Expert input sheet

Conservation and management of Continental Wetlands in Belgium

Contributor
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Habitat(s):
7230 - Alkaline fens

Biogeographical region:
Continental

Member state:
Belgium

Region(s) (if applicable):
Wallonia

Issues and pressures
Most of the alkaline fens have been exploited since a long time (peat extraction, former agropastoral economy). Progressively, around the beginning of the 20th century, the traditional pastoral and agricultural practices were abandoned or replaced by more intensive and destructive modes of land use. From that time, most of the fens have been destroyed by human activities (agriculture, afforestation, digging of fish or recreative ponds, urbanisation, ...) or altered by shrub encroachment. Some alkaline fens were drained and then fertilized and used as intensive grassland; some were afforested (or are still afforested) with non native trees, most of them were simply abandonned. The cessation of land uses induces the colonization by reed and shrubs and the regression of the alkaline fens typical species. The use of fertilizers in intensive grasslands has also a severe damaging effect on the fen vegetation in the surroundings. A more indirect threat to fens is air pollution. The high emissions of S and N gases caused by industry, agriculture, and traffic affect the relictual fens. Urbanisation, motorway making, rivers rectification and pollution, calcareous sand extraction have also destroyed some fen areas.

More than 800 ha of peaty areas use to occurr in the Belgian Lorraine, but today only small remainders (15 ha) of alkaline fens survive, often in a very degraded state. Most of these alkaline fens were cut for hay in the former agropastoral economy. After this haymaking gradually ceased, some of the fens have become overgrown with Phragmites australis, Carex spp., Salix spp., Betula ssp. or Alnus glutinosa and have lost their biodiversity as a result of lack of traditional management. They are also very scattered and very small in size (connectivity problems). Some of the typical species are now regionaly extinct, other species only occur in few sites. At present, a large part (14 ha) of these remnant alkaline fen areas are classified as nature reserves and protected. Nevertheless, without appropriate restoration measures, these protected areas are still threatened by drying, tall-herbs invasion, natural afforestation and lack of recurrent management measures. The populations of the typical species are also small and isolated, threatened by inbreeding depression.
List of pressures and threats identified for these habitats in the Art 17 report for 2007-2012:
A03.03 abandonment/lack of mowing
A04.03 Abandonment of pastoral systems, lack of grazing
B01.02 Artificial planting on open ground (non-native trees)
E01.02 Discontinuous urbanisation
E03.03 Disposal of inert materials
F04.01 Pillaging of floristic stations
G05.07 Missing or wrongly directed conservation measures
H01.05 Diffuse pollution to surface waters due to agricultural and forestry activities
H02.04 Groundwater pollution by mine water discharges
H02.08 Diffuse groundwater pollution due to urban land use
H2.06 Diffuse groundwater pollution due to agricultural and forestry activities
H04.02 Nitrogen input
I01 Invasive non native species
J02.05 Modification of hydrographic functioning
J03.02 Anthropogenic reduction of habitat connectivity
K02.01 Species composition change (succession)
K05.02 Reduced fecundity/genetic depression in plants

Conservation requirements
Because most of the fens have originated as a consequence of anthropogenic deforestation of wet woodland and low intensity agropastoral use, designation as nature reserves is not sufficient to ensure their protection. Appropriate management measures must be taken.

Management requirements for alkaline fen habitats are:
- Restoration of hydrological structure and process, top soil removal (10-25 cm);
- Abandon of forestry, agriculture and urbanisation speculation on these marginal soils;
- Removal of non-indigenous species (mainly Populus, Picea, Pinus);
- Control of trees and tall-herbs invasion;
- Lowering of trophic level;
- Designation as nature reserves of the fen areas still without protection status ;
- Enlargement of sites where it is possible ;
- Implementation of different restoration/management measures: cutting of trees, rewetting strategies (infilling of ditches, dams, bunds, top soil removal), low-intensity grazing (cattle, horses), mowing.
- Growing ex situ of typical species and reintroduction in the sites, diasporas supply;
- Populations reinforcement / restocking
- Tertiary purification of hydrographic network

Conservation management
At present, very few restoration measures are applied to alkaline fens. On a total potential surface of 800 ha, only 40 ha are currently managed by grazing or mowing and only 15 ha of typical habitat still occur. Most of the actions consist of tree and shrub clearance by cutting or milling; raising the water table by ditch blocking; grazing and mowing in some little areas of protected sites. But it isn’t enough to ensure
adapted restoration of the alkaline fen. Heavy hydrological restorations, for example, are required (rewetting the fens by building low dams in flat areas or by re-modelling the peat surface by top-soil removal, ...). Installation of a tertiary purification station above the fen areas should be also necessary.

**Species specific management:**
Yes

Maintaining of sedges tussocks in areas where the species is present.
1016 Vertigo moulinsiana

**Barriers and bottlenecks**
Relictual alkaline fens must be quickly restored/managed by appropriate techniques. Furthermore, many large very degraded, but restorable, areas still exist and should be restored in the near future. Unfortunately, regional funds are not sufficient to allow realization of large restoration programs and most of fen areas are private properties. It is very difficult to convince these owners (principally private owners, but also Common authorities) to adhere to restoration programs, to change their way of using peaty habitats or to sell their land.

New opportunities of funding, like LIFE projects or optimal use of agricultural funds, should be taken in account in the future. We also have some difficulties to find sufficient funding for recurrent management actions and for long-term monitoring programs of the restored areas.

Some lacks of knowledge about, for example, fen hydrology, may be a problem for taking the best appropriate restoration measures. We also need to test some restoration techniques with intent to identify the most appropriate works. Long-term monitoring programmes of restored areas are needed to assess relevance of restoration techniques tested.

**Solutions and opportunities**
Because current funds are not sufficient to allow realization of large restoration/management programs, new opportunities of fundings should be taken in account in the near future, especially LIFE projects for restoration.

Funding of researches should also be taken in account for specific matters like fen hydrology, critical load of nutrients, restoration feasibility of very degraded sites, seed bank availability, collection of diaspores and their growing ex situ, bryophytes inventory, ...

**Cross cutting issues**
Problems linked to climate change and air pollution can’t be resolved at a local scale but only at an international scale.

We have difficulties to involve stakeholders and owners in fen preservation or restoration. Unfortunately, most of fen areas are private properties. This is a big problem for an appropriate hydrological restoration of the fens (hydrological restoration measures must be apply to the whole fen area and are often ineffectual for little scattered areas).
We also have some difficulties to find sufficient funding for recurrent management actions and for long-term monitoring programs of the restored areas.

Lessons learned / best practice
Since 30-40 years, little areas classified in nature reserves, where some restoration measures occur, are in a better conservation state than before. Results are promising, but actions still must be quickly taken at a larger scale.

Some actions were also taken in the frame of 2 LIFE projects, mainly LIFE « Lorraine » (1999-2003) and also LIFE « Natura 2mil » (2006-2010). They concerned mainly land purchase, mowing or grazing of fen areas, but any hydrological measures were applied in these projects. Some new actions will be consider for alkaline fens in the frame of the new LIFE « Herbages » (2013-2019).

Opportunities for joint action
- Population reinforcement/restocking/reintroduction will be necessary for some species because they are now regionally extinct and they don’t make permanent seed-bank. Furthermore, populations of typical species that still exist into some sites are very

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