Expert input sheet

Conservation and management of Continental Woodland and forest in Germany

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Habitat(s):
9170 - Galio-Carpinetum oak-hornbeam forests

Biogeographical region:
Continental

Member state:
Germany

Region(s) (if applicable):
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Issues and pressures
Some forest habitats (9160, 9170, also true for 9190 and *91G0 in Germany) are defined by a sizeable presence of oak trees (native Quercus species, i.e. Q. robur, Q. petraea). However, they are the only forest habitats of Annex I (together with Pine forest habitats 91U0, 91T0, which cover only small areas in Germany) which are almost entirely secondary in nature. This means that they require a specific silvicultural management to preserve them as the oak habitat they are classified as. These management techniques are specified below. If not managed accordingly, these habitats will develop into different forest habitats, especially those with dominant beech (Fagus sylvatica) or other hardwoods (maple, ash, lime, hornbeam etc.) and little or no oak. Oak natural regeneration is less competitive compared to young beech (or other hardwood) trees in stand situations with relatively dense and closed canopy. The oak regeneration does not get enough sunlight to stand the competitive power of the beech regeneration and will be quickly overgrown by the latter. In case of natural or anthropogenic opening of the canopy the beech regeneration then benefits form its growth lead compared to the young oaks. Contrary to earlier perceptions, this is also true for the so called “primary” soil types like pelosols (clay soils) which do not support beech as the otherwise dominant competitor, but which nonetheless are home to shade tolerant, readily regenerating tree species that under almost all circumstances outcompete oak trees in the regeneration phase.

Also, many oak forests were formerly managed by coppicing with standards, which has however declined drastically in the past 100 years because of cost and efficiency reasons, and now covers only a small share of the oak habitat area, and requires heavy financing with nature conservation resources (co-financed).
Additionally, oak forests are highly susceptible to forest health problems, like defoliating insects and increased nitrogen input, which often limits the ability to prolong the silvicultural cycle and thus “postpone” the problems with oak regeneration mentioned above.

Further issues, pressures and threats are:
- Extensive harvest of old deciduous trees
- Harvest of big treetops as regeneration measures
- Forestation with species that are not typical for the habitat type
- Wood harvest between spring and fall (before leaf cast)
- Distances between extraction lines that are smaller than 40 m
- Absence of natural regeneration as a consequence of dense populations of hoofed game
- Eutrophication and acidification due to atmospheric deposition
- Lowering of the groundwater table and desiccation due to land improvement (9160)

Conservation requirements
- The management should target at enabling oak natural regeneration to compete successfully against regeneration of other tree species (mainly beech)
- Targeted, “Oak-friendly” regeneration methods: removal of all non-Oak trees in an oak mast year (years with a large production of acorns, about every 7-10 years), providing sufficient light for the young oaks once these have germinated and become well-established, by opening of the canopy to a sufficient extent (removal of at least 50 to 70% of the standing crop).
- One way to achieve this substantial opening is to conduct several (2-4) “femel” shelterwood cuts per hectare with circular openings of about 30 m in diameter.
- At the same time, it is important to retain enough old oaks through the regeneration process (and beyond) to ensure habitat continuity also for slowly dispersing species.
- Circular “femel” shelterwood cuts may be suitable to combine sufficient opening of the canopy with at the same time remaining enough old trees in the stands to provide for habitats of species particularly adapted to oak (mixed) forest ecosystems.
- Close-to-nature silviculture should be accepted as a management measure and should be supported financially
- The threshold for a favourable conservation status should be raised to 6 habitat trees and 50 m³ dead wood
- To prevent deterioration of the typical species stock it should be prohibited to bring in alien species
- Distances between extraction lines should be at least 40 m
- No wood harvest between 1st March and 15th July
- Reduction of hoofed game populations

Conservation management
At present, due to constraints on forest management in Natura 2000 sites, e.g. because of annex species (bats etc.) occurring in many of the old oak stands, but also because of acceptance issues of light-intense forestry measures as not “near natural”, even by some foresters, further due to overbrowsing and finally the high investment costs for oak-friendly regeneration if natural regeneration fails (about 10.000 to 20.000 EURO per hectare) only single-tree extraction or even non-intervention forestry management are advocated, leading to the above dilemma. In the short term, the resulting forests retain a (although
declining) share of oak and even build up more dead wood (from the oaks dying because they are outcompeted and overgrown by beech trees etc.), but in the long run oaks are completely excluded from the future tree composition of these forests because of insufficient light for their successful regeneration and inter-specific competition with more shade-tolerant trees. Managing a thus oak-free forest of mixed noble hardwoods and/or beech is much more cost-efficient and less prone to forest pest issues, as it can be done by shelterwood silvicultural systems with a higher average standing crop.

**Species specific management:**
Yes

In order to preserve particular annex II species that favor this habitat type or oak forests in general, it is necessary to retain sufficient levels of habitat trees and dead wood and ensure habitat continuity.

1083 Lucanus cervus  
1088 Cerambyx cerdo  
*1084 Osmoderma eremita*  
1052 Euphydryas maturna

**Barriers and bottlenecks**
Insufficient understanding/awareness of the ecology and secondary nature of oak forests, also by foresters trained to think and act only “near-natural” (meaning “minimally invasive” forestry).

Insufficient financing (underdeveloped for Natura 2000 in forests in general or incomplete utilisation of available funding respectively).

Insufficient acceptance by laymen, NGOs, nature conservation authorities for light-intense forestry because of the rather abrupt change of forest scenery it can cause.

**Solutions and opportunities**
Communicating the necessity of these measures in general and in concrete SAC, when (or rather before) application.

Improve funding.

Improve acceptance of (mixed) oak forests as a Natura 2000 habitat for land owners, by signaling that oak-friendly forest management is accepted and (most importantly) does not automatically entail further restrictions and sanctions (perceived as a “punishment for well-doing” by the forest owner) once valuable (both timber- and species-vise), mature oak forest stands are reached.

**Cross cutting issues**
Oak trees are highly susceptible to defoliating insects and other forest pests, as well as high nitrogen levels in the air and in the water, especially in a changing (warming) climate. However, healthy oak trees will be an important cornerstone of forests that are well-adapted to climate change because of their
overall properties as a tree species (drought-tolerance, longevity, storm resistance). This seeming paradox has to be addressed.

Agricultural policies are also an issue as many oak forests have a history of being silvo-pastoral systems (forest pastures), which are presently strongly disadvantaged both by forest policy and regulations as well as agricultural policy, especially that relating to subsidies (no tree cover allowed on agricultural lands that receive agricultural cofunding), cf. Luick & Schuler (2008).

**Lessons learned / best practice**
Presently, the focus is often on coppice-with-standards stands (e.g. a LIFE project). This is an accepted historic measure, but will not solve the problem on a broader scale.

**Opportunities for joint action**
Increased common understanding of secondary forest habitats, i.e. the secondary nature to begin with, the role of traditional management techniques, transfer into new management techniques in different member states (learning from each other).

**References**
