The unofficial return of the European beaver (*Castor fiber*) in Flanders (Belgium)

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Abstract: After a long period of absence, beavers (*Castor fiber*) reappeared in Flanders in the spring of 2000, first in the province of Vlaams-Brabant and in 2002 also in Limburg. The beavers originate from the unofficially reintroduced Walloon population. With a view to a future reintroduction project to restock this not yet reproducing Flemish beaver population, a feasibility study was conducted at the request of AMINAL Nature Division (Ministry of the Flemish Government). This study concluded that the basins of the rivers Schelde and Dijle could carry a viable beaver population of at least 40 families that were all expected to stay in the same area and cause no problems in the wide vicinity. Even before the Flemish government had decided whether or not to proceed with the preparation of an official reintroduction, 20 Bavarian beavers of unknown age and sex were released on 11 April 2003 along the rivers Dijle and Laan. This happened unofficially, without any scientific follow-up and without preparing or informing the local population or other interest groups. Scarcely two months later at least two beavers had already crossed the city of Leuven. Beavers are now permanently present along the rivers Dijle and Laan south of Leuven. Some traces have also been found on the IJse. Complaints are coming in about damage to private as well as to public property and an adaptation of rat control methods is required. Since in the densely populated Flanders many human-beaver conflicts can be expected, the pros and cons of beaver presence in Flanders should be weighed up carefully, taking all interest groups into account.

Keywords: European beaver, *Castor fiber*, Flanders, illegal introduction, human-beaver interactions.

Introduction

The European beaver (*Castor fiber*) was originally distributed from Britain to Mongolia but disappeared due to hunting for fur and meat and for the medical and cosmetic properties of the castoreum (Nolet & Rosell 1998). The decline was accelerated by the destruction of its habitat as a result of the canalisation of large watercourses. In Belgium the beaver probably started to decline in the 16th century, and finally became extinct in 1848 in Flanders and in 1890-1900 in Wallonia, according to data from Lorraine (Born 2002). The abolition of beaver hunting almost everywhere in Europe and the numerous reintroductions have allowed the species to resettle in a large part of its original northern and eastern European distribution area.

The presence of beavers in all countries surrounding Flanders made us believe that the beaver would naturally recolonise Flanders. This article describes what happened in contrast with our expectations and how we plan to handle problems arising from this situation in the future.

Where did we expect beavers to invade Flanders from?

Wallonia

In Wallonia a beaver was sighted for the first time again in 1990, in the basin of the river Roer in the Hautes Fagnes (see figure 1) (Huijser & Nolet 1991, Born 2002). This animal originated from the German Eifel area, where Polish beavers were introduced between 1981 and 1989 (figure 1). In 1997 a beaver family settled on the Belgian part of the river Roer. A further spread to the rest of Belgium was thought unlikely in the short term, since the river Roer belongs to the basin of the river

Rhine (figure 1). But it was also estimated that the expansion to another basin would not be a problem in the long run, once the population was sufficiently large (after 20-30 years or even earlier). In 1998 suddenly beavers started to appear everywhere in Wallonia, mainly in the Ardennes and the surroundings of Namur (figure 1). These animals originated from an unofficial release of 101 beavers (4 from the Elbe and 97 from Bavaria) in Wallonia, spread over three years (1998-2000). In some cases the animals were released close to urban centres, leading to several traffic victims. Ten of the 101 beavers were released in 1999 in a pond next to the river Argentine south-east of Brussels, just across the Flemish border in Wallonia (Rixensart, see figure 2, point 1) (Niewold & Rossaert 2002, Niewold 2003). Since then the Walloon beaver population has expanded considerably (several animals have been found tens of kilometres from the release site) and probably consists of about 150-200 individuals, but an exact estimate is difficult to make.

The Netherlands

Besides the three Dutch beaver populations in the Biesbosch, the Gelderse Poort, and the Flevopolder, in 2002 at least seven beavers, originating from the river Roer in the German Eifel area, were present along the river Maas in the Dutch province of Limburg (see figure 2, point 2) (Niewold & Rossaert 2002, Niewold 2003). Since no reproduction took place, this population was restocked with another ten beavers from the Elbe in fall 2002, as part of an official reintroduction project in which a total of ten beaver families will be released between 2002 and 2005. One of the released animals died in traffic. The population was restocked again in October 2003 in Thorn (see figure 2, point 3), just across the Flemish border (but without any consultation with the Flemish governmental services). In the following few months this already resulted in immigration of several beavers into Flanders from this side.

Where do the 'Flemish' beavers originate from?

Immigration from Wallonia

In spring 2000 the beaver returned to Flanders for the first in a very long time, originating

Figure 1. Location of the different countries, provinces, regions and rivers mentioned in the article.

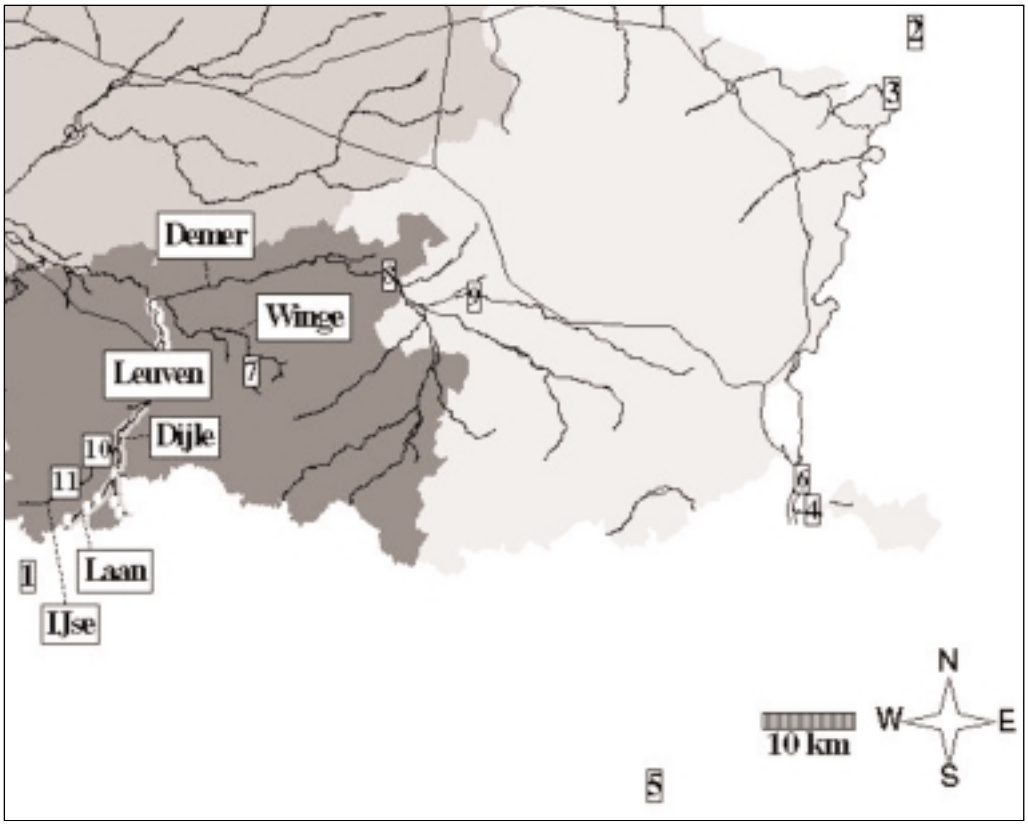

Figure 2. Distribution of the European beaver in Flanders. Grey part of the river Dijle and Laan = permanent presence since 11 April 2003; white part of the river Dijle = presence in May-June 2003; white dots on the grey part of the river Dijle and Laan = release-sites on 11 April 2003; numbers = beaver sightings, see text.

from the above-mentioned unofficially introduced population in Rixensart (Niewold & Rossaert 2002, Niewold 2003). Since then, an increasing number of beaver traces have been observed along the rivers Dijle and Laan south of the city of Leuven in the Flemish province of Vlaams-Brabant (figure 2). The number of beavers was believed to be three to five individuals that had settled in relative isolation, for the time being without any signs of reproduction.

Also in the Flemish province of Limburg there are occasional sightings of beavers, probably originating from the Walloon population. In the period from September 2002 till the end of the winter of 2002-2003 beaver traces, probably from one animal, were found at two locations on the river Berwijn (Voeren, figure 2, point 4), about 50 km from the nearest Walloon release-site in Durbuy (figure 2, point 5). At the end of the winter of 2002-2003 this animal was probably disturbed and disappeared until August 2003, when again signs of beaver (feeding damage in a cornfield and a small dam partly built with corn plants) were seen. A beaver, possibly the same one, was also sighted on an isle in the river Maas in Lanaye (Visé, figure 2, point 6) at the end of April 2003.

A feasibility study

As part of a future reintroduction project to restock this not yet reproducing Flemish beaver population, a ‘feasibility study for the recoloni-

sation by beaver of the basin of the rivers Schelde and Dijle' was conducted by the Dutch research institute Alterra, at the request of AMINAL Nature Division (Ministry of the Flemish Government) (Niewold & Rossaert 2002, Niewold 2003). This study concluded that the area could carry a viable beaver population of at least 40 families (about 160 animals). Only the city of Leuven was thought to be an important dispersal barrier, although other studies show that comparable barriers are easily crossed, especially downstream. In the Gelderse Poort (in the Netherlands) beavers swim almost daily through a flooded tube of 100 m and there are also several beavers that were able to pass an old water mill when going from the river Argentine (Wallonia) to Flanders. This makes us suspect that beavers have a higher dispersal ability than previously thought. According to the feasibility study there will be almost no bottlenecks and it is expected that the released animals will all stay in the same area and cause no problems in the wide vicinity. The view is taken that the different interest groups (like rat control organisations, hunters, fishermen, farmers, and the local population) will adapt to the presence of beaver without any problems.

Unofficial release of Bavarian beavers

Even before the Flemish government could make a decision based on the feasibility study whether or not to proceed with the preparation of an official reintroduction, 20 Bavarian beavers of unknown age and sex (believed to include 2 pregnant females and 1 beaver family) were released on 11 April 2003 in at least 6 locations along the rivers Dijle and Laan (see figure 2, white dots). This happened unofficially, without any scientific follow-up and without preparing or informing the local population and other interest groups. A German beaver biologist, who was given to understand that it concerned an official release (everything happened in broad daylight), transported the beavers into Flanders from Bavaria (Germany). In Flanders this is considered an illegal action, since it is forbidden to possess and transport protected animals, which the beaver has been since 2001, without a permit from the government (Flemish Decree 13/7/01). Some of the animals were released in an artificial lodge to decrease stress, but several of the release-sites were located close to roads, not taking into account the possibility of traffic victims. According to the German beaver biologist who imported the beavers into Flanders, the beavers were checked genetically (at least 1 animal per family) to make sure that no American beavers (*Castor canadensis*) were amongst them.

Scarcely two months after the release at least two beavers had already crossed the city of Leuven. One (possibly a pregnant or nursing female) was mistaken for a coypu (*Myocastor coypus*) and shot on 12 June 2003 in Lubbeek, at least 30 km from the release site (measured along the rivers Dijle, Demer and Winge, see figure 2, point 7). Early in July 2003 a burrow (with obvious beaver hairs) was found in the dyke of the river Demer near Diest (at more than 45 km along the rivers Dijle and Demer, see figure 2, point 8), but the beaver that had made the burrow had again disappeared. In October 2003 again signs of beaver activity (damage to corn), from probably the same animal, were found on the river Demer in Lummen (12 km further upstream, see figure 2, point 9). The traces found in May and June 2003 on the river Dijle north of the city of Leuven to where the river joins the river Demer possibly originate from these animals. Since summer 2003 no fresh beaver signs have been found along this transect (see figure 2, white part of the river Dijle). Apart from these, beaver traces have been found everywhere along the rivers Dijle and, to a lesser extent, Laan south of Leuven since summer 2003 (see figure 2, grey part of the river Dijle and Laan). Some traces have also been found on the IJse, another tributary of the river Dijle, since September 2003 in the surroundings of Neerijse (see figure 2, point 10) and just upstream from the centre of Huldenberg (see figure 2, point 11).

How can we switch from a bad start to a good situation?

In countries where the reintroduction of beavers took place officially, preparing and informing the different interest groups usually took several years. In some countries the preparation period was even so long that the population started to ask when the introduction would finally take place. This is of course an ideal situation. In Flanders we have been confronted with a sudden presence of beavers that was unexpected and therefore often regarded in a negative light. We do not yet have an adequate system for damage prevention and compensation. Complaints are coming in about damage to private as well as to public property (feeding, burrowing and damming damage). Besides feeding on natural vegetation, mainly willow (*Salix* spp.) but e.g. also alder (*Alnus glutinosa*) and butterbur (*Petasites hybridus*), there are reports of damage to poplar (*Populus* x *canadensis*), fruit trees, Norway spruce (*Picea abies*) and agricultural crops (mainly corn, but also beets and grains). Since dykes are sufficiently steep in Flanders, most beavers make burrows. So far at least three sites with burrows have been found in the dyke of the river Dijle and two on the river Demer. Lodges have only been built on two ponds along the river Dijle and lairs have been made in high bank vegetation, such as Japanese knotweed (*Fallopia japonica*) and butterbur. In Flanders most rivers are also sufficiently deep, so probably not many dams will be built. Only on the smaller tributaries is damming activity already taking place, often with the use of corn as building material. In some places dams have been removed by muskrat (*Ondatra zibethicus*) trappers employed by the Flemish government to prevent flooding, but they have immediately been rebuilt by the beavers. We know from experience that it is useless to remove a dam when the owners are still present, so in the future some problems with beavers are only likely to be solved by removing the animals. Another problem that is likely to arise is the interaction between efficient control of muskrats and coypus and the attempt to avoid unintended captures of beavers. Changing rat control methods will require more personnel and thus more money, and it is now up to the Flemish government to set their priorities.

If the Flemish government gives its approval, beavers in Flanders will be monitored intensively starting in 2004. A careful consideration of the pros and cons of beaver presence in Flanders, based on both a population viability analysis and a cost-benefit analysis, and taking all interest groups into account, will show whether or not the densely populated Flemish region is suitable for the development of a viable beaver population, and if so, at what costs.

Conclusion

By the end of 2004, we hope to have a better picture of what the presence of a beaver population in Flanders will mean in terms of extra costs for human activities that are considered important in Flanders, such as water management (e.g. repair of dykes, removal of fallen trees) and rat control (e.g. removing some traps during periods when there are young beavers around, using time-consuming live-traps). Up to now it has been rare to estimate in advance all costs associated with beaver reintroduction. This is probably due to the fact that most beaver reintroductions took place in countries where there are still large amounts of nature present, where interactions between beavers and humans are less obvious. Flanders however, is so densely populated by humans that one might expect many human-beaver conflicts. Hence preventive measures should be taken, not only to avoid hindrance to human activities but also to allow this native animal to regain its place in Flanders without being regarded negatively by humans.

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Samenvatting

De officieuze terugkomst van de Europese bever (*Castor fiber*) in Vlaanderen (België)

Na een lange tijd van afwezigheid, werden sinds de lente van 2000 opnieuw bevers (*Castor fiber*) gesignaleerd in Vlaanderen, eerst in Vlaams-Brabant en vanaf 2002 ook in Limburg. De bevers zijn afkomstig van de niet-officieel geïntroduceerde Waalse populatie. Met het oog op een toekomstige aanvulling van deze nog niet reproducerende Vlaamse beverpopulatie, liet AMINAL afdeling Natuur (Ministerie van de Vlaamse Gemeenschap) een haalbaarheidsstudie uitvoeren. De studie concludeerde dat er in het bekken van Schelde en Dijle ruimte is voor een levensvatbare beverpopulatie van minstens 40 families, die naar verwachting allemaal ter plaatse zouden blijven en geen problemen zouden veroorzaken. Nog vóór de Vlaamse overheid op basis hiervan kon beslissen om al dan niet verder te gaan met de voorbereiding van een officiële herintroductie, werden op 11 april 2003 twintig Beierse bevers van onbekende leeftijd en geslacht losgelaten langs de rivieren Dijle en Laan. Dit gebeurde op een niet-officiële wijze, zonder enige wetenschappelijke begeleiding en zonder voorbereiding of informatie naar de verschillende belangengroepen toe. Amper twee maanden later waren al minstens twee van deze dieren Leuven gepasseerd. Bevers zijn nu permanent aanwezig langs de Dijle en de Laan ten zuiden van Leuven. Beversporen zijn ook gevonden langs de IJse. Klachten van schade aan privé- en openbare eigendommen beginnen binnen te komen en aangepaste rattenbestrijdingsmethoden dringen zich op. Omdat in het dichtbevolkte Vlaanderen vele interacties kunnen worden verwacht tussen mens en bevers, is de ontwikkeling van een realistische visie op de toekomst van de bever in Vlaanderen noodzakelijk, waarbij rekening wordt gehouden met alle belangengroepen.

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