

RECENT OCCURRENCE OF THE AMERICAN MINK (NEOVISON VISON) IN THE CENTRAL ROMANIA

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Abstract: *American Mink (Neovison vison) is one of the most aggressive non-native species of mammals from Europe. In Romania there are only a few data about the American Mink occurrence in the wild. This paper presents 13 new recent records of the species from the central Romania (Braşov County, Transylvania) escaped from a fur farm. Two specimens were caught by traps within the monitoring scheme during 2017 season. To prevent the escaping and to know the potential risk on the native species, three measures should be apply: a permanent monitoring scheme, improving the bio-security measures within the fur farm, the necessity to have official national and EU regulations concerning fur farm bio-security.*

Key words: *American Mink, occurrence, central Romania.*

1. Introduction

American Mink is an alien invasive species introduced in Europe especially through the fur farms [2] and has now feral populations in the central, northern and western European countries, such as: Poland, Spain, France, Great Britain etc. [2, 9].

There are a variety of studies on its status, range, naturalization, biology, ecology, impact and control within Europe and a recent risk assessment was carried out [5].

Its impact on native species was well studied. Thus, the species could have a

significant impact especially on vertebrates, such as ground-nesting birds, rodents, amphibians and mustelids [2] but also on crustaceans, such as *Austropotamobius torrentium* (Schnrk.) [6]. Waterfowls and other water birds are the most affected by American Mink predation [1]. Maybe the most important impact from a conservation point of view is on the European Mink (*Mustela lutreola* Linnaeus), a Critically Endangered species. The American Mink affects European Mink by competition, hybridization, abortion

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and blocking the European Mink females to reproduce [8].

Concerning Romania, a few American Mink fur farms were built during communism period but after 1990 many of them collapsed. New farms were established in recent years and maybe their number will increase because of the permissive law in Romania comparing with other European countries. There is no official evidence of wild-living American Mink or about American Mink fur farms within the country. The main problem at the national level is the lack of regulation concerning the livestock of non-native or invasive species. For example, there is no technical normative of fur farm bio-security. Within Romania there are only a few data concerning the species occurrence in the wild habitats. Thus, in a synthesis of the old and recent observations within Romania [7], there are presented the locations or the regions where it was present. The authors mention some published observations from Danube Delta and the eastern side of Romania. They collected all data on this species within their study area (Mureş River, Mureş County) where some fur farms are known. A total of 21 occurrence records from 1986-2009 were presented in that paper.

The highest risk of biodiversity loss in our study area (Braşov County) is mainly within two sensitive protected areas (Dumbrăviţa Fishpond Complex Ramsar Site and Dumbrăviţa-Rotbav-Măgura Codlei Natura 2000 Site - Special Protection Area). These are located at only 3-6 km from the American Mink fur farm and they hold a very rich bird fauna. Thus, the main breeding species from a conservation point of view (some of them have the highest number of pairs from the

central Romania – Transylvania or hold over 1-5% of the minimum national breeding population) are: Pygmy Cormorant (*Microcarbo pygmeus* Pallas), Night Heron (*Nycticorax nycticorax* T. Forster), Squacco Heron (*Ardeola ralloides* Scopoli), Great White Egret (*Ardea alba* Linnaeus), Little Egret (*Egretta garzetta* Linnaeus), Purple Heron (*Ardea purpurea* Linnaeus), Ferruginous Duck (*Aythya nyroca* Guldentadt), Marsh Harrier (*Circus aeruginosus* Linnaeus), Little Crake (*Porzana parva* Scopoli), Whiskered Tern (*Chlidonias hybrid* Pallas). During fall and spring migration these wetlands are very important stop over areas for several bird species, such as: Black Stork (*Ciconia nigra* Linnaeus), Great White Egret (*Ardea alba* Linnaeus), geese, ducks, waders, gulls, terns etc. Some of them form quite large feeding or resting aggregations especially during fish harvesting time when many hectares of mudflat and shallow water are the suitable habitats.

The main aim of the paper is to present the preliminary knowledge of the America Mink occurrence in Braşov County, surrounding the fur farm from Feldioara village. To improve this knowledge, a monitoring scheme was applied within the area to study its spreading, abundance, habitat selection and maybe the presumptive feral population structure by sex and age.

The study area is located within Braşov Depression and its surroundings as part of Braşov County (Figure 1). This is a typically depression in Transylvania, at the internal curvature of the Carpathian Mountains. It is also part of the Olt river basin which has some tributaries, such as: Ghimbăşel, Bârsa, Vulcăniţa, Homorod Ciucaş, Crizbav. We mentioned at the introduction chapter about two important man-made

wetlands (Dumbrăvița and Rotbav wetlands) which are used for aquaculture and angling. The mink farm is located at

1500 m from Feldioara village (Figures 1 and 2) and has more than 40000 minks on an area of 8.5 ha [3].

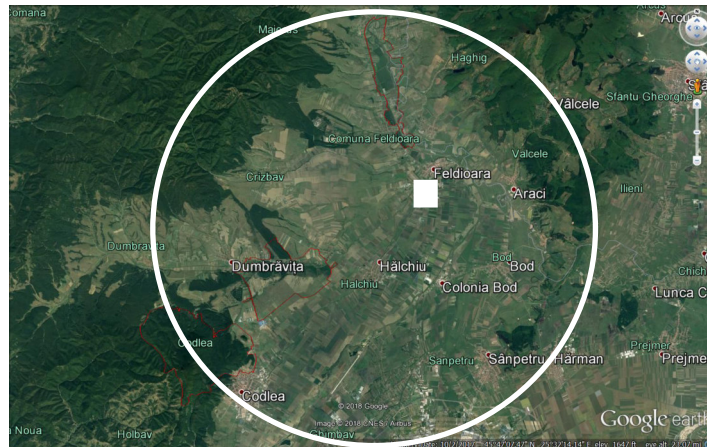


Fig. 1. The study area (white circle), American Mink fur farm (white dot) and Dumbrăvița-Rotbav-Măgura Codlei Special Protection Area boundaries (red line)

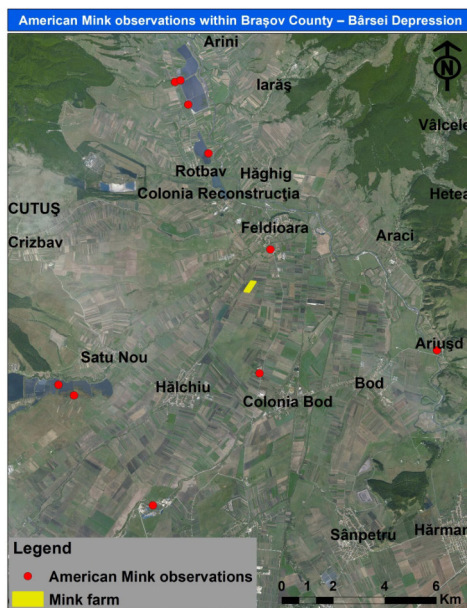


Fig. 2. American Mink records (2015-2017) within Brașov County

2. Materials and Methods

Data about American Mink presence within the study area were collected

during 2015-2018, after our first finding of the species within nature (photo captured by trap camera in September 2015). In this period, there were permanent discussions about the American Mink presence in the wild with all representative factors within the study area, such as: fish owners, hunters and hunting associations, field biologists, stakeholders, city halls etc. Only the valid identifications of this species, proofed by photos and movies were taken into account. Some photos and movies were captured using camera Trapping (12 cameras were captured images between September 2015 till now within the Dumbrăvița Ramsar and Natura 2000 Site). A camera model from Bushnell manufactured was used. The main types of wetland habitats, such as: streams, reed beds, channels, marshes were covered by cameras.

For a further monitoring scheme, live-trap method was used within Rotbav and Dumbrăvița wetlands beginning from

2017 (February-April and September-October). A biologist expert was working by this method using classic cage traps for mustelids. All traps were placed in characteristic habitats for American Mink, such as: along dams or channels, river banks, reed beds and were covered with vegetation and debris for a good camouflage. Any trap contains bait (a specific food from the farm, fish can or some attractants - gland lure). The scheme used was 1-1.25 km transects. The cages were placed at 250 m one from each other along transects and were verified every morning [3].

3. Results

All valid identifications of American Mink in the area are presented in the Table 1 and the locations in the Figure 1.

A total of 13 valid occurrence records of American Mink within the area are shown. The majority of occurrences proceed from September 2015 (30% of the total identifications) and between September-December 2015 (more than 60% of the total identifications). Concerning the identified locations there was a widespread of this species within all compass points and in many directions from the fur farm. The maximum linear distance from the fur farm was more than 9 km. More than 60% of the records were located between 7 and 9 km from the fur farm. In point of habitat of occurrence, the majority of locations were in wetlands (channel, rivulet, river, lake shore, gravel pit), but also near human settlements. The identified specimens had different fur colour from white to blackish (Figures 3, 4 and 5).



Fig. 3. American Mink with greyish-brown fur, Rotbav-Vadu Roşu restaurant parking (photo CristianBarbu, 2015)

Table 1

American Mink observations within Braşov County – Bârsei Depression, Transylvania, Romania (2015 - 2017)

No.	Location	Coordinates	Data	Fur color	No. ind.	Photo / Video	Observations / notes	Distance from the fur farm
1	Olt River, near Ariuşd village	N 45 46 29.19 E 25 40 28.46	March 2015	White	1	Photos	Within the river bank and water	7400 m
2	Dumbrăviţa, fish farm	N 45 45 49.15 E 25 29 07.42	September 2015	Greyish-brown	1	Photo	Photo trap, running	8120 m
3	Dumbrăviţa, fish farm	N 45 45 49.15 E 25 29 07.42	September 2015	Brown	1	Video	Photo trap, walking	8120 m
4	Vadu Roşu, Rotbav, parking	N 45 52 09.82 E 25 32 40.70	September 2015	Greyish-brown	1	photos	Near cars, biting a cable	8310 m
5	Vadu Roşu, Rotbav, lake shore	N 45 52 11.83 E 25 32 50.71	September 2015	White	1	Video	Fed by anglers with fish	8300 m
6	Near Feldioara periphery	N 45 48 37.92 E 25 35 30.34	October 2015	White, Grey	2	Photos	Killed by dogs near a house	1390 m
7	Farm near Feldioara village	N 45 46 01.94 E 25 35 09.14	October 30th 2015	Blackish	1	Photos	Killed by a farmer	3000 m
8	Dumbrăviţa, fish farm	N 45 45 35.67 E 25 29 35.40	November 2015	Brown blackish	1	Video	Photo trap, running	7750 m
9	Crizbav stream	?	December 2015	White	1	Video	Walking on a stream bank	?
10	Dumbrăviţa, fish farm	N 45 45 35.67 E 25 29 35.40	January 2016	Brown	1	Video	Photo trap, walking in snow	7750 m
11	Stupini gravel pit	N 45 43 16.40 E 25 31 55.70	August 2016	Brown	1	Photos, Video	Hunting a Coot, hiding in debris	9400 m
12	Vadu Roşu, Rotbav fish farm	N 45 51 41.31 E 25 33 04.92	April 2017	Grey	1	Photos	Captured by a live-trap, monitoring of SC AG Roneco Farm	7400 m
13	Rotbav Lakes	N 45 50 39.54 E 25 33 40.27	September 2017	Grey	1	Photos	Idem no. 12	5370 m



Fig. 4. American Mink with blackish fur, killed near a farm from Feldioara
(photo Dan T. Ionescu, 2015)



Fig. 5. American Mink with grey fur, captured within monitoring scheme in Rotbav-Vadu
Roşu (photo Marius Drugă, 2017)

4. Discussion

The fur farm from Feldioara has started the activity in 2014. An accident inside the fur farm with a car which transported

Minks in September 2015, could be responsible for a mass escape of the species. Maybe this is the explanation for the number of records during the autumn of 2015. After that the mink farm has

improved the bio-security through a double fence and other measures to prevent the animal escape. However, other records of American Mink in the wild were proved during 2016 and 2017. Thus, a living specimen was found in a pit gravel habitat in August 2016 at more than 9 km from the fur farm (the maximum known distance from the fur farm). The most recent records are two specimens captured within monitoring scheme by traps in Rotbav wetland during spring and autumn of 2017. At least the specimens captured in 2017 could suggest that a feral population or only individuals have established in the wild. Another hypothesis is that the farm bio-security is hereinafter improperly to prevent the animal escape. So whatever which hypothesis is real, a few important measures should be applied:

1. To implement a permanent monitoring scheme for American Mink especially inside the protected areas and important wetlands;
2. Improving the bio-security measures within the fur farm, not only concerning the fence but also on animal manipulation, cages security, gates operating etc.;
3. There is strongly necessary to exist official regulations concerning fur farm bio-security, taking into consideration the lack of these rules in Romanian and the EU Regulation no. 1143/2014 on Invasive Alien Species;

Our study was not carried out on the American Mink impact on native fauna. However, based on our observations and monitoring of birds species within the protected areas, no evidence of that species influence on the local avifauna within Braşov Depression was found. However, there is necessary a monitoring

and also permanent observations especially on bird aggregations, such as breeding colonies in relation to predators. Thus, within the described Natura 2000 Site and Ramsar Site of the area, there are a few breeding colonies of some water birds. A large Black-headed Gull (*Chroicocephalus ridibundus* Linnaeus) colony and a small one of Whiskered Tern (*Chlidonias hybridus* Pallas) are located on a lake from Rotbav, the gull colony at only 80 m from the nearest American Mink record and the tern colony at 350 m. A mixed colony of Pygmy Cormorant (*Microcarbo pygmeus* Pallas), Herons (*Nycticorax nycticorax* T. Forster, *Ardeola ralloides* Scopoli), and Egrets (*Egretta garzetta* Linnaeus, *Ardea alba* Linnaeus) is located on some fishponds from Dumbrăviţa wetland at 350m from the nearest American Mink record point. At the same time, other groups of wild animals (crayfish, some shells, European water vole etc.) as a potential American Mink prey should be taking into consideration (some of them with conservation implications) in the whole Braşov Depression.

5. Conclusions

A number of 13 valid records of American Mink are known until now within Braşov Depression, Transylvania province, Romania. These specimens escaped from a recent large fur farm in the area. Based on our data, American Mink has spread on all compass points from the farm in many wetlands and open habitats, some of the record points at more than 8-9 km from the fur farm. It means a potential real threat for many native species if an American Mink feral

population has established in the area. The threats for these species could also exist if only some individuals permanently escaped from the fur farm. Whatever the situation, a permanent monitoring scheme should be applied. At the same time, any fur farm with alien species should create a very good bio-security system to avoid animal escapes.

Acknowledgments

We wish to thank to persons who provided us important data on this species near Braşov: Cristian Barbu, Ionuţ Zaharia, Cristian Goga and Flavius Timu.

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