34. Het Vinne (Zoutleeuw)

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Natura 2000 area: yes
Management authority: province of Vlaams-Brabant
Supporting authorities: Agency for Nature and Forests, Flemish Land Agency (land development for nature project)

Ecosystem type
Shallow, moderately eutrophic lake in the South-eastern hills ecoregion.

Restoration measures, objectives and results

Starting conditions
This shallow natural lake (up to 3m deep) used to be the largest in Flanders (c. 100ha) and was drained in 1841 for agricultural exploitation and poplar plantation.

Restoration measures

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<th>Year</th>
<th>Description</th>
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<td>2004-2005</td>
<td>50ha of old poplars were felled and the drainage pumps were set to restore a lake with a surface of 68ha (in order to avoid flooding of nearby buildings; the original surface could not be attained). Pike was introduced in 2005 (1,400 individuals of 6 weeks old).</td>
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Objectives
Restoration of a shallow, natural moderately eutrophic lake.

Management measures
Water level management to avoid flooding of buildings; cyclical mowing of reed; artificial nesting rafts for Black Terns were placed in 2008.

Orthophoto from the reclaimed lake planted with poplars before restoration and aerial view after the restoration of the lake (2005).
Lake Vinne: from lake to poplar plantations and agricultural land, back to lake. The actual depth of the lake at maximum water level is about 1.30m only and large parts are colonised by Phragmites.

Evaluation

Species/communities

- Mainly non-rooting aquatic plants established rapidly and became very abundant (lemnids, Riccia fluitans and Utricularia australis). So far, rooting aquatics remain sparse and limited to a few tolerant species such as Potamogeton crispus and P. pusillus. Large patches of perennial reed and Typha latifolia developed. At this early stage, it is still unclear to what extent the reed vegetation will expand further (now nearly 50% cover of the lake).

- Many reed and marsh birds reappeared. Among the more remarkable breeding birds are Botaurus stellaris, Ixobrychus minutus, Podiceps nigriceps and Chlidonias hybridus. Chlidonias niger occur in relatively large numbers during migration. A large breeding colony of Black-headed Gull (Larus ridibundus; up to presumably 6,000 birds) developed, which may cause a nutrient problem.

- Het Vinne is important to foraging bats as can be seen by the large numbers and the presence of 6 to 8 species, such as Myotis daubentonii, M. nattereri, Nyctalus noctula and Plecotus spec.

- The fish community of Het Vinne is still in a pioneer stage and a limited number of species are present: Pseudorasbora parva, Gasterosteus aculeatus, Pungitius pungitius, Esox lucius and Cyprinus carpio.

- Due to the combination of open water, marsh and fringing woodland, the dragonfly diversity is considerable (38 species), with high densities of common species and populations of a few more specialized species (Aeschna isosceles, Lestes dryas, Aeschna juncea and Ceriagrion tenellum).
Abiotic conditions

The lake is only fed by rain and ground water; natural fluctuations of the water level may occur, but only up to a maximum height of 25m above mean sea level (flood protection of buildings). The actual depth of the lake at maximum water level is about 1.30m. Chemical analysis of the surface water has shown that the lake is moderately eutrophic in 7 out of 8 sample locations, and hypertrophic in one location (due to former discharge of domestic waste water).

Other lessons learned

The use of heavy machines on the peaty soils proved to be very difficult. The poplars were cut without removing stumps and debris, which now offers ample breeding habitat for the Black-headed Gulls and hampers mowing. Decomposition of abundant organic material causes turbidity and oxygen consumption, inducing an outbreak of botulism in 2008.

Future points of attention for sustainable results

Besides internal eutrophication, guanotrophication and nutrient inputs through drainage and spillover of stored manure from an adjacent farm are causes of concern. The evolution of the water quality and the growth of reed must be monitored closely.

Public support

The area became very popular for local tourism. People can visit the area via attractive wooden tracks through the marsh and bird hides are provided. Local people complain about the increase of mosquitoes and noise from the Black-headed Gulls.

It came as a complete surprise that in the first years after the restoration works a small breeding population of Whiskered Tern (*Chlidonias hybridus*) became established, an extremely rare event in Flanders up to now.