

# The closure of mink farms in the Netherlands: a unique opportunity for European mink

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**Abstract:** European mink (*Mustela lutreola*) is a medium-size mustelid and highly endangered in Europe. The species was historically widespread in continental Europe, but the species has suffered a serious decline since the middle of the 19<sup>th</sup> Century. A major threat for the remaining European mink populations in Europe are escaped American mink (*Neogale vison*), which outcompete European mink in the wild. However, the farming of American mink was banned in the Netherlands during the global outbreak of Sars-CoV-2. Afterwards, the by-catch of American mink in the National Programme of Muskrat Trapping significantly decreased, demonstrating that American mink observed or trapped in the Netherlands mainly escaped from mink farms. The virtual disappearance of American mink in the wild offers a unique opportunity to reintroduce the highly endangered European mink in the Netherlands.

## Introduction

American mink has been brought to Europe for fur farming, but individuals regularly escaped from these farms and were capable of surviving in the wild (Genovesi et al. 2009, Dekker & Hofmeester 2014). In several European countries these escapes have resulted in large and increasing populations of American mink. In contrast to other European countries American mink never established a viable population in the Netherlands, despite a wide range of suitable habitat and a continuous influx of escaped minks (Dekker & Hofmeester 2014, Vada et al. 2023).

The American mink is a threat for the last remaining and highly endangered populations of European mink as it outcompetes the latter. Hence, in areas free of American mink it should theoretically be possible to (re)introduce European mink. The closure of

mink farms in the Netherlands in 2021 eliminated an important threat and offers a unique opportunity to successfully reintroduce the highly endangered European mink.

## The closure of mink farms

In the Netherlands the continuous flow of escaping American mink abruptly stopped in 2021 during the global outbreak of Sars-CoV-2, the virus that causes Covid-19 in humans, when all remaining mink farms in the Netherlands were closed. American mink proved to be extremely susceptible to the virus and mink on several dozens of mink farms in the south of the Netherlands became infected (Sikkema et al. 2022). The government subsequently decided to close all mink farms to prevent emergence of new virus variants on these farms. In the course of 2021, all mink farms in

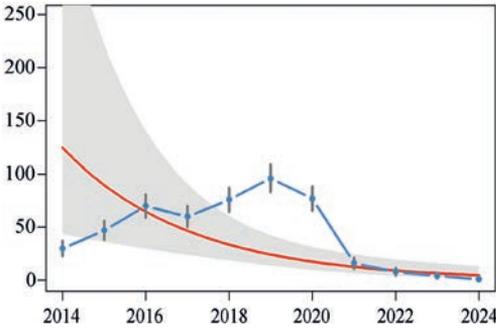


Figure 1. The number of catches of American mink per year (blue line) as by-catch of muskrat control 2014-2024. The red line is the trend calculated by TRIM over this period (calculation performed by Bing Verbrugh). Over the same period, brown rat by-catch was stable (data not shown). Data made available by the Dutch Water authorities.

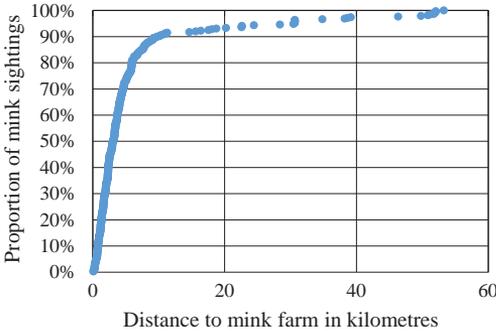


Figure 3. The distance between a sighting of a mink and the nearest mink farm in the period 2015-2020. 90% of all sightings were within 10 km of a mink farm. Data from the NDFE.

the Netherlands were closed, ending the commercial farming of American mink in the Netherlands. An unintended effect of closing all mink farms was that it stopped the continuous ‘introduction’ of captive mink to the wild. A statistical analysis of by-catch per year of muskrat trappers in the Netherlands, based on data from the Dutch Water authorities, shows a strong decreasing trend of trapped minks as by-catch in the period 2014-2024, with a clear trend break in 2021 (Figure 1), the year in which the mink farms were closed (Figure 1).

Most recently, in 2025, the number of validated sightings of American mink that are recorded in the Netherlands and deposited in the National Databank Flora and Fauna (NDFE) is less than five confirmed records per year.

## Correlation between farms and sightings

Dekker & Hofmeester (2014) had already provided evidence that in the Netherlands most American mink in the wild come directly from farms and this was, once again, confirmed in 2021 (Sikkema et al. 2022). This article revealed a clear correlation between the location of farms and the number of validated sightings (mostly by-catch of muskrat trapping) of American mink within blocks of 5x5 km during the period 2015-2020 (Figure 2). The map shows an obvious correlation between the presence of a (former) mink farm and the presence of this species in the wild. Also the calculated distance from a sighting to the nearest farm, shows that 90% of the sightings or by-catch of American mink were made within 10 km of a farm and, moreover, a part of the sightings at a greater distance are linked to farms that were closed longer ago or sighted mink came from farms in neighbouring countries (Figure 3).

Although American mink are capable of surviving in the wild in the Netherlands (Genovesi et al. 2009, Dekker & Hofmeester 2014, Bouwens 2017), the species never established a viable free-ranging population, in contrast with other European countries (Vada et al. 2023). As the American mink has no natural predators in the Netherlands and given the wealth of suitable habitat, it is presumed that the intensive control of muskrat (*Ondatra zibethicus*) has played a role in preventing American mink to establish. American mink is regularly registered as an unintentional by-catch in the trapping devices of muskrat trappers. The Dutch Water authorities register all by-catch and most records of American mink comes from their database.

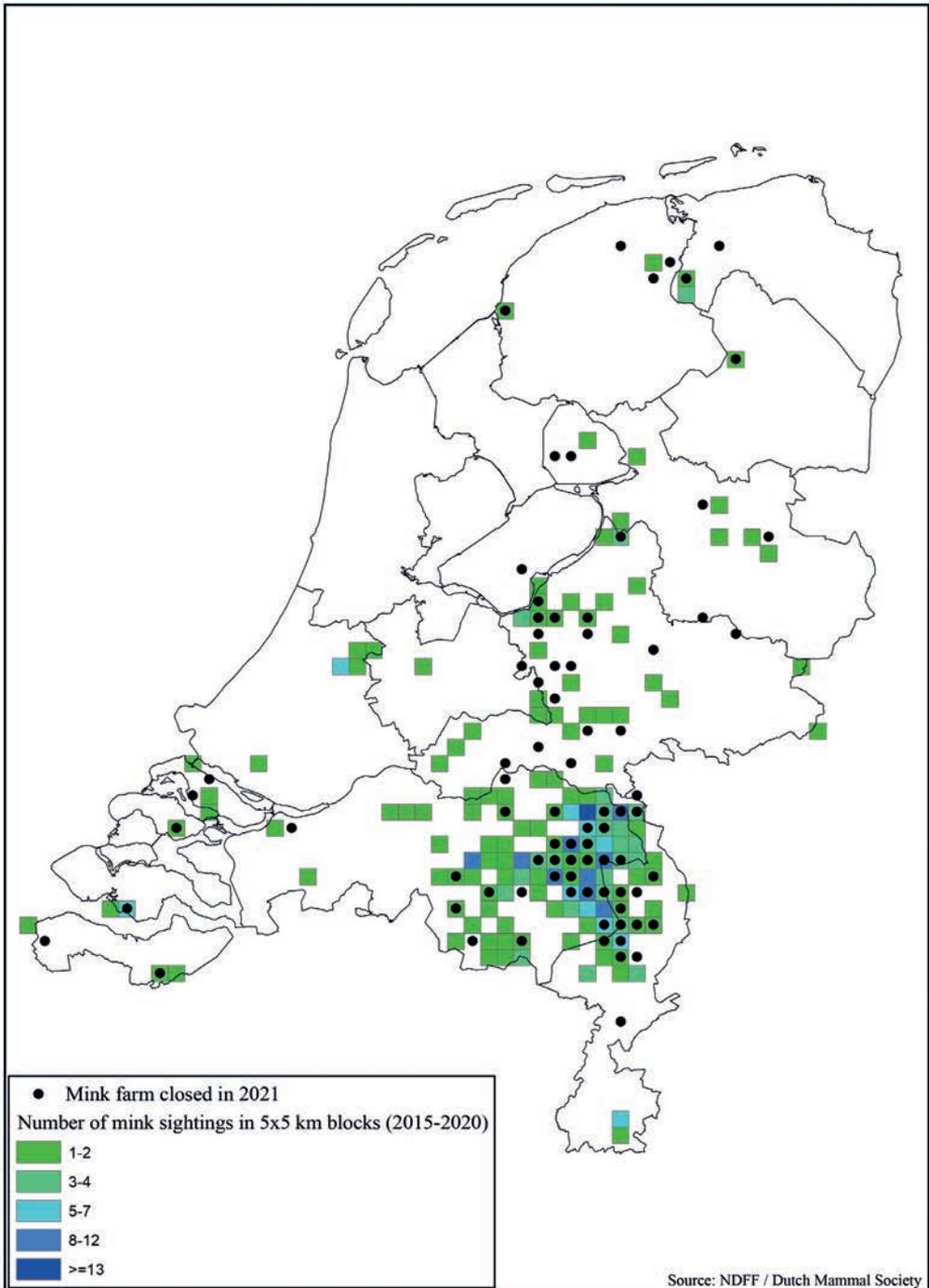


Figure 2. The location of mink farms (black dots) and the number of validated sightings of American mink within blocks of 5x5 km during the period 2015-2020. Data from the NDDF (National Databank for Flora and Fauna). Map compiled by Martijn van Oene, Dutch Mammal Society.

## Discussion

With the closing of mink farms in the Netherlands the introduction of American mink into the wild has stopped and thanks to the Muskrat Trapping Programme the last surviving individuals will probably end up as bycatch. It is therefore expected that this species will finally disappear from the Netherlands within the next few years, although it will be still possible that individuals from neighboring countries will migrate into the Netherlands.

The semi- or final disappearance of the American mink offers a unique opportunity for the 'critically endangered' European mink (*Mustela lutreola*). Only a few relict populations of this species are present in southern and eastern Europe. The strong decline of this species is not fully understood (Maran & Henttonen 1995), but it is clear that American mink is an important threat for European mink through direct competition and interference competition (Maran 2007, Santulli Sanzo et al. 2014), which hinder the recovery of the species.

The absence of American mink in the Netherlands, literally creates a unique opportunity for the conservation and recovery of European mink. Exploratory studies of the possibilities for reintroducing this species in the Netherlands (Lange 2022, Zwartenkot 2024, Zwartenkot et al. 2025), show that several large marsh areas in west and northern parts of the Netherlands are suitable locations for reintroduction.

However, the trapping of muskrats is not only a danger for American mink, it is also a threat for European mink. Fortunately, in the Netherlands a strategy has been adopted to 'eliminate the muskrat to the state border'. This strategy has been evaluated and it shows that it is a feasible and rational strategy (Bos & Gronouwe 2018). This means that in the coming years large areas in the Netherlands will be more or less muskrat free and that the number of traps in these areas will decrease

significantly, also reducing the number of bycatch and the risk for European mink being trapped. When detecting muskrats, the use of 'smart traps', which only close when the target species is trapped (see website: <https://lifemica.nl/research-innovaties/smart-life-traps/>), will prevent the trapping of non-target specimens. The closing of mink farms in the Netherlands therefore has provided a unique opportunity for the critically endangered European mink.

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## Samenvatting

### Het sluiten van de nertsenfarms in Nederlands biedt een unieke kans voor de Europese nerts

De Europese nerts (*Mustela lutreola*) is een middelgrote marter en ernstig bedreigd in Europa. Historisch was de soort veel wijder verspreid, maar de verspreiding is sterk gekrompen in de 19<sup>e</sup> eeuw. Een belangrijke bedreiging voor de laatste populaties van Europese nerts zijn ontsnapte Amerikaanse nertsen (*Neogale vison*), die in het wild de Europese nerts verdringen. Tijdens de Sars-CoV-2 pandemie zijn de nertsenfarms echter gesloten. Nadien is het aantal bijvangsten van Amerikaanse nerts door muskusrattenvangers significant gedaald, wat aantoont dat de meeste Amerikaanse nertsen in Nederland ontsnappingen waren uit nertsenfarms. Het verdwijnen van de Amerikaanse nerts biedt daarmee een unieke kans om de ernstig bedreigde Europese nerts in Nederland te herintroduceren.

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