

REVIEW PAPER

Historical evidence of the European mink *Mustela lutreola* (L.) presence in Białowieża Primeval Forest in the 19th century

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ABSTRACT

In this paper, we analyse data on the occurrence of the European mink (*Mustela lutreola*) in Białowieża Primeval Forest (BPF) in the 19th century. The aim of the paper is to provide evidence of the occurrence of the European mink found in different sources, both published and archival documents. The archival sources on which this paper is based include materials obtained from the Russian State Historical Archive in St. Petersburg and the National Historical Archive of Belarus in Grodno. The importance of seeking historical evidence of the presence of the European mink is associated with the concept of animal diversity in BPF which in the past was higher than today, thus indicating the ecological processes having taken place in one of the best-preserved temperate forests in Europe. Compared to other extinct animals which were once inhabiting Białowieża Forest, the occurrence of the European mink was still not sufficiently proven. Some published sources, *inter alia*, book by Georgy Karcov (1903), as well as series of articles (1893-1894) and memoirs (published 1998) by Hans von Auer, are, like archival sources, an indirect evidence principally based on the lists of predators killed in BPF over the last decades of the 19th century. The most reliable sources were found in the Russian State Historical Archive in St. Petersburg. They include numerous lists of killed predators coupled with rewards for each killed predator and modification proposals for these rewards, as well as information from different published sources about the number of killed minks. In spite of the indirect nature of the gathered evidence, all these sources taken together are reliable enough to confirm the occurrence of the European mink in Białowieża Primeval Forest in the 19th century. The absence of minks' skulls and skeletons in zoological collections that Zoological museum in St Petersburg got from BPF in 1900s and 1910 as well as European mink absence in collection of the BPF Nature museum created in 1914 suggests that in the early 20th century European mink in BPF might went extinct.

KEY WORDS

Białowieża Primeval Forest, European mink *Mustela lutreola*, history

Introduction

Białowieża Primeval Forest (BPF), located on the border between Poland and Belarus, enjoys the status of the best-preserved temperate forest in Europe. It is famous for its high diversity of forest habitats, animal and plant species, as well as undisturbed ecological processes. However, some historical sources ascribe even greater animal diversity to BPF.

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The first category of such a diversity included mammal species like wolverine (*Gulo gulo*), sable (*Martes zibeline*), wild cat (*Felix sylvestris*) and flying squirrel (*Pteromys volans*) (Tomiałojc, 2003) whose occurrence in this territory was either not confirmed by any evidence or information about the evidence was clearly erroneous. This category should also include the steppe polecat (*Mustela eversmanii*) described by Brincken (1826), as its occurrence evidence was based on the information about the sold polecat pelts at local fairs.

The second category incorporates animals that probably were present in BPF but went extinct in an unknown period. This was very likely the case of Eurasian wild horse tarpan (*Equus caballus ferus*) presented in Brincken's report on BPF (1826). Brincken visited BPF when the memory of tarpan was still fresh, therefore his information could be considered reliable (Antonius, 1933).

Another species in this category is the European mink (*Mustela lutreola*): the published information of its occurrence in BPF is not clear enough. Dmitri Dolmatov, the head forest officer of the Grodno province in the 1840s and the most notable author who wrote about BPF and European bison in the mid-19th century in his unpublished *Magnum opus* "The natural history of aurochs or bison in Białowieża Primeval Forest" indicated the occurrence of the European mink in BPF. However, Dolmatov did not explain, whether he saw the European mink in BPF by himself or whether he was informed about its presence by the local forest-guard (SARF, 1860)¹.

European mink in BPF: historical documents

A thorough analysis of the documents in the Russian and Belarusian archives provides only an indirect evidence of the occurrence of the European mink in BPF in the 19th century. The authors have managed to find several lists of "harmful" predators in BPF in the Russian State Historical Archive in St. Petersburg (RSHA, the most prominent archive, holding the documents of governmental agencies of the Russian Empire from the 19th and early 20th century). According to the principles of "rational" game management of the late 19th and early 20th century, these species were to be exterminated. For this reason, the BPF administration paid rewards to the forest-guard for each killed predator (RSHA, 1889, 1891, 1896). This policy was introduced immediately after BPF became the royal hunting ground in 1888, and the new administration of BPF started to eradicate "harmful" predators with much energy. The first list of "pest animals" included not only big and small predators (mammals and birds) but also magpies, jays, and snakes (RSHA, 1889). It also promised a 1 ruble reward for each killed mink. The other small Mustelidae species (pine marten, ferret, stoat, and weasel) were worth 3 rubles (RSHA, 1889). In 1891, the BPF administration decided that the extermination of "pest animals" consumed too much resources and that the rewards were too high. On the new list of rewards, all small Mustelidae species were evaluated at 50 kopeks for each killed animal (RSHA, 1891). A few years later, the BPF administration concluded that such low rewards were not a sufficient encouragement for forest-guards, and a new list of rewards was created. Payments increased, but the list itself became shorter: the mink and stoat (as well as magpie, jay, and snake) were excluded from the list (RSHA, 1896).

It is difficult to say whether the European mink was removed from the list because the forest-guard had not delivered these animals to the administration office to get a reward, or the administration considered these animals too insignificant to remain on the list of "pest animals".

¹All references to documents from Russian and Belorussian archives are given here in compliance with established academic practice: the name of the archive is followed by collection (fond or f.), inventory (opis' or op.), file (delo or d.), and folio (list or l., ll. in plural form).

The second option seems more plausible. Georgy Karcov in his monograph of BPF (1903) proposed another version of reward list from 1896. As evidenced in RSHA, Karcov worked with documents available in the BPF administration office (RSHA, 1902-1904), hence it is possible that he cited the draft and not the final version of the list, approved by the metropolitan administration. The projected list of rewards included the mink, as well as the magpie, jay, and snake, but they were rated very low: 25 kopeks for a mink, 20 kopeks for a snake and 10 kopeks for a jay or a magpie (Karcov, 1903). Later lists of rewards for killed predators (1899, 1904, 1910) did not include the mink either (RSHA, 1898-1899, 1904, 1910-1911).

We have found very little information about the number of predators killed in BPF. Only a few financial documents on the total amount of money paid to hunters for killing predators in a few years have survived in RSHA (RSHA, 1895-1896). One of the exceptions is a comparative list with the number of predators killed in the first half of 1898 and of 1899: this proves that higher rewards were a better encouragement for the BPF forest-guard to be more active in the extermination of predators; no minks were on the list.

In RSHA, we have managed to find some documents concerning the establishment of the Natural History Museum located in the building of the BPF administration (nowadays the building hosts the Białowieża branch of the Forest Research Institute in Warsaw) (RSHA, 1913-1915). The European mink was placed on the list of stuffed animals designated for the Museum (RSHA, 1913-1915 ll. 3-5), but it was not specified in the catalogue of the exhibition (RSHA, 1913-1915 ll. 44-56). These documents could be regarded as an indirect evidence of mink occurrence in BPF. This species could not be provided for the Museum because its number in the 1910s was either too scarce, or it was already extinct.

The most reliable source would be the collection of Zoological Institute of Russian Academy of Science. In the early 20th century, small mammals were sent to the Institute from BPF by A.K. Mordvilko, who was working there as a member of European bison research expedition in 1906-1908, and by Ewald Bark, a member of the BPF game management administration. However, the Osteological Department of Zoological Institute holds the skulls and skeletons of only four small Mustelidae species collected in BPF in the early 20th century: stoat (*Mustela erminea*), ferret (*Mustela putorius*), weasel (*Mustela nivalis*) and pine marten (*Martes martes*) (Catalogue of the Osteological Department of Zoological Institute).

The next place of our search was the National Historical Archive of Belarus in Grodno (NHABG). However, the number of documents concerning the BPF administration that have survived is quite small. The BPF administration regularly destroyed the documents which in the opinion of the BPF officials were of no value. A rich file of 777 sheets, which listed only the destroyed documents, have survived in NHABG. On these lists of the destroyed documents, we have found at least ten titles “on the predator extermination and the rewards for killed animals” (NHABG, 1901-1913).

The authors have managed to find direct evidence of the occurrence of the European mink in BPF only in published sources. Georgy Karcov’s famous book mentioned this species among other Mustelidae species, noting that its number was rather scarce (Karcov, 1903). He published a table with the number of predators killed by forest-guards in 1889-1902 (Karcov, 1903). According to this table, only two minks were killed by the BPF guard (both in 1890).

The data on the mink occurrence in BPF were also disclosed by Hans von Auer – a forest officer in BPF from 1875 to 1894. Von Auer left his memories, recently published in German (Auer, 1998) and translated into Russian. In his memories, von Auer presented his estimation of the number of furbearers, which were killed annually by the BPF guard. He states that four

to eight minks were killed per year in 1870s and 1880s. In 1893-1894, von Auer published a series of articles about BPF and its game management in a German hunting magazine – “Deutsche Jäger-Zeitung” (Auer, 1893-1894) (now being a bibliographic rarity). Von Auer provided the data that partly confirmed the information in the book by Karcov (1903). According to von Auer, two minks were killed in 1889, two – in 1890, and three – in 1891 (Auer, 1893-1894).

Conclusion

Since the publications by Karcov (1903) and von Auer (1893-1894) give different numbers of minks killed by the BPF guard in the late 1880s and early 1890s, they cannot be considered totally reliable sources. However, the documents that the authors found in the Russian and Belorussian archives give additional evidence of the mink occurrence in BPF, thus making the hypothesis that the European mink survived in BPF at least till the end of the 19th century more probable. The absence of this species in the collections that was handed over by BPF in the 1900s and 1910s to Zoological Museum in St Petersburg and in the collection of the BPF Natural History Museum created in the 1910s suggests that by the early 20th century the European mink became extremely rare or became extinct in BPF.

Authors' contributions

A.F. – conceptualization, investigation, writing (original draft); E.Z. – investigation, writing (review & editing).

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Conflict of interest

The authors have declared that no competing interests exist.

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STRESZCZENIE

Historyczne świadectwa występowania norki europejskiej *Mustela lutreola* (L.) w Puszczy Białowiejskiej w XIX wieku

Puszcza Białowieńska, położona na pograniczu Polski i Białorusi, szczycąca się mianem najlepiej zachowanego lasu strefy umiarkowanej w Europie, charakteryzuje się niezwykłą różnorodnością siedlisk leśnych, gatunków roślin i zwierząt oraz występowaniem niezaburzonych procesów ekologicznych. Niektóre źródła historyczne przypisują Puszczy Białowiejskiej jeszcze większą różnorodność gatunków w całkiem niedawnej przeszłości. Pierwszą kategorią wpisującą się w tę różnorodność były gatunki ssaków bez żadnych dowodów na ich występowanie na tym terenie albo z informacjami błędnymi: rosomak tundrowy (*Gulo gulo*), soból tajgowy (*Martes zibeline*), żbik europejski (*Felix sylvestris*) i polatucha syberyjska (*Pteromys volans*).

Kolejnym gatunkiem z tej kategorii jest norka europejska *Mustela lutreola* (L.). Opublikowane do tej pory informacje dotyczące występowania tego gatunku w Puszczy Białowiejskiej nie są wystarczająco jasne. Kwerendy archiwalne w rosyjskich i białoruskich archiwach przyniosły jedynie pośrednie dowody występowania norki europejskiej w Puszczy Białowiejskiej w XIX wieku. W Rosyjskim Państwowym Archiwum Historycznym w Petersburgu (głównym archiwum przechowującym dokumenty instytucji rządowych Imperium Rosyjskiego z XIX wieku) autorki niniejszej pracy zdołały odnaleźć kilka spisów „szkodliwych” drapieżników w Puszczy Białowiejskiej. Według zasad „racjonalnej” gospodarki łowieckiej na przełomie XIX i XX wieku gatunki te zostały przeznaczone do eksterminacji. Z tych względów administracja Puszczy Białowiejskiej wypłacała strażnikom leśnym nagrodę za każdego zabitego drapieżnika z tej listy. Pierwsza lista „szkodników” zawierała nie tylko duże drapieżniki (ssaki i ptaki), ale także sroki, sójki oraz węże. Zgodnie ze wspomnianą listą płacono nagrodę w wysokości 1 rubla za każdą zabita norkę europejską. Kilka lat później administracja Puszczy Białowiejskiej stwierdziła, że tak niskie nagrody nie zachęcają wystarczająco strażników leśnych do eksterminacji „szkodników”, stworzono więc nową listę nagród. Płatności wzrosły, ale listę skrócono. Norka europejska i gronostaj (jak również sroka, sójka oraz wąż) zostały z niej wyłączone.

O rzadkim występowaniu norki europejskiej w Puszczy Białowiejskiej pisał w swojej monografii Karcov (1903). Opublikował tabelę z liczbą drapieżników zabitych przez straż leśną w latach 1889-1902. Według tego zestawienia zostały zabite tylko dwie norki. Ponadto dane na temat wy-

stępowania norki europejskiej w Puszczy Białowieskiej dostarczył również Hans von Auer (1998) – urzędnik leśny w Puszczy Białowieskiej w latach 1875-1894. Pozostawił on swoje wspomnienia, niedawno opublikowane po niemiecku i przetłumaczone na język rosyjski, w których oszacował liczbę zwierząt futerkowych zabijanych każdego roku przez straż leśną Puszczy Białowieskiej. Stwierdził, że w latach 1870-1880 corocznie zabijano cztery do ośmiu norek. Von Aurer (1893-1894) opublikował serię artykułów na temat Puszczy Białowieskiej w niemieckim magazynie łowieckim „Deutsche Jäger-Zeitung”, w których częściowo potwierdził informacje przekazane przez Karcova. Według Auera w roku 1889 zabito dwie norki, kolejne dwie w 1890 r., a w 1891 r. – trzy.

Karcov i von Auer podają różną liczbę norek zabitych przez straż leśną Puszczy Białowieskiej w latach 1880-1890, toteż ich publikacje nie mogą być uważane za całkowicie wiarygodne źródła. W zestawieniu jednak z dokumentami, jakie autorki odnalazły w rosyjskich i białoruskich archiwach, kwestię historycznego występowania norki europejskiej w Puszczy Białowieskiej należy rozstrzygnąć pozytywnie. Najprawdopodobniej gatunek ten przetrwał w Puszczy Białowieskiej co najmniej do końca XIX wieku.