



Scholars Research Library

Annals of Biological Research, 2014, 5 (7):49-53
(<http://scholarsresearchlibrary.com/archive.html>)



Biodiversity and distribution of fauna of mammalia in the Shahdag National Park of Azerbaijan

Sujaddin M. Guliyev

*Institute of Zoology, Azerbaijan National Academy of Sciences, passage 1128 / 504, Baku, Az
1073, Azerbaijan Republic*

ABSTRACT

The studies were conducted from 2006 to 2009 in the territory of Shahdag National Park, where it was found about 47 mammal species, representing 41.4 % of the total mammalian fauna of Azerbaijan. There were registered two species (*Sorex raddei* Satunin, 1895, *Capra cylindricornis* Blyth, 1840) endemic to Caucasus. 6 species of bats, 5 species of predators and 3 species of cloven-hoofed theriofauna (totally 14 species) of the NP are listed in the "Red Book" of Azerbaijan. From them 6 species of mammals included in the Red List of IUCN. The data on the distribution of animals in the NP, and the patterns of their distribution in the vertical zones are also presented in the paper.

Key words: Artiodactyla, Carnivora, Chiroptera, Insectivora, Lagomorpha, Rodentia.

INTRODUCTION

The research work was carried out from 2006 to 2009. The studies identified 47 species of mammals. 4 species of them belong to the order insectivores (*Sorex raddei* Satunin, 1895, *Sorex caucasica* Satunin, 1913, *Crosidura leucocon* Hermann, 1780, *C.guldenstaedti* Pallas, 1811). *S.raddei* is endemic to the Caucasus.

There are distributed 10 species of bats in the NP, of which six ones listed in the Red Book of Azerbaijan (2013). In Shakhdagh NP there is found 1 species of lagomorphs (Lagomorpha) – the brown hare (*Lepus europaeus* Pallas, 1778).

From Rodentia there are found 14 species in the studied area.

In the landscapes which are the part of the NP 13 species of Carnivora are distributed. From them five species are listed in the Red Book of Azerbaijan and 2 species (*Vormela peregusna* Guldenstaedti, 1770, *Lutra lutra* Linnaeus, 1758) are included in the Red List of IUCN.

In the territories of the Shakhdag NP 5 species of Artiodactyla are distributed. From which 3 species (*Capreolus capreolus* Linnaeus, 1758, *Cervus elaphus* Linnaeus, 1758, *Rupicapra rupicapra* Linnaeus, 1758) are listed in the Red Book of Azerbaijan and in the Red List of IUCN. At the same time the Dagestan goat is considered as endemic to the Caucasus, and it is not found anywhere in the world.

In conclusion, it should be noted that theriofauna of the Shakhdag National Park covering totally 130,508 hectares area and representing 75-80% of the Greater Caucasus region of Azerbaijan includes 47 species. It makes 41.4% of the total theriofauna of Azerbaijan. The paper also summarizes information about distribution of the animals in the vertical zones.

Order Insectivora

Four representatives of the order Insectivora are found in the territory of the National Park [1]. From them Radde's shrew (*Sorex raddei* Sat.) is endemic to the Caucasus. It is small and rare species in the territory of the NP. They are common in the foothill and mountain forests, shrub thickets on the rocky banks of rivers and areas close to the springs. Caucasian shrew (*S. caucasica*) (Guba-Gusar region) is randomly distributed (at an altitude of 1700-2000 m above sea level) in the NP (Greater and Lesser Caucasus). The area of this shrew vertically covers forests and bushes. And its habitats include the wet and damp places situated near springs. Such habitats originate from deciduous forests (Guba) and cover alpine territories of the Gusar region. Other shrews, for example, a lesser white-toothed shrew, is widespread in the Greater Caucasus including mountain forests of the NP. It is abundant species inhabiting territories beginning from the forest belt vertically to alpine meadows, in rivers ravines, in wet shrub thickets. It is also found near small rivers and springs. Habitat where these species are most common is the village Tengalty of the Guba district (about 1000 m above sea level) [1]. Bi-colored white-toothed and long-tailed white-toothed shrews (*Crosidura leucocon* Hermann, 1780, *C. guldenstaedti* Pallas, 1811) are found in all territories of the Republic, including on the above mentioned territory of the NP, at an altitude of 900-1000 m above sea level. Habitats cover the belt beginning from shrub thickets and forests in the alpine and subalpine areas. These species of shrews are widespread, but are not numerous.

Order Chiroptera

Among 10 members of the order Chiroptera, common in the territory of the National Park Shakhdag 4 species are from the family horseshoe bats *Rinolophus hipposideros* Bechstein, 1800, *R. blasii* Peters, 1866, *R. mehelyi* Matschie, 1901, *R. ferrumequinum* Schreber, 1774) [2]. Despite the fact that these species are found in all landscapes of the NP at the height of 2300 m above sea level, they prefer forest zone. Usually they live close to the human habitations. These species are widespread in the wild; however they are few and are very sensitive to environmental factors, which are expressed by anxiety reaction. Because of these features, they are included in the second edition of the "Red Book" of Azerbaijan. *R. blasii* is rare and scanty species, *R. ferrumequinum* is distributed in all geographic territories of Azerbaijan, including territory of the NP, it is found in the lowland landscapes at an altitude of 1000 to 1600 m. Preferred habitat is the mountain forests.

In the territory of the NP there are 5 species of the genus *Myotis*. From them two species, the Bechstein's bat (*Myotis bechsteinii* Kuhl, 1817) and lesser mouse-eared bat (*Myotis bluthii* Tomas, 1857) are considered as ecologically plastic species able to adapt to different conditions. In Azerbaijan the Bechstein's bat was only recorded in 1986 in the burial of the upper old cemetery of the village Xazri of Gabala region [2]. As a rare species it is listed in the second edition of the "Red Book" of Azerbaijan. The *M. bluthii* is rare and few on these sites.

The other rare and few representative of the genus *M. nattereri* is common in the forests and mountain meadows of the Greater Caucasus (in the vicinity of the village Xazri of Gabala region). These areas cover the southern and north-eastern slopes relating to the territory of the NP. The species can be found in the natural area of the Lesser Caucasus in the Aghdere district of the Nagorno-Karabakh [3; 2]. *M. mystacinus* is distributed throughout of the territory, at an altitude of 2000m above sea level, starting with the low-lying landscape to mountain forest belt [2]. From many bat species living in the NP we can separate out the following ones: Kuhl's pipistrelle (*Pipistrellus kuhlii* Kuhl, 1817), Serotine (*Eptesikus serotinus* Schreber, 1774) and Parti-colored bat (*Vespertilio murinus* L.). These species are found at an altitude of 1000m above sea level (including lowland and foothill areas).

Order Lagomorpha

Lagomorphs (Lagomorpha) inhabiting the NP are represented by 1 species – brown hare (*Lepus europaeus* Pallas, 1778). This species is widely distributed in the north-eastern (Guba, Hussar, Samur) and south-eastern areas of the Greater Caucasus, lowlands and foothills of the lower river valleys and plains of the district Khachmaz. Areas with the greatest number of them are the foothill meadows, shrub thickets, open fields of the upper forest belt, mixed plots and fields of wheat and other agricultural landscapes.

Order Rodentia

14 species belonging to 7 genera and constituting the majority of rodents (Rodentia) in the territory of the NP attract the most attention. Of them, rat (*Rattus norvegicus* Berk.), eastern house mouse (*Mus musculus* L.), pygmy field mouse (*Apodemus sylvaticus*), striped field mouse (*A. agrarius* Pallas), Caucasian snow vole (*M. chionomus* gud Satunin) are numerous and found in almost all areas of the territory.

Of the genus *Sciurus* the most abundant species in the territory of the NP is a Persian squirrel (*Sciurus anomalus* Guldenstaedti, 1792). This species is adapted to life in the trees. It is most often found in mountainous forests of Guba region. This species is adapted to life in the trees. Most often found in mountainous forests Guba region.

Forest dormouse (*Dryomys nitedula* Pallas, 1778) is the widespread species of genus *Dryomys*. This is endemic species to the Caucasus. It is most common in deciduous forests. Found throughout the NP, feeds on various seeds, nuts and chestnuts. It also eats a variety of fruits and young shoots of trees and shrubs. Forest dormouse is found at altitudes up to 2300 m above sea level. They can enrich their diet with invertebrates and even field mice.

Order Carnivora

From representatives of the order Carnivora there are 3 species of the genus wolves (*Canis*) widespread in the territory of the NP: golden jackal (*Canis aureus* L., 1758), wolf (*C. lupus* L., 1758) and red fox (*Vulpes vulpes* L., 1758). All of these species are found in all areas of the NP and widespread in all landscapes. Foothill areas, the thickets of shrubbery along rivers and landscapes with a predominance of hips and tamarisk serve as habitats for them. The carnivores run in altitudinal open areas. They are distributed in Guba-Khachmaz zone in different densities. They do significant harm to farms [4]. Major portion of the food is made by domestic and wild ungulates. From May to September they migrate to the high places, and in the winter they go down to the foothills and lowlands.

From representatives of the genus *Vulpes* the subspecies *Vulpes vulpes alticola* is widespread in the territory of the NP.

The widespread species of the genus *Ursus* in the NP is brown bear (*Ursus arctos* L., 1758). Besides this species there also occurs white-breasted bear (mostly in the Ismailly Reserve) that is not typical for Azerbaijan fauna species. It is distributed in the mountain meadows, in the lower and upper mountain forests, as well as in the area of riparian forests. Species is listed in the second edition of the "Red Book" of Azerbaijan. It feeds on foods of animal and vegetable origin.

The genus *Martes* is represented by 2 species in the territory of the NP: beech marten (*Martes foina* Erxleben, 1777) and pine marten (*M. martes* L., 1758). From them the pine marten is met more frequently and has wider area. They also live among scrub and rocks. Martens rise to the heights of 2500-3000 m, eat small rodents, amphibians and reptiles, in rare cases, can feed on fruits and berries.

From the genus weasel (*Mustela*) the species common weasel (*Mustela nivalis* L., 1758) is distributed on the territory of the NP. This species is considered to be rare in the Caucasus. It leads a sedentary lifestyle and prefers to feed at night. Sometimes it can be found daytime. Prefers to live among the thickets of shrubs and young shoots, stony heaps (on the slopes), close to the habitat of rodents. Feeds on lizards, rodents and birds.

Species marbled polecat (*Vormela peregusna* Gldenstaedti, 1770), belonging to the genus *Vormela* is widely distributed in the foothill areas of Guba and Ismayilli regions. It is most prevalent in the north-eastern slopes of the Greater Caucasus. Marbled polecat is more active in the early morning and at dusk. It feeds on reptiles, small rodents and birds.

In the territory of the NP the genus *Meles* is represented by one species -*Meles meles* L., 1758. It is most common in Shamakhi, Ismayilli, Gabala and Oguz districts.

Otter (*Lutra lutra* L., 1758) the representative of the genus *Lutra* is very rare species in the above mentioned territory. It lives near rivers of the alpine meadows and in the other landscapes situated near rivers. River otters make their home in the hollows of the fallen trees near water. They prefer to keep hidden, nocturnal life. They feed mainly on fish.

Three species of genus *Felis* are common in the territory of the NP. Among them wildcat (*Felis silvestris* Scheber, 1777) inhabits forests of Guba, Gusar, Gabala, Ismayilli Shemakhy districts. Wild cat distributed in vertical forest belt at an altitude of 300 m to 1800 m. It is nocturnal animal feeding mainly on rodents. It hides in shelters made in hollow of trees and in burrows under rocks.

Another species is jungle cat (*Felis chaus* Gldenstaedti, 1776). Area of this species within the park covers reed areas and foothill landscapes in Guba, Gusar and Khachmaz districts. Typical habitats are reeds and lakeshores. Diet is made by different species of reptiles, birds and rodents [3].

Lynx (*Felis*) the common in the NP belongs to the Caucasian subspecies (*F. lynx dunniki* L., 1758). This species is relatively common in places covering the mountain forests (north-eastern slopes of the Greater Caucasus) of Guba-Shabran, Ismailli, Oguz and Gabala districts. It is small numbered, rare species. Vertical distribution area of lynx begins from forest habitats of the foothill belt to their upper borders. Lynx prefers quiet places deep in the forest.

Due to deforestation their number is significantly decreased. The number of this species in the nature increases very slowly. It is listed in the first and second edition of the "Red Book" of Azerbaijan and the International Red List. Lynx eats roe deer, wild boar and deer calves, pheasants, partridges and hares.

Order Artiodactyla

Five species of artiodactyls inhabiting in the territory of the NP are below: wild boar – *Sus scrofa* L., 1758, roe deer - *Capreolus capreolus* L., 1758, red deer - *Cervus elaphus* L., 1758, Eastern Caucasian tur - *Capra cylindricornis* Blyth., 1840, alpine chamois - *Rupicapra rupicapra* L., 1758.

Genus *Sus* is represented by only one species in the territory of the NP: *Sus scrofa atila*. It is more numerous and widespread species among all members of the order Artiodactyla. Boars are nomadic. They can go up to the alpine meadows. Habitats mainly are reeds, dog rose thickets and swamps. They are omnivorous animals preferring night feeding. Eat insects, worms, birds' eggs, chicks and birds themselves, all fruits, seeds and acorns. The diet of wild boar in Azerbaijan on the southern slopes of the Greater Caucasus is constituted from 77 plant species [5; 6; 7; 8]. This species is more abundant in the foothill zone of the NP

Species belonging to genus *Capreolus*, widely distributed in the foothills and mountainous forests of the NP in the past and now characterizing with sharp reduction in number and area is a roe deer - *Capreolus capreolus*. A range of distribution of this species along vertical zones starts from the foothill forests and extends to the end of the forest belt at an altitude of 1800-2000 m above sea level. The most favorite habitat of roe deer is bushland with open meadows and groves. In hot seasons they can climb up to the alpine and subalpine zone. According to our data [8] deer's diet is consisted of 67 species of plants on the southern slopes of the Greater Caucasus. Habitats of this animal, including the territory of the NP are reduced. The species is listed in the second edition of the "Red Book" of Azerbaijan because of this reason.

The genus *Cervus* is represented by one species (red deer - *Cervus elaphus* L.) in the territory of the NP. Habitats of red deer in the territory of the NP in the forest belt have a local character. Its migration has a wide range (both vertically and horizontally) compared with roe deer. In the spring and summer months they rise to subalpine and alpine zones. In cold seasons, they go down to the middle and even lower forest zones. Red deer prefers middle mountain forests and open meadows with alternating thickets and groves. They use forests for shelter and meadows for pasturing. Despite the fact that the main diet of red deer is consisted of grasses, they also use the leaves of trees and shrubs, young shoots, mineral water and salt. More than 70% of the diet of red deer is made by grass [7]. Due to the fact that the red deer became rare species it is listed in the second edition of the "Red Book" of Azerbaijan and the International Red List.

Alpine chamois (*Rupicapra rupicapra* L., 1758) is the only representative of genus *Rupicapra* living on the territory of the NP, as well as all the territories of the Greater Caucasus. Known since ancient times and was once abundant and widespread in Azerbaijan this species is preserved only in the southern and northern slopes of the Greater Caucasus. Rare species. Due to this circumstance alpine chamois is listed in the second edition of the "Red Book" of Azerbaijan and the International Red List.

Alpine chamois is typical inhabitant of mountain forests and adapted to steep mountains. They prefer flat forest areas close to steep mountains; as such habitats are reliably protected refuge for them [8]. Chamois have a very wide range of distribution on the heights, which can vary, ranging from 150 m a.s.l. and up to 4000 m.

After wild boar the second place in number and distribution in the territory of the NP is occupied by Eastern Caucasian or Dagestan goat (*Capra cylindricornis* Blyth, 1840) belonging to the genus *Capra*. It is endemic species to the entire Caucasus. As well as alpine chamois, this species is also met in the southern and northern slopes of the Greater Caucasus only. The species is widespread in Guba, Gusar, Oguz and Gabala districts belonging to the NP, including mountains of Babadag and Shahdagh. In the territory of the NP the place with the highest density of tur is considered to be Ismayilly State Reserve [5; 8]. Complex geographic landscapes, differing by various mountain ranges and geographically isolated from each other were the reason for the formation of a number of differences in the behavioral features of the local population of turs. Adaptation of the Eastern Caucasian turs to the complex relief and severe mountain conditions is a reliable protection from wild predators and poachers. Over the past 60 years their number and habitats in Azerbaijan declined sharply. Taking into consideration of that, one of the necessary conditions is to make the concept for conservation of the species in Azerbaijan.

More species are distributed in the South Eastern part of the Shahdag NP. Over 40% of the species found here are listed in the "Red Book" of Azerbaijan and the Red List of the International Union for Conservation of Nature. From

this point of view, the creation of Shahdagh National Park is of great importance for the conservation of biodiversity in general in the Caucasus Ecoregion.

REFERENCES

- [1] AG Goshunaliyev, *Insect eaters – Insectivora. Animal world of Azerbaijan., Vertebrates.* Baku: Elm, **2000**, 3, 459-469 (in Russian).
- [2] IK Rakhmatulina, *Cheiroptera of Azerbaijan (Fauna, ecology, zoogeography).* Baku: Elm, **2000**, 506-515 (in Russian).
- [3] NK Vereshagin, *Catalog of animals of Azerbaijan / Baku: AN Azerb.SSR 1942, 95* (in Russian).
- [4] YuKh. Hidayatov Nasibov S.B., *Materials on feeding of jackal (Canis aureus L.) in Azerbaijan. Fauna and ecology of terrestrial and water animals of the Kur-Araz lowland and Lesser Caucasus.* Baku, ASU, **1983**, 108-114 (in Russian).
- [5] SM.Guliyev, *Bezoar goat and Dagestan tur in Azerbaijan / Thesis of cand.dis. M. 1981*, 19 (in Russian).
- [6] SM Guliyev, KhM Alekperov, *Some data on ecology of wild boar and roe deer in Guba-Khachmas region of Azerbaijan. Ecology and conservation of alpine mammals.* M., **1987**,8-9 (in Russian).
- [7] SM Guliyev, *Cloven-hoofed animals – Artiodactyla. Animal world of Azerbaijan. Vertebrates.* Baku: Elm, **2000**, 3, 593-616 (in Russian)..
- [8] SM Guliyev, *Biological diversity: fauna of the cloven-hoofed animals of Azerbaijan.* Baku, *Nauka i Obrazovaniye.* **2008**. 224 (in Russian).