



### Introduction

Before World War II, ~ 100-120 beavers lived in Ukraine, which, despite the ban on hunting since 1918, continued to be hunted in various ways. However, the creation of beaver reserves, an increase in fines and the introduction of criminal liability for poaching contributed to an increase in their number and range. Since this happened very slowly, since 1927, work on the artificial settlement of animals began to be carried out in the country. Together with severe protection measures, this contributed to an increase in the range and number, which in 2019 reached almost 50 thousand beavers. Considering that in many countries the beaver population has increased significantly, we decided to inform the European community about the features of the settlement and population dynamics of this animal in Ukraine.

### Material and methods

The materials for this article were collected on the territory of many regions of Ukraine in the period from 1972 to 2020. This period was characterized by intensive dispersal of the beaver and the formation of new habitats. To clarify the features of this process, we carried out a population count in some areas of the forest, forest-steppe and steppe zones of Ukraine. The processes of reproduction and the causes of death of animals were also studied. The analysis of the data of the state registration of the number was of great importance for understanding the expansion of the species.

### Discussion

#### Range

Before the collapse of the Soviet Union (1992), more than 600 beavers were introduced on the territory of 12 regions of Ukraine, which became the founders of new populations. More than 50% of the animals were caught in the flooded zone of the Kiev (1964) and Kanev (1972) hydroelectric power stations on the Dnieper, which were released in the basins of the Southern Bug, Siverskyi Donetsk and Dnieper. In 2003-2007. beavers from Slovakia and Romania entered the Transcarpathian region, which formed several populations on the rivers Borzhava, Latoritsa, Tisa and Uzh. In 2011, migrants from Romania appeared in the Odessa region in the Danube Delta. In 2013, beavers appeared near Zaporozhye, where they had been absent for over 200 years. (Fig. 1).



Figure 1. Trace the activities of beavers near Zaporizhzhia: A – hunters near the gnawed poplar; B – beaver dam.

The animals, which were introduced in the lower reaches of the Dnieper in 1965, formed a population that is developing successfully. Some beavers went down the river and reached the Black Sea, and some along the river. Ingulets reached the city of Kriviy Rig. Now beavers live on the territory of 22 regions of Ukraine, and the continuous range of the species covers most of the country (Fig. 2).



Figure 2. The range of the beaver in Ukraine at the beginning of the XXI century.

# THE NUMBER AND RANGE DYNAMICS OF THE EURASIAN BEAVER IN UKRAINE

Volokh A.

Dmytro Motornyi Tavria State Agrotechnological University,  
Department of Geocology and Land Management,  
B. Khmelnytskyi Avenue, 18, Melitopol, Ukraine, 72310

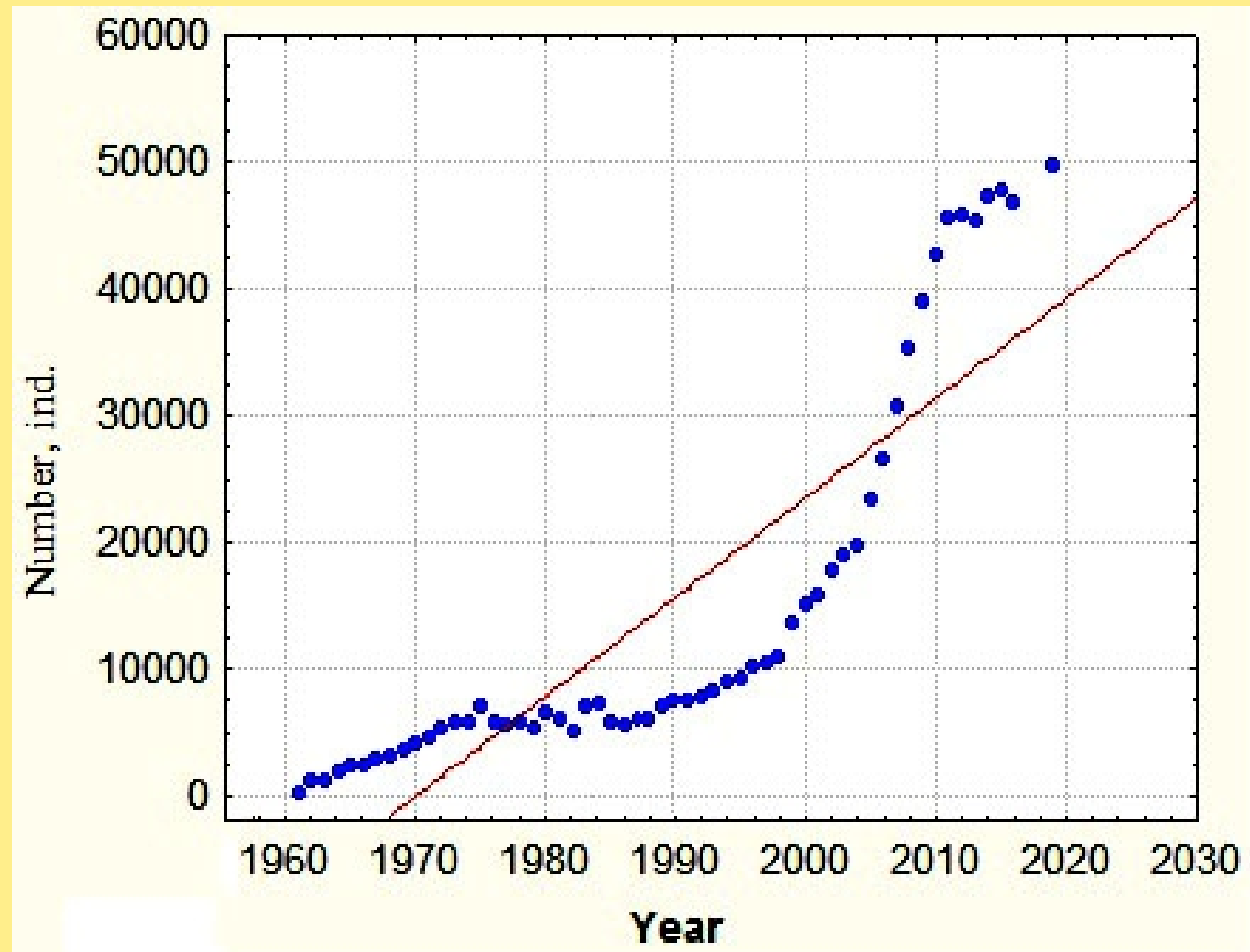


Figure 3. Number dynamics of beavers in Ukraine.

### Population dynamics

According to the results of the first census of the number of game animals, in 1961 about 330 beavers lived in Ukraine. In 1980, over 6.5 thousand individuals lived on the territory of 13 regions, in 1990 – over 7.6 thousand, and in 2000 on the territory of 18 regions – more than 15 thousand individuals. From 1962 to 1972, the number increased from 1206 to 5338 beavers with an average annual growth rate of 34.2%. In 1975, its resources in the country were estimated at 7096 individuals and reached the first peak. However, in the same year, a severe drought took place in Ukraine, which caused a massive summer migration of beavers. During its time, many animals became victims of predators and poachers, and also died in winter in new unprepared habitats. In 1984, the number of beavers in Ukraine reached the second peak and amounted to 7321 individuals, however, the subsequent long and snowy winters of 1985-1987, which ended in ultra-high floods, caused the death of a large number of animals. Due to their unfavorable influence, in 1985 beaver resources decreased by 21.5% compared to 1984, and in 1986 - by 1.1% compared to 1985. Subsequently, despite the harsh winter of 1997/98, the population beavers in Ukraine developed without any special excesses (Fig. 3). 2000 to 2010 the country has experienced a rapid population growth, which has declined markedly since 2011. The main reason for this phenomenon was the use of most suitable biotopes by beavers, and the regulation of the number, which depends on the population density. The work of hydroelectric power plants had a significant negative impact on the beavers. The long winter of 2009/10 many animals died under the ice due to the discharge of excess water through the turbines.

The greatest number of beavers lives in the forest and forest-steppe zones of Ukraine (Fig. 4). All populations in the steppe zone are formed by introduced animals.

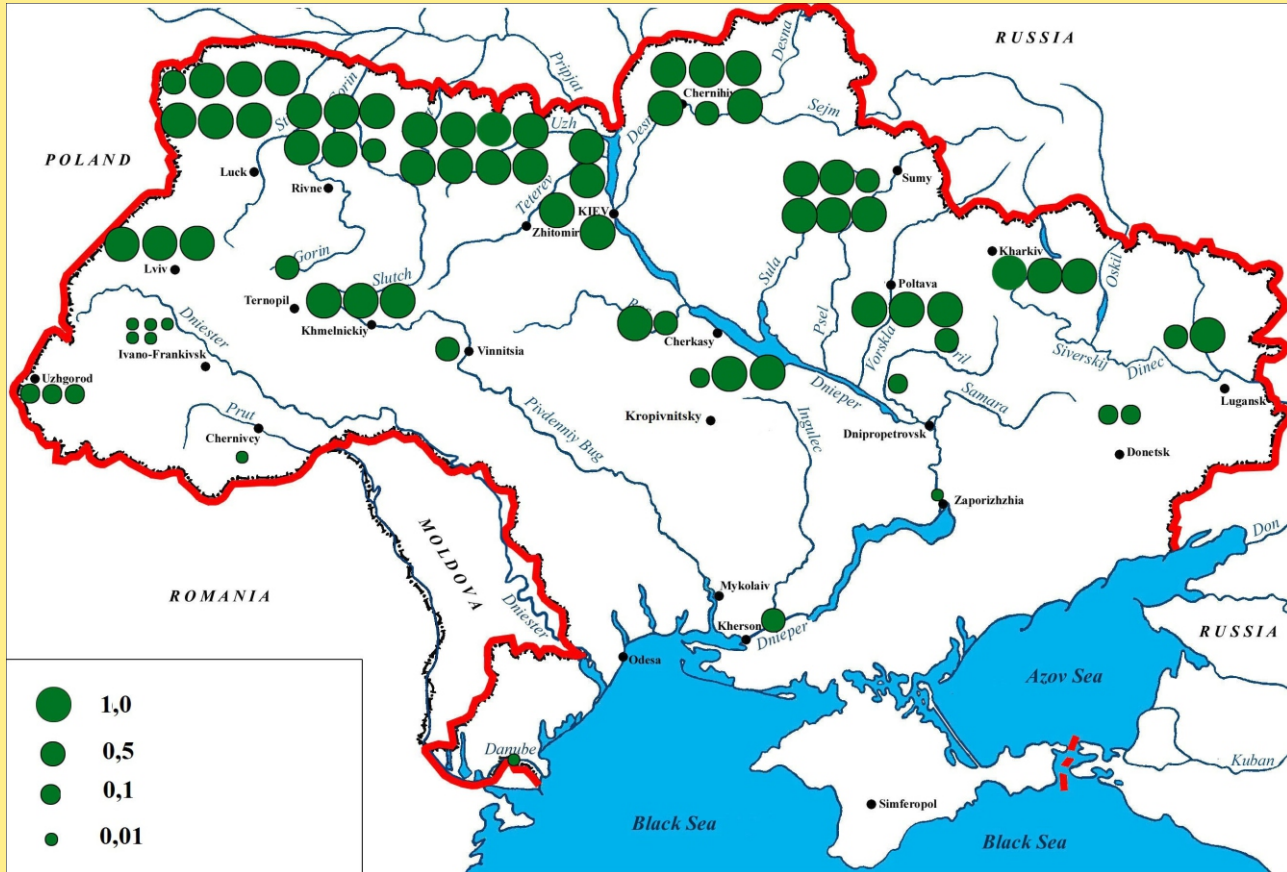


Figure 4. Distribution and number of beavers (thousands) in Ukraine.



Figure 5. In many places, beavers have destroyed most of the trees.

Due to the intensive growth of the population, the beaver in many places completely destroyed trees and shrubs, which caused great damage to forestry and contributed to the development of coastal erosion (Fig. 5).

Despite this, the use of beaver resources in Ukraine is unusually small. For 37 years (1980-2016), the official removal by hunters is only  $39.1 \pm 8.45$  (0-179) beavers, or  $0.3 \pm 0.06$  (0-0.12)% per year. Due to the insignificant attention paid to this rodent by hunters, poachers get it everywhere. In the study of dead beavers ( $n = 173$ ), the main causes of their death were gunshot wounds (28.6%), attack by predators (28.5%), death in fishing nets (14.1%) and others (Fig. 6).

It is quite understandable that, in reality, much more beavers died from these reasons than we established, since people took the animals that were hunted, and it is impossible to find all the dead animals. As a result of illegal shooting, in their habitats, sometimes you can see the corpses of animals (Fig. 7).

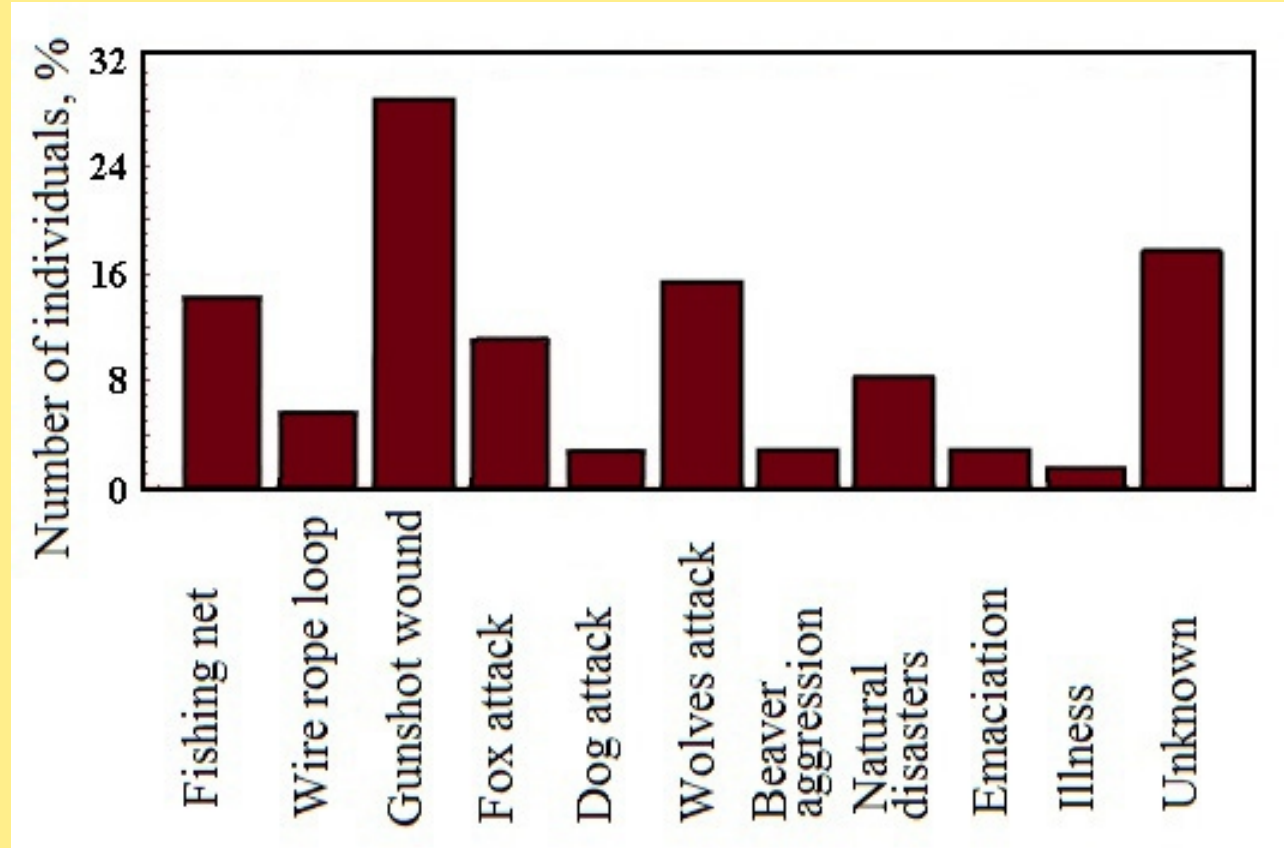


Figure 6. Causes of death of beavers in Ukraine.



Figure 7. The corpses of beavers that died from gunshot wounds.

### Conclusions

1. At present, in Ukraine, the number of beavers reached almost 50 thousand individuals, which made it possible to allow hunting for a once rare species.
2. The beaver has become a trophic component in the diet of wolves and foxes, which indicates its importance in wetland ecosystems.
3. Due to the disappearance of the fashion for natural furs, beaver meat has become the main product of hunters.
4. The main method of catching beavers in Ukraine is shooting with smooth-bore weapons, as a result of which many animals die.