardsverket.se/Documents/publikationer/620-0131-0.pdf

[8] % of total stems dead or containing some decaying wood habitats.

2. Integrating conservation objectives into public forests in Austria. Measures to improve the conservation status of bird species linked to forests

Key words: cooperation between forest managers and nature conservation organisations, integration of nature conservation measures into forest management, birds' protection in forest, deadwood, biotope trees, preservation of old growth stands, capacity building.

Background

46% of the Austrian territory is covered by forests, which means close to 3.9 million ha. About 15% of Austrian forests belong to the State. Nearly half of the bird forest species that occur in Austria are threatened according to the Austrian Red List. These species can be found in a wide range of habitats and are used to forest structures that have become quite limited due to forestry operations.

ÖBf- Österreichische Bundesforste (Austrian Federal Forests) and BirdLife have carried out an initiative to improve the conservation of bird species in forests with the following objectives:

- To increase the populations of endangered bird species
- To improve forests management taking into account nature conservation needs (reach a minimum threshold)
- To include suitable practices and measures into routine operation of ÖBf.

Forest habitats targeted include fir-spruce-beech forests (9410), beech forests (9110, 9130, 9140, 9150) and oak forests (9160, 9170). Regarding the bird species, woodpeckers are the main target (e.g. middle spotted woodpecker *Dendrocopos medius*), but there are also some other species that can benefit from the proposed measures, such as lichens, beetles and other invertebrates. Although the cooperation between ÖBf and Birdlife was not established around Natura 2000, it is assumed that ÖBf would use knowledge gained in its big share of forests in Natura 2000.

The initiative started with the elaboration of a study and relevant guidance ("*Bird protection in forest – guidance for implementation*), which involved the organisation of two workshops with participation of national and international experts and formulated basic principles and criteria for the implementation of measures aimed at the conservation of bird species linked to forests, including quantitative goals and estimated costs.

Testing conservation measures and defining agreed targets

The conclusions of the above-mentioned study were tested in three pilot districts[9]. The suitability of the measures were analyzed, together with their costs, in order to decide whether the measure would be later implemented on the whole ÖBf territory. These measures were mainly:

- increase of **decaying wood**: preferably of broad-leaved tree species; targets were agreed with stakeholders; the implementation of the measure required training.
- preservation of **biotope trees**: over-aged trees with non-optimum economic potential that are left when thinning; this concerned isolated oak and beech groups.

[9] A *forest district* is the smallest administration unit (1000– 4000 ha), led by a forester; several districts are combined in a forest administration (20.000 – 40.000 ha), led by a forest engineer.

- preservation of mature tree stands as **biodiversity islands** (≥ 120 years); the Middle Spotted Woodpecker is used as model species to determine the efficiency of the measure; the aim was to increase the area of **old growth forests**.

Additional optional measures included diversifying forest edges, promoting natural rejuvenation and pioneer tree species and establishing natural tree composition. Awareness raising and capacity building activities were also carried out.

Once the testing phase was finished in 2011 the main results were analysed and discussed and agreements were reached on targets and measures to be implemented on State Forests managed by ÖBf until 2020. The agreed targets include the following:

Increasing decaying wood: the quantitative goal for this measure was fixed as to achieve 9 m^3 of dead wood per hectare in the the form of standing dead wood of large dimensions (DBH>20cm), which represents an increase from the average 3 m3/ha existing on the pilot districts; total volume of all dead wood to be achieved was 20 m3/ha.

Preservation of biotope trees: leaving 5-7 biotope trees/ha of DBH of 50 cm or more and including 1-2 trees from species of nature conservation interest (e.g. oaks). 1-2 % of all trees should be older than 100 years. 2,5 pieces per hectare were found in the pilot districts. The agreed increase of biotope trees would have some financial implications.

Establishment of biodiversity islands excluded permanently from management in mature tree stands, at least 120 years old: 4 Permanent Biodiversity Islands (≥ 1 ha) per forest district should be maintained.

The implementation phase started in 2013. The organizations involved are confident that the goals for dead wood, biotope trees and permanent biodiversity islands can be reached by 2020 but it will require significant efforts in communication and training.

Technical guidance for the implementation of the measures includes:

- Dead wood and pioneer tree species should be left in the stand (e.g. while thinning)
- Badly formed trees with less economic value are preferred (max. 50%)
- Preserving trees with nests or cavities
- Select single trees for oaks and groups for beech
- Cutting off a few trees at 1m height
- “Carving instead of cutting“
- To assess the potential of biodiversity islands at the planning and operational level.
- To generate an inventory of suitable old-growth stands (≥ 120 years) in the forest types designated for logging.
- To preserve a minimum share of target tree species (e.g. 10 % oaks).
- To preserve a minimum stocking rate of the overstorey to conserve features of old-growth forests.

Lessons learnt/conclusions

- This experience is a good example of successful collaboration among forest managers and nature conservation organisations to agree on the implementation of nature friendly forestry practices.
- Improving mutual understanding and mutual learning between forest and nature managers requires some time and can be favoured by field tests to put in practice

some agreed measures, in which the relevant stakeholders participate. Setting appropriate measures for birds' conservation in forests involved discussions and tests implemented with the collaboration of forest managers and nature conservation experts, which started 8 years ago.

- Conservation objectives can be proposed and agreed in managed forests, eg. in relation to the amount of dead wood. However, the specific targets as well as the measures to be applied must be adjusted to the different forest types and it is very important to reach agreements on targets among relevant stakeholders. In this experience, baseline targets for deadwood were first based on scientific knowledge but then discussed and agreed with stakeholders. Some of the targets have significant economic consequences (eg. conserving stands over 120 years old) and must be properly discussed and agreed.
- The costs for implementing suitable measures and possible restrictions should be properly calculated. Even though 4,5 Million €/year are invested in public forests in Austria, in order to reach the optimum targets for all the proposed measures an active management supported with some extra financial inputs is needed.

Further information:

- ÖBf website. http://www.bundesforste.at/index.php?id=554

- Wichmann, G. *Integrating Natura 2000 conservation objectives into public forests in Austria*. Presentation at the 2nd Stakeholder Workshop on Forests and Natura 2000: Opportunities and challenges. Brussels, 23 May 2013. European Commission. Available on Circabc (Case 1)[10].

[10] https://circabc.europa.eu/w/browse/28cb0d1f-bbf0-4b36-aedf-3909ecd486b7

3. Improving forest management in cooperation with landowners in the Natura 2000 site Tullnerfelder Donau-Auen, Austria

Key words: cooperation between landowners, nature conservation and forest authorities, conservation and forestry measures in Natura 2000, forest owners' network, territorial development plan, information, funding, contracts, assistance to landowners.

Background

An initiative to improve forest management in a Natura 2000 site in the Danube foodplains ("Tullnerfelder Donau-Auen", 17.760 ha) has been implemented through cooperation among forest owners and the nature conservation authority from Lower Austria. BIOSA (Biosphere Austria) an association of landowners involved in nature conservation, acted as facilitator and coordinator of the project, mediating between the landowners and the nature conservation authority.

The main objectives of the project concerned improving communication and information, and formulation of measures in accordance with the site conservation objectives and management plan.

Cooperation in the development and implementation of measures

The project involved improvement and promotion of direct communication with the landowners and development of a network of forest owners to establish a new model for the implementation of measures in the Natura 200 area.

A territorial custom-made development plan for the area was elaborated in close cooperation with other relevant stakeholders, as forest departments and forest enterprises. The aim was to define and implement agreed measures in a consensus-oriented manner. A central contact centre was established in a forest Enterprise based in the Natura 2000 area to promote and improve cooperation in the implementation of forestry measures based on the territorial development plan. Funding has been provided to landowners for the implementation of suitable measures to conserve forest habitats and species. The measures were financed with EU funds for Rural Development (EAFRD 2007-2013).

The project started with information meetings with the landowners and the representatives of the lower Austria authorities. The elaboration of a territorial plan involved visit to local forests and discussions with the landowners, which allowed the formulation of forestry measures in in accordance with the objectives of the management plan available for the Natura 2000 site. The measures were also dicussed on site visits with representatives of the forest department. Upon acceptance or approval by all partner involved, the implementation of measures started.

Forestry measures included the preservation of biotope trees (nesting and hollow trees) and and protection of nesting areas, increasing the amount of deadwood in the forest, setting aside forest areas along the river banks and oxbow areas, establishing old-growth wood islands, securing or increasing the proportion of oaks in the floodplain and the conversion of non-native poplar plantations in alder-ash-willow native forests. On bird protection issues, intensive consultation was maintained with BirdLife Austria.

The commitment periods vary depending on the measures, e.g. biotope protection stripes are committed for 5 years, while islands of old wood and nesting protection areas are committed for 20 years.

In addition there were information meetings with representatives of the local communities and regional stakeholders from the fields of hunting, tourism and fisheries.

Results achieved and key lessons learnt

The project has developed a model of partnership for the implementation of conservation measures in Natura 2000. In cooperation with nature conservation authorities, 15 forest enterprises and landowners implemented some 22 nature conservation projects over 145 ha in the Tullnerfelder Donau-Auen Natura 2000 site. This collaborative approach illustrates how gaining landowners' acceptance to Natura 2000 projects can ensure a process free of conflicts.

This was the first time all participating landowners were given the opportunity to actively cooperate in the implementation process and to constructively discuss the nature conservation requirements and guidelines. Together, they created shared goals and put forward their own nature conservation ideas. All measures were implemented on a voluntary basis.

Awareness-raising activities, information events and local meetings with the involved parties have been key elements of the forestry facilitation program. The project provided support to landowners and their representatives on forest management in Natura 2000, especially on how conservation requirements could be implemented effectively and in a way that the implementation does not get in conflict with the forest management objectives and does not reduce significantly the income of the forest owners.

Providing advice to landowners and considering their economic objectives has been a crucial aspect in this experience. One of the most time-consuming tasks in the course of this project was to support the project partners in the decision making process.

The necessary resources for the implementation of the agreed measures have been made available from the Rural Development Programme (2007-2013) but it has to be noted that the commitments range from 5 to 20 years and support should be secured in the long term to maintain the project results.

Further information:

http://www.biosa.at/index.php?option=com_content&view=article&id=57&Itemid=68&lang=de

Contact: Renate Haslinger, biosa@landforstbetriebe.at

4. Management of public forests in Natura 2000 sites in South East Belgium

Key words: habitat and species conservation, commercial management of forests, forest reserves, deadwood, habitat trees, diversification of forest structure, ecological corridors, habitat restoration.

Background

The Regional Forest Department (DNF) of Wallonia manages close to 100,000 ha of public forests in Natura 2000. This department has adopted measures and modified both silvicultural techniques and forest management to enhance diversification, habitat and species conservation and natural regeneration. Identification and establishment of forest reserves has proved to be easy and low costing.

Beech forests of different types are the main forest habitats in Wallonia but also some oak forests as well as alluvial and riparian forests are present. Regarding species of Community interest linked to forests, these include mainly birds, as Black stork (*Ciconia nigra*), Grey headed woodpecker (*Picus canus*), Grey shrike (*Lanius excubitor*), etc.

Key measures implemented

Several measures have been adopted by the DNF with the aim of maintaining a favourable conservation status of forest habitat types and species in combination with the commercial management of forests in Natura 2000 sites. These measures include:

- Combining thinning operations and the maintenance of deadwood trees and trees of high biological value; these trees are marked and registered. The objective of this measure is to reach at least two deadwood trees per hectare and at least one biotope tree per 2 ha.
- Identifying and establishing forest reserves (set aside from forest exploitation and forestry activities).
- Enhancing natural regeneration of forest habitats (e. g. *Luzulo-Fagetum*); this measure also contributes to diversify the forest structure by a patchwork of small clearings, underbrush and tall trees.
- Clear-cutting Norway spruce stands in river valleys and on peat soils and controlling further spruce regeneration. This will lay the basis for establishing ecological corridors between key areas in forests, improving the quality of water courses by improving luminosity and natural riparian tree vegetation, as well as restoring mires and peat bogs on soils which are unsuitable for Norway spruce.
- Diversifying forest edge vegetation.
- Adapting the timing of silvicultural and logging operations to avoid interference with the reproductive season of birds.
- Restoration actions are also carried out to recover high nature value components of open landscapes in forest, e.g. restoration of peat bogs around the Hautes Fagnes plateau.

Main conclusions/Lessons learnt

- In Natura 2000 forest sites, a favourable conservation status can be maintained in combination with the commercial management of forests. Natura 2000 status is compatible with multifunctional forest management including forestry, tourism and hunting.
- Forest reserves can be easily established on unsuitable production sites: steep slopes, wet soils or rocky soils where logging or skidding operations are expensive and/or difficult. There is thus no significant interference with the commercial function of the forest.
- Spruce removal is in favour of habitats and species for which Natura 2000 sites were designated: Black stork, Grey headed woodpecker and Grey shrike. Naturally occurring trees and scrubs are well adapted to local geo-climatic conditions so the risk of natural disturbance (windfalls, plagues, etc.) can also decrease.
- Some limitations have proved to imply new opportunities or benefits as they offer broader grounds for action on un-limited forestry actions, uses or productions not completely explored before.

This case also offers a number of particular lessons associated to certain measures, such as for example:

- After the enhancement of natural regeneration of forest habitats, In the Ardennes and during the last decade, forest tree fructifications (beech, oak) occur more frequently. Nevertheless, there is still a problem of excessive game density (red deer), which in poor soils jeopardizes natural regeneration of indigenous broadleaved forests, so a hunting regulation is needed.
- Internal forest edges provide habitats for birds and insects and natural grazing areas for deer, which reduces the grazing/browsing pressure on forest ecosystems.

Contact: Ives Pieper, yves.pieper@spw.wallonie.be. Forest authority in Wallonia.

Presentation at the 1st Stakeholder Workshop on Forests and Natura 2000: Opportunities and challenges. Brussels, 23 May 2013. European Commission. Available in CIRCABC https://circabc.europa.eu/sd/a/8782c8f1-6afa-4c08-8d70-e4b4c03650e9/Workshop_EU_DG_ENV_13_12_2012.pdf

5. Integration of nature conservation objectives in forest management. Restoring conservation status of forest habitats in Flanders

Keywords: restoration of favourable conservation status, forest habitats of Community interest, deadwood, forest reserves, subsidies and other incentives

Background

Forest cover is only about 11% of the Flanders territory. This low forest cover is not a recent phenomenon, but already dates back to the middle ages. In the past, forests used to be mainly perceived as providers of wood (and game). Nowadays, forests are mainly perceived and managed as providers of 'socio-cultural ecosystem services' like recreation, clean air, and nature conservation.

The legal framework for forest management is quite ambitious and restrictive, both to public and private forest owners. There a strict regulation on management plans and felling permits under the forest legislation (Forest Decree) and also nature conservation legislation (Nature Decree) strongly influences the operational choices of the forest owner. The 'stand-still-principle' and the 'precautionary principle' prohibit any forest operation that leads to long-term loss of natural values. Furthermore, restrictions and obligations are stricter and quality targets are more ambitious for public forests, but also for private forests within the Flemish Ecological Network, and the Natura2000 SAC's (about half of all private forests are within these categories). In return, owners are eligible for a wide range of subsidy schemes, e.g. for public access to their forests, for reforestation and afforestation, for the production of a management plan, for conservation measures, etc. Moreover, forest owners that comply with the more ambitious legal requirements are eligible for certification under the FSC-group certificate of the Flemish government. Finally, quite elaborate monitoring tools are put into practice in order to evaluate the performance of the forests in relation to the policy goals.

Restoring conservation status and forest management in the Natura2000-network

The conservation status assessment carried out in 2007 showed that all forest habitats were in an unfavourable conservation status. This has lead to the implementation of ambitious Regional conservation targets. These targets are considered to be required, in order to reach the long-term goal of favourable status of conservation for all habitats (as set by the EU Biodiversity Strategy 2020). In principle, these goals can be realised on the whole territory. However, in practice, the goals on habitat quality and habitat extension will be primarily concentrated in the SACs, which cover more than 50% of the actual forest habitat area (and more than ⅓ of all forests including non-Annex I habitats).

The Regional Targets for Natura 2000 species and habitats are now further elaborated for every SAC. The targets for the year 2020 are also further elaborated in an implementation document of the Agency for Nature and Forest. For 16 habitat types, the conservation status should be improved by 2020; for all other types, this target is to be reached by 2050. All forest habitat types (except for the marginal type 9150) are in the last category. This is logical, as a time horizon of at least 40 years is needed and reasonable to reach the regional targets, as they encompass large areas of afforestation and conversion of existent forest stands in habitat types of Community interest. These transformations should be performed at a pace that is in line with the concepts of sustainability and sustainable forest management. However, also for these habitats, a

substantial change in the direction of the target should be demonstrated by 2020. The evaluation criteria and the requirements for a favourable conservation for a status are set for all forest types in Thomaes et al. (2009). A handbook also gives further guidance for forest managers on the management of forest habitat types and conversion trajectories towards forest habitat (Thomaes et al., 2012).

Increasing dead wood and overmature trees in Flemish forests

Flemish forest policy has the explicit goal to further increase both quantity and quality of dead wood and conserve overmature trees, through a two-way approach. In multifunctional forests, the aim is to gradually improve both quality and quantity of dead wood, by leaving some of the dead and dying trees during forest operations. For overmature trees, a number of trees per ha should be selected to be left uncut.

At the same time, a network of strict forest reserves (SFR) is being developed, covering 2% of the forest area. In these, a spontaneous build-up of dead wood and veteran trees to natural levels takes place (so-called 'secondary old growth'). Analyses of this process have shown for dead wood an average net accumulation of about 1,5 m^3/ha/year but with wide variation. It is expected to take about one century, on average, to reach natural levels of dead wood. As most sites already contain a good number of trees over 100 years old, the same time horizon to reach natural levels of overmature trees is expected.

It is believed that the combination of these two approaches is necessary and complementary to reach the overall goal of biodiversity conservation and restoration in forests. There are clear indications that the observed trend towards more dead wood and overmature trees (form the first forest inventory to the second one) already leads to a significant recovery of related biodiversity.

Subsidies to achieve ecological targets in forest management and other incentives

The high requirements imposed on forest owners, are compensated by different forms of subsidies and other incentives. Specific subsidies for forest owners are stipulated in the Executive Order (BVR on the subsidies for managers of public and private forests) from 2003. This order provides subsidies for public access, for the regeneration with native tree species, for measures supporting the ecological function and for the making of an extensive management plan.

The subsidy for regenerating with native species amounts between 1.500 and 3.200 Euro per ha depending on the regenerated tree species, and can be further increased by 500 Euro per ha for mixed stands, and another 500 Euro/ha if also an understorey or shrub layer is provided (e.g. *Corylus, Cornus, Viburnum*). The regeneration can originate from planting or from natural regeneration. Requirements are that the regeneration is in line with the management plan (if existent), and not contradictory to other overall goals for the area (e.g. heathland restoration). Also a minimum density of the regeneration is set. Payment is done in two parts. The first 60% is paid after approval of the application by the owner. After 5 years, the success of the regeneration is checked in the field, and if sufficient, the second part is paid.

The subsidies for ecological function are linked to the existence of an approved extensive management plan, according to the Criteria for Sustainable Forest Management (CSFM), in which these areas are clearly designated. Four types of areas can be designated.

- Small permanent open areas within the forest, managed for conservation purposes (ponds, small heathland patches, species-rich grasslands): 125 Euro/ha/year

- Native, broadleaved forest stands, managed for conservation and development of a 'natural forest type': 125 Euro/ha/year

- Native broadleaved stands and old Scots pine stands (over 70 years old), not specifically managed to reach a natural forest type: 50 Euro/ha/year

- Stands officially recognised as seed source for native tree and shrub species, managed in function of effective seed harvest: 50 Euro/ha/year

Finally, the production of an extensive management plan according to the principles of SFM is also subsidised: individual owners receive 200 Euro per ha for this purpose; for management plans covering several owners, this amount is raised by 20 to 50 Euro per ha.

Furthermore, forest owners that who manage their forests according to the CSFM, fixed in an approved management plan, are eligible for specific subsidies and forest owners are exempted from succession rights.

Further information:

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6. Sustainable management of forests in Natura 2000 sites in Smolyan region, Bulgaria

Key words: forest management plans, stakeholders involvement, training, capacity building integrating Natura 2000 requirements into forest management.

Background

Forests cover approximately one third of the country's territory and are of great importance for the implementation of Natura 2000 in Bulgaria. Currently, forests are managed in accordance with the Forests Act. This law defines the terms related to ownership and management as well as to re-generation, use and protection of forests in the Republic of Bulgaria.

Large parts of the national protection areas, including the Natura 2000 sites, are wooded areas, thus falling under the responsibility of the national forestry authorities, who manage the forests on the basis of ten-year forest management plans (FMP). This makes the forest sector one of the key actors in the management of Natura 2000 areas in Bulgaria. However, many of the current forest management plans are not fully in accordance with the Natura 2000 conservation objectives and their implementation might lead to deterioration of the conservation status of forest habitats and to negative effects on certain species. Additionally, knowledge and understanding of Natura 2000 management and biodiversity conservation is currently not cause deterioration of rare and threatened habitats.

The Smolyan region is situated in southern Bulgaria and encompasses the central parts of the oldest mountain range on the Balkan Peninsula – the Rhodope Mountains (Rhodopes). The region is part of the European Green Belt, which follows the former Iron Curtain that separated the European continent in East and West for nearly 40 years. The border areas conserved natural habitats which served as a retreat for many endangered species so that an ecological network and living memorial landscape developed.

As in other parts of the European Green Belt also in the Rhodopes the interaction between man and nature has not been intensive due to its location at the border to Greece. The region was under military surveillance until 1990 and the access was limited. Therefore some of the most significant natural areas on European and global level have been preserved. Parts of the project region fall partially within four different Natura 2000 sites.

Forestry is an important source of income in this region, entailing the risk that any measures to enhance the protection of Natura 2000 forest areas will be met with rejection. Therefore, there is an urgent need to reconcile ecological and economic interests.

Conservation and sustainable management of forests in Natura 2000 sites

The aim of this project was to enable conservation and sustainable management of forests within Natura 2000 sites in Bulgaria, with a focus on the Smolyan region. During the course of the project a model for sustainable management of forests in accordance with Natura 2000 objectives was developed as pilot model for other regions in Bulgaria. One of the specific objectives of the project was to contribute to the integration of forestry practices with the conservation objectives of Natura 2000 sites.

Two FMPs from the Smolyan region were selected to carry out this experience, from two forestry units that are located within the boundaries of a Natura 2000 site (Rodopi-Zapadni - BG0001030). The ownership in both forestry units comprises state (mostly), municipal, and private forests (minority).

After the selection of the target forestry units (Mihalkovo and Izvora-Devin) for the integration of forest management and Natura 2000, a series of tri-lateral meetings was held. The meetings aimed at the clarification of issues related to the development of the FMPs and the requirements of Natura 2000 like the identification of forest habitat types, favourable conservation status (FCS) and measures to achieve and maintain FCS. The meetings were attended by representatives of the forestry units, the external consultants of the project, and the company which was contracted to elaborate the FMPs for both forestry units.

Review of selected FMPs for the integration of Natura 2000 objectives

The identification of forest habitat types according to the Habitats Directive was undertaken based on data from field inventories according to the "Manual for identification of habitats of EU importance in Bulgaria". For each of the identified forest habitat types, the Conservaton Status was assessed and specific measures were planned for each forestry compartment and sub-compartment.

Old growth forests are designated for each habitat type at a certain size – from 10% to 23% of each habitat type in Mihalkovo, 10% to 37% in Izvora-Devin. Only for the habitat *9530 (Sub) Mediterranean pine forests with endemic black pines (42.66 Palla's pine forests) in Milakovo it is 100% because of the unfavourable conservation status and due to the fact that the area of this habitat covers only 7,2 ha.

The official review of the FMP of SFU Mihalkovo was completed and prescriptions and recommendations on forest management were elaborated of the external expert were presented on the second meeting of the responsible FC in August 2012. Main issues were related to recommendations on different types of cuttings, especially for the broad-leaved forests (beech and oak), in order to create a more natural structure of the forests: diversity in density, age, coverage, etc. The proposals were supported and included in the FMP. The amended FMP was reviewed by the Technical Forestry Committee of the Executive Forestry Agency (EFA) and approved officially.

Moreover, at national level a working group on amendments in forestry legislation and development of National Forestry Strategic Plan (NFSP) was created in which also a non-governmental organisation (NGO) is represented: WWF Danube-Carpathian Programme Bulgaria.

Development of local capacity for sustainable forest management in Natura 2000 sites

A Regional workshop on methods and ways of sustainable forest management in Natura 2000 sites was held in November 20122012, which addressed key topics, such as management of dead wood in forest ecosystems, a topic that has been traditionally neglected in Bulgaria and even considered as a threat. A study tour to Germany was also organised to learn from experiences in sustainable forest management practices in Natura 2000 sites.

A pilot activity was also carried aiming at improving the knowledge of foresters in the region about the functions of biotope trees and to develop and introduce a procedure to mark these trees in the field.

Main results and lessons learnt

A model approach for integrating Natura 2000 requirements into forest management was developed and successfully implemented in two forestry units in Smolyan.

Knowledge transfer about sustainable forestry practices in Natura 2000 sites was arranged by workshops, trainings, and a study tour to Germany.

The project facilitated a process to build local capacities for the management of Natura 2000 areas. Knowledge transfer with regards to the identification and marking of habitat trees led to the implementation of a pilot activity.

The project results have been compiled and edited in order to make them available beyond the region of Smolyan. Specific results will be considered during the revision of the existing legislation for the elaboration of forestry management plans.

Further information:

http://greenbalkans.org/natura2000/smolyan_project/file.index.file/lang.2/

http://www.umweltbundesamt.de/sites/default/files/130909_final_report_en_final_mit_fotodokumentation.pdf

7. Natura 2000 Green Annexes, a tool for management of forests with protected habitats and species in France

Key words: forest management, requirements (obligations) and recommendations, private forests, precautionary measures, breeding and nesting birds

The Green annexes "Natura 2000" are a reference document for management of forests in Natura 2000 sites with presence of habitat types and species protected by the Habitats and Birds Directive. These annexes to the Regional Schemes for forestry management (SRGS) are written by the Regional Centers of Forest Property (CRPF) in partnership with the administrations. For each habitat type and species or group of forest species of Community interest present in the region, particular management requirements (obligations) and recommendations are set. In Natura 2000 sites, private forest owners must present a management document according to these rules to get a permit for their forestry activities.

The *Annexes Vertes* specify, among other, the measures required or recommendations to avoid effects on breeding and resting sites for birds present on the sites are set, for instance by defining suitable distances of non-intervention from those sites. For example in Britain, there is an obligation to o respect a period of quietude from February to July in an area of 80 meters around breeding areas. In areas to be cut, the trees holding nests must be preserved and an area of about 0.3 ha (30 m) around those trees must be kept with minimal intervention, etc.

The Regional Centres of the forest property (CRPF) are responsible for the approval of the forest management documents including: Simple Management Plans (SMP), Management Regulations (MR) and Good Forestry Practice Codes (GFPC). They are therefore engaged in establishing the necessary precautionary measures to avoid that forestry activities can affect breeding sites and resting areas of birds when they are well identified and present in the areas covered by those plans. The distances for no intervention are agreed through local negotiations and can vary from one region to another.

Extract from Natura 2000 Green Annex of the Regional Schemes for forestry management (SRGS) Champagne-Ardenne

Requirement nº 3 *(obligation)*

When present, keep biotope trees (standing dead or dying trees, dead trees on the ground, senescent, overmature, hollow trees) that contribute to diversify habitats for birds and insects. If they are absent, find and keep trees with ecological potential, which will be chosen so as to not cause a significant economic loss. At least one individual per hectare with a diameter greater than 35 cm (and possibly over 50 cm) should be preserved. Trees near public roads (within 50 meters) should not be chosen.

Requirement nº 5 (obligation)

Do not cut trees bearing nests or cavities used by animal species. Avoid forest operations in the periods specified for each species (in a table included in the Green Annex) within a radius of up to 200 m around areas used by certain species (raptors, black stork) to prevent disturbance during the breeding season. Before cutting, the owner may seek information from the managers of the Natura 2000 site on the presence of relevant species in the area.

Further examples:

Annexe du Schéma Régional de Gestion Sylvicole en Bourgogne: http://www.foret-de-bourgogne.org/files/documentation/2011-09%20Annexe%20N%202000.pdf

Annexe Verte Natura 2000 du SRGS de Champagne Ardenne: http://draaf.champagne-ardenne.agriculture.gouv.fr/IMG/pdf/Annexe_verte_version_approuvee_cle0e9a67.pdf

Annexe Verte Natura 2000 au Schéma Régional de Gestion Sylvicole (SRGS) de Poitou-Charentes:
http://www.crpf-poitou-charentes.fr/IMG/pdf/Annexe_verte_Natura2000_Poitou-Charentes.pdf

8. Forest management through collaboration and contracts in the Vallée de la Loue et du Lison, France

Key words: integration of Natura 2000 requirements into forest management, conservation objectives, Natura 2000 management plan, consultation and outreach, collaboration with forest owners, Natura 2000 contracts, funding.

Background

The Natura 2000 site "Valley of the Loue and Lison", with an area of 25,023 ha involves 76 municipalities and a total forest area covering about 50% of the site (12,350 ha). Public forests cover 6,640 ha (54%) and comprise 65 communal forests that are managed by the National Forestry Office (ONF). The rest of the forest is in private ownership.

Because of the large forest area and site characteristics (marked relief, steep slopes, various orientations), the site holds a remarkable forest biodiversity. Five forest habitat types from the Habitats' Directive are found and the site is especially important for the conservation of slope forests and associated habitats (streams, tuffs, cliffs, etc.). These habitats include mainly beech and oak forests as well as alluvial and riparian forests. Several animal species of Community interest are also found in the site as the European Lynx (*Lynx lynx*), the Red Kite (*Milvus Milvus*), the yellow-bellied toad (*Bombina variegata*), the crayfish (*Austropotamobius pallipes*), and several bat species.

Integration of Natura 2000 conservation objectives in forest management

Reconciling forestry activities and conservation of biodiversity Reconciling forestry activities and conservation of biodiversity has been a priority and a major challenge in the preparation of the *Document d'objectifs* (Docob)[11], i.e. the management plan for the Natura 2000 site, where conservation objectives, priorities for action and conservation measures are defined. An important effort of consultation and outreach was conducted by the Joint Union of Loue, involving local stakeholders (owners, managers of public forest services, the state forestry enterprises) in the preparation of the Docob and during its implementation, which has enabled their participation in various concrete actions for biodiversity conservation that are compatible with forestry activities. A working group on "Forests and management of forest areas" was established with all actors involved, which facilitated discussion and agreements.

Challenges and objectives identified in the Docob included:

- the forest and the forest activities occupy an important role in the site, which means the need to conciliate biodiversity, economic activity and public use;
- low intensity silviculture is a suitable option given the topographic limitations and the need to preserve remote/quiet stands;
- alluvial forests restoration is needed in areas partly degraded by conifer plantations;
- maintenance and restoration of native vegetation, including structure and age-classes, shall be favoured;

[11] http://www.franche-comte.developpement-durable.gouv.fr/vallees-de-la-loue-et-du-lison-a1923.html

- special attention to the aquatic environment;
- establishment of a network of old growth stands according to the site scale;

Three different levels of collaboration were established: with forest owners (communities), with forest companies and with the public forest managers (ONF- Office National des Forêts, the forest authority/administration in France).

Several Natura 2000 contracts were signed with the forest communities. For example, the forest contract with the town of Nans-sous-Sainte-Anne helped restore a floodplain forest of Community interest using an alternative technique: the cable-mat. This technique involves a particular advantage for the conservation of the aquatic habitats and soils, although it also implies an extra economic cost for the community. This extra cost was covered by a Natura 2000 contract.

Several areas of old growth forest were established with municipalities, allowing the development of the forest to promote biodiversity and the presence of dead wood and associated species. Eligible stands should be in exploitable condition and have at least 10 big trees per hectare. As compensation for the non-exploitation of wood for a period of 30 years was paid to forest communities (up to 4,000 €/ha).

Awareness raising activities for forest companies and professionals in the forest were also organized in order to promote better protection of streams and associated aquatic fauna during forestry activities and forest exploitation.

Lessons learnt

Proper consideration of biodiversity issues in forestry is achieved thanks to the good collaboration between the Joint Union of Loue and forest stakeholders (public owners, managers and state services-ONF), especially during the revision of community forest plans or forestry projects. Integration of biodiversity issues related to Natura 2000 into forest management, through the relevant changes in forest management plans, was much facilitated by participation of all stakeholders and by the establishment of contracts with the communities concerned.

Forestry activities and biodiversity conservation are not incompatible in Natura 2000 sites but requires a strong commitment and a long-term coordinating structure, in close consultation with stakeholders. It also requires human and financial resources to support the actions in the field and also compensation for any additional costs or income foregone related to the implementation of actions and/or alternative techniques to enhance biodiversity.

Further information: presentation at the workshop in 23 May 2013. Available on Circabc (Case 5)[12].

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[12] https://circabc.europa.eu/w/browse/28cb0d1f-bbf0-4b36-aedf-3909ecd486b7

9. Forests for the Capercaillie in the Vosges Mountains (France)

Key words: Capercaillie, conservation measures, management plan, old-growth stands ("islets"), municipal forests, Natura 2000 contracts, guidance on forestry management.

Background

The forests of the Vosges Mountain region of France are home to a sub-species of the Capercaillie (*Tetrao urogallus major*). The Capercaillie has very specific habitat requirements, it requires unfragmented old coniferous forests with a rich interior structure and dense ground vegetation of blueberries (*Vaccinium* sp.) under a light canopy, which provides key feeding resources for the species. However, the Capercaillie's home in the Vosges region has become fragmented and degraded due to unsuitable forestry practices in the past, an overabundance of deer and wild boar, and tourism. The species is threatened by habitat degradation, particularly conversion of diverse native forest into often single-species timber plantations; increased numbers of small predators such as the red fox (*Vulpes vulpes*); collision with fences; and in some areas, excessive hunting. The Vosges mountain range in north-eastern France is now the western limit of distribution and the last refuge of the Vosges Capercaillie sub-species with a population of only around 100 individuals that has declined drastically over the last 10 years. Since 2007, the Region of Lorraine has put in place urgent measures favourable to the survival of the Capercaillie with the support of Life funding.

Conservation measures

The measures have focused on maintaining favourable habitats and re-establishing the tranquillity necessary for the survival and development of the Capercaillie, the most emblematic species of the Vosges forests. The objectives of the project included in particular:

- Putting in place a forest management policy appropriate to the Capercaillie's requirements, including setting up extensive areas of natural decay (900 ha), training forest managers and disseminating a forest guide;

- Setting up quiet areas where the species is present, which involves amongst others limiting access during certain periods and redirecting tourist paths;

- Raising the awareness of tourists and the general public as to the menaces facing the Vosges' Capercaillie.

The project has also sought to demonstrate that it is possible to combine protection of a species and its environment with continuing economic activity. It therefore aimed to implement practices that are most likely to encourage economic, social and tourism development compatible with increasing the Vosges Capercaillie population. The specific actions to improve the conservation status of the Capercaillie also benefit the entire forest bird fauna. Furthermore, the project has provided a major input to the national plan to preserve the Capercaillie that is currently being prepared.

Key measures undertaken have included:

- Establishment of old-growth stands, or 'islets', in municipal forests; two kind of 'islets' have been established: temporal, where forestry is stopped for 30 years, or partial, where operation is possible but larger timber is maintained for 30 years. This action has been done under Natura 2000 contracts and currently more than 800 ha of islets have been established in communal forests.

- Opening of small areas: the purpose of this measure is to increase the light in the understory to promote the presence of blueberry and re-colonization of the zone by birds.

- Elaboration and publication of a specific guide for forestry management that benefits the capercaillie: *"Forests for the capercaillie. Silvicultural Guide",* which provides specific advice and recommendations to maintain or create a favourable habitat for the species. Its elaboration has brought together many partners: national and local authorities, private and public foresters, NGO, researchers, etc. The main purpose of writing this guide was to find a common language between foresters and Capercaillie experts.

- Training sessions were organized in order to help foresters to apply the measures proposed in the guide, including a training session on trees' marking.

- The document of objectives (Docob) for the Natura 2000 site has also been elaborated through a wide consultation process where more than 300 people were involved.

- Awareness raising and education activities have also been accomplished through collaboration between the different partners. These actions included the elaboration of an interpretation guide of the forest and the Capercaillie for schoolchildren, *"La Forêt du Grand Tétras"* (The capercaillie forest). 125 school classes have participated in different activities involving the sensitization of 2700 children.

Further information:

http://lifetetrasvosges.lorraine.eu/jahia/Jahia/site/tetras/

http://lifevideos.eu/videos/?id=LIFE08_NAT_FR_000474_02_FR_HABIT.mp4

10. Natura 2000 management planning in Baden-Württemberg, Germany

Key words: Natura 2000 management plan, Forest management plan, integration of Natura 2000 requirements into forest management, conservation objectives, consultation and outreach, collaboration with forest owners, Natura 2000 contracts, funding.

Background

Baden-Wuerttemberg is one of the most richly forested German Federal States..Around 1.3 million hectares of forests cover 38% of the state's territory. 24% of the forest area is owned by the state, almost 40% by municipalities and other local authorities ("corporation forest") and 36% by private owners. Also indicative of the characteristics of forestry in South-Western Germany is an intensive mixture of different ownership categories combined with a high fragmentation of property: 89% of the private forest area is made up by holdings covering less than 200 hectares. Typically, these smallscale holdings average about 1.4 hectares. Baden-Württemberg counts on 350 Natura 2000 sites with a total surface of 633,027 ha. 27% of the total forest area is included in Natura 2000.

Management plans in Natura 2000 forest areas

Management plans for Natura 2000 forest areas in Baden-Württemberg have been prepared and implemented with the support of the Forest Services. Pilot conservation and development plans (PEPL) were carried out from 2005 to 2008 for 17 Special Areas of Conservation and Special Protection Areas. The Forest Research Institute of Baden-Württemberg (FVA) studied and evaluated the types of forests and forest habitat types in all forest areas, including state, municipal and private forests. Relevant conservation objectives and conservation and development measures were formulated through an intensive public consultation process, which was carried out through information sessions and committee meetings. Forest inventories and forest plans have been used in the elaboration of management plans for Natura 2000 sites. Since 2008, the preparation of management plans (MaP) for Natura 2000 sites is closely linked to the forest management plans and includes participation of all relevant stakeholders.

Core elements of the procedure followed in the preparation of PEPL were incorporated into the MaPs, in particular share of work and cooperation between nature conservation and forestry administrations, assessment procedures; public participation and advisory board meetings. MaPs have been completed for around half of the Natura 200 areas.

Generally MaP compilation can be separated into three steps:

a) Preparation:

   LUBW (state agency for the environment) and FVA collect data for species (Annex II) and assess conservation status; conservation objectives and necessary conservation measures are developed; FVA and forest departments of regional authorities develop planning principles for forest habitat types (conservation objectives and necessary conservation measures); in the second phase both forest and open land are combined.

b) Plan compilation and development with public participation:

   It takes ca. 15 months, starting off with informing owners and users about the plan, the goals and the procedure in a kick-off meeting: An advisory board is established in the beginning of the process. The overall plan is usually compiled and worked out through contracting an external assistance. Special focus is on securing status quo

and maintaining and restoring favourable conservation status. A first draft of conservation objectives and necessary conservation measures is developed; this is presented to and discussed by the advisory board; then, the draft plan is made public and within six weeks opinions can be provided. Stakeholders' involvement can be also encouraged through public consultation meetings, consultation with land users and managers and dissemination of information material. The involvement of the private forests occurs during the plan development phase through launch of informational events and board meetings If further changes have to be made to the draft plan after public consultation, this is discussed with regional authorities and the advisory board. The final draft of the MaP is made public and can be downloaded from a webpage (see Further information below).

c) Implementation:

Main responsibility for management plans implementation rests with lower nature conservation administrations (at the four governmental administrations in Stuttgart, Karlsruhe, Freiburg an d Tuebingen). However, in fact the local forest administrations have a big responsibility. Specification of targets and measures within forest management is expected to be carried out within the regular forest inventories (in state forests every 10 years), these are however not required within private forests; local administrations do usually not have enforcement power.

MaPs are not binding for private owners. In private forests, the implementation of recommended activities to improve the status of habitats and habitats of species is carried out on a voluntary basis through contractual measures and project funding, e.g. with compensation for restrictions and reimbursement of expenses incurred through Environmental Subsidies for Forest - *Umweltzulage Wald*, UZW[13], which are co-financed with EU funds. Access to funding however can be problematic for smaller owners who do not meet the minimum thresholds.

MaP compilation is still ongoing process and existing MaPs are just becoming implemented, so there is an evolving learning process. The goal is to develop management plans for all Natura 2000 areas; the development of training programs and the optimization of existing support instruments is envisaged

Further information:

Preparation of management plans (in German): http://www.lubw.baden-wuerttemberg.de/servlet/is/59480/. Management plans are available at: http://www.lubw.baden-wuerttemberg.de/servlet/is/44926/

Spielmann, M. W. Bücking, Quadt, V. & F. Krumm 2013. Integration of Nature Protection in Forest Policy in Baden-Württemberg (Germany). INTEGRATE Country Report. EFICENT-OEF, Freiburg. http://www.eficent.efi.int/files/attachments/eficent/projects/badenwuerttemberg.pdf

See also the presentation at the workshop held on 23 May 2013. Available on Circabc (Case 3)[14].

[13] http://lw.landwirtschaft-bw.de/pb/MLR.Foerderung,Lde/Startseite/Foerderwegweiser/Umweltzulage+Wald+_UZW_

[14] https://circabc.europa.eu/w/browse/28cb0d1f-bbf0-4b36-aedf-3909ecd486b7

11. Analysis of the natural and economic impacts of the Habitats Directive on the basis of case study forest enterprises in Germany

Key words: natural and economic impacts of the Habitats Directive, forest enterprises, analysis of management plans, , conservation measures, old-growth trees.

Background

In the framework of a research project on the Impacts of nature protection requirements on forestry and the forest sector, an analysis of the economic impact of the implementation of the Habitats Directive in forests has been carried out, supported by the Federal Ministry for Food, Agriculture and Consumer Protection in Germany.

About 24% of the total forest area in Germany is included in Natura 2000 sites designated both under the Birds and the Habitats Directives. Around 817,000 ha have been identified as forest habitat types. With around 586,000 hectares, the five beech habitat types cover around 72 % of the total forest habitat type area (Table2). The most prominent part is taken by two habitat types: 9110 *Luzulo-Fagetum* beech forests and 9130 *Asperulo-Fagetum* beech forests, which cover a total area of around 568,000 ha.

Around 5 % of the forest area included in Natura 2000 is allotted to federal forest and 46 % to Laender forest. The share of communal forest amounts to 21 % and private forest to 28 %.

Main conservation measures

The study was based on management plans and conservation objectives set for the habitat types 9110 *Luzulo-Fagetum* beech forests and 9130 *Asperulo-Fagetum* beech forests and the impacts of the implementation of the Natura 2000 management plans were assessed considering operational objectives and data provided by forest enterprises.

On the basis of the Natura 2000 management plans analysed in the federal territory, the most common conservation measures for beech habitat types are the conservation or increase of habitat trees, dead wood and islets of old-growth trees. Of great importance are also the conservation of typical species of natural forest habitats, for example through the regeneration and promotion of those species, protection of rare local tree species as well as the gradual removal of non native tree species, in particular Douglas fir and common spruce.

Some examples of the main impacts identified in the study are presented below.

Nationwide overview on the impacts of forest management in Natura 2000 areas

Based on a online survey involving 89 forest enterprises with beech habitat types covering most of the area where they operate, the conservation or increase of the share of dead wood (55 %), old-growth trees (49 %); habitat trees (47%); the maintenance of close-to-nature forest management (43 %), as well as the preservation of habitat typical forest ecosystem through, e.g., the preservation of the current percentages in tree species and restrictions on the introduction of non-habitat-typical tree species (39 %) were stated as the most common measures in Natura 2000.

In addition, the operational impacts by the implementation of the Natura 2000 planning of measures were enquired. Half of the forest enterprises rated the designation of old-growth and biotope trees or islets of old-growth trees as a loss of productive forest area.

On average this was specified with 13 % of the operational Natura 2000 area. Also half of the consulted forest enterprises rated measures for the conservation of the natural forest habitats as a limitation for the species selection. A production time beyond the regular rotation cycle for the conservation of mature stands was stated by one fifth of the forest enterprises.

The planning of measures for the conservation of dead wood stocks was rated as a restriction by half of the enquired forest enterprises and was estimated to reduce the amount of felling by one twelfth (sales volume). One third believed that the FFH planning of measures results in increased extraction costs through additional measures for work safety in a range of 3 €/harvested m³. Additional day-to-day administrative costs for the operational management in FFH areas were stated by one third of the enquired forest enterprises and were estimated on average with 12 €/hectare. In a summarised reflection, the actual decrease in profits and extra costs on FFH areas were rated at 26.51 €/ha/year on average. The range reached from 0 €/ha/annum up to 200 €/ha/year.

The forest enterprises were complementarily asked which compensation instruments they would favour for management restrictions in FFH areas. To this question 56 % indicated their preference for an all-inclusive lump-sum per area covering all FFH measures, 26 % opted for a contract-based nature protection scheme with an individualised design of the level of compensation per forest enterprise and 9 % indicated a credit system of eco-points for FFH measures (ecopoint account).

Analysis of the natural and economic impacts of the Habitats Directive on the basis of case study forest enterprises

For the case study analysis 21 private, communal and state forest enterprises were considered from six Lander (Baden-Württemberg, Bavaria, Hesse, Mecklenburg West Pomerania, Lower Saxony and North Rhine Westphalia From the wide spectrum of planning of measures in the FFH management plans, mainly three FFH planning of measures were rated as constraints for forest management by the case study forest enterprises:

- Designation of habitat- and biotope-trees,
- Preservation of an adequate percentage of stands in the maturity stage as well as
- Securing the share of habitat typical tree species.

Furthermore additional ongoing administrative costs were identified as having an impact for the forest management in FFH areas.

On average, the loss of profit was estimated at 40 €/ha/year.

<u>Designation of habitat- and biotope-trees</u>

The designation and the conservation of biotope- and old-growth trees were rated as a permanent loss of between 3 to 4 % of productive forest area by the majority of forest enterprises. In connection with these measures (as well as the preservation of an adequate percentage of mature stands) a higher risk for people was estimated and consequently higher costs for harvesting and liability were envisaged. The increased additional costs for extraction were indicated in the range between 1.5 €/harvested m³ up to 2 €/harvested m³.

<u>Preservation of an adequate percentage of stands in the maturity stage</u>

Two effects of the planning of measures for the preservation of an adequate percentage of mature stands were stated by the case study forest enterprises. On the one hand a

postponement of the harvesting of mature stands because of a low share of old trees was mentioned, which equals a prolongation of the rotation period and can lead to a devaluation of the mature timber through e.g. decay and red heartwood, and, on the other hand, a limitation of options to shorten existing rotation periods as a reaction to changing framework conditions.

Securing the share of the habitat typical tree species

Furthermore FFH planning of measures for the conservation of the habitat typical species inventory were rated as restrictions for the operational achievement of objectives by 14 of 21 case study forest enterprises. In the case study forest enterprises immediate effective costs for thinning and pruning could be derived from the occurrence of non-habitat typical natural regeneration as well as the medium- to long-term lasting constraints for the species selection in the succeeding stands.

Additional ongoing administrative costs

As further impacts on forest management in Natura 2000 areas additional administrative cost for the enterprises of on average 2 €/ha/annum was identified, e.g. for co-ordination with the lower Nature Conservation Authorities prior to management measures or for the selection and marking of old-growth and biotope-trees.

In the framework of the project it became evident that the forestry enterprises incur more work and less yields by implementing the measures proposed in Natura 2000 management plans. If the trend of increasing wood profits continues in the next years, opportunity costs from natural uses estimates could also increase in the future due to the Natura 2000 measures planning.

Further information:

- Project FFH-Impact: Implementing the Habitats Directive in German forests. Executive summary of a case study on the economic and natural impacts on forest. Institute of Forest Based Sector Economics in cooperation with Becker, Borchers and Wippel consultancy, the Department for Forest Economics and Forest Inventory of the University of Göttingen and the Faculty of Law of the University of Hamburg.

- Executive summary available at http://literatur.ti.bund.de/digbib_extern/dn052208.pdf

12. Guidance for the conservation of old trees and dead wood DE - AuT-concept in Baden-Württemberg, Germany

Key words: habitat trees, dead wood, forest management, monitoring, non-intervention, set aside, natural decay, forest reserves.

Habitat trees and a certain amount of dead wood are both essential elements for forest biodiversity. They are crucial parameters for evaluating the conservation status of Annex I forest habitats. Furthermore, both structure elements are essential for the protection of a number of Annex II and Annex IV woodland species and other rare or protected species, among them many birds.

In 2008, the State Company ForstBW decided to develop a concept for the conservation of old trees and dead wood (Alt- und Totholzkonzept, AuT-Konzept), which: properly fulfils the requirements of a good conservation status of Annex I forest habitats and of certain Annex II and Annex IV species, fulfils the requirements of harvesting safety and follows economic principles, can be integrated in standard forest management measures and can be monitored and readjusted according to monitoring results.

With so many objectives, some of which contradicted each other, it became obvious that the concept had to be elaborated in an interdisciplinary working group, consisting of several experts from both the nature conservation and forestry sectors such as species, silviculture, conservation law, harvesting safety, economics and controlling.

The Old and deadwood concept (Alt- und Totholzkonzept – AuT) was therefore elaborated in Baden-Württemberg (Germany) in a concerted action involving research, forest and nature conservation experts,

The AuT-Konzept consists of three protection elements:

1. Single habitat trees with crucial structures such as large woodpecker holes, eyries or other known essential breeding sites of protected species to be marked and protected.

2. Groups of around 15 habitat trees to be identified, marked, mapped, and not harvested. This would enable them to grow large and old and develop a whole range of habitat structures such as crown breaks or wood decay and finally become dead wood. These ‘habitat tree groups’ are identified in all older stands with an average of one group per three hectares.

3. Small forest stands – the so called “waldrefugien” (forest sanctuaries) – of high protection value to be set aside completely so that they can develop untamed and decay naturally.

The selected stands and tree groups are excluded from use and left to natural development and aging until the decomposition of the emerging deadwood. Through the combination of varying sizes of the area and groups, centers of very old and decaying trees, rare single tree structures and larger amounts of standing and laying deadwood are distributed over the entire forest area.

Areas are selected according to the presence of rare and protected species, still existing very old forests, important habitat structures and other forest and ecological parameters. Species depending on these requisites are fostered through the protection of these elements. Focus is given to species protected in the Annexes II and IV of the FFH Directive and other species of the Birds Directive (Annex I). These legally special

protected species are considered as umbrella species, whose protection is beneficial for many other species.

The result is a diverse collection of old and dead wood in managed forests that functionally interconnects larger existing strict forest reserves. It contributes to the further ecological improvement of natural forestry.

Since 2010, the concept for the conservation of old trees and dead wood has been integrated in standard forest management measures over the whole of Baden-Württemberg's state forest, in and outside SACs. Municipal and private forest owners are not required to implement the described old and dead wood concept. Nonetheless some do so, especially within SACs, because it has proven to be an operational conservation instrument. It fulfils the old and dead wood standards for Annex I forest habitats and for many Annex II and VI species while taking into account harvesting safety and economic principles. Other forest owners will follow, as soon as they receive financial compensation for the setting aside of usable and marketable wood, e.g. as a result of increased EU financing.

Table 1: Protection elements of the AuT concept (Schmalfuß, 2010)

<table>
<tr>
<td>Aerie and cave trees and "reservoir trees"
What? Protected propagation locations are not utilized; legally protected (BNatSchG §44)
Where? Preferably as focal points in habitat tree groups</td>
<td rowspan="2">Forest sanctuaries
What? Permanently established parts of stands or small stands above 1 hectare size, that are (cartographically registered) left for their natural development and decay (no forest utizilation)
Where? Criteria for selection are:
Age ("old forest" is always selected)
Forests with uninterrupted habitat tradition
Management intensity (arB areas, extensive types are selected preferably)
Site (low increment, special sites, bad passage, scarce roading)
Forest biotope mapping, ecological significance (cave centers, known species distribution)
Spatial location (vicinity to old forest)
Road safety and forest protection
When? Selection during forest management planning, pre-selection through forest office
How much? Varies in the forest offices depending on local environment with appropriate stands; in total 5% of forest land, including 'Bannwälder' and core area of biosphere reserves</td>
</tr>
<tr>
<td>Habitat tree grous
What? One or more trees with particular habitat structures and the surrounding trees
Where? In main utilization stands, old wood groups and continuous forests (Dauerwald)
When? Selection before felling measures
How many? 1 habitat tree group with about 15 trees for each 3 hectares (can be more or less!)
How long? Until the natural die back of the tree group; dead wood remains in the stand</td>
</tr>
</table>

The concept is binding for the state forest but can also be applied in other forest ownerships. The concept shall contribute to the aim of the state forest administration ForstBW to take 7% of the state forest area out of use and leave it for natural development by 2020. First rough estimates assume revenues will be reduced by EUR 4 million annually in the final stage of the implementation (Reger, 2010).

Further information:

Schmalfuß, N. 2010. Das Alt- und Totholzkonzept für den Landesbetrieb ForstBW. AFZDerWald, 65(1), 10-12

13. Guidance on Appropriate Assessment procedure for forestry activities in Ireland

Key words: Appropriate Assessment (AA), conservation measures, possible impacts, mitigation measures, limitations/restrictions to forestry operations.

Background/context

As required under the European Habitats Directive and the Birds & Natural Habitats Regulations 2011 (S.I. 477 of 2011), the Forest Service is required to undertake screening, and where necessary, an appropriate assessment, in relation to applications for consent, grant approval and licensing for various forestry activities, in order to evaluate projects within the context of any potential impact on a Natura site (SACs and SPAs).

The Forest Service has developed in 2012 an Appropriate Assessment Procedure (AAP), which sets out the general procedures and also specific AAP requirements regarding Hen Harrier SPAs and SACs designated for Freshwater Pearl Mussel (FPM).

In cases where the screening identifies that there is a possibility of the project having an effect on a Natura site, the applicant is required to submit a Natura Impact Statement (NIS). On receipt of this document, the Forest Service undertakes an appropriate assessment before arriving at a decision to regarding consent, grant approval or licensing.

Appropriate Assessment of forestry activities considering species' ecological requirements

AAP requirements for Hen Harrier

To avoid a reduction in suitable foraging habitat for the Hen Harrier, only applications for the afforestation of enclosed/improved land of grass or grass/rush, may be considered for approval, subject to set limits for 2011.

Lands which will not be considered for approval for afforestation within Hen Harrier SPAs include:

- unenclosed/unimproved land, including heather moorland;
- areas predominately of heath and bog vegetation, whether enclosed or unenclosed;
- enclosed/improved land that is significantly reverting to natural vegetation; and
- unenclosed/unimproved land reclaimed since January 2007.

In the case of afforestation activities, the AA requirements for this species specify that 20% of the project area must comprise areas for biodiversity enhancement (ABEs) specifically targeted to improve the Hen Harrier habitat. Such areas must remain unplanted and can comprise heath and bog (whether enclosed or unenclosed), but must be an integral part of the plantation site.

There are also specific procedures applying in relation to applications for consent/ grant approval/licences involving certain forestry operations which have the potential to disturb Hen Harrier breeding activity within and surrounding SPAs designated for the species.

Regarding felling or other disturbance operations, procedures are focused within so called 'Red Areas' during the Hen Harrier breeding season (1st April to 15th August,

inclusive) Red areas are 1.2 km radius areas centred on known Hen Harrier nesting areas.

AAP requirements for Freshwater Pearl Mussel

The Freshwater Pearl Mussel (*Margaritifera margaritifera* and *Margaritifera durrovensis*) is protected under the Habitats Directive (92/43/EEC) and the Wildlife Acts (1976, amended 2000). Based on the most recent assessment Ireland has 46% of the EU FPM individuals. This species is currently in decline throughout Europe.

The requirements will apply to all potentially impacting forest operations within the catchments of FPM populations in rivers designated as SACs for the species (25 river systems), with particular emphasis on the area within a 6 km hydrological distance of an identified FPM population. The requirements describe a range of measures intended to reduce potential negative impacts on the species arising from forest operations and supplement all other Forest Service Guidelines and regulations.

Effective mitigation requires site-specific information and detailed planning. The choice of appropriate mitigation measures rests with a competent person who carries out the site assessment. Possible mitigations and appropriate measures are, for example:

- creation of buffer zones to filter and retain suspended solids in drainage water
- sediment traps or other sediment control measures
- brush management to contribute to the retention of the nutrients on site
- drainage patterns
- limitation of fertiliser application
- minimization of the use of herbicides and insecticides
- choice of machinery depending on environmental considerations
- use of low impact silvicultural systems, such as continuous cover forestry

Further information

http://www.agriculture.gov.ie/forestservice/grantandpremiumschemes/schemescirculars/

Irish Forest Service, 2012. AAP Information Note (March 2012).
Appendix B. Appropriate Assessment Procedure (AAP) requirements regarding Hen Harrier SPAs and afforestation:
http://www.agriculture.gov.ie/media/migration/forestry/grantandpremiumschemes/schemecirculars/AppendixBAAPRequirementsHenHarrierSPAsAfforestation140312.pdf
Appendix C , Appropriate Assessment Procedure (AAP) requirements regarding Hen Harrier SPAs, felling and other disturbance operations:
http://www.agriculture.gov.ie/media/migration/forestry/grantandpremiumschemes/schemecirculars/AppendixCAAPRequirementsHenHarrierSPAsFelling140312.pdf

Irish Forest Service, 2012. AAP Information Note . Appendix D. Appropriate Assessment Procedure (AAP) requirements regarding Freshwater Pearl Mussel and forestry operations (20 August12):
http://www.agriculture.gov.ie/media/migration/forestry/grantandpremiumschemes/schemecirculars/AppendixDAAPregardingFPMAug12210812.pdf

14. Ireland's Native Woodland Scheme. A tool for the management of Natura 2000 woodland

Key words: fragmented forests, protection and expansion of native woodlands, cooperation between administrations, funding.

Background / Context

Ireland is one of the least forested of all EU countries with ca.10% of the land surface under forest cover. Of this, ca.100,000 ha consists of native woodland, representing about 1.2 % of the land surface of the country. Following a national survey of native woodlands undertaken between 2003 and 2008, these woodlands have been classified into 4 principal types[15], which include 4 woodland types listed for protection as Natura 2000 sites under the EU Habitats Directive[16]. Approximately 9,500 ha of native woodlands are designated as Natura 2000 sites.

Ireland's native woodlands have a long history of exploitation and no area can be considered as completely natural. Over the centuries they have become increasingly fragmented and today the average size is only 6 ha with very few exceeding 100 ha. They have been managed in the past for the production of timber, charcoal, bark etc. and they were often grazed.

In recent decades, management has declined and many native woodlands were abandoned or, in some cases, wholly or partly converted to stands of non-native conifers. Non-native trees and shrubs have become invasive and both overgrazing and undergrazing is a common feature of many woodlands. As a consequence many native woodlands are in a poor condition in terms of biodiversity and are of little value for the production of good quality timber.

The Native Woodland Scheme

The Native Woodland Scheme (NWS) was developed by the Forest Service in partnership with the National Parks and Wildlife Service, Woodlands of Ireland and the Heritage Council. Its objective is to protect, enhance and expand Ireland's native woodland resource and associated biodiversity, through appropriate management and planting. Where compatible, the scheme also encourages the growing of quality hardwood.

The Scheme comprises two separate elements:

- Element 1 - Conservation, which is focussed on protecting and enhancing existing native woodland; and
- Element 2 - Establishment, which is focussed on creating new native woodland.

The Scheme is strongly underpinned by ecological principles. All projects must reflect the most appropriate native woodland type for each site and species selection is based on the soil type and classification referred to above.

Funding is provided by way of a grant. For Element 1, a grant of €5,000 is paid in two instalments: 75% on commencement of work and 25% after 4 years based on approved

[15] Sessile oak (*Quercus petraea*), ash (*Fraxinus excelsior*), alder (*Alnus glutinosa*) and birch (*Betula pubescens*).

[16] Old sessile oak woods with *Ilex* and *Blechnum* (91AO), alluvial forests with *Alnus* and *Fraxinus* (91 EO), yew woodland (91JO) - a variant of ash woodland) and bog woodland (91DO) -a variant of birch woodland.

and verified costs, provided the work has been satisfactory and the desired results obtained. Applicants are also paid an annual premium for 7 years for maintenance and to compensate the landowner for loss in timber productivity arising from the management of the forest holding as a native woodland. For Element 2, an instalment grant of €4,100 is provided with a 2nd instalment of €1,100. A premium (farmer rate) of €481 / ha / year is paid for 20 years.

Results and lessons learnt

The Native Woodland Scheme is a key biodiversity measure within Ireland's national forest policy. It also supports a wide range of other benefits and functions arising from native woodlands, relating to landscape, cultural heritage, wood and non-wood products and services, the practice of traditional woodland management techniques, environmental education, and carbon sequestration.

The NWS has been operating for 12 years, it has enjoyed considerable success and has been welcomed by landowners faced with the dilemma of how best to manage their woodlands which have become economically unprofitable. Up to the end of 2011 over 3,500 ha had been grant-aided under the scheme. This Scheme provides opportunities to protect and expand Ireland's native woodland resource and associated biodiversity. It has already contributed significantly to the improvement of Natura 2000 sites.

Further information:

http://www.teagasc.ie/forestry/grants/native_woodland_scheme.asp

Establishment Guidelines of the Native Woodland Scheme (revised February 2013):
http://www.teagasc.ie/forestry/docs/grants/NWS_Establishment_Aug2011_Feb13.pdf

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15. Bosco della Fontana, Italy. Techniques for re-establishment of dead wood for saproxylic fauna conservation

Key words: conservation of saproxylic fauna, dead wood, elimination of alien species,.

Background

Bosco della Fontana Nature Reserve is a Natura 2000 site (233 ha) that holds one of the best preserved oak-hornbeam relicts on the Po Plain, where these forests are now reduced to only 8000 ha. Like most forests in the Po Plain, Bosco della Fontana is beleaguered by a network of roads, the advance of urbanisation and the presence of intensive agricultural crops with irreparable effects of bio-geographical isolation.

Still, on the site more than 1750 species of invertebrates, 102 species of birds, 6 amphibians, 9 reptiles and 24 mammals have recently been censused. Significant, with regards to the efficacy of a first cycle of conservation interventions carried out with the support of a LIFE project, is the presence of four species of woodpecker, including the rare black woodpecker (*Dryocopus martius*) at different times of the year and extremely specialised saproxylic invertebrates.

Because of the isolation, structural changes and floral composition, a conservation strategy was adopted based on maximum diversification of the habitat compatible with the site. The line taken, in particular on the forest environment, is with the aim of re-establishing an equilibrated forest mosaic, adequately endowed with old senescent trees and dead wood/coarse woody debris (CWD); i.e., a forest structure corresponding to an old-growth forest. This was initially addressed with the support in a Life Nature project.

Measures implemented

Global focus for action was to «recycle» both the red oak and plane trees, transforming them into CWD and «microhabitats» for the saproxylic fauna, respectively. This was done by uprooting and breaking the individuals of red oak and forming «habitat trees» with the plane trees

In the Bosco della Fontana LIFE project new techniques have been tested to «convert» living wood into coarse woody debris (CWD) and convert alien species, inappropriately introduced in the past, into old hollow trees.

These techniques and measures have included:

- trees uprooted and felled with the forestry winch
- standing, leaning and fallen dead trees
- snags created using explosives
- standing dead trees by ring-barking
- methods to speed up the symptoms of tree ageing (pre-senescence) and compensate for the lack of cavities for invertebrates and vertebrates («habitat trees»)
- opening of nest cavities
- carving of basal slits in habitat trees

- Dissemination of the findings at meetings with forest managers, seminars for university students of the forestry and biology faculties, and the papers, posters and talks at conferences and seminars within the ambits of the NATURA 2000 network.
- Edition of a report/manual entitled *Techniques for re-establishment of dead wood for saproxylic fauna conservation*. This document contains a whole description of the project, the actions and techniques used and developed, as well as many pictures, diagrams, etc. of the project implementation.

Results and Lessons learnt

- The response of hole-using birds to the artificially created microhabitats was immediate.

- The cavities hollowed out in the habitat trees appear to assure better temperature insulation than the commonly-used nest-boxes and in some situations could also safeguard the nest contents from natural predation.

- A dynamic stock of 33-35 m^3 ha of CWD with a diameter of 10 cm, useful for saproxylic fauna, has been foreseen for the area after the project. This amount will be reached within about 20 years utilising alien species as material and recreating the effects of natural disturbances as a tool for producing dead wood.

- The experimental techniques, based on tested forestry machinery and available equipment, have provided good results in both technical and economic terms.

- Different techniques were developed during the project implementation according to the type of dead wood habitat to create and to the site characteristics, typically the slope, but not only.

- Although the techniques tested in Bosco della Fontana can be “exported”, clearly there is no single general recipe, so the proposals must be adapted and modified to the different situations.

- Preliminary knowledge on the species of saproxylic insects was lastly necessary to understand up to what point it is worth making the technical and economic commitment to re-establish the dead wood microhabitats in a given site. Some families of insects, such as hover flies, have been shown to be particularly effective for these evaluations.

Further information:

http://www3.corpoforestale.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/986

http://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=home.showFile&rep=file&fil=BOSCO_FONTANA_deadwood.pdf

16. Ecoforests in Latvia

Key words: state-owned forests, nature values outside protected areas, binding and voluntary measures, management plans, monitoring of species and habitats, green infrastructure and connectivity, fragmentation, restoration.

Background

With 3.8 million ha of forests or 56.9% of the territory, Latvia is among the most forested countries in Europe. The highest amount and diversity of nature values in Latvia occur in the State forest managed lands.

The Joint – Stock Company "Latvijas valsts meži" (LVM), established in 1999, manages over a half of Latvia's forests. LVM manages state-owned forests and aims to ensure sustainable stewardship of these forests. Integrated management considering nature conservation and maintenance of biological diversity takes important place within strategic and tactical planning of lands managed LVM.

Improving nature management on Latvian forests: the new Ecoforest concept

Significant amount of nature values occur outside the existing network of protected areas, including Natura 2000.

New nature conservation instrument in the LVM managed lands, of high importance for biological diversity, are the so-called *Ecoforests*, where, besides nature protection measures binding on the State level, additional voluntary measures are implemented to maintain rare species and habitats and high conservation value forests.

At present, 456 Ecoforests are established covering a total area of over 200,000 hectares. Since 2011, special management plans and monitoring programmes of species and habitats are implemented to ensure maintenance and surveillance of nature values in Ecoforests.

The development and management of Ecoforests is one of the first steps in the Baltic region to implement the conservation of species and habitat of EU importance outside the Natura 2000 network, and to develop basis for further development of green infrastructure and connectivity among core areas as well as to safeguard and minimise negative impacts of possible fragmentation.

Ecoforests represent a new management regime that applies to different forest areas and conditions, such as:

- Forests where highest amount of viable populations of characteristic species occur.

- An area of forest where rare and protected species as well as high nature conservation value forest habitats occur, concentrate and overlap.

- An area of forest that provides key environmental functions.

Ecoforests are considered the most valuable areas because they have high density and diversity of nature values and habitats; they are present in a homogeneous distribution within lands managed by the LVM; they have a high level of naturalness of forests; and they represent a balanced interests between nature conservation and forestry, including timber production.

Development and management of Ecoforests

Main steps for the development and management of Ecoforests are the following:

- Starting point: Resources / forests managed by the LVM
- Identification of nature values

- Assigning concentration areas
- Selection of most valuable sites
- Development of network of Ecoforests
- Development of management plans for Ecoforests
- Implementation of management plans
- Surveillance and monitoring

Management in the Ecoforest network is based on field research, which allows the elaboration of a scientifically based management plan. Specific nature values will require special management measures, such as either non intervention or active management, which in turn may consists on maintenance or restoration.

Surveillance and monitoring of species and EU importance habitats, since 2012, is done according to the monitoring programme and in line with Natura 2000 monitoring programme of the State.

Ecoforests are a voluntary initiative of the LVM additional to the existing legal requirements, which represents a step towards implementation of green infrastructure and improving connectivity of terrestrial Natura 2000 network.

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Presentation at the 2nd Stakeholder Workshop on Forests and Natura 2000: Opportunities and Challenges. Brussels, 23 may 2013. Available in Circabc (Case 6[17]).

[17] https://circabc.europa.eu/w/browse/28cb0d1f-bbf0-4b36-aedf-3909ecd486b7

17. Integrating Natura 2000 management plans into forest management plans in Poland

Key words: cooperation between administrations, Forest Management Plans, Natura 2000 management plan, consultation, agreements, conservation measures, funding.

Background / context

In Poland, most of the areas included in the Natura 2000 network are situated within forest territories. They account for 40% of land managed by the State Forests National Forest Holding and cover over 2.8 million ha. Special Protection Areas (SPAs) located in the State Forests (SF) cover the area of 2.1 million ha (29.2% of SF land), and Special Areas of Conservation (SACs) cover 1.5 million ha (21.4%).

Designation of Natura 2000 areas resulted in activation and integration of actions on nature protection undertaken by units of the State Forests (SF), local governments, non-governmental organizations and the scientific community. Poland's foresters currently face a challenge of the necessity to establish the principles of managing the areas in accordance with the provisions of the EU's Birds and Habitats Directives.

Forest management and Natura 2000 - Integration in practice

Sustainable forestry is executed by means of Forest Management Plans (FMPs) developed by the State Forest administration. These are basic documents which describe particular forests with their resources and determine all the activities taken as components of forest management. The plans are prepared every 10 years and approved by the Minister of Environment. A part of FMP is the Nature Conservation Program that includes a broad description of nature condition as well as protection tasks and methods for their implementation. Currenty, FMPs are developed in cooperation with the bodies supervising the Natura 2000 network in Poland (e.g. the General Directorate for Environmental Protection).

In accordance with the Act on Nature Protection, on the territory managed by SF and being Natura 2000 area, the protection tasks shall be realized by the local forest district manager in accordance with the provisions of the Natura 2000 Management Plan of a given site[18]. In practice, protection tasks for Natura 2000 areas situated within SF territory are determined by experts elaborating the Natura 2000 Management Plan and are subject of consultation/agreement with SF representatives, being afterwards incorporated as modifications into relevant FMPs.

For example, during preparation of the Management Plan for the SPA "Bory Tucholskie" PLB220009 (2012), a state-owned forest area, the team of specialists from the Institute of Environmental Protection (Warsaw) and relevant Directorates for Environmental Protection (from Gdansk and Bydgoszcz) organized a consultation with SF representatives from the forest districts situated within this SPA. Appropriate provisions from the the Natura 2000 Management Plan were discussed and agreed to be introduced into FMPs.

Preparation of Natura 2000 Management Plan is co-financed with EU's funds from the European Regional Development Fund (ERDF) under the Infrastructure and Environment Programme. Poland's financial share (20%) is provided by the National Fund of

[18] The Management Plan for Natura 200 sites in Poland can be: Plan of protection (PP) for Natura 2000 areas that have also other protection status (e.g. national parks, nature reserves and landscape parks) or Plan of Protection Tasks (PPT) for all other Natura 2000 areas.

Environmental Protection and Water Management. Also the LIFE+ financial instrument has provided support for the preparation of 2000 Management Plans. All relevant stakeholders participate in the preparation of the plans through public consultation procedures,.

Conservation measures to be applied by forest managers

As a matter of example, conservation measures on bird protection approved for realization by foresters within “Bory Tucholskie” PLB 220009 are as follows:

- Designation of protection zones (if not in existence) around nesting sites of endangered bird species, such as: black stork, black kite, red kite, white-tailed eagle, eagle owl and boreal owl as well as periodical verification of their margins; for black stork, white-tailed eagle and eagle owl, the protection zones are to be maintained for 5 subsequent years after probable abandonment of nesting sites by birds.
- Planning location of touristic infrastructure (shelters, resting areas, parking places, etc.) on hiking trails no closer than 500 m from protection zone margins.
- Leaving behind fallen trees within breeding sites of eagle owls.
- For the protection of other rare birds (e.g. black woodpecker) leaving out old growth trees covering at least 5% of the total area of stands as well as excluding from harvesting as many as possible hollow trees.
- Leaving out at least 10 m^3/ha of dead wood inside all wetland habitats in forest stands and within the areas with old growth of trees as well as within 50 m wide zones around lakes (bigger than 0.5 ha) and also in designated zones along river banks.

Main results and lessons learnt

Both Natura 2000 Management Plans and Forest Management Plans are prepared in Natura 2000 areas containing forests but complete integration of both instruments is achieved through proper cooperation between the forest and environmental administrations at all levels.

Relevant provisions and measures for the conservation of protected species and habitats in Natura 2000 sites are integrated into forest management plans after consultation with forest managers, and the implementation of the relevant measures on the forests is carried out by the forester working in the corresponding forest units.

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18. Forest management in Slovenia. Strategic approach to integration and funding

Key words: integration of Natura 2000 needs into forest management, cooperation, conservation objectives, conservation measures, participation, monitorings, forest reserves, financial support.

Background/context

35% of Slovenia territory is in Natura 2000, of which 71% is forests. All forests count on management plans that include monitoring and control measures.

From 2005 there has been an integration process of Natura 2000 needs into forest management in place. The measures and tasks as well as plans associated with them are stipulated in a greater detail in the Operation programme – The Natura 2000 areas management programme (2007-2013).

This process can be summarized in the following steps:

- development of nature guidelines
- increasing cooperation between relevant public services
- management zoning for forests
- common integration of nature measures
- development of measures limiting forestry management
- upgrade of forestry indicators

This process has been supported by concrete planning and technical tools such as:

- LIFE Natura 2000 Slovenia management model
- participation and integration methodology
- development of Natura 2000 operational programme 2007-2013
- monitorings, state analysis
- standardization of forestry management plans as Natura 2000 plans
- projects (Natreg, Wetman, Alpa)
- development and integration of measures – involvement of forest owners

Natura 2000 and forest management: nature conservation guidelines and measures

The Slovenia Forest Service and the Institute for Nature Conservation (IRSNC) have participated in parallel developments of Forest management plans (10 years cycle) and Management of Natura 2000, to establish concrete forest/nature measures based on respective forest /Natura 2000 objectives.

Nature conservation guidelines have been elaborated for the best implementation of measures and were divided into 4 packages. Every package had associated conservation measures, some of which are indicated below:

- Guidelines on: sustainable forest management
    - Measure: enhance regeneration, both natural and by planting
- Guidelines on: minority habitat types
    - Measure: maintenance of scrubs, riparian belts and grassy patches between fields

- Guidelines on: specific characteristics of some species
    - Measure: conservation and tending of part of the biotope that is significant for the preservation and development of endangered species
- Guidelines on: management limiting
    - Measure: At least 3% of forest surfaces are to be excluded within the framework of forest reserves or the area of eco-cells, by preserving at least 1-3 fully-grown trees.

Forest reserves and the so-called Eco-cells have been established based on the limitation of forestry activity. Potential conflicts with private owners have been identified.

Results and lessons learnt

Through participation in the process of Forest Management Plans being made, the Slovenia Forest Service and IRSNC have greatly complemented each other. The result is an adaptive plan based on monitoring of the forests condition as well as of qualifying species and forest habitat types. Adaptive FMP thus adjusts and solves the conflicts occurring between the production function and function of biodiversity conservation, and plans suitable measures. This enables an effective multipurpose forest management. Furthermore, conservation objectives and guidelines for the entire forest site and separate management zoning are incorporated in the FMP. And this is precisely what enables preparation of measures that provide the preservation of favorable status of species as well as more accurate implementation of measures in the area.

Financing and co-financing the forest investments has been purely national for the period 2007-2013. For the period 2014-2020 Slovenia is preparing a proposal that will include payments for Ecocells (areas with restricted forestry) in private forests trough Forestry Environmental Payments (RDP). This financial support will be guided by a preliminary study on the implementation of forestry actions/limitations based on the Slovenia Natura 2000 Management Plan. A first approach envisages applying financial support to almost 1.200 Ecocells without measures and to more than 700 Ecocells with measures, totalling an estimared budget of 382.000 €.

The introduction of Natura 2000 into FMPs have upgraded the forest function of biodiversity conservation in the global forest planning and day to day management.

Cooperation between the Slovenia Forest Service and IRSNC have produced a synergy that suggested further cooperation fields.

The implementation and monitoring of some measures aimed at preserving a favorable status of conservation has been difficult.

Further information: Presentation at the first Workshop on Natura 2000 and Forests held on 13/12/2012, available on Circabc (Case 5)[19].

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[19] https://circabc.europa.eu/w/browse/28cb0d1f-bbf0-4b36-aedf-3909ecd486b7

19. Tools for forest management planning in Natura 2000 in the Castilla y León Region (Spain)

Key words: forest planning, assessment of potential effects on Natura 2000, integration at planning and operational levels, forest management, bats and birds conservation (Iberian Imperial Eagle, Black Vulture, Black Stork).

Background

Castilla y León is the largest region in the European Union with 9,422,600 ha, of which 4.808.000 ha are forest land.

Although biodiversity and the conservation of the natural values has been in the forest planning since more than one hundred years ago, it is clear that the Natura 2000 network introduces new elements that need to be explicitly taken into account in forest planning and at operational level on the ground. There is a need to elaborate adequate tools to facilitate this task to forest planners and managers. In this regard, the regional government has elaborated a Methodological guide for the analysis of forest planning in Natura 2000" and a "Manual on forest management compatible with the conservation of birds and bats linked to forest habitats", which provide useful advice for planning and implementation of forest management in the network.

Methodological guide for the analysis of forest planning in Natura 2000

This methodological guide has been prepared with two main objectives:

1. To provide forest management planners with instruments that facilitate the adequate consideration of the implications derived from the presence of the Natura 2000 network in the territory where the forest planning is being developed.
2. To help evaluators identify and prevent the possible impacts that forest plans and projects may have on the Natura 2000 sites at the decision-making level.

This is therefore an interpretation guide that aims to facilitate the application of Art. 6.3 assessment to forest management plans using a standard method as well as the consideration of conservation needs in the operation of forest managers. The guide follows the structure of the main forest management planning tool available in the region, the so called "General Instructions for Ordered Forests", to facilitate the integration of the different elements to be taken into account when applying those instructions in the planning process. The guide analyzes the implications of Natura 2000 concerning the following main issues:

Natural status: presence of endemic and protected species and their habitats. Indicator species. Singular trees. Migrant species. Specific studies on protected fauna where needed. Game species and their potential impact to the vegetation and natural regeneration.

Socio-economic status: benefits from the forests and positive global outputs.

Forest uses: potential and actual uses; production and protection. Possible restrictions to specific uses related to biodiversity enhancement and rural development, prioritization and compatibilities of relevant uses. Specific objectives of each forest and definition of planning and management units.

Planning: species selection: main and secondary species and their relationship with production and biodiversity enhancement; single species or mixed forests/stands, final

cuttings and their potential impact at landscape level and habitats conservation, clear cuts, thinning, selective cuts, cutting size, presence of water courses, open spaces inside the forest, over-aged trees, dead and hollow trees, cutting timing. Silvicultural methods.

Presence of protected areas: specific objectives in relation to forest management: protection and conservation of forest ecosystems, adequate species selection to the conservation objectives as well as cutting planning on space and time.

Productive uses: harvest planning (timber) at detailed level: space and time. Pastures: main or secondary use, adequate grazing pressure, space and time distribution in the forest, species present. Mixed systems: ”dehesas”. Coppice and other silvicultural systems associated to animal feeding.

Other uses: Mushroom harvest: space and time regulations. Hunting and angling: hunting reserves, controlled hunting, hunting plans. Recreational use: potential non-compatibilities with other uses in space and/or time.

Improvement planning: specific attention to landscapes, habitats and animal species; endangered species, habitats of interest, conservation plan, possible restrictions and even elimination of certain uses, timing for on the ground works, vulnerable and fragile species and ecosystems, possible limitations on behalf of landscape conservation.

Budgeting: including productive and non-productive uses, indirect benefits (protection, conservation), non-marketable uses. Ecological balance if relevant; environmental impact assessment and auditing.

Manual on forest management compatible with the conservation of birds and bats linked to forest habitats

This manual establishes criteria for forest management consistent with the conservation of species of birds and bats associated with forest habitats. It is divided in three main blocks: General criteria, Forest management criteria related to different elements of the natural environment and Management criteria addressed to the conservation of different species.

General criteria are defined which should be applied in different forestry operations to make sure that the basic requirements of the animal species associated to forest habitats are met, as well as to maintain their habitats in a good conservation status. The provisions involve different measures, such as defining exclusion areas (maximum 15 ha) where forestry activities are excluded for the conservation of some of the target species, or restriction to human activities in the vicinity of nesting areas of certain bird species throughout their breeding period, among other measures.

More specific criteria are defined in relation to some particular elements of the forest management and natural elements, which concern the following:

- felling methods, clear cuts, leaving trees in final cuts;
- “nesting trees”: exclude from felling the so called "nesting trees" of endangered or vulnerable species and other forest raptors;
- classified trees: that are somehow protected by reason of potential nesting trees, size, presence of holes and other micro-habitats;
- dead trees and decaying wood are promoted;
- open areas inside the forest to be kept;

- accompanying species and understory are enhanced;
- water courses and riparian vegetation: maintenance and promotion of this vegetation type, in particular in association with its potential as corridor;.
- fauna refuges are established;
- use of fertilizers and phytosanitary products is strictly regulated (intensive plantations);
- soil treatment and protection is defined in relation to different forestry practices;
- landscape considerations in forest management;
- forest roads, need, best use and avoidance of potential impact.

Furthermore, the manual addresses the measures required for the conservation of three bird species and bats associated to forest habitats. The bird species concerned are the Iberian Imperial eagle (*Aquila adalberti*), the Black vulture (*Aegypius monachus*)and the Black Stork (*Ciconia nigra*), which require the designation of Natura 2000 sites in the region and the implementation of a strict protection regime over their whole range.

Time and space conditions are established for the forest works in relation to these bird species. Restricted management areas and conditioned management areas are defined together with limitations in time, which are particularly restrictive during the breeding season. The manual includes very illustrative graphics on how these areas are proposed to be identified and defined on the ground, as well as concrete periods with specific limitations to forestry operations for each of the three species. In the case of the black stork, for example, the space conditions affect not only to nesting trees and surrounding areas but also to rivers and water bodies that are essential as feeding grounds and gathering related to migration.

As regards the bat species linked to forests, most of the measures defined have to do with their refuges and resting places, including protecting trees that are actually used by the bats or those that have a potential to become refuges taking into account their size and shape (hollows).

Further information:

The Guide on forest management planning in Natura 2000 (n Spanish) is available at:

http://www.jcyl.es/web/jcyl/binarios/751/525/RN%202000%20Y%20PLANIFICACI%C3%93N%20FORESTAL.pdf

The Manual on forest management compatible with the conservation of birds and bats (in Spanish) can be downloaded at:

http://rednatura.jcyl.es/natura2000/Normativa%20y%20documentos%20de%20interpretaci%C3%B3n/Manual%20gesti%C3%B3n%20forestal%20compatible%20con%20aves%20y%20quirop.pdf

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20. Forest exploitation compatible with Black Vulture conservation in a private forest in Spain

Key words: timber production, forest management plan, cooperation, private forest, adaptation of forest management plan to SPA requirements, conservation measures, forestry limitations, communication, consultation, mutual understanding.

Background

In Spain, the Scots pine forests (*Pinus sylvestris*) of the Sierra Guadarrama, a mountain range that lies north of Madrid, have been exploited for timber production over centuries. The so called "*Los Belgas"* pinewood (the pinewood of the Belgians), which belongs to a private company (the Belgian Society of El Paular Pinewoods), is partially included in Peñalara Natural Park and is also part of the Natura 2000 Network, designated as a Special Protection Area for birds (Alto Lozoya). The forest holds an important colony of Black Vulture (*Aegypius monachus*), with some 100 breeding pairs, among other important natural values.

Besides the Black Vulture population, the Alto Lozoya SPA counts also on the presence of a very rich community of birds of prey, some of them among the 21 bird species of the Annex I of the Birds Directive (79/409/CEE) present here. This SPA also has 15 habitat types of Annex I of the Habitat Directive (92/43/CEE), as well as some 10 species of mammals, amphibians, reptiles, fishes and invertebrates of Annex II.

The private owner has exploited these pinewoods since 1840, which means more than 170 years of continuous management. The first Management Plan came into effect in 1957. The main product is Scottish Pine timber, that is processed in the company's own sawmill, situated nearby the forest and providing local jobs.

Integration of nature conservation in the forest management

Since the declaration of the protected area, fluent cooperation was established between the nature/forest administration and the forest owner. The forest management plan was immediately adapted to the requirements of the protected area.

Studies on the black vulture population, its habitat requirements and possible effects of forest management on the species conservation were carried out by the managers of the protected area with the assistance of BirdLife Spain (SEO/BirdLife). These studies were supported by the EU with LIFE funding and allowed identifying appropriate conservation measures. Their integration in the forest management plan was facilitated by a very good relationship between the forest/nature authorities and the forest owner.

The forest management is annually adapted according to the conservation objectives and with the advice provided by SEO/BirdLife. In this regard, the forest owner has always shown a true will to cooperate and integrate into the management operations any conditions that were necessary to ensure the species conservation.

Trees hosting nests are preserved and nearby trees are not allowed to be cut over a certain area that is defined taking into account vegetation thickness, topography and other elements.

Silvicultural works in nesting areas can be cancelled or restricted on a specific time period depending upon the species. Also a reduction of "cleaning" activities in the forest has been agreed in order to promote the presence of a richer, more varied and thickest understory. Moreover, yearly monitoring of the bird populations is carried out.

The natural park can provide compensations when restrictions may cause an economic loss. However, it has not been necessary to use this option so far since the agreed forest management allowed commercial use and nature conservation without causing any significant loss. Nevertheless, the forest owner has received subsidies to carry out silvicultural works, and for the creation and maintenance of infrastructures.

Main results achieved and lessons learnt

The cooperative activities carried out have greatly improved the knowledge about the protected species and on the way to make compatible forest exploitation with their conservation. This has allowed establishing practical measures that are clearly contributing to the conservation of the species in the long-term.

The Black Vulture colony has increased from 34 pairs in 1997 to 100 in 2013. The monitoring showed that reproductive parameters were similar inside and outside commercially used forest tracts.

This management has also improved the forest functioning in terms of regeneration and productivity, involving a significant increase in the volume of wood in the forest.

Annual forestry plans agreed by all partners allowed integrating conservation needs into day to day forestry operations at a detailed and very efficient scale.

The success of this forest management was based on the collaboration between the park managers, the private owner and the experts that provided advice on the conservation needs. Permanent communication and consultation between all stakeholders, along with continuous monitoring, have been key elements in this case.

This experience shows the importance of involving all relevant stakeholders in the management of forest areas that can provide multiple benefits to the society. Improving knowledge and mutual understanding about the different objectives that may be pursued in such forest areas is crucial to achieve a fruitful cooperation among the actors with different interests.

The actions needed to achieve the objectives of this Natura 2000 site did not prevent a profitable commercial exploitation of this forest, which even increased its timber production in the last decades. However, recent trends of the forestry sector and the timber prices could reduce the viability of this exploitation. This makes evident the need to provide adequate support to forest owners that contribute to the preservation of natural values while providing other economic benefits to the society. In this regard, some voices have been raised to ask for support to this forest area in the last years, including from NGOs and from the local authorities.

References and other information sources

- Bravo Fernández, J.A.; Serrada Hierro, R. 2011. *"Cabeza de Hierro": Un monte privado, ordenado y modelo de multifuncionalidad*. Foresta nº 52. Madrid.

- Bravo Tomás, E. 2009. *El Pinar de Los Belgas en El Paular. Más de 160 años de gestión privada del bosque*. Ambienta magazine. Ministry of the Environment. Madrid.

- Web of the Belgian Society of the El Paular Pinewoods: www.maderaspaular.com

21. Maintenance of 'dehesas' in Spain

Key words: silvopastoral system, agri-environment schemes, voluntary commitments.

Background

The *dehesa* is a silvopastoral system of pastures with scattered trees, mainly of the genus *Quercus*. In some regions there are also *dehesas* of Narrow-leafed Ash (*Fraxinus angustifolia*). This system occurs in Spain and also in Portugal, where is called *montados*, and corresponds to the habitat type "6310 Dehesas with evergreen *Quercus* spp." Included in the habitats Directive (Annex I). The "Dehesas" are biodiversity rich systems and provide an important habitat for many species including many threatened bird species, as the threatened Iberian imperial eagle (*Aquila adalberti*) and the crane (*Grus grus*) and of the endangered Iberian Lynx (**Lynx pardinus*)". This silvopastoral system occupies several million hectares in Spain and Portugal.

The *dehesas* are semi-natural systems in fragile balance that currently need some special support to overcome a combination of natural and anthropogenic threats, including the loss of productivity and overgrazing. The main regions with *dehesas* in Spain are supporting their management and conservation with the European Fund for Rural Development (EAFRD), though implemention of agri-environment schemes in Andalucía, Castilla-La Mancha and Extremadura, and forest-environment measures in Castilla y León.

Measures implemented with EAFRD support

Although there are some small differences in the schemes implemented in the different regions, the general objectives of the measures applied are the following:

- To conserve the *dehesas* as productive systems under sustainable management regimes.
- To make sure that there is adequate (tree) regeneration.
- To promote the biodiversity associated to the *dehesas*.
- To improve the productive and environmental features of the *dehesas*. These include improving the health status of trees, livestock healht, pasture quality, soil enrichment, etc.
- To reduce the risk of forest fires.

The main following commitments may be included under these schemes:

- Contracts are signed for 5 years and for surfaces of at least 20 ha (Andalucía and Extremadura) or 10 ha (Castilla-La Mancha).
- An Action Plan for the *dehesa* has to be prepared, including an analysis, diagnostic and guidance for ecosystem management.
- A book recording all operations and activities undertaken must be used.
- Actions aimed at increasing the amount of trees must be carried out, including promoting tree natural regeneration and planting where necessary, pruning, maintenance of pasture by scrub elimination, integrated management of pests and diseases, etc. (e.g. in some regions it is required an increase of 40 trees/ha).

- An appropriate stoking density must be kept (between 0.1 and 1.0 LU/ha) both to allow tree regeneration and prevent shrub over-occupation.
- The maintenance of landscape features (eg stonewalls) must be ensured.
- Capacity building activities must be carried out.
- Appropriate advice should be provided during the contract period.

Some other voluntary additional commitments may include:

- Improving the natural regeneration of the tree cover by livestock management and other actions.
- Use of protected local breeds – pig, cattle, sheep and others – which traditionally support the dehesa habitats, and organic rearing of livestock.
- Improvement of the pasture quality.
- Promoting the public use of the areas of public access within the property.
- Developing information systems to improve the efficiency of the decisions-making processes.

Subsidies

Subsidies to the implementation of the aforementioned actions are different depending on the regions; maximum aids range between 40 and 200 €/ha/year for “forest environment” measures, and between 196 and 415 €/ha/year for “sustainable management of the *dehesas*”.

Further information

RDPs of Andalucía, Castilla y León, Castilla-La Mancha and Extremadura (in Spanish) are available at:
http://www.magrama.gob.es/es/desarrollo-rural/temas/programas-ue/periodo-de-programacion-2007-2013/programas-de-desarrollo-rural/

22. National strategy on forest protection and guidance on management of protected forests in Sweden

Key words: nature reserves, habitat protection areas, nature conservation agreements, cooperation, stakeholders involvement, monitoring, species-adapted management, restrictions to forestry operations, economic compensation.

The Swedish National Strategy for the legal Protection of Forest Land

The strategy was launched in Sweden in 2005 for securing the legal protection of forest land through the implementation of Nature reserves, Habitat protection areas or Nature conservation agreements.

The Strategy was jointly prepared by the Swedish Environmental Protection Agency and the National Board of Forestry, in co-operation with the County Administrative Boards, the Regional Forestry Boards and the National Board of Antiquities. The national strategy provides the basis for regional implementation strategies.

Landowners are considered as important partners in the joint effort to conserve biodiversity within the forest landscape. It is the intent of the strategy that legal protection and voluntary conservation measures shall complement each other. It emphasizes the importance of landowners as partners in a co-operative effort to preserve and support the development of the forest landscapes biodiversity. A method for the dialogue between the authorities and landowners with high-value core sites is described in the strategy.

Key issues for implementation

The basis for formal protection according to the strategy is that an area which has been prioritized for legal protection should come from a forest “core site” with high nature conservation values.

“Core areas” for different forest habitat types have been identified through robust background studies that have identified the high nature value forests in the country. The strategy prioritizes areas with very high nature conservation values at a stand level along with areas which through their size or position within a core region have a good chance of maintaining their nature conservation values. Forest types for which Sweden has an international conservation responsibility,

The national strategy sets area targets by county for formal protection. The area targets for each legal instrument are differentiated according to regional conditions and the prerequisites for each instrument. There will be a larger proportion of nature reserves in northern Sweden and a larger proportion of habitat protection areas and nature conservation agreements in southern Sweden.

The concerned authorities need to develop co-operation with different stakeholders. The strategy identifies the landscape as an arena for co-operation where joint conservation efforts which extends over different environments in both forest and the agricultural landscape is implemented. In many cases formal protection, voluntary set-asides, general consideration of nature conservation and nature conservation management are necessary in order for the conservation goals to be reached.

The regional annual implementation plans and the achievement of area targets for formal protection of different forest types in each county are evaluated continuously. An update of the strategy was announced in the governmental Bill on Biodiversity and ecosystem Services that was decided by the Swedish Government in 2014.

Guidelines for how forests and other wooded areas in protected areas are to be managed during the period 2013 - 2020

The guidelines include principal management measures, additional measures, species-adapted management and general management principles. The objective is to contribute to the fulfilment of the Swedish Environmental and to achieving a favourable conservation status for the habitats and species that are included in the Habitats Directive and the Birds Directive. The guidelines cover:

- choice of management strategy (from nonintervention management to active management) in areas that are to be protected,
- priorities for the implementation of measures
- identification of the most important management methods and restoration measures, as well as the main priorities, for the period 2013 – 2020,
- guidelines for the implementation of measures

The starting point for the guidelines is the view that protected areas have a unique role in the conservation of the natural value of forest landscapes. The conservation values that currently are present in protected areas are the starting point in the assessment of management needs.

The basic and highest priority management strategies for the period 2013 - 2020 are:

- The maintenance and/or reintroduction of fire as a natural disturbance in boreal and boreonemoral regions
- The maintenance and/or restoration of flood regimes and the restoration of drained soils
- The maintenance and/or reintroduction of management in form of grazing, use of leaf fodder and hay-making, particularly in meadows and pastures in nemoral and boreonemoral regions
- Non-intervention management

Suggested additional measures during the period 2013 – 2020 include: limiting spruce in natural deciduous forests and some pine forest, removal of alien species and restoration

Protection of forests in Natura 2000 areas in Sweden

The Swedish view is that in Natura 2000 sites forestry cannot be permitted (in application of Art. 6.3) in areas which have habitat quality, since the forestry measures would reduce the habitat quality or destroy the habitat. The general rule is that the landowners are entitled to full compensation for income foregone, where the designation of forest habitats means that they can't use the forest for timber production.

The payment is normally regulated through a process where the forest is protected as a nature reserve, or in some cases through long term land use agreements. An estimation of the market value of the forest, and the effects of the restrictions on that market value, is made, and becomes the basis for the compensation.

Further information:
http://www.naturvardsverket.se/Documents/publikationer/620-1243-6.pdf;
http://www.naturvardsverket.se/Documents/publikationer/620-5466-X_del1.pdf;
http://www.naturvardsverket.se/Documents/publikationer/620-5466-X_del2.pdf

Case study presented at the Second Workshop on Natura 2000 and Forests. 23/05/2013. Available on Circabc[20]

Contact: Anna Lindhagen. Anna.Lindhagen@naturvardsverket.se

[20] https://circabc.europa.eu/w/browse/28cb0d1f-bbf0-4b36-aedf-3909ecd486b7

23. Management of wooded pastures in Sweden

Key words: wooded pastures (9070), semi-natural forests, traditional management, conservation measures, habitat structure and qualities, CAP funding.

In Sweden, the habitat Wooded pastures (9070) is interpreted as covering the whole spectrum of semi-natural forests that have been common in Sweden: extensively grazed coniferous forest, old oak pastures, former wooded meadows that have been transformed to pastures, etc. In the wooded pastures (9070), grazing and other kinds of traditional management (pollarding, clearance from overgrowth, etc.) are considered necessary to maintain the habitat structure and qualities. Which measures that are suitable depend on the history and current qualities at a site.

Background

Historically the outfields (the areas outside the fenced fields and meadows), were the main grazing areas. They were often more or less forest covered, and for long periods they were more important as pastures than as sources of timber. Pastures with a less "forest-like" tree layer are also included in the wooded pastures – typical examples are oak pastures or birch pastures, with an uneven tree layer. During the 19th and early 20th century, the forest grazing practices were however largely abandoned, and today only very few grazed forests with grazing continuity remain. Alongside the urbanization and agricultural changes during the 20th century, more than 70% of the more open Swedish pastures have been lost, mainly due to overgrowth of forest establishment. This area loss has been very severe for the wooded pastures as well, and today the maintenance of their management is an important challenge.

Typically, the sites with wooded pastures are privately owned. The number of owners having this habitat type on their farm is high.

According to the art 17 reporting, the area of 9070 in the Natura 2000 areas is around 12,000 ha, and the total area in SE is around 67,600 ha. This estimate however covers large areas that are without management. According to a survey made by the Swedish Board of Agriculture, the area of 9070 with environmental agreements under CAP was 14,400 ha in 2008. This is ~76% of the total 9070 area (16,678 ha) identified in a grassland inventory the SBA carried out in 2005. These numbers however cover more than Natura 2000. In Natura 2000, the specific environmental measure for grazed forest on the other hand covered as much as 11,608 ha – which indicates that more forest in Natura 2000 is grazed, than the area of 9070 in Natura 2000 found in the Swedish grassland inventory. This is probably due to different definitions used in the different inventories.

Conserving semi-natural forest with high natural value

As most forests in Sweden today have been transformed to monoculture production forests, the remaining wooded pastures together with the wooded meadows (5130) represent the only "forest" habitat that clearly can be considered "semi-natural", i.e. that their habitat quality is dependent on management with grazing animals, often in combination with some clearance of shrubs or other overgrowth. The tree layer is typically characterized by heterogeneity and a large proportion of old trees. The wooded pastures are typically very valuable for insects and tree-living lichens connected with old trees in open or semi-open conditions. In many cases they can also host a rich flora of vascular plants.

The wooded pastures are included among the types of pastures for which farmers can apply for CAP funding (the agricultural side of CAP). There is a specific payment for the more forest-like wooded pastures (~263€/ha)[21].

More open wooded pastures can be part of the ordinary grassland payments. If they have "ordinary" biodiversity values, the payment level is ~132€/ha. If they are of good habitat quality, and specific management is motivated, farmers can get an additional payment of ~280€/ha, i.e. ~410 €/ in total. In addition to this they can receive pillar 1 payments, which normally are around 110 €/ha. Due to the coverage/presence of many trees, there have been some problems with getting acceptance from EU for the eligibility of some of these areas for pillar 1 payments, in spite of the fact that the tree layer is positive for biodiversity and a part of these pastures traditional features. If the sites have high biodiversity values associated with the tree layer, the pillar 2 payments have in some cases been adjusted by an increased national funding, in order to compensate for the lack of pillar 1 payments in such sites. It is also common that national funds for management of protected areas are used for pasture management and restoration work in Natura 2000 sites. Several LIFE projects have had restoration of wooded pastures as one of their core objectives, the following being amongst them:

MIA – lake Mälaren Inner Archipelago http://projektwebbar.lansstyrelsen.se/life-mia/En/restoration-and-management/Pages/default.aspx

Rosoris – http://www.lansstyrelsen.se/ostergotland/Sv/djur-och-natur/skyddad-natur/projekt/Pages/rosorisenglish.aspx

GRACE - http://www.graceprojektet.se/en/ , http://www.graceprojektet.se/en/habitats-and-species/

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[21] The examples are from the 2007-2014 CAP period.

24. Developing guidance for woodland expansion in Golden eagle Special Protection Areas in Scotland (UK)

Key words: guidance, woodland expansion, Golden eagle SPAs, appropriate assessment, stakeholder engagement, assessment of afforestation effects, sound science and evidence

Background/context

Scotland has 450 pairs of golden eagles. That is 5% of the European population, which means being a Category 3 species of European Conservation Concern. Golden Eagles are still subject to persecution; therefore a proposal to designate 6 new SPAs (6% Scotland area) in 2010 covering 400,000 ha in addition to 8 existing ones was made.

Eagles prefer open ground, i.e. not forested. Therefore it grew a concern of woodland restoration interests that single species designation would restrict woodland expansion for timber & for habitat.

On the other hand, less than 2% of original semi-natural woodland remains (once was >60%) thus greatly reduced habitat. The question could be: Which is preferred – eagles or trees?

Government conservation advisers (SNH) indicated 'Appropriate Assessment' of new woodlands in SPA would be required. This could be enough to discourage woodland expansion. Another concern arose over stakeholder engagement on the designation.

In addition, golden eagles elsewhere (as EPS) may be a significant constraint on woodland expansion.

Agreed approach

It was clear that a review of past guidance was required, for which a working group to commission expert research and advice was set up. The Working Group included statutory agencies, NGOs and independent expert advisers. The function of the WG was to assess current guidance on eagles interacting with woodland to produce an agreed set of criteria for readily assessing woodland expansion proposals in golden eagle SPAs.

Case: Glen Etive & Glen Fyne SPA

The Glen Etive & Glen Fyne SPA has 19 active eagle territories; 4.2% of UK population. This SPA has minimal woodland area but there is a desire by some land managers to extend woodland area (habitat restoration). Now the question is: Can golden eagle habitat conservation be compatible with woodland restoration?

Main outcome of research review and assessment

Many golden eagles thrive in and around areas of woodland & woodland expansion as well as open ground.

Availability of live prey is fundamental to eagles.

Golden eagles have a very wide territory. Careful study can identify critical and less critical parts of the territory.

Potential for woodland expansion in their territory without negative impact on eagle integrity (and may even improve habitat quality).

Recommendations

Avoid planting wet/boggy ground or area of high prey importance eg rabbit warrens.

Keep ridges free & avoid core range around nest (may be 2-3km radius but variable)

Areas of low prey importance (eg bracken ground, short or improved grassland) can be planted with minimal or even beneficial impact.

Study of individual eagle territories will inform assessment.

Scale and design of new woodlands is critical. If sited appropriately these may enhance eagle live prey availability.

Predicting Aquila Territories (the PAT model)

The PAT model is based on assessment of range boundaries for each pair of eagles. It has a mathematical modelling incorporated.

This model gives proper weighting to key features such as ridges and proximity to nest; identifies less suitable and frequented habitat and produces 'predicted use' of a territory.

Outcome of working group

A low-cost, robust & reliable model available to land managers who wish to undertake land management in golden eagle territories.

Supports staff is required to implement EU Habitats & Birds Directives.

Recognition that if the model is used correctly when considering woodland expansion, proposals may be supported and may not even require 'Appropriate Assessment' (ie if they can be shown to have a beneficial impact on the designated interest).

Lessons learnt

It's good to talk to stakeholders prior to designation to identify concerns.

Beware unintended consequences (real threat is persecution not habitat loss) on other interests.

Beware single species conservation measures.

Good forest design, based on sound science and evidence, can address apparent concerns.

Designation should be supported by pro-active engagement to seek stakeholder support and address perceived concerns.

Further information

Case study presented at the Second Workshop on Natura 2000 and Forests. 23/05/2013. Available on Circabc (Case 2)[22]

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[22] https://circabc.europa.eu/w/browse/28cb0d1f-bbf0-4b36-aedf-3909ecd486b7

25. Site based management of Natura 2000 forests in Denmark

The Danish implementation of article 6 of the Habitats Directive in relation to forests has an integrated approach, using different complementing instruments.

Basic conservation measures avoid negative influence or damage from plans and projects (article 6.3)

The Danish forests in Natura 2000 sites are covered by a number of general prohibitive legislative protection measures, including the protection of forests as forests (against other types of land use), the protection of small habitats within the forests and different restrictions on when to do logging etc. Any application for a derogation from these general protection measures in relation to forests must be considered under the Appropriate Assessment (AA) procedures following from the legislation implementing article 6.3 (statutory order 408/2007).

However, a number of "daily" forestry activities are not covered by the general prohibitive measures. To prevent the Natura 2000 forest habitats from damage from such activities, a legally binding notification scheme has been set up under the Danish Forestry Act to cover plans and projects which do not require prior authorisation.

Before initiating a number of activities (projects) within a Natura 2000 site, the forest owner must notify the state forest district (in some cases the municipality council). The activities includes clear cutting and planting (including non-native species and conifer trees for production purposes) in deciduous forests, changes in hydrology and construction works (including forestry tracks) which do not require prior authorisations.

The authority must carry out an AA-procedure and, if necessary in the light of the site conservation objectives, prohibit the activity to be carried out. If this decision includes reductions in the financial outcome of the forestry activities, the forest owner is entitled to get economic compensation.

Pro-active management and protection (article 6.1 and 6.2):

For each site, the Nature Agency elaborates a Natura 2000 Management Plan which includes the conservation objectives for the site and an action program.

As for the forests covered by the Forest Act (app. 80 %) the forest part of the management plan covers a 12 year period. These forests include most of the habitats relevant in relation to Natura 2000. The rest of the forests (app. 20 %) is like all other species and habitats covered by a 6-year plan.

As a follow up to the management plan, the authorities have to adopt an implementation plan. This plan goes more into details with the choice of measures to be taken. The state owned forests are covered by specific implementation plans, covering more specifically the actions to be taken by the state authorities to maintain or restore a favourable condition for the habitats. These specific state forest plans are included in the implementation plan.

For privately owned forests specific management plans per forest are not mandatory. , but covered by the overall Natura 2000 Management Plan. The necessary measures for the management of the habitats are generally addressed in the national implementation plan and, if necessary, measures based on voluntary agreements with forest owners are taken. Targeted subsidy schemes under the RDP have been established for this purpose: http://naturstyrelsen.dk/naturbeskyttelse/skovbrug/privat-skovdrift/tilskud-til-private-skove/natura-2000-skovnatur/

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