

# Mammalian Species Successfully Introduced to Azerbaijan: Biology and Adaptive Traits

Gunel Maharramova 

**Abstract.** *Introduction processes carried out in Azerbaijan have been implemented with the aim of enriching the biodiversity of our country, serving economic interests, and controlling other harmful rodent species. However, the lack of in-depth scientific research has led both to the introduction of harmful species and to the extinction of some introduced species. As a result, out of ten introduced mammal species, only three species have survived. The surviving species include the European rabbit, the raccoon, and the nutria. Due to the highly developed adaptive characteristics of these successfully acclimatized species, each of them has expanded its range. However, the excessive increase in the populations of these species, while serving economic interests, has also led them to play a harmful role in various aspects. This, in turn, results in noticeable changes within the ecosystem. Therefore, it is highly important that future introduction processes be carried out on a purposeful basis and grounded in thorough scientific research.*

**Keywords:** *European rabbit, nutria, raccoon, Azerbaijan, acclimatization*

## Introduction

Between 1930 and 1970, a number of mammal species were acclimatized in Azerbaijan under various rationales and under the slogan of “enrichment and reconstruction of the fauna of Azerbaijan”. Most introductions were undertaken to meet hunting demands or to ensure economically profitable fur production; in some cases, they were motivated by pharmaceutical needs or by the necessity to control rodents that were epidemiologically hazardous or harmful to agriculture (Askerov et al., 2021).

Throughout the history of acclimatization, both in the former USSR and in Azerbaijan, zoologists and game specialists have included both proponents and opponents of species introductions. In characterizing half a century of experience in introduction practices, the following statement by A.A. Nasimovich, one of the leading experts on this issue, is particularly relevant: “Until recently, the acclimatization of animals in our country was initiated by various agencies and, at times, by individual persons. This work was conducted without a unified, coordinated plan and without full consideration of the overall interests of the national economy. Empiricism predominated. Until the early 1960s, the acclimatization of fur-bearing animals was frequently regarded as a universal solution to all problems in game management. Excessive reliance on this approach led to an underestimation of the importance of work with native species, and comprehensive breeding measures were replaced by introductions”.

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Baku State University, Master’s student, Baku, Azerbaijan

E-mail: [mehherremovagunel2002@gmail.com](mailto:mehherremovagunel2002@gmail.com)

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The aforementioned shortcomings were also observed in our republic. There is no doubt that the establishment of new species leads, to varying degrees, to the restructuring of cenotic relationships, changes in the volume of ecological niches of native species, shifts in the ecology of introduced species, and, in certain cases, to alterations in the overall structure of communities. Consequently, under new environmental conditions, a species that is beneficial or neutral in its native range may become harmful (Vereshchagin, 1958).

In total, ten mammal species (*Myocastor coypus* M. – nutria, *Chinchilla brevicauda* W. – short-tailed chinchilla, *Nyctereutes procyonoides* G. – raccoon dog, *Procyon lotor* L. – raccoon, *Mephitis mephitis* S. – striped skunk, *Mustela vison* S. – American mink, *Cervus nippon* T. – sika deer, *Saiga tatarica* L. – saiga antelope and *Bison bonasus* L. – European bison, *Oryctolagus cuniculus* L. – European rabbit) were introduced into the republic. Successful acclimatization was achieved only for the European rabbit, nutria, and raccoon. In addition, some released species survived in the natural environment of the republic for a certain period and even reproduced until they were eliminated by predators or by competition with native fauna. Their skeletal remains have persisted in the soil in various forms. There are documented cases of bones of introduced mammals being discovered during soil excavation works, as well as in the pellets of diurnal and nocturnal birds of prey (Vereshchagin, 1959; Vereshchagin, 1951; Vereshchagin, 1952).

### **The general biology of European rabbit (*O. cuniculus* L.)**

The European rabbit belongs to the order Lagomorpha, the family Leporidae, and the genus *Oryctolagus* (Ahmadov et al., 2023).

Its natural range includes the European and African parts of the Mediterranean region, as well as the southern part of North America, Central, and South America. Additionally, in the 19th century, it was introduced to southern Ukraine, many regions of Australia, New Zealand, and Oceania, as well as to numerous islands and sub-Antarctic zones (Rossolimo et al., 2004; Sokolov, 1989). The population of European rabbits introduced to Robben Island, recognized by UNESCO as a World Heritage Site, remained relatively stable from October 2003 to November 2005 (Villiers et al., 2010).

Its body length ranges from 31 to 45 cm, and its weight is 1.3–2.5 kg, with ears and hind limbs measuring 6–7.2 cm. The fur is soft and dense, consisting of short, straight hairs. The dorsal side is gray-brown, while the ventral side is white. The underside of the tail is white, and the upper side is either darkened or matches the color of the back. The ears are short, rounded at the tips, and black in color. The species molts twice a year, and it takes approximately 1.5 months for new fur to grow. In males, fur development occurs later compared to females (Rossolimo et al., 2004; Ahmadov et al., 2023; Sokolov, 1989). In some populations, melanistic individuals are frequently observed (Aulagnier et al., 2009).

They prefer areas with soft soils, valleys, hilly terrain, and shrub-covered landscapes, as well as small forests. They are not afraid of human presence and can also inhabit gardens and parks. European rabbits can dig burrows more easily in sandy soils compared to clayey or stony soils (Rossolimo et al., 2004; Ahmadov et al., 2023). Since European rabbits are not well adapted to persistently snowy winter conditions, their need to dig burrows is significant (Sokolov, 1989). They live in family groups connected by a network of communal burrows. The burrows have multiple entrances and exits, with a total length that can reach up to 40 meters, consisting of interconnected tunnels at various angles. Each burrow contains several nesting chambers located along the main tunnel. The floors of these chambers are either bare or lined with rabbit fur. A single burrow may be used for several years, and its territory can cover 0.5–20 hectares. The territories of different groups overlap minimally. The area is usually defended by the dominant male. The dominant female in the group lives in the communal burrow with this male and their offspring, while other females occupy separate burrows. For each

new litter, a female typically digs a separate nesting chamber. During digging, she collects soil under her body with her forelegs and then throws it out with her hind legs. Each family group consists of 1–8 males and 1–12 females. Aggressive interactions are more commonly observed between females. European rabbits lead a sedentary lifestyle and rarely leave their burrows. This behavior allows them to hide quickly from danger but also limits their feeding area (Rossolimo et al., 2004; Ahmadov et al., 2023).

European rabbits rarely move more than 100 meters from their burrows to feed. Their diet consists of leaves and stems of grasses, cabbage in fields and gardens, various root crops and cereal plants, dry herbs, as well as the underground parts of plants (Ahmadov et al., 2023). During summer, their main food is grasses, while in winter they consume dry herbs, seeds, roots of various plants, young shoots, and the bark of shrubs and trees (Rossolimo et al., 2004). When no other food is available, they do not refrain from eating their own feces (coprophagy) (Ahmadov et al., 2023). This behavior, called coprophagy, enables the assimilation of essential vitamins, improves the digestion of plant-based food, and allows the reabsorption of water into the body (Fortanesi et al., 2021).

Most European rabbits are polygamous, though some are monogamous and live with a specific female. The mating season begins in February. Mating occurs synchronously, with almost all females entering estrus at the same time. The gestation period lasts 28–32 days. A female can mate a few hours after giving birth and may produce a litter every 5–8 weeks. Litter sizes range from 2 to 12 offspring. The number of litters per year depends on food availability and the reproductive activity of males. In Europe, a female can produce up to 5 litters per season; in mountainous regions, 2–4; and in lowland areas, 3–5. Newborn rabbits are hairless and blind, weighing 37–54 grams. By three days old, their bodies are covered with short fur; they open their eyes around 10 days, and by three weeks, their full coat develops. At 25 days, the young begin to live independently. Sexual maturity is reached at 5–6 months, allowing participation in reproduction. A small proportion live up to 3 years, while the maximum lifespan is 12–15 years (Rossolimo et al., 2004; Ahmadov et al., 2023; Aulagnier et al., 2009). Juvenile mortality is high, especially during rainy conditions when nests become wet or flooded. Approximately 40% of young die within the first three weeks, with many succumbing to coccidiosis (Sokolov, 1989).

European rabbits remain active throughout the year and do not hibernate during winter (Ahmadov et al., 2023). They can be active both during the day and at night (Rossolimo et al., 2004). In anthropogenic habitats and during the winter season, they adopt a primarily nocturnal lifestyle. Chemical communication (chemo-communication) is well developed in European rabbits, allowing them to convey information about their sex, age, and social status through scent. Quasi-acoustic signals, produced by striking the ground with their paws, have also been observed. They run slowly but are very agile, making it difficult to catch an adult rabbit on the ground (Ahmadov et al., 2023). Over short distances, they can move at speeds of 20–25 km/h (Sokolov, 1989).

The density of European rabbit habitats and the conservatism of their burrow selection make them vulnerable to natural infections and epizootics. One of the main methods of human control over rabbits has been the deliberate spread of infections into their habitats. Introducing rabbits to new areas is sometimes accompanied by rapid population growth, most notably observed in Australia and New Zealand. In such cases, rabbits can completely destroy pasture vegetation, displacing native herbivorous mammals (Rossolimo et al., 2004). Predators previously absent from these regions—such as foxes, martens, piglets, and weasels—were introduced, but these measures were largely ineffective, and rabbits continued to reproduce (Sokolov, 1989). Highly virulent rabbit hemorrhagic disease virus (RHDV) has been widely used in Australia and New Zealand to reduce rabbit populations (Mahar et al., 2018). In the early 1950s, Australian settlers launched a “bacteriological war” by infecting rabbits with the virus causing myxomatosis. This disease does not affect humans, domestic animals, or many wild species. The initial results were dramatic: up to 90% of rabbits in

many regions of Australia were eliminated. However, by the 1960s, rabbit numbers rebounded because some individuals had inherited immunity to myxomatosis or gradually developed resistance (Sokolov, 1989). Myxomatosis was also used on Kerguelen Island but proved ineffective (Cooper & Brooke, 1982). Currently, the “rabbit problem” in Australia is less severe, as demand for rabbit meat has increased, and it has even become a product for export and trade (Sokolov, 1989; Rossolimo et al., 2004).

### **Introduction of the European rabbit in Azerbaijan (*O. cuniculus* L.)**

Within the genus *Oryctolagus*, only a single species exists. The European wild rabbit (*O. cuniculus*) is the only lagomorph species that has been domesticated and has given rise to numerous breeds (Sokolov, 1989). This is the only species acclimatized in Azerbaijan without the participation of zoologists. According to N. K. Vereshchagin, at the end of the 19th century, migrant fishermen released domestic European rabbits on Sara Island near Lankaran. This attempt was unsuccessful, and the animals failed to survive there. Later in the same century, following the establishment of regular shipping routes and the development of fisheries, lighthouse keepers released these rabbits on several islands of the Baku and Absheron archipelagos (Boyuk Zira, Khara Zira, Chilov, Chigil, and Sangi-Mugan). In 1931–1932, additional releases were carried out on Chilov, Los, and Gil islands (Ahmadov et al., 2023). Despite the absence of freshwater sources, the rabbits adapted to local conditions and reproduced intensively. Fishermen and crews of small vessels reportedly harvested up to approximately 2,000 individuals annually for food. According to investigations conducted by N.K. Vereshchagin in the 1940s, the species was then recorded only on Gil Island. At present, however, it persists solely on Khara Zira Island.

The fate of the island rabbit populations appears to have been determined by two principal factors: (a) the acute demand for food during 1941–1945, and (b) the establishment of exploration teams on many islands after the 1950s, accompanied by the continuous presence of rotating oil drilling personnel. Disturbance, uncontrolled hunting, and noise from drilling installations led to the decline and disappearance of the rabbits. European rabbits are hunted for their valuable fur and palatable meat. The quality of their fur and meat is comparable to that of domesticated breeds. Their persistence on Gil Island was likely ensured by the establishment of a protected area for the nesting of the great black-headed gull. Saiga antelopes were also introduced there, and game wardens regularly delivered dry fodder by motorboat and filled special reservoirs with drinking water.

The study of skeletal remains of island rabbits from Gil Island revealed morphological differences from their continental relatives, indicating complete feralization. Currently, these rabbits are almost exclusively captured by residents of nearby settlements. Without effective protection measures, they may disappear from Gil Island as well (Vereshchagin, 1942; Vereshchagin, 1947). In Azerbaijan, European rabbits have no special protection status (Ahmadov et al., 2023).

### **The general biology of Nutria (*M. coypus* M.)**

The nutria belongs to the order Rodentia, the family Myocastoridae, and the genus Myocastor (Ahmadov et al., 2023). The species is native to South America, from where it has been introduced to North America, Europe, Asia, and Japan, where it has now established populations. The body length is about 60 cm, with a sparsely furred tail measuring 45 cm. Its weight ranges from 5 to 12 kg, with males slightly larger than females. The hind limbs are longer and larger than the forelimbs, with the 1st–4th toes connected by webbing, measuring 13 cm. The fur consists of coarse guard hairs and dense soft underfur. The body coloration is grayish-brown, lighter on the sides with yellowish tones.

Nutrias inhabit areas with dense vegetation. They build underwater burrows in reeds, cattails, and reed bushes, and dig nests on steep banks. Sometimes, they use burrows of other species, such as

beavers and muskrats. The burrow system consists of several tunnels and entrances, with chambers for resting, feeding, and sheltering from adverse weather. Their diet includes roots and various parts of aquatic plants, as well as tree bark. They may also feed on insects, freshwater mussels, and crustaceans.

Nutrias reproduce throughout the year. Reproductive peaks occur in late winter, early summer, and mid-autumn, depending on environmental conditions. Females may suppress estrus or resorb embryos in response to unfavorable ecological conditions. Under optimal conditions, nutrias reach sexual maturity at four months. They breed 2–3 times per year, with non-estrous females entering estrus every 2–4 weeks. Mating lasts 1–4 days, and adult males can mate year-round as they produce sperm continuously. The gestation period is 130–132 days. Females may mate again within 48 hours after giving birth. On average, litters contain 4–5 young, ranging from 1 to 13. Newborns are fully furred, active, and weigh approximately 227 g at birth. They survive shortly after birth by swimming and feeding on plants. Offspring are usually weaned at 7–8 weeks. In the wild, nutrias rarely live more than 3 years, but under controlled conditions, they can live 15–20 years.

When food is abundant, nutrias rest and groom themselves during the day and feed at night. When food is scarce, they search for it during daylight hours. Throughout their lives, nutrias typically remain within a relatively small home range. Their daily movement distance is usually less than 183 meters, although some individuals may travel farther. In winter, nutrias are more active due to increased food requirements. Nutrias have poor vision and rely primarily on hearing to detect danger. They may also use scent to assess the environment. When threatened, they move quickly and take refuge underwater to escape predators. When cornered or captured, nutrias can become aggressive, and their bites and scratches can cause serious injury to humans and domestic animals (LeBlank, 1994; Ahmadov et al., 2023).

Through their feeding and burrowing activities, nutrias cause damage to soil, crops, and even building foundations. They can weaken or destroy natural and artificial dams built for water retention, damage water channels, and cause structures to tilt or collapse. Nutrias can also carry various pathogens and parasites, which may be transmitted to humans, and domestic animals. Therefore, preventive measures are necessary to minimize their impact. In some regions, however, nutrias are protected for economic purposes as fur-bearing animals, and specific permits may be required. Less harmful control methods include live trapping, the construction of fencing and drainage systems, removal of shrubs, trees, and dense vegetation around waterways and wetlands, and regulation of water levels. The use of chemical agents for nutria control is largely unregistered, with only zinc phosphide recognized as a registered toxicant. Shooting can be an effective method for population reduction, but in some states, it is illegal and may only be carried out with proper authorization (LeBlank, 1994). For these measures to be successful, reintroduction and further introduction of nutrias must be halted, and the species should be isolated. Harsh winter conditions help reduce their numbers, and during this period, intensive trapping should continue until the last individual is removed (Carter & Leonard, 2002).

### **Introduction of the nutria in Azerbaijan (*M. coypus* M.)**

This species was introduced into the former USSR from Argentina in 1930–1932. In 1931, the first ten pairs were released into the Gizilaghaj Bay. The rationale for acclimatization included the high commercial value of its fur, the significant nutritional and culinary qualities of its meat, as well as its potential use in fish-breeding reservoirs for the control of marsh vegetation. According to N.K. Vereshchagin (Vereshchagin, 1941), these animals were released in 1932 into the Garasu rivers of the Masalli district; in 1937 into the Eyrichay River in the Zagatala–Shaki valley; in 1940 into Lake Shilyan in the Shirvan steppe; and in 1941 into Aghgol in the Mil plain. In total, 463 individuals were released between 1931 and 1941. Within a short period, nutria considerably expanded beyond the

initially designated areas, and its population increased to such an extent that by the 1940s it had already raised the annual fur revenue of Azerbaijan by 35–45%. In 1959, 8,000 pelts were obtained, and in 1969, 58,000 pelts were produced. In subsequent decades, the nutria population exceeded 100,000 individuals.

At present, this species inhabits nearly all lowland districts of southern Azerbaijan, including the Karasu basin systems, lakes and marsh remnants, and the rivers of the Kurdamir, Ujar, Goychay, Saatli, Sabirabad, Barda, Aghdash, Salyan, Masalli, Khachmaz, and other districts. In areas of high population density, nutria farms have been established under cage, semi-free, and free-range management systems (Garayazi, Aghjabadi, Mingachevir, Devechi, Shamkir, and Lankaran farms).

Under the influence of the new environmental conditions, a number of ecological and morphological changes have occurred in local populations of the species. These changes are reflected in body size, fur coloration, timing of sexual maturity, frequency of parturition, and litter size. Thus, the acclimatization of nutria in Azerbaijan can be regarded as entirely successful. Undoubtedly, alongside its economic benefits, it should not be overlooked that the species also serves as a carrier of infectious diseases and leptospirosis pathogens (Vereshchagin, 1941). In Azerbaijan, nutria have no special protection status (Ahmadov et al., 2023).

### **The general biology of Raccoon (*P. lotor* L.)**

Raccoons belong to the order Carnivora, the family Procyonidae, and the genus Procyon (Ahmadov et al., 2023). The genus Procyon includes seven species (Sokolov, 1989). The raccoon is widely distributed in Central and North America. Its acclimatization has been carried out in the West Indies, Germany, and the former USSR. From the release sites, it spread to France and the Netherlands. Since 1936, more than 1,200 individuals have been released in the Russian Far East, Kyrgyzstan, Azerbaijan, the North Caucasus, and Belarus (Sokolov, 1989).

Raccoons have short legs, small, rounded ears, and a body length of 23–50 cm, with a tail measuring 20–40 cm. They have a distinctive black mask bordered with white on the face. The area between the eyes and the cheeks has dull stripes. The tail has 5–7 broad black or dark-brown rings, with a black tip. Their paws are short, but the long toes make their tracks resemble human handprints. The forepaw measures 7 cm, and the hind paw 9 cm. Raccoons can weigh up to 20 kg; females weigh 6.5–9.5 kg, and males 8–15 kg. The fur is long, soft, and grayish-brown, with a dense undercoat (Sarukhanova & Sadiqova, 2019; Ahmadov et al., 2023; Sokolov, 1989).

Raccoons build their dens near marshes, in forests, along rivers among shrubs and reeds, in anthropogenic landscapes, and in tree cavities. They also use above-ground shelters, such as crevices in rocks and burrows of badgers. Although raccoons are excellent climbers, they usually forage on the ground, in marshes, and in shallow water. They are omnivorous, feeding on both plant and animal matter. Their diet includes frogs, crustaceans, fish, rodents (even young muskrats), as well as various berries, acorns, nuts, and fruits. They can also consume household waste. Raccoons use their forepaws to grasp food, and their habit of rinsing prey in water before eating has earned them the nickname “washing bear” (Sarukhanova & Sadiqova, 2019; Sokolov, 1989; Aulagnier et al., 2009).

Raccoons are monogamous. Mating occurs in February–March, with estrus lasting about two months. The main birthing period is from April to June (sometimes until October). In the South Caucasus, litters of 3–8 young (usually 4) are born from April to early May. The average litter size is 3–6 offspring. Lactation lasts approximately 50 days. The young open their eyes around the 20th day and begin foraging independently at 4–5 months. Females reach sexual maturity by the end of their first year, while males do so by the end of their second year (Sarukhanova & Sadiqova, 2019; Ahmadov et al., 2023; Sokolov, 1989).

Raccoons are crepuscular and nocturnal, hiding in their dens during the day. They typically forage within a 1.5 km radius of their shelter at twilight and night. They are skilled climbers and good swimmers. In mountainous regions, raccoons enter hibernation, though it is not deep and is frequently interrupted. In Canada, hibernation lasts about four months, while in more southern areas it occurs only during snow cover and frost. During mild winters, raccoons do not hibernate (Sarukhanova & Sadigova, 2019; Ahmadov et al., 2023; Sokolov, 1989). The American raccoon is a valuable fur-bearing species and is farmed in specialized facilities in some countries (Sokolov, 1989).

### **Introduction of the raccoon in Azerbaijan (*P. lotor* L.)**

Apart from the European rabbit and the raccoon dog, the raccoon was the third species whose acclimatization in Azerbaijan, regrettably, proved successful. The reason for this regret lies in the fact that raccoons have caused—and continue to cause—considerable damage to the native avifauna and theriofauna. The settlement of this species began in 1941. Between 4 and 9 July of that year, 10 males and 11 females imported from North America (most of the females being in the late stages of pregnancy) were released near the village of Goytepe in the Ismayilli district (Vereshchagin, 1942). Subsequently, the species spread beyond the forests of Ismayilli into other regions. The subsequent history of the raccoon in Azerbaijan was described in detail by Vereshchagin in his well-known monograph on the mammals of the Caucasus (Vereshchagin, 1959): “In 1941, 21 raccoons were released near a village west of Ismayilli. Despite being destroyed by poachers and in village orchards, they rapidly increased both in number and distribution. The entire Eyrichay valley proved suitable for this omnivorous predator. By 1945, the raccoon’s range had reached 250 km<sup>2</sup>, and its population numbered 180–200 individuals. By 1949, the inhabited area had expanded to approximately 850–900 km<sup>2</sup>, with the population reaching 800–850 individuals. Within the humid and forested lowlands, the rate of raccoon dispersal and range expansion was remarkable, reaching 15–20 km<sup>2</sup> per year under favorable conditions”.

At present, the raccoon is widely distributed in the Zagatala–Ismayilli and Lankaran forest massifs. Local hunters capture it using traps. Despite intensive harvesting, no noticeable decline in population size has been observed. The raccoon is considered one of the harmful species causing damage to game management in Azerbaijan. In Azerbaijan, raccoon have no special protection status (Ahmadov et al., 2023; Sarukhanova & Sadigova, 2019).

### **Conclusion**

Introduction efforts carried out in Azerbaijan show that the adaptation of species to new environments is directly related to their inherent characteristics. Mammalian species successfully introduced into Azerbaijan have demonstrated high adaptive capacity. However, the outcomes of introduction are not always positive. Alongside beneficial species, there are also species that act as pests, carriers of diseases, and other harmful agents. This can result in significant damage to the flora and fauna of the regions where introduction takes place. Such cases have also been observed in introduction processes conducted in Azerbaijan. Therefore, it is essential that, in the continuation of these plans, introduced species are thoroughly studied and kept under strict control. Only under these conditions can introduction processes achieve their intended goals and meet both ecological and economic expectations.

### **Declaration of Competing Interests**

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## References

1. Ahmadov, E., Alakbarov, I., Guliyev, Q., Aliyev, A., Iskandarov, T., Aliyeva, S., Ahmadov, B., Bunyatova, S., Sultanov, E., & Asgerov, E. (2023). *Azərbaycan faunasının informasiya sistemi (onurğalılar)* (Information system of the fauna of Azerbaijan (vertebrates)). Tərəqqi MMC.
2. Askerov, E. K., Guliyev, G. N., Hasanov, N. A., Mammadzayeva, E. T., Sarukhanova, S. A., Hakhiyev, A. R., & Ibrahimli, A. Sh. (2021). The state of invasive species in Azerbaijan. *In International Symposium "Invasion of alien species in Holarctic. Borok-VI"*.
3. Aulagnier, S., Haffner, P., Mitchell-Jones, A. J., Moutou, F., & Zima, J. (2009). *Mammals of Europe, North Africa and the Middle East*. A&C Black Publishers Limited.
4. Carter, J., & Leonard, B. P. (2002). A review of the literature on the worldwide distribution, spread of, and efforts to eradicate the Coypu (*Myocastor coypus*). *Wildlife Society Bulletin*, 30(1), 162–175. <https://doi.org/10.2307/3784650>
5. Cooper, J., & Brooke, R. K. (1982). Past and present distribution of the feral European rabbit (*Oryctolagus cuniculus*) on southern African offshore islands. *South African Journal of Wildlife Research*, 12(2), 71–75.
6. Fontanesi, L., Utzeri, V. J., & Ribani, A. (2021). The evolution, domestication and world distribution of the European rabbit (*Oryctolagus cuniculus*). *The genetics and genomics of the rabbit* (pp. 1–22). CABI International. <https://doi.org/10.1079/9781780643342.0001>
7. LeBlanc, D. J. (1994). Nutria. In S. E. Hygnstrom, R. M. Timm, & G. E. Larson (Eds.), *The handbook: Prevention and control of wildlife damage* (pp. B71–B80). University of Nebraska–Lincoln.
8. Mahar, J. E., Read, A. J., Gu, X., Urakova, N., Mourant, R., Piper, M., Haboury, S., Holmes, E. C., Strive, T., & Hall, R. N. (2018). Detection and circulation of a novel rabbit hemorrhagic disease virus in Australia. *Emerging Infectious Diseases*, 24(1), 22–31. <https://doi.org/10.3201/eid2401.170412>
9. Rossolimo, O. L., Pavlinov, I. Ya., Kruskop, S. V., Lisovskiy, A. A., Spasskaya, N. N., Borisenko, A. V., & Panyutina, A. A. (2004). *Raznoobraziye mlekopitayushchikh* (ch. II). Izdatelstvo KMK.
10. Sarukhanova, S., & Sadigova, N. (2019). *Heyvan izlari: Məmali heyvanlar üçün çöl bələdçisi* (Animal tracks: A field guide for mammals). GİZ Azərbaycan.
11. Sokolov, V. E. (Ed.). (1989). *Zhizn' zhivotnykh*. T. 7. Mlekopitayushchiye (2nd ed., revised). Prosveshcheniye.
12. Vereshchagin, N. K. (1941). Stepnoy kot (*Felis ornata* Cray) i Vostochnom Zakavkazye. *Trudy Zoologicheskogo Muzeya Moskva Universiteta*, VI, 305.
13. Vereshchagin, N. K. (1942). *Katalog zverey Azerbaidzhana*. Akademiya Nauk Azerbajdzhanskoj SSR.
14. Vereshchagin, N. K. (1947). *Okhotnich'i i promyslovye zhivotnye Kavkaza*. Akademiya Nauk Azerbajdzhanskoj SSR.
15. Vereshchagin, N. K. (1951). Khishchnye (Carnivora) iz Binagadinskogo asfalta. Binagadinskoe mestonakhozhdenie chetvertichnoy fauny i flory. *Trudy Estestvenno-istoricheskogo Muzeya Akademiya Nauk Azerbajdzhanskoj SSR*, IV, 28–126.
16. Vereshchagin, N. K. (1952). Ostatki zhivotnykh i rasteniy v bitulinoznykh otlozheniyakh. *Priroda*, 3, 122–123.
17. Vereshchagin, N. K. (1958). *Usloviya zhizni i ekologicheskiye gruppirovki zhivotnykh Kavkazskogo peresheyka*. Zhivotnyy mir SSSR.
18. Vereshchagin, N. K. (1959). *Mlekopitayushchiye Kavkaza* (Istoriya formirovaniya fauny). Akademiya Nauk SSSR.
19. Villiers, M. S. de, Mecenero, S., Sherley, R. B., Heinze, E., Kieser, J., Leshoro, T. M., Merbold, L., Nordt, A., Parsons, N. J., & Peter, H.-U. (2010). Introduced European rabbits (*Oryctolagus cuniculus*) and domestic cats (*Felis catus*) on Robben Island: Population trends and management recommendations. *South African Journal of Wildlife Research*, 40(2), 139–148. <https://doi.org/10.3957/056.040.0205>