

# Azerbaijan's Largest Rodent – Environmental Concern or Economic Opportunity?

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In the Soviet era, attempts were made to acclimatize dozens of different mammal species to Azerbaijan. Acclimatization is the process of adaptation of an organism to a new environment (Dictionary of Biology 2011, 45). Russian zoologist Nikolay Vereshchagin maintains in his work that he participated in the introduction of foreign species such as nutria, raccoon and American mink to the Caucasian fauna and acted as a consultant in a number of other experiments (Vereshchagin 1959). Of these, only 4 mammal species (European rabbit, red squirrel, nutria, and raccoon) have successfully acclimatized (AMEAZI 2020). Currently, raccoon and nutria (swamp beaver) are widespread environmental pests in the country. In my last article, I discussed the history of the introduction of raccoons to Azerbaijan and its consequences (Farajli 2023). In this article, I will address the history of nutria, the negative impact caused by this invasive species, and the potential of their usage in the future.

## **Introduction of nutria to the Caucasus**

The nutria, coypu or swamp beaver (*Myocastor coypus*) is the largest rodent currently found in Azerbaijan. Adults are typically 60–80 cm in body length, and up to 12 kg in weight. Vereshagin maintained that the increased demand for nutria fur in the last century had led to the reduction of its natural population in South America, prompting efforts to arrange artificial reproduction in various locations. The possibility of their breeding for the fur industry in the South Caucasus and Central Asia was discussed for the first time at the meeting of the All-Russian Society for the Promotion of the

Research of Animal Raw Materials on 14 March 1929. As a result, the All-Union Fur Syndicate imported 113 nutrias (55 females, 58 males) from Argentina in the spring of 1930. Then, in the fall of 1931, an additional 43 females were imported. In the summer of 1932, about 2,500 nutrias were already kept in cages in the Soviet Union (about 700 males and 1,800 females), most of which were bought from small farms located in England and Germany, with only 520 individuals imported from Argentina. They were distributed to large pet farms near Moscow, Leningrad, Alma-Ata (currently Almaty), and Maykop (Vereshchagin 1936).

The acclimatization of nutria began across Soviet republics at a later stage. Between 1931 and 1937, 213 nutrias were released into the wild in 3 areas in Azerbaijan—the Gyzyllagaj Bay (80), Garasu (123), and Aghrychay (10) (Vereshchagin 1936). These experiments were successful, and in a short time, nutrias already started to spread in Azerbaijan. Vereshchagin also emphasized that nutria expanded their range by 15-20 km annually in subsequent years (1959). Even in 1932, nutrias were caught 65 km away from Gyzyllagaj. This also suggests that nutria was rapidly spreading in watersheds across the country. In the middle of the last century, swamp beavers were reported to have successfully expanded in the Saatly, Sabirabad, Lankaran, Kurdamir districts, as well as in neighboring Armenia and Georgia, as well as along canals built in connection with the then-ongoing construction of the Mingechevir reservoir (Mammadov 1950). In a short time, white nutrias were also bred in Azerbaijan.

### **Environmental impacts of nutria**

Generally, invasive alien species cause harm to local ecosystems through feeding (predation or herbivory), competition, disease transmission and hybridization (Parker et al. 1999). Nutria is listed among the one hundred worst invasive alien species in the world by the International Union for Conservation of Nature (IUCN) (Lowe et al., 2000). Nutria

occurrence is known to negatively affect biodiversity and species richness of vegetation in swamp areas (Gethöffe & Siebert, 2020).

Nutrias compete with various ducks, coots, grey-headed swamphens and other birds, as well as with mammals such as wild boars and European water voles (*Arvicola amphibius*) for plant roots in the globally important Gyzylagaj Bay (a Ramsar wetland site) (Vereshchagin 1936). Similarly, in Europe, nutrias are known to negatively affect the number of birds and freshwater mollusks that feed and breed in wetlands, and the stability of dams by digging burrows (Gethöffe & Siebert, 2020). Nutrias are also known to pose a risk to agricultural production in Azerbaijan, especially paddy fields, watermelons, melons, carrots, and cabbage (Vereshchagin 1936). They are also reported to consume 350-400 g of plant matter per day (Mammadov 1950).

Dozens of parasites like flukes, roundworms and tapeworms were found in nutria. Nutria affected by coccids were among the individuals released into the environment in Gyzylagaj. Parasites also included the trematodes *Fasciola hepatica* (also known as the common liver fluke), which can be particularly dangerous to cattle and sheep, sometimes causing the death of nutria (Vereshchagin 1936). The risk of infection of cattle by these parasites is higher when wetlands are used for livestock grazing and water supply. Since there are no other rodent species with genetic affinity to nutria in Azerbaijan, there is no risk of hybridization.

### **Quantitative control capabilities and economic potential in the future**

Currently, the total number of nutrias in Azerbaijan is unknown. A pair of breeding swamp beavers can produce 30 nutrias in a year (Mammadov 1950). According to Vereshchagin, 2 years after they were released into the wild, their number increased to a population of 400-500 individuals (Vereshchagin

1936). He maintained that the factors limiting the growth and spread of the nutria population in the Caucasus were below freezing temperatures in winter and stressful drought conditions in bodies of water in summer. Under these conditions, large numbers of nutria become easy prey for jackals and dogs (Vereshchagin 1959). After the harsh winter months, females produce fewer kits in the following season due to their depleted fat reserves (Gethöffe & Siebert 2020). All this gives reason to say that the mild winters caused by climate change could potentially lead to further increases in nutria populations in the future.

Predators of nutria in Azerbaijan may include mammals such as jungle cats, foxes, jackals, wolves as well as birds of prey such as short-eared owls, long-eared owls, western marsh harriers, golden eagles, white-tailed eagles, to name a few (Vereshchagin 1936). Although licenses to harvest nutria on private farms are offered during the winter months, trappers have little incentive to hunt nutria compared to other game animals. Perhaps the most successful control of this invasive rodent has been carried out in the United States. In Louisiana, for example, a bounty of \$6/nutria tail (about 10 AZN) is paid to licensed hunters and trappers to control the nutria population. During the 2021-2022 winter season alone, hunters and trappers were paid \$1.222.944 to catch nutria, resulting in huge decreases in the damage caused by them (Manuel & Waller 2022). Azerbaijan would be well served to launch an incentive program to encourage nutria trapping. However, because of a Cabinet of Ministers decision regarding the use of wildlife facilities, hunters and trappers must pay fees for each nutria catch: 1,65 AZN for each nutria tail for harvesting (catch) and 22 AZN for damage to nature for illegal hunting (Cabinet of Ministers 2004). These payments oddly exceed those for hunting some protected species listed in the Red Data Book. Fees for hunting invasive species such as nutria and raccoons, which are ecological pests, and payments for the damage to nature should be completely eliminated.

The widespread distribution and abundance of nutria currently makes total eradication impossible. However, it is possible to control the number of nutria and achieve economic gain in Azerbaijan by enjoying potential benefits they can offer. In order to do that, it is important that financial resources, public support and authority be clearly defined between government agencies (Gethöffe & Siebert, 2020).

The economic gain found in reducing the nutria population can be found in its meat. For example, the protein content in nutria meat is almost the same as chicken (21-22 g/100 g), but its fat content is half that of chicken (1.5 g/100 g). Its lower cholesterol content suggests that nutria meat may provide a healthy and nutritional option for consumers (Tulley et al., 2000). In addition, nutria meat can be used to meet the local needs of the feed market or that of carnivorous or omnivorous pets (dogs, cats), which is projected to grow 4,25% annually in Azerbaijan (Statista, 2024). This will also help to reduce carbon emissions in the feed market.

In addition, because nutria live in water, they have waterproof fur, and establishing facilities to process this fur will help revitalize the local economy, indirectly also helping to reduce the numbers of this invasive species. From 1962 to 1982, Louisiana trappers, for example, harvested more than 1 million nutrias annually, with over \$15 million in revenue in 1976 alone. But the collapse of the Russian economy in September 1998 and general instability in the Far East economies dampened demand for most wild furs, including nutria (Manuel & Waller 2022). Since then, the global fur market for nutria has never returned to the previous high pelt prices. As nutria harvesting has not been in demand, their ecological damage in Louisiana has increased, and between 1993 and 1996, helicopter surveys showed damage to aquatic plants estimated at 80.000 acres (1 acre = 0,404 ha). Areas affected by wetlands have been reduced 17-fold in the last 20 years as a result of harvesting over 6 million nutrias through the launch of the said incentive program (Manuel & Waller 2022).

At present, the global trend to fight fur consumption makes it difficult to harvest pests such as racoons, nutrias, which were introduced in Azerbaijan because of their fur. Controlling their numbers is only possible through incentive programs supported by the government.

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