The European beaver (*Castor fiber* L.) in Wallonia (southern Belgium): the set-up of an afterthought management programme

Maxime Van den Bergh[1] & Benoît Manet[2]

[1] ASBL Biernausaut, Rue Léon Demars 1, B-5575 Rienne, Belgium, e-mail: biernausaut@yahoo.fr
[2] Research Centre for Nature, Forests and Wood (CRNFB, Ministry of the Walloon Region), Avenue Maréchal Juin 23, B-5030 Gembloux, Belgium.

Abstract: The beaver (*Castor fiber*) returned to Wallonia mostly due to clandestine reintroductions of 100 Bavarian beavers between 1998 and 2001. Beaver settlements are now present in most of the river basins, sometimes in seemingly unsuitable areas or in highly urbanised zones. Beavers spread widely during the two years following the reintroductions. The Walloon authorities instituted proceedings against the perpetrators of these releases and, at the same time, instigated a survey and a structure for managing possible conflicts. Forest, fishing and muskrat trapping agents conduct the field survey work and transfer information to the Research Centre for Nature, Forests and Wood (CRNFB) and the Biernausaut Association. With this set-up, a new beaver site can be detected within one month. About 200-250 beavers are now present in Wallonia, at about 60 sites. Only small problems have occurred until now, but they are expected to increase as the beaver population grows and spreads. Thus, beaver management has to continue, to prevent conflicts with human activities but also in accordance with nature conservation objectives such as the implementation of the Natura 2000 programme. A future trans-border co-ordination for surveying beavers should be developed.

Keywords: beaver, *Castor fiber*, monitoring, management, Belgium.

Introduction

As in other Western European countries, numbers of the European beaver (*Castor fiber*) declined from the Middle-Ages onwards. The species finally became extinct in Belgium during the 19th century as a result of habitat degradation (habitat fragmentation, agricultural and sylvicultural intensification) and, more especially, excessive hunting (Hallet & Libois 1982). The last beaver was reported in Brabant in 1848 (van Wijngaarden 1966).

After one century of absence, the beaver's return was expected. The first observation was made on the river Ruhr, near the German border (near Kückelscheid) in 1990 (Huijser & Nolet 1991, Libois 1993). This beaver most likely originated from the German North Eifel. But the real comeback of the beaver to Wallonia took place in 1997, when several individuals settled in de Ruhr valley (see figure 1).

Having noted the wide spread of beavers in Europe, especially in nearby countries, the Walloon authorities considered that this species would be able to naturally recolonise Wallonia in the medium to long term (e.g. about thirty years, Stein 1999). The beaver is no longer threatened on a European scale. Wildlife policy gave priority to seeking to preserve some really endangered species and habitats, rather than encouraging a reintroduction of beaver populations.

Beaver bombing

A few months after this first sighting, in the autumn of 1998, some beaver traces were found in the Ourthe basin, near Hotton and Houffalize. Similar traces were found in the Houille valley in

© 2003 Vereniging voor Zoogdierkunde en Zoogdierbescherming. Lutra abstracts on the internet: http://www.vzz.nl

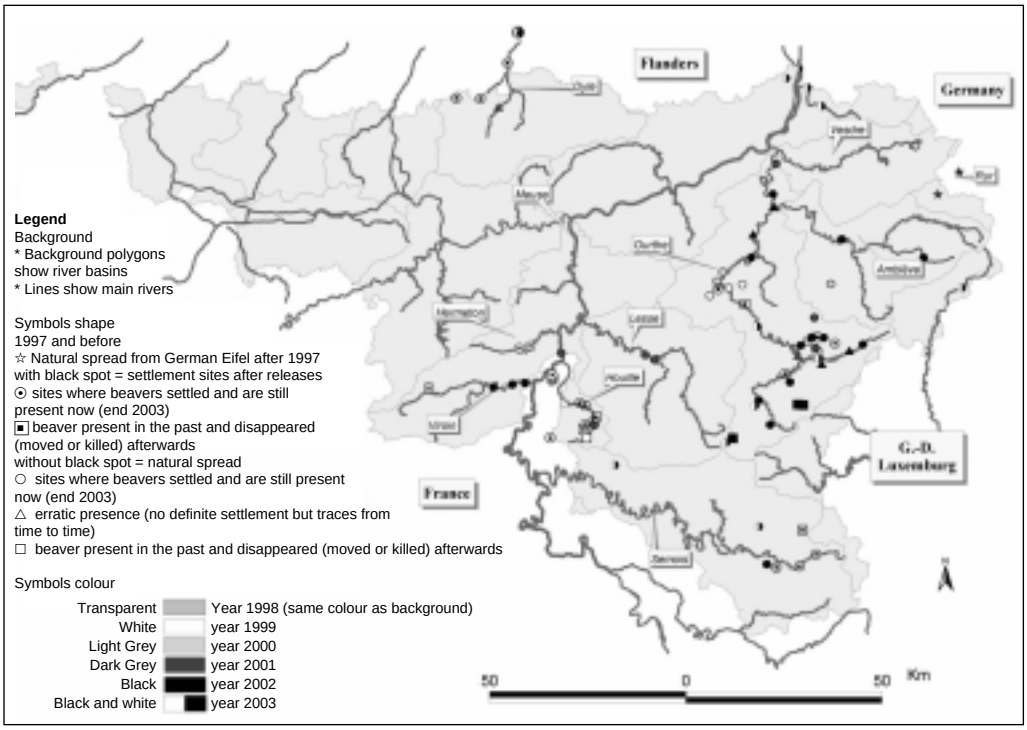

Figure 1. Distribution of the European beaver in Wallonia by river basin (end 2003). *Carthography: ASBL Biernasaut 2003. Fonds Cartographiques: MRW-DGRNE.*

spring 1999. In view of the long distance from the nearest population these beavers obviously came from clandestine releases.

At the end of 1999, and in the beginning of 2000, more releases were made in the Middle Ourthe basin, in the Upper Meuse basin and in some tributaries of these rivers. New settlements were found in the Hermeton and Meuse and in a nature reserve in Virelles, in the upper part of the Eau Blanche basin (tributary of the Viroin). At the beginning of 2001, further new releases were made in the Semois basin, near Arlon, and in the Dyle basin, near Wavre (south of Brussels). Around the same time, some first dispersals were observed from different locations, as some pregnant females were released in the previous years.

Corroborated information from different sources has established that approximately 100 beavers were released in six areas over three years. There were probably no more releases in Wallonia after 2001. The released animals mainly originate from Bavaria, and a few from the Elbe (Schwab & Schmidbauer 2002). The number of reintroduced beavers is, relative to Belgium's small area, higher than for any other reintroduction carried out in Europe.

Releases were made without any serious study of habitat suitability, except in some places where a quick evaluation of food resources was probably carried out. Beavers were often released near to roads or bridges and sometimes in highly urbanised areas (even near a town centre). A few beavers were found shot by rifle, or disappeared suddenly from some problematic sites (about six individuals). This was probably a consequence of the negative perceptions of some landowners towards beavers. As the releases were clandestine landowners did not receive any information prior to the reintroduction and were therefore unprepared for the presence of beavers and unaware of how to prevent conflicts. In other cases, some beavers were released at sites where food

resources were limited. In a natural dispersal situation, such 'second-choice' basins would have been last to be colonised. Fortunately, the beaver shows an extraordinary capability to adapt, and these reintroductions have led us to reconsider the theoretical habitat suitability criteria. Some of the reintroduced beavers seem content with limited food resources (and a limited availability of willow or poplar) and very small streams.

After the events

The Walloon authority instituted proceedings (which are still running) against the perpetrators of these clandestine releases and, having identified the supplier, requested that no more beavers be delivered. The first concern of nature managers was to find out the origin of beavers, in order to confirm whether the released animals were *Castor canadensis* or *Castor fiber*. Skull measurements and DNA analyses of five dead beavers indicate that all the dead beavers found so far are *Castor fiber*. Information from the beaver provider indicates that, at least most of, the released beavers are *Castor fiber*. Another problem is the lack of knowledge about the total number, health, sex and age of the released animals and the location of their release.

A first survey was done in winter 2000-2001 by the CRNFB in collaboration with the Forestry Service and the muskrat trappers (Manet & de Crombrugghe 2002). The main goal was to determine population size and its geographical extent before the first sub-adult dispersal. This survey also provided information on reproduction. A total of 47 habitation sites were found, inhabited by one or more beavers and at least 15 of these sites showed signs of reproduction as early as from the first year of occupation.

Survey and conflict management structure set-up

The Biernausaut Association has been authorised to collaborate with the relevant services (i.e. Nature and Forests Division, Watercourses Division, CRNFB) to address the problems resulting from these clandestine releases. The tasks of the Biernausaut Association are to inform and mediate with landowners, set up communication tools for the public, and develop international and trans-border contacts for information and co-ordination. It has also been asked to adapt existing habitat suitability criteria to the Walloon landscape, to identify release sites for problem beavers that are recaptured elsewhere and to set up a recapture procedure. Finally, the association has to give technical and specialised information to forest and fishing agents and muskrat trappers (who do the main field survey work) and to help information transmission and co-ordination between the different services involved. Some external observers have joined the network. These observers transmit the information to the CRNFB and the Biernausaut Association. With this structure, new beaver settlements are supposed to be detected within one month.

When a beaver settlement is detected, Biernausaut Association collects information about the site, and contacts landowners. Information on beaver biology, legal status and ways of preventing damage is given to the landowner. A report is made at least every three months, to the Nature Direction and the Minister's Cabinet, and they are responsible for deciding what action to take. Beavers are protected under Walloon legislation and some compensation can be made for the damage that they cause. However, the cost of preventing damages falls to the landowner. No compensation is given for this, nor for the damage itself, except when the damaged property is used for a main professional activity and the costs are above 125 Euro.

The clandestine character of reintroduction, and the slowness of proceedings against the perpetrators, have made mediation with many landowners more difficult. Many consider the beaver as an 'illegal pest' for which no damage compensations is given, and they sometimes need 'strongly persuasion' not to shoot beavers.

Survey results

By 2003, beavers had permanently settled in about 60 Walloon sites, and about seven areas show occasional traces of beaver (stray beavers or dispersal paths). None of these sites can be considered highly problematic now, although nine sites show some slight problems: four with beaver holes in pond banks, three with beaver dams and two with landowner hostility towards beavers. Since the last releases, dispersals have been observed in most basins (see figure 1), and sometimes (three cases to date) across the basin sources to another basin.

In 2001, very few new sites were occupied. However, in the context of the clandestine reintroductions, each new site seemed suspect, even though beavers are dispersing naturally from the German Eifel to the Vesdre, Our and maybe Amblève rivers, and maybe also from the Lower Meuse in the Netherlands.

In 2002, 19 new sites were listed, mainly in the Ourthe basin. These sites are located upstream as well as downstream, sometimes at quite a long distance from a release site (50-80 km). These settlements generally correspond to optimal habitat according to a progression of despotic distribution (Nolet & Rosell 1994). In 2003 (i.e. from January to July), the dispersal pattern corresponds closely to an, apparently preferred type of chosen habitat.

Some beavers (2-3 families) have dispersed from Belgium to France along the Upper Meuse, and are tracked by the French ONCFS. In the same way, some beavers went to the Dyle Basin in Flanders, where their numbers were recently (April 2003) added to by clandestine restocking of about another 20 Bavarian beavers. These beavers have to be monitored and managed by the Flemish Nature Administration. Currently, the total number of beavers in Wallonia is estimated to about 200-250 individuals.

Discussion

Every reintroduction programme needs a general discussion that includes all concerned interest groups. Species reintroduction must remain a justified and well-prepared action and cannot be improvised, nor be a promotional action for a few people's benefit. Reintroduction projects need to include surveys and a public information campaign, especially in the case of a damage-causing species like beaver. The export of animals designed for reintroduction should require official acknowledgement from the destination country's authorities. The suppliers should be obliged to satisfy themselves about the validity of this acknowledgement.

It is very likely that the Belgian beaver population will grow in size in the future, as many river basins are still to be colonised. Moreover, the Belgian population can be expected to provide a link between the French population in the Moselle, those in the Eifel in Germany and the recently reintroduced populations in Dutch Limburg.

Thanks to its extraordinary adaptation capabilities, the beaver has succeeded in settling in many different types of sites, including in some less suitable basins where it was released. The theoretical dispersal pattern for the beaver should be adjusted to local topographic and hydrographic characteristics. Even if dispersal along watercourses remains the main case, we should not ignore terrestrial dispersal over crests and through source areas, which have appeared more frequent than expected.

Until now beaver activities pose no severe problem. Nevertheless, these problems are expected to increase as the beaver populations grow in a densely populated country, particularly in urbanised areas like the Escaut basin. To limit these conflicts, a survey and proper beaver management must be maintained.

Beside the usual damages a particular problem arises in beaver management. As the beaver uses similar habitats to the muskrat (*Ondatra zibethicus*), muskrat trapping with Conibear traps and poisoned carrots (chlorophacinone) can be a risk, mainly for young beavers. In France (Loire and Alsace), it has been observed that coypu (*Myocastor coypus*) trapping with larger Coni-

bear traps and another type of poison (bio-accumulating bromadiolone) seems to have a significant influence on some local beaver populations (P. Rouland and J.-C. Jacob, personal communication). There are not many coypu present in Wallonia, so their trapping is not systematically organised. Instructions have been given to muskrat trappers to pay attention to the trap systems that they use in beaver territories during critical months for young beavers, while maintaining the efficiency of muskrat trapping.

Another question is the impact of beaver dams' on fish migration. Some dams make it impossible for fish to migrate upstream, even in winter. In such cases, when some important fish breeding sites may become impossible to reach from downstream, a beaver dam can cause a serious problem and may have to be removed. Beside this, thought should be given to the use of pipe systems in beaver dams, which have been proved to be efficient in preventing flooding in several other countries. This may allow an accommodation to be made, one which will maintain beaver habitat, reduce flood risks and provide passage to migrating fish species.

Beaver management can also be linked to the improvement of valley habitats, particularly through the restoration of bank vegetation and flood zones between the river and cultivated areas. The recently established Natura 2000 programme may be useful in this regard.

Acknowledgements: We would like to thank the forest and fishery agents, muskrat trappers and other people who provided data on beaver presence in Wallonia.

References

Hallet, C. & R. Libois 1982. Le Castor, *Castor fiber* (L. 1758). Cahiers d'Ethologie Appliquée 2 (1-2): 108-116.

Huijser, M.P. & B.A. Nolet 1991. First observation of a beaver *Castor fiber* in Belgium since 1848. Lutra 34 (1): 43-44.

Libois, R. 1993. Evolution de la situation des mammifères sauvages en Région Wallonne au cours de la décennie 1983-1992. Cahiers d'Ethologie 13 (1): 77-92.

Manet, B. & S. de Crombrugghe 2002. Comeback of the European beaver (*Castor fiber* L.) in the Walloon Region (Belgium): context, monitoring and perspectives. In: E. Le Boulenge (ed.). Eighth International Conference on Rodents & Spatium, July 22-26, 2002, Biodiversity Research Centre and Environmetry and Geomatics Unit, Université Catholique de Louvain, Louvain-la-Neuve, Belgium.

Nolet, B.A. & F. Rosell 1994. Territoriality and time budgets in beavers during sequential settlement. Canadian Journal of Zoology 72: 1227-1237.

Schwab, G. & M. Schmidbauer 2002. The Bavarian beaver re-extroductions. In: A. Czech & G. Schwab (eds). The European beaver in a new millenium. Proceedings of 2nd European Beaver Symposium, 27-30 September 2000, Bialowieza: 51-53. Carpathian Heritage Society, Krakow, Poland.

Stein, J. 1999. Réintroduire le castor? La position de la Région Wallonne. Réserves Naturelles Magazine 21 (2): 22.

Wijngaarden, A. van 1966. De bever, *Castor fiber* L., in Nederland. Lutra 8: 33-52.

Samenvatting

De Europese bever (*Castor fiber* L.) in Wallonië (zuid België): opzet van een reactief beheerprogramma

De bever (*Castor fiber*) keerde in Wallonië in hoofdzaak terug door clandestiene herintroducties van 100 bevers uit Beieren tussen 1998 en 2001. Vestigingen van bevers zijn nu aanwezig in de meeste stroomgebieden, soms in ogenschijnlijk niet geschikte of in sterk verstedelijkte gebieden. De bevers verspreidden zich verder gedurende de twee jaar volgend op de herintroducties. De Waalse autoriteiten startten de vervolging van de uitvoerders van deze vrijlatingen. Tegelijkertijd werd een onderzoek- en managementstructuur opgezet voor mogelijke conflicten. Organisaties voor bos, visserij en muskusrattenbestrijding voerden het veldonderzoek uit en brachten de informatie over aan het Research Centrum voor Natuur, Bossen en Hout (CRNFB) en de Biernausaut Associatie. Met deze opzet

kan een nieuwe bevervestiging binnen een maand worden ontdekt. Nu zijn ongeveer 200-250 bevers aanwezig in Wallonië op ongeveer 60 plaatsen. Tot nu toe hebben zich alleen kleine problemen voorgedaan, maar te verwachten is dat het aantal problemen zal toenemen als de beverpopulatie groeit en zich verder zal verspreiden. Het beverbeheer moet dus doorgaan om conflicten met menselijke activiteiten te voorkomen, maar het moet ook in overeenstemming zijn met natuurbehouddoelstellingen zoals de implementatie van het programma Natura 2000. Een toekomstige grensoverschrijdende coördinatie voor beveronderzoek zou moeten worden ontwikkeld.

Received: 5 November 2003
Accepted: 28 February 2004