

FIVE YEARS OF MONITORING AND THE COMPENSATION PROCESS FOR EXPANSION OF THE ANTWERP HARBOUR

*Ralf GYSELINGS¹ – Geert SPANOGHE¹ – Erika VAN DEN BERGH¹ –
Laurent VANDEN ABEELE² – Katrien WEYN² – Lieven NACHTERGAELE²*

¹ Research Institute for Nature and Forest, Kliniekstraat 25, 1070 Brussel, ralf.gyselings@inbo.be

² Agency for Nature and Forest, Gebrs. Van Eyckstraat 4-6, 9000 Gent

Abstract: The Port of Antwerp at the left bank of the River Scheldt overlaps with a special protection area for birds (SPA). Marshes and mudflats at the river border are habitats designated as special areas of conservation (SAC). The digging of the Deurganck dock and Verrebroek dock destroyed habitats in these areas of special interest. A compensation plan was set up, involving the creation of wetlands, meadow bird areas, reed marshes, pioneer situations and tidal marshes. A management committee for the follow up of the compensation projects, gathering all stakeholders, was installed. A monitoring scheme to evaluate these compensations was started by the end of 2002. This monitoring did not focus solely on birds and tidal habitat, but also included steering variables such as hydrology and vegetation development. In the meantime most of the compensation works have been realised, but some are still in progress. Five years of data collection allow a first evaluation of the compensation process and assessment of the conservation goals and objectives. Breeding birds do not reach target numbers yet, but the bird community starts to respond positively. In some occasions vegetation development needs more process time to get optimal habitat, in some other cases management will have to be adapted to reach the targets. The comprehensive monitoring scheme proved to be adequate to evaluate the complex process of harbour development and simultaneous nature compensations in the context of SPA and SAC. It is an effective and efficient tool to formulate suggestions for adaptive nature management in a sound way.

Keywords: birds and their habitats, creating new landscapes, estuaries, harbour expansion, land use change, reclamation of former agricultural land

Introduction

Conflicts between expanding harbours and ecological values protected by the European legislation are a general problem in Europe (Maes & Neumann 2004). The growing Antwerp Harbour on the left bank of the River Scheldt has a considerable overlap with the Birds and Habitats directive areas ‘Schorren en polders van de Beneden-Schelde’ (SPA) and ‘Schelde- en Durme-estuarium van de Nederlandse grens tot Gent’ (SAC). Harbour development continuously poses potential threats to the favourable conservation status of protected habitats and species. On the other hand, the international conservation commitment laid out for these sites hampers the economic expansion of the Harbour. With the construction of the Deurganck Dock the reciprocal pressure led to a conflict situation. Construction works had to be interrupted following a complaint from the EC because Article 6 of the Habitats directive was not well complied with. Principal complaints were the lack of a proper assessment of the adverse effects on protected habitats and species with specific reference to conservation goals and objectives, including cumulative effects with previous developments, and of a well substantiated ‘like for like’ nature compensation plan, integrated in the cost-benefit analysis and time-table of the construction project.

In response, a new environmental impact assessment (EIA Linkerscheldeover – Deurganckdok 2001) was compiled, taking into account cumulative effects with previous projects. It included a substantiated compensation plan which was linked in

time to the progress of the Deurganck Dock construction works: each compensation measure was linked to a specified stage or aspect of the Deurganck dock works in a 'compensation matrix'. This compensation matrix contained all compensation areas, grouped in five major habitat types: Pioneering bare sand planes with water, Reed marshes, Tidal mudflats and marshes, Wet meadows for meadow birds and Deep water with natural shores. Creation of these habitats had to be carried out simultaneously with the construction of the Deurganck dock. Parallel a long term monitoring program was set up to evaluate the effectiveness of the compensation measures and the evolution of the conservation status of the special protection areas in the harbour. The monitoring results are input for the management committee's annual report to the EC and are an important aid for the adaptive management of the area.

The first part of the Deurganck dock has been officially opened in 2005. A number of compensation works have been finished between 2004 and 2007, though for some habitat types works are still ongoing.



Figure 1. Wet meadows in Doelpolder Noord shortly after creation in 2006 (photo: Ralf Gyselings)

Materials and methods

Monitoring of the SPA and the compensation areas started in 2003. The monitoring program consists of a yearly count of all breeding birds listed in Annex I of the Birds Directive, complemented with a list of bird species that are important for the region or have an indicator value for the evolution of the target habitats. Also wintering birds are counted. Additionally, the evolution of the habitats is monitored through its hydrology and vegetational development, and species of Annex IV of the Habitats Directive are monitored in the harbour area. This paper focuses on target habitat development and the response of the breeding bird communities.

For all species for which losses have been mentioned in the environmental impact assessment, targets have been specified. These targets were specified based on data that

were mainly collected by volunteers in the Deurganck dock area before the works had started, supplemented with calculated numbers based on densities in comparable habitats (Spanoghe et al. 2006). Targets are stated as an increase in numbers that should be reached relative to 2003 (Spanoghe et al. 2003). Together with the habitat goals derived from the compensation matrix, they form the framework for the evaluation of the compensation process (Spanoghe et al. 2006,2008, Gyselings et al. 2007).

Results and discussion

Pioneering bare sand planes with water

Three compensation areas are designated in the matrix, but only one has yet been created. However, at the construction site of the Deurganck dock this habitat is still available. Yearly agreements to keep part of this site free from disturbance during the breeding season allow targets for species of this habitat type to be met (fig. 2a).

Reed marshes

Two compensation areas are designated in the matrix. The first has been finished in the second half of 2003, the other by the end of 2006. In the latter no reed is available yet, but in the first area, reed developed over a five year period to form a fully grown reed marsh. Reed growth progressed especially fast in the last two years, during which the groundwater level was higher than before. In the meantime, the typical bird community increased in numbers, but did not yet reach its targets for all species (fig. 2b).

Wet meadows for meadow birds

Three compensation areas are designated in the matrix. Two of them were finished by the end of 2006, finalisation of the third one is ongoing. Vegetational development will still take a number of years. Hydrological monitoring revealed that 2007 conditions were still too dry. A first correction of the water level has been carried out by 2008. Over the past years, the numbers of meadow birds have been far below the targets, but a first positive reaction was noticed in 2007 (fig. 2c). However, it will still take a number of years before the targets for breeding birds will be reached. In wintertime, the new grasslands immediately attracted high numbers of wintering geese.

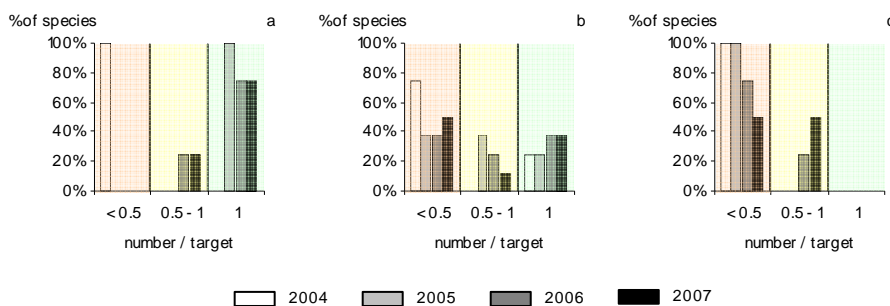


Figure 2. Evolution of the target bird community in (a) pioneering bare sandplanes with water, (b) reed marshes, (c) wet meadows for meadow birds

Deep water with natural shores

Deep water with natural shores has been created in several compensation areas. The main purpose of this habitat type is to offer a resting place for wintering waterbirds. Winter counts showed that these compensations were successful shortly after creation, but they also fulfil an important role for some breeding birds. This is illustrated quite well by the establishment of the first permanent breeding colony of Spoonbill *Platalea leucorodia* for Flanders in one of these areas.

Tidal mudflats and marshes

Compensations for tidal mudflats and marshes had to be carried out in accordance with the Habitat directive, since mudflats and marshes along the river Scheldt are part of a SAC. Two compensation areas are designated in the matrix. The first area, a de-embankment of a former polder, has been finished in 2004. Vegetational succession on the highest part started soon thereafter. For the other area, an inland part under controlled reduced tide (CRT) is planned, but the water inlet and outlet still has to be constructed.

Conclusions

Five years after the creation of the compensations started, bird numbers are increasing and communities enhance, but targets are not reached yet. More time for natural development is needed. To avoid population declines, a more proactive approach is recommended. The monitoring setup proved to be suitable to document, direct and adapt the difficult process of nature loss and compensation in the Antwerp Harbour.

Acknowledgements

We are grateful to the Natuurpunt WAL and all volunteers for their assistance with parts of the monitoring.

References

- EIA Linkerscheldeoever – Deurganckdok (2001). Environmental Impact Assessment made by Milieu & Veiligheid in charge of Gemeentelijk Havenbedrijf Antwerpen
- Gyselings R., Spanoghe G. & Van den Bergh E. (2007). Monitoring van het Linkerscheldeoevergebied in uitvoering van de resolutie van het Vlaams Parlement van 20 februari 2002: resultaten van het vierde jaar. Bijlage 9.10 van het vierde jaarverslag van de Beheercommissie Natuurcompensaties Linkerscheldeoevergebied. Verslag Instituut voor Natuurbehoud IN.R.2007.2, Brussel.
- Maes, F., Neumann, F. (2004) The Habitats Directive and port development in coastal zones: Experiences in safeguarding biodiversity. *Journal of Coastal Restoration*, 10, 73-80.
- Spanoghe G., Gyselings R. & Van den Bergh E. (2003). Monitoring van het Linkerscheldeoevergebied in uitvoering van de resolutie van het Vlaams Parlement van 20 februari 2002: resultaten van het eerste jaar. Bijlage 8.7 van het eerste jaarverslag van de Beheercommissie Natuurcompensaties Linkerscheldeoevergebied. Verslag Instituut voor Natuurbehoud IN.O.2003.15, Brussel.
- Spanoghe G., Gyselings R. & Van den Bergh E. (2006). Monitoring van het Linkerscheldeoevergebied in uitvoering van de resolutie van het Vlaams Parlement van 20 februari 2002: resultaten van het derde jaar. Bijlage 8.6 van het derde jaarverslag van de Beheercommissie Natuurcompensaties Linkerscheldeoevergebied. Verslag Instituut voor Natuurbehoud IN.O.2006.1, Brussel.
- Spanoghe G., Gyselings R. & Van den Bergh E. (2008). Monitoring van het Linkerscheldeoevergebied in uitvoering van de resolutie van het Vlaams Parlement van 20 februari 2002: resultaten van het vijfde jaar. Bijlage 9.10 van het vijfde jaarverslag van de Beheercommissie Natuurcompensaties Linkerscheldeoevergebied. Verslag Instituut voor Natuurbehoud IN.R.2008.14, Brussel.