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Abstract: The cheetah is very likely to be extinct in Afghanistan. Depletion of prey and the building of highways in its habitat are the main causes of population decline in the country. No sightings have been reported since the 1950s.

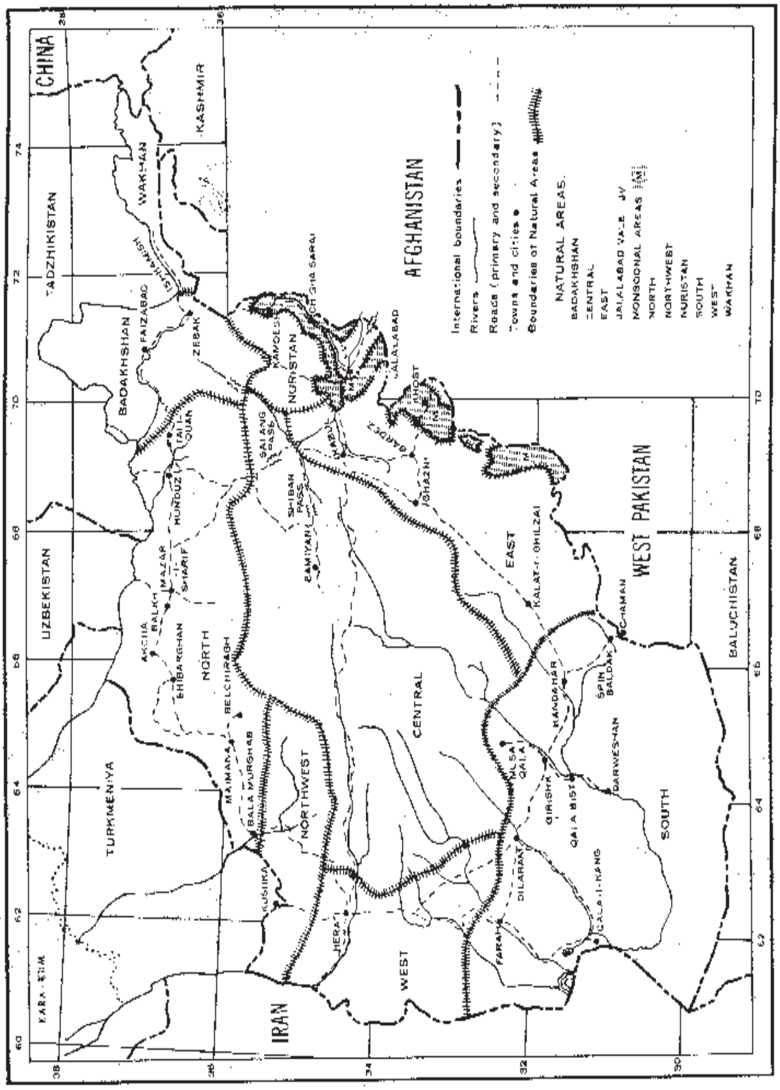
Introduction

Emperor Zahiruddin Mohammed Babur was a superb statesman and sportsman who established the Mogul dynasty in Delhi. He was also a keen naturalist and maintained a diary known as *Babur Nama*. In his memoirs, written over four centuries ago, he gives interesting accounts of the fauna and flora of places he visited. In one instance, Babur reports a tiger hunt which occurred on the way to Bagram, 80 km north of Kabul. In the plain of Katawaz he describes how his men circled a group of wild ass *Equus hemionus* and hunted them in large numbers. In another chapter he discusses the presence of trees on the outskirts of Kabul. Unfortunately, today there are no signs of tigers in Afghanistan nor of trees around Kabul, except for some ornamental ones which have been planted in a suburban setting.

What remains of our wildlife has been exterminated extensively. Forests are being denuded at a high rate and two decades of war has had catastrophic results on the natural resources of the country. The monsoon forests, which comprise less than three percent of the forested region of the country, are being cut down at an alarming rate and the timber sold in markets both inside and outside the country. Many animal species are suffering severely from habitat destruction and persistent hunting pressure. Those species which have adapted to the harsh climate of remote valleys and high altitudes have been able to survive while other species adapted to open habitats, i.e. plains and deserts, are being persecuted mercilessly. Many species have little chance of survival and it is likely that some have become extinct while others are suffering due to habitat degradation and hunting. Aitchison in 1889 records seeing over a thousand onagers in the plain of Ghulam-i-Maidan in Herat province. However, 30 years ago only a dozen onagers were reported in their former range in western Afghanistan, and the chances are that this beautiful equid has been completely exterminated in the country.

Altogether one-hundred-and-twenty mammalian species have been recorded in Afghanistan out of which the Caspian tiger *Panthera tigris virgata*, Asiatic cheetah *Acinonyx jubatus venaticus* and musk deer *Moschus moschiferus* are considered extinct. The leopard *Panthera pardus*, snow leopard *Uncia uncia*, sand fox *Vulpes ruppelli*, Blandford's fox *Vulpes cana* and three species of ungulates, the goitered gazelle *Gazella subgutturosa subgutturosa*, markhor *Capra falconeri* and Bactrian deer *Cervus elaphus bactrianus* are listed as threatened.

Indiscriminate hunting, destruction of suitable habitats, deterioration of

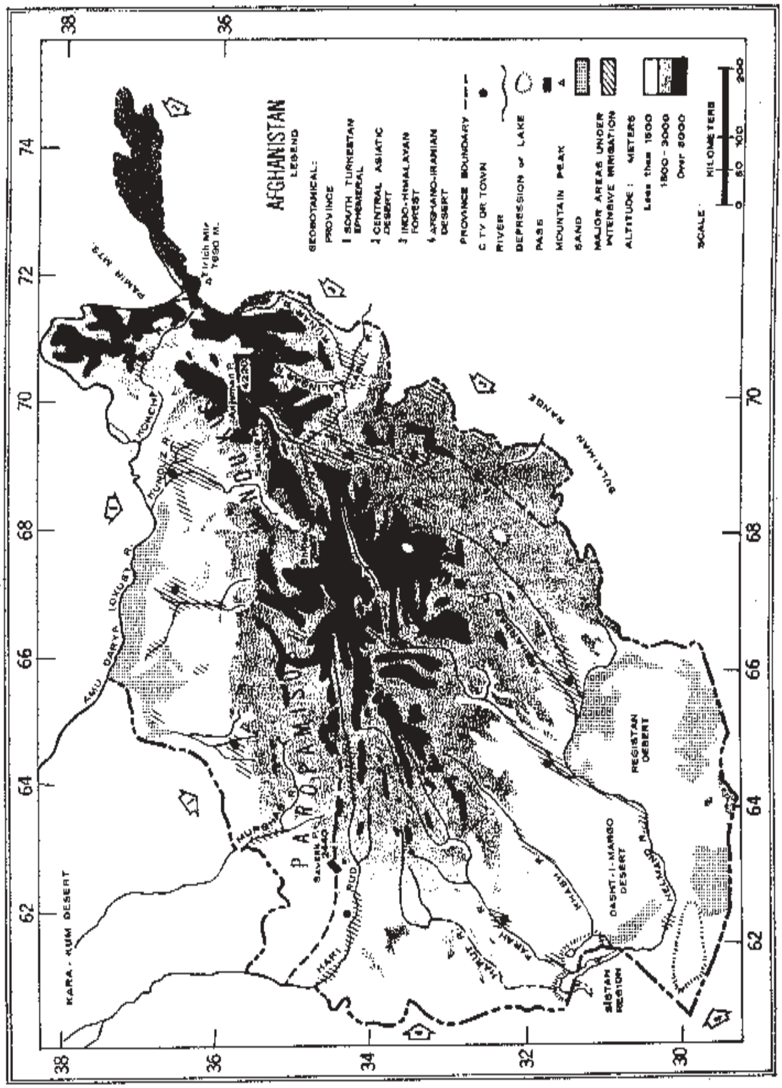

AFGHANISTAN
International boundaries
Rivers
Roads (primary and secondary)
Towns and cities
Boundaries of Natural Areas
NATURAL AREAS
BADAKHSHAN
CENTRAL
EAST
JALALABAD VALE JV
MONSOONAL AREAS M
NORTH
NORTHWEST
NURISTAN
SOUTH
WEST
WAKHAN
CHINA
KASHMIR
TADZHIKISTAN
UZBEKISTAN
TURKMENIYA
IRAN
WEST PAKISTAN
BALUCHISTAN
FAIZABAD
ZEBAK
JALALABAD
KHOST
GARDEZ
GHAZNI
KABUL
SALANG PASS
SHIBAR PASS
BAMIYAN
KUNDUZ
TAL-I-QUAN
MAZAR-I-SHARIF
BALKH
AKCHA
SHIBARGHAN
BELCHIRAGH
MAIMANA
BALA MURGHAB
KUSHKA
HERAT
FARAH
DILARAM
GIRISHK
QALA BIST
MUSA QALA
KANDAHAR
SPIN BALDAK
CHAMAN
DARWESHAN
KALAT-I-GHILZAI

range conditions, lack of laws governing the use of natural resources and the difficulties in imposing law and order in a tribal society are factors that have decimated carnivore and ungulate populations which are economically valuable due to their trophies or furs. In the case of rodents, these conditions have resulted in an opposite trend. Due to a decline in predators they have increased in number and in some places are threatening the well-being of human settlements.

Our present knowledge about Afghanistan's fauna is limited. Little research was done in the field when conditions were stable in the country. This was mainly due to inaccessibility, difficulty in travel, lack of trained personnel, a severe shortage of funds and little interest in nature and the environment by a majority of the population. Prior to 1900 British military personnel serving in Afghanistan collected mammals from various parts of the country. The natural history interests of these people was not in mammalogy but botany or ornithology. The specimens collected by them are common mammals which are most abundant and can be easily caught. J.L. Chaworth-Musters conducted the first zoological expedition in the country in the 1930s whose primary objective was to collect mammals.

The Third Danish Expedition to Central Asia (1948-49) collected 155 mammalian specimens from Afghanistan, which are recorded in Dr. Knud Paludan's unpublished "Notes on Afghanistan Mammals". Some field surveys were done in the 1960s and 70s by European and American institutions. The Street Expedition of the Field Museum of Natural History, Chicago carried out a survey of mammals in 1965 and a team of German scientists from Bonn University, affiliated with the Faculty of Science, made comprehensive collections of mammals. Noteworthy among the German collection are the works of Kullmann and Niethammer who undertook mammalian surveys from 1962 to 1965. Between 1966 and 1968 the Czechoslovak Team working in affiliation with the Nangarhar University collected mammals in different parts of the country. With the establishment of a wildlife conservation project sponsored by the Food and Agriculture Organization of the United Nations, data was collected on the distribution and status of mammals and birds during reconnaissance surveys held in different parts of the country to establish protected areas. The information was presented in the form of a field document in 1977 to partially rectify the lack of knowledge on the status and distribution of the mammals of Afghanistan.

As a result of the civil war, which has prevailed in the country since 1978, little attention has been paid to science and the preservation of natural resources. Lack of security in recent years has prevented scientists from


AFGHANISTAN
LEGEND
KARA - KUM DESERT
AMU DARYA (OXUS) R.
PAMIR MTS
SULAIMAN RANGE
REGISTAN DESERT
DASHT-I-MARGO DESERT
SISTAN REGION
HARI RUD
HELMAND R.
PROVINCE BOUNDARY
CITY OR TOWN
RIVER
DEPRESSION or LAKE
PASS
MOUNTAIN PEAK
SAND
MAJOR AREAS UNDER INTENSIVE IRRIGATION
ALTITUDE : METERS
Less than 1500
1500 - 3000
Over 3000
SCALE
KILOMETERS

going into the country to conduct field studies. Using the past data as baseline information and available literary sources this treatise is meant to emphasize upon what is known about the mammals of Afghanistan. This book provides information on the ecology, behavior and status of the animals. It is an attempt to synthesize field observations, published and otherwise reliable information on the distribution, status and life-history of the mammalian fauna of the country and is intended to be used as a reference for future studies in the field.

Threatened Species Categories

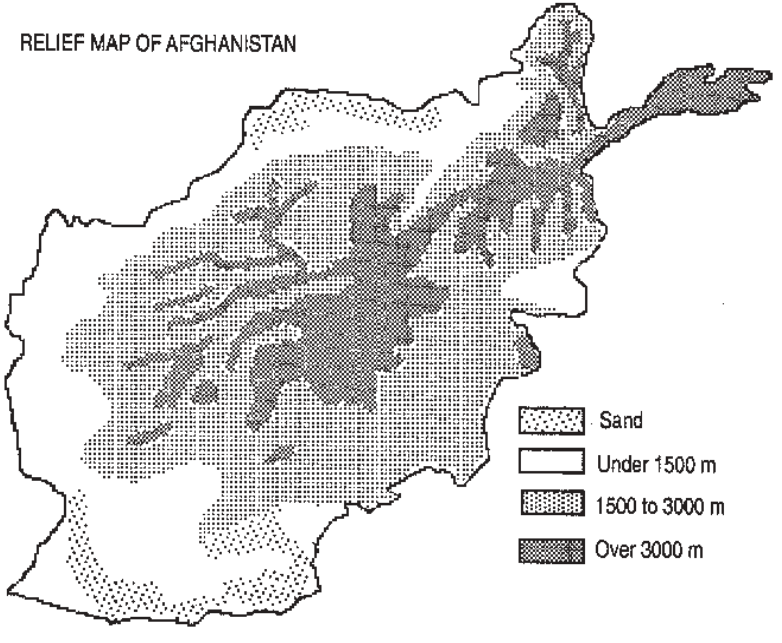
Extinct - Species not definitely located in the wild during the past 50 years.
Threatened - Taxa in danger of extinction and whose survival is unlikely if causal factors continue operating.
Rare - Taxa with small populations not endangered or vulnerable at present.
Unknown - Taxa about which there is not enough information available to classify them in any of the above categories.

Distribution maps

The white circles in the distribution maps show the localities where specimens have been collected or observed while the dark areas indicate the probable range of a species. Maps with a question mark show suspected distribution of those species about which little information is available.

Physiography

The land-locked Republic of Afghanistan encompasses 652,225 sq.km. It is bound mainly by Iran, Pakistan, Tadjkistan, Turkmenistan and Uzbekistan, except where the narrow Wakhan corridor runs 240 km northeast to reach the border with China. Most parts of Afghanistan lie between 600 and 3,050 m and can be divided into five distinct zoo-geographic regions, namely: the central highlands, steppes, southern deserts, eastern intramontane basin and the monsoon forests. The central highlands, encompassing about 50% of Afghanistan's total area, are an extension of the Himalayan chain including the Hindu Kush. These mountains form the northern and southern drainages, with each side having its unique floral and faunal elements. The highest mountains, however, are located in the Wakhan corridor, where some peaks rise above 6,000 m. Several sizable glaciers also occur in this region and over 75% of the land is above 3,000 m. Wide valleys between major mountain ranges provide sites for human habitation and are used seasonally by pastoralists.



Around 30% of the country is covered by the northern plains extending from the Iranian border eastward to the foothills of the Darwaz peninsula. This region averages around 600 m in elevation and besides being one of the country's major agricultural area, is also densely populated. The region is part of the Central Asian steppe and is separated from it by the Amu river which runs along the north-central border with Turkmenistan, Uzbekistan and Tadjkistan. The southwestern plateau averages 915 m in altitude and accounts for approximately 20% of Afghanistan. It consists mainly of semi-desert and desert including the vast Registan and Margo deserts.

Precipitation is greatest in the mountain regions, increasing from west to east, especially along the border with Pakistan where it comes under the influence of the southeastern monsoon. There is an average of 400 mm of precipitation in the mountains whereas in the arid lowlands of the south and west, there may be only 76 mm of precipitation annually. Vegetation is naturally scarce in the arid lowlands with rainfall mainly in early spring. By contrast, the mountain slopes are covered at low elevations by mixed, predominantly deciduous hardwood forests of oak, ash, walnut, alder and junipers. Above these are cedar forests up to 1,700 and 2,200 m in elevation and further above are tall pine and fir forests whose average upper altitudinal limit is just over 3,000 m.

Altitude, occurrence of seasons, precipitation, physical aspects and bedrock all play a vital role in the determination of these habitats. Areas with precipitation below 400 mm are classified as dry habitats and comprise 95% of the country while the wet habitats with over 400 mm rainfall comprise only a small fraction of eastern Afghanistan, which is influenced by the Indian monsoon.

The Central Highlands

Stretching over a quarter of the country the Hindu Kush range contains the most rugged mountains in Afghanistan. The highest peak, Nau Shakh (7,485 m), is situated in Badakshan. There are several glaciated peaks that rise over 6,000 m in the Wakhan corridor. From this region the mountains radiate in a southwest direction and disappear into the northwestern and western plains. The auxiliary ranges of the Hindu Kush are the Kohe Baba, with its highest peak, Shakhe Foladi (4,951 m) near Bamiyan, and Kohe Paghman to the west and southwest of Kabul. In the east lies the Spinghar range with its highest peak rising to 4,755 m.

The Wakhan river has its source in the Small Pamir and the Pamir river which starts as an overflow of the Zor Kol lake in the Big Pamir and joins the Wakhan near Qalae Panja. The confluence of these two rivers constitutes the Panja river which forms the main source of the Amu (Oxus) river. The Oxus marks the northern boundary of Afghanistan with Tadjkistan and Uzbekistan for approximately 1,150 km. All the other major rivers of the country start in the central highlands. The largest, Helmand, takes its source from the Kohe Baba mountains in Ghazni province. The Helmand and the smaller Khash Rud, Farah Rud and Harut Rud have no outlet to the sea and they all flow in a desert depression of a former lake bed known as the Seistan. These rivers and the Helmand form extensive wetlands which are subject to drought and diversion of rivers and serve as the wintering habitat for a large number of waterfowl. The Murghab, with its headwaters in the Firoz Koh mountains, ends in the sands of the Kara Kum desert in Turkmenistan. The Surkhab and Kokcha rivers of the north empty into the Amu Darya. The Kabul and Kunar rivers which start in the Kohe Baba and the Hindu Kush mountains, respectively, drain into the Indus River.

About 10% of the total area of Afghanistan is found above 3,000 m (Humlum, 1959). These alpine and sub-alpine habitats are generally dry. The soils have a firm thick humus mat with a mosaic of vegetation types distributed according to relief and snow accumulation (Petocz and Larson, 1977). Sedge meadows, alpine steppes and alpine heaths predominate the vegetation types of these high valleys. The sedge meadows are dominated by *Kobresia* and *Carex* species. The most conspicuous genera present in the alpine steppes are *Artemisia*, *Acantholimon, Acanthophyllum, Nepeta* and *Hedysarum* (Freitag, 1971; Breckle and Fry, 1974). Steppe grasses of the genera *Fescue* and *Stipa* are common species (Linchevsky and Prozorovsky, 1949; Kitamura, 1960). The alpine heaths are dominated by *Fescuta* sp., *Primula macrophylla, Poa* sp., *Carex* sp. and pioneer plants such as *Waldheimia* sp. and *Saxifraga* sp. (Petocz, 1978). Above the monsoon forests of Nuristan *Sibbaldia* sp., *Fescuta ovina, Gentiana* sp. and *Thymus* sp. occur in the alpine meadows. Other frequent plants are buttercup *Ranunculus* sp., violet *Viola bifolara*, *Anaphalis nubigena*, dandelion *Taraxacum* sp. and *Kobresia* sp., *Poa* sp., *Fescuta* sp. and *Polygonum* sp. are some of the more common grasses.

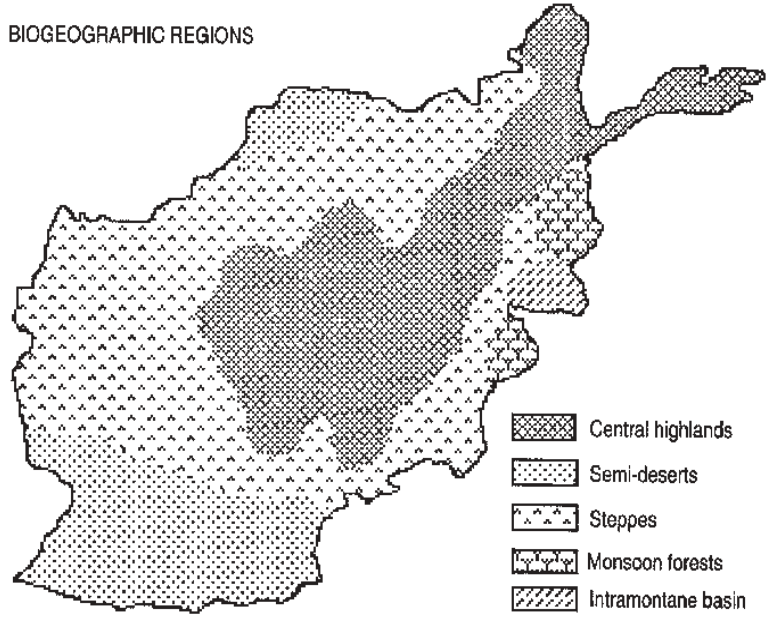
Clumps of *Acantholimon* sp. and *Astragalus* sp. are often interspersed with sedge meadows. Shrubs such as *Berberis* sp., *Rosa* sp. and *Ephedra* sp. are also common in the cold alpine areas. In the central part of the country the drier south facing slopes have a few trees with *Juniperus*

seravschanica and *J. communis* covering the ground with many branches. Close to 40% of the land here is found between 1,500 and 3,000 m. Three major plant communities grow within these altitudes: semi-desert shrub; deciduous and montane forests (Eyre, 1963). Plant communities of the semi-desert region are dominated by shrubs, steppe meadows and species such as pistachio *Pistacia vera*, *Artemisia* sp., *Eurotia* sp. and *Acantholimon* sp. and the saltwort *Salsola* predominate in the open areas. Along the stream beds trees such as willow *Salix* sp. and poplar *Populus* sp. are common. Juniper, ash *Fraxinus* sp., Maple and *Acer* sp. are some of the trees which are found on the north-facing slopes above 1,500 m.

The Steppes

The steppes form an arc around the central highlands and occupy a major part of Afghanistan. The northern steppes consist of extensive stony-deserts underlain with clay and loess. These are surrounded by isolated peaks which rise to about 2,000 m. The western and northwestern steppes lie among seemingly endless undulating ridges sparsely covered with vegetation. The slopes of these ridges are overgrazed due to the influx of livestock of the permanent settlers and the seasonal nomads who bring a large number of livestock into the area. Dashte Laili, an arid semi-desert composed of loamy soil, lies among the northern steppes. To the west, Dashte Bakwa forms the western edge of the steppes. The Harut, Farah and Khash rivers cut through this scree desert. These rivers are inundated in spring but are dry or have little water the rest of the year. Much of the water of the region's rivers is used for irrigation during the growing seasons. Most of Afghanistan's largest cities and towns have grown in the greener belt of this region.

Artemisia sp., *Tamarix* sp., *Reseda* sp., *Citrullus colocynthis* and the chenopods *Suaeda* sp., *Atriplex* sp. and *Haloxylon* sp. are the common plant species found in this region. Scattered between the shrub, several species of Graminae form colonies of open bunch grass. Ephemeral and perennial water courses compose an important biotope of the steppes. By providing water this biotope enables a relatively large amount of vegetation to grow along the stream beds and rivers. These green belts contrast vividly against the stark barren landscape. Because of its higher density of vegetative cover this biotope attracts a large number of livestock. Major plants of this biotope are *Chenopodium sp.*, *Salsola* sp., *Heliotropium eichwaldii*, *Haloxylon* sp., *Tamarix* sp. and *Halocharis* sp.



The Southern Deserts

In the southwestern part of the country lies the Dashte Margo and Registan deserts. These deserts are composed of clay loess covered with scree. The Margo is a bluff which extends about 220 km to the first mountain, Malik Dokand, in Baluchistan and rises over 750 m with gravel smoothly distributed everywhere. These deserts contain occasional sand dunes which are constantly shifted by desiccating winds that blow across the Seistan basin (Stenz, 1946). The Margo and Registan are separated by the Helmand river which disappears into the marshlands and lakes of Hamune Puzak. This is a large, perennial fresh water lake. *Phragmites australis* covers much of the shallow lake and there are only relatively small areas of open water (Scott, 1995). The submerged vegetation of the lake consists of *Ceratophyllum demersum*, while the shorelines are covered with *Tamarix* sp. thickets.

The vegetation of these deserts is characterized by shrubs such as *Artemisia* sp. and *Salsola* sp. communities. Semi-shrubs and bunch grasses grow on sandy soils. *Citrullus colocynthus*, which is a representative species of desert conditions in the Middle East, is found in sandy areas. The chenopods such as *Halocharis violacia*, *Suaeda salsa*, *Salsola kali* and an endemic of Afghanistan *Halarchon vesiculosus* are common plants of this zone also (Hassinger, 1968).

The Eastern Intramontane basin

This basin lies between the southern slopes of the Hindu Kush and Spinghar range. It has a Mediterranean type of climate with hot summers and mild winters with little precipitation. The area lying east of Jalalabad forms an extensive scree-covered semi-desert. Most of the area is below 500 m in elevation. Characteristic shrubs of this region are the spiny *Acacia modesta* and *Calotropis procera*. The hilly slopes are covered with scattered communities of *Artemisia maritima* while *Withania coagrans* and *Rhaia stricta* are found in the rocky terrain. Sub-tropical plants such as citrus and date palms grow in anthropogenic habitats. The banks of the Kabul and Kunar rivers are covered with reed beds and infested with mosquitoes most of the year except for the hot summer months when the water holes are dry.

The Monsoon Forests

The forests of Kunar and Paktiya, in eastern Afghanistan, come under the influence of the Indian monsoon. According to Stenz (1946), the extent of these monsoon rains may reach 30 km east of Kabul. This region receives sporadic rain during the hot and humid summer months. Precipitation here reaches 1,000 mm as a result of which a wet biotope has been formed in the steep mountain valleys. Unlike the rest of the country characteristics of the vegetation found along ephemeral watercourses are not different from the vegetation found away from these watercourses (Hassinger, 1968). There are more mesophytic species along the perennial streams and the undergrowth is thicker. Forest growth is thick and divided into the following zones:

Walnut forest: Walnuts *Juglans regia* are found in valley bottoms below 2,000 m. The walnut forest borders lowland olive *Olea feruginea* and *Reptonia buxifolia* trees at lower elevations. At higher elevations it tapers into the oak and birch forests and thickets or into steppe land in more

xeric alpine areas (Petocz and Larson, 1977). Depending on soil configuration the stands vary from being locally dense to spread out.

Oak forest: The oak forest has a wide ecological amplitude and extends from 1,300 to 2,900 m where it is replaced by the coniferous belt. It is characterized by a substrate of clay and rocks which harbor the endemic evergreen oak *Quercus baloot*, dominant at lower elevations on the drier soils. *Q. dilata* is confined to areas with more precipitation and *Q. semocarpifolia* occupies the upper part of the oak zone. Average height of the trees range from 4-5 m.

Conifer forest: From approximately 2,500 m up to the tree line at 3,300 m lies the coniferous forest belt. Ten species of conifers are found in this belt, namely: cedar *Cedrus deodara*, fir *Abeis webbiana*, spruce *Picea smithiana*, pine *Pinus wallichiana* and *P. gerardiana*, yew *Taxus wallichiana* and four species of junipers *Juniperus communis, J. squamata, J. semiglobosa* and *J. seravschanica.* Cedars dominate the lower parts of this belt. The species extend as single trees into upper parts of this zone, while at lower elevations it borders the oak forest whereas spruce and fir takes over at about 2,800 m.

Mammals of Afghanistan

An account of all mammals observed during my study, or noted from literature is presented here. Eight orders of class Mammalia occur in Afghanistan, which comprise of 120 taxa. Scientific names, mostly, are after Bates and Harrison (1997) for bats, Groves (2003) for ungulates, Wilson and Reeder (1993) for the rest.

Order	Species
Insectivora	7
Chiroptera	34
Primates	1
Carnivora	29
Perissodactyla	1
Artiodactyla	9
Lagomorpha	4
Rodentia	35

Insectivora

Members of this order are small animals with long narrow snouts and five-clawed digits on each limb. The body is covered with short hairs and spines in some members; the ears are small and the eyes minute. They are terrestrial, fossorial or semi-aquatic, most of them leading a nocturnal life and are mainly insectivorous, although some are carnivorous. The Insectivora fall into four major groups of which two occur in Afghanistan. The Erinacidae is composed of two groups known as hedgehogs and gymnures. Hedgehogs belong to five genera which extend all over Europe, Africa and South Asia, but do not occur in northern Asia as their range is limited to the extent of deciduous forests. The shrews (Soricidae) are found in Europe, Africa and throughout west and central Asia.

LONG-EARED HEDGEHOG
***Hemiechinus auritus* (Gmelin, 1770)**

Pashto: *auzd gwazey jezgey*
Dari: *khar pushtak gush daraz*

Description: The long-eared hedgehog has conspicuous ears which measure about 35 mm in length. The face is covered with greyish-black hairs and the belly is black. The dorsal surface of the body is completely covered with hard spines. The spines have a blackish appearance and the furry snout is long and pointed. The limbs are short and the fore-feet are armed with curved claws, the palms and soles are naked. Head and body length averages 160 mm. The tail is short and stumpy, it is covered with fine hairs and measures about 25 mm.

Habitat: 300-2,500 m. Clay and loess biotopes of the steppe and semi-desert areas.

Habits: It is strictly nocturnal in feeding activity and comes out of its burrow at dusk. The burrows are concealed under a shrub or bush. This hedgehog is omnivorous in its feeding habits and beside insects it eats lizards, snakes, small birds and mammals which it can overcome (Krishna and Prakash, 1956). It is capable of combating dangerous prey such as venomous snakes by seizing the snake and then curling into a spiny ball. When the reptile strikes against the spines it injures itself. The gestation period lasts 35-42 days (Herter, 1965) and the young are born naked except for some scattered spines and by the time they are two weeks old their backs are thickly covered with spines (Roberts, 1977). The young do not leave the nest until they are four weeks old.

Distribution: Predominantly found in the steppe and semi-desert regions. Specimens collected by the Street Expedition (Hassinger, 1973) are from Paghman, Kunduz and Mazare Sharif. In the Helmand delta it occurs near Zaranj and Kandahar (Habibi, 1977). Outside Afghanistan it is distributed from Cyrenaica through Egypt, the Arabian Peninsula and the Indian sub-continent to Mongolia (Ellerman and Morrison-Scott, 1951).

Status: Common in arid steppes near cultivations.

AFGHAN HEDGEHOG
***Hemiechinus megalotis* (Blyth, 1845)**
Pashto: *afghani jezgey*
Dari: *khar pushtak afghany*

Description: This species is larger than *H. auritus*, reaching 270 mm in body length. The spines are longer than the long-eared hedgehog and bear three dark bands with the external tip being whitish in color. The hairs covering the lower part of the head, limbs, abdomen and tail are reddish-brown. The upper part of the head and ears has a mixture of white hairs.

Habitat: 500-3,000 m. Clay and loess biotopes, rocky outcrops.

Habits: It is nocturnal, solitary and lives in burrows dug with the help of well-developed claws of the fore-feet. It is omnivorous in feeding habits and eats fruits especially ripe fallen mulberries (Roberts, 1977). It hibernates during the cold months and is inactive almost six months of the year. The young are born in late spring.

Distribution: In the eastern sections of Afghanistan its range extends from Kabul to Charikar and Koh Daman. In Kabul it is found in suburban farms and gardens (Gaisler *et al.*, 1967). Niethammer's (1965) collection includes specimens from Dashte Nawar and Chamkani on the border zone of monsoon forests in Paktiya. Outside Afghanistan it has been recorded from the Seistan region in Iran, Baluchistan in Pakistan and along the Turkmenistan border with Afghanistan (Lay, 1967; Roberts, 1977).

Status: Common in the steppe zone.

BRANDT'S HEDGEHOG
Hemiechinus hypomelas (Brandt, 1836)

Pashto: *kuchney jezgey*
Dari: *khar pushtak kochak*

Description: A small hedgehog equal in size to *H. auritus*. The spines are black tipped, body color is blackish-brown. The ears, cheeks and upper part of the crown have gray and white hairs. Average body size is about 180 mm. The ears are shorter than both *H. auritus* and *H. megalotis.*

Habitat: 500-1,000 m. Clay and loess biotopes.

Habits: The Brandt's hedgehog is a voracious feeder, nomadic in habit and does not use the same shelter regularly. It feeds on any prey it can capture, ranging from beetles to small snakes. In Baluchistan this hedgehog has developed a fondness for ripe melons (Roberts, 1977) and it also feeds on mulberries and olives. The young are born in late spring.

Distribution: The only known collections of this species are from the Jalalabad vale in eastern Afghanistan by the Street Expedition (Hassinger, 1973), and by Scully (1887) from Kandahar. It is found in the desert regions of Pakistan, southern Iran, eastern Arabian Peninsula and Turkmenistan (Harrison, 1964; Lay, 1967; Roberts, 1977).

Status: Unknown.

HOUSE SHREW
Suncus murinus (Linnaeus, 1766)

Description: It is the size of a small rat with an elongated body, short limbs and slender build, features which are common among shrews. The muzzle is elongated and the eyes are small. The ears are short and rounded and project above the short fur more prominently than other shrews. The pelage is short, fine and dense. The color of the dorsal surface of the body is grayish and the belly is grayish-white. The five digits on the forefeet have whitish claws. The feet are covered with small white hairs, while the palms and soles are naked. The tail is surrounded by epidermal scales and is covered by whitish hairs. Head and body length averages 135 mm. The tail is about 75 mm long.

Habitat: 300-1,000 m. Watercourse and structure biotopes.

Habits: It is nocturnal in feeding activity and comes out at night using its sensitive nose to detect prey which mainly consists of insects such as crickets, cockroaches and vegetable matter. The house shrew is a commensal of man and lives near human habitations. The young are born naked and are fully furred by the tenth day of life. Their eyes do not open until they are two weeks old. The young remain with the mother for some time after being weaned and follow her by holding on her tail with their mouth (Mirza, 1969).

Distribution: The wet biotopes of eastern Afghanistan. Specimens collected by the Street Expedition (Hassinger, 1973) are from Jalalabad and Laghman. Niethammer (1965) reports trapping it in Asadabad, Kunar province. Outside Afghanistan it is reported from the Arabian Peninsula (Harrison, 1964). According to Ellerman and Morrison-Scott (1951) it occurs in Abyssinia, the Indian sub-continent extending eastward in South-east Asia toward Java and New Guinea.

Status: Unknown.

COMMON WHITE-TOOTHED SHREW
Crocidura russula (Hermann, 1780)

Description: The fur is dense, soft and longer than other shrews found in the country, gray-brown in color with the belly slightly paler and there is no dividing line between the dorsal and ventral fur. It has a long pointed snout and a long slim tail covered with silvery gray hairs. Head and body length is about 68 mm and the tail is 46 mm long.

Habitat: 1,000-3,000 m. Watercourses and rocky terrain.

Habits: It is a voracious animal feeding on all kinds of invertebrates relying on its acute sense of smell to find prey. It frequents human habitations where it remains hidden during the day and comes out to feed after sunset. The gestation period is 28 days and the females are usually mated again after parturition (Van den Brink, 1967). The young are born blind and naked and are fully furred whey they are two weeks old.

Distribution: Widespread in areas which have free access to water in the east. Specimens have been collected from Paghman, Ghazni and Nuristan by the Street Expedition (Hassinger, 1973). Niethammer (1965) collected samples from northwestern and central Afghanistan near the Shibar and Salang passes. It occurs throughout the Mediterranean region, Iran and Turkmenistan (Ellerman and Morrison-Scott, 1951).

Status: Unknown.

LESSER WHITE-TOOTHED SHREW
Crocidura suaveolens (Pallas, 1811)

Description: A small shrew with grayish dorsal and lighter ventral fur. The pelage is close and dense, the tail is relatively thick and exceeds half the length of body and head which averages 95 mm. It is covered with short and scattered longer hairs. The limbs are pale white, finely haired all the way to the claws, the palms and soles are naked.

Habitat: Clay and loess, rock and structure biotopes.

Habits: This little shrew is adapted to life in arid regions. It has adapted to living near human habitations and is found in fruit orchards. Breeding takes place in late spring and the gestation period lasts four weeks (Ognev, 1928). Litter size varies from five to ten. The young are born blind and naked, and after six weeks they begin an independent existence.

Distribution: Occurs in the northern steppes. Hassinger (1973) records specimens along shallow irrigation ditches near Mazare Sharif. Outside Afghanistan the species is found in Europe, the Middle East, Siberia, Mongolia, China, Japan, Korea and parts of north Africa (Ellerman and Morrison-Scott, 1951).

Status: Unknown.

PALE GRAY SHREW
Crocidura zarudnyi Ognev, 1928

Description: Body color is whitish-gray with the entire dorsal region pale whitish-gray, some hairs on the back have rusty tips. The belly is white, the feet are covered with white hairs and the claws have a yellowish appearance. The long tail is covered by white-straw coloured hairs. It attains an average head and body length of 61 mm, the tail measures 47 mm and the distal brush of tail is well developed. Vibrissae consist of a mixture of short white hairs, the bases of which are almost black. The skull is narrow with a small brain case. Color of hairs on anterior head region and on flanks is yellowish due to loss of red and rusty tips of hair.

Habitat: 500-3,000 m. Rocky, clay and loess biotopes.

Habits: There is little information available about the biology of this shrew except that it is adapted to arid mountainous regions and is possibly nocturnal in activity. Lay (1967) reports that lizards, snakes, scorpions and mice shared the crevices in mud walls where this shrew was trapped in Iran.

Distribution: Occurs in the mountains and steppe regions. To the east it has been recorded from Ghazni and Gardez. The Street Expedition collected samples or specimens from the Shibar pass in central Afghanistan and Ishkashem at the entrance to the Wakhan corridor (Hassinger, 1973). This pale shrew has been described as *C. pergrisea* in Iran and Pakistan (Lay, 1967; Roberts, 1977). Outside Afghanistan it has been recorded from the Seistan basin in Iran and the arid mountains of Baluchistan in Pakistan (Lay, 1967; Roberts, 1977).

Status: Unknown.

Chiroptera

The Chiroptera forms the second largest order of all living mammals, they are homogenous in general appearance and anatomy. Bats are divided into two major sub-orders, the Megachiroptera (greater bats) and Microchiroptera (lesser bats). The greater bats (also known as fruit-eating bats) mainly occur only in the tropical and sub-tropical parts of the world comprising Africa, India, Australia and the Pacific archipelagos. The lesser bats (insect eaters) have a widespread distribution throughout the world and are even found on many isolated oceanic islands.

Bats are the only mammals that can fly with the aid of elastic membranes that extend from the sides of the body, legs and tail. The membrane is supported by elongated fingers of the forelimbs. Most bats find their way by echolocation, in which they emit sounds through the mouth or nose, which are reflected back as echoes. They enable the bat to locate prey and avoid hitting obstacles. Bats shelter in caves, crevices, tree cavities and hollows, abandoned structures and buildings.

The identification of bats is an arduous task in which external and internal anatomical features are important to recognize and classify them. This can only be done with precise measurement of specimens. Among the features by means of which bats can be identified the length and shape of external ear pinna and the shape of the tragus, a flap that protrudes from the lower, inner margin of the pinna are important. The tragus comes in different shapes and forms and some families lack it altogether. The length of various metacarpals and phalanges is also important in taxonomic characters. The tail of bats is either free or variably included in a web of skin between the hid limbs. This characteristic is also helpful in their indentification. The length of the hind foot, the presence or absence and length of the calcar, and cranial measurements are also all used as taxonomic characteristics to identify bats.

Little is known about the distribution, ecology, biology or status of bats in the country. Distribution records are few on the basis of which it is difficult to visualize their pattern of distribution. Records of specimens collected by Aellen (1959), Meyer-Oehme (1965), Gaisler *et al.* (1968), Neuhauser (1969), Gaisler (1970, 1971), DeBlase *et al.* (1973), and Neuhauser and DeBlase (1974) are presented here together with brief descriptions of the different families occurring in the country. The number of bat species

recorded in Afghanistan is distributed on the following basis according to families: Rhinopomatidae (3), Emballonuridae (1), Rhinolophidae (5), Hipposideride (2), Megadermatidae (1), Molossidae (2) and Vespertilionidae (20). Further research is likely to result in the discovery of species that have not been recorded in Afghanistan which are known from neighboring countries.

RHINOPOMATIDAE Mouse-tailed bats

These are small sized bats that prey on insects. They are considered the most primitive of the Microchiroptera sub-order. The tail is long and slender, a great part of it projecting free from the interfemoral membrane to which it is attached. The snout has a simple, inconspicuous nose leaf. The ears are united across the forehead, and the tragus is well developed. The second manual digit has two phalanges. The skull has two separate nasal inflations. The premaxillae have a nasal and a small palatal branch and are not fused with the surrounding bone.

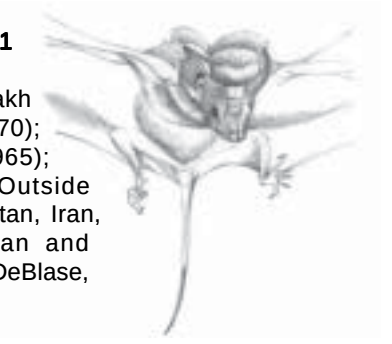
Some species are highly gregarious and are found in colonies numbering several hundred. They roost in natural caves, deserted buildings, tombs or in open wells. They cling to rock surfaces or walls by the hind feet and thumb. Some species hibernate during the winter while others go through prolonged periods of inactivity and there is evidence of seasonal migration (Gaisler, 1970).

This family contains only a single genus, *Rhinopoma*. Three species reported from Afghanistan are:

GREATER MOUSE-TAILED BAT *Rhinopoma microphyllum* (Brünnich, 1782)

Distribution: Chakh Nur, Darunta hills, Abdul Khel, and Besud (Gaisler *et al.*, 1968; Gaisler, 1970), Shamshir Ghar near Kandahar (Zimmermann, 1956), Gerchak (Aellen, 1959). Outside Afghanistan it occurs in north Africa, the Middle East, Iran, Pakistan and India with its eastward range extending to Indonesia (Ellerman and Morrison-Scott, 1951; Harrison, 1964; DeBlase, 1980).

LESSER MOUSE-TAILED BAT
Rhinopoma hardwickei Gray, 1831



Distribution: Darunta, Besud and Chakh Nur (Gaisler *et al.* 1968; Gaisler, 1970); Jalalabad, Konar (Meyer-Oehme, 1965); Kandahar (Zimmermann, 1956). Outside Afghanistan it is found in India, Pakistan, Iran, Arabia, Egypt and Sudan (Ellerman and Morrison-Scott, 1951; Harrison, 1964; DeBlase, 1980; Roberts, 1977).

SMALL MOUSE-TAILED BAT
Rhinopoma muscatellum Thomas, 1903

Distribution: Kandahar and Grishk (DeBlase, 1980). Outside Afghanistan it has been recorded in Oman, Iran and Pakistan (Harrison, 1964; Roberts, 1977; DeBlase, 1980).

EMBALLONURIDAE Sheath-tailed bats

The muzzle of these bats is without any nose leaf and the tragus is present in the external ear. The tail emerges from the upper surface of the interfemoral membrane at about its mid-point. The second digit of the wing has no phalanges. The post orbital processes of the skull are well developed and the premaxillae are present only as nasal branches which are not fused to each other or to the maxillae.

They migrate locally and are in a state of torpor during the winter months, sheltering in natural caverns and old buildings. These bats are swift flyers and become active after sunset when members of a colony start leaving the roost in search of insects which they locate in pitch darkness by means of echo location.

NAKED-RUMPED TOMB BAT
Taphozous nudiventris Cretzschmar, 1830-31

Distribution: Jalalabad (Meyer-Oehme, 1965) and Chakh Nur (Gaisler *et al*., 1968, Gaisler, 1970). Outside Afghanistan it is found in west and east Africa, the Middle East, Iran, Pakistan, India and Burma (Ellerman and Morrison-Scott, 1951).

MEGADERMATIDAE False vampires

These bats are not blood sucking species. Their large rounded ears are joined by a fold of skin and they have a bifurcated tragus. They are characterized by their large size. They lack a tail but have extensively developed interfemoral membrane and broad wings. False vampires emerge from their roost, when it is fully dark, to prey on insects and sometimes larger prey such as lizards and small bat species. They are not known to hibernate and do not occupy the same biotope for more than a few weeks continuously (Roberts, 1977).

GREATER FALSE VAMPIRE
Magaderma lyra E. Geoffroy, 1810

Distribution: Qachqar cave (Aellen, 1959) and Darunta (Gaisler, 1970). Outside Afghanistan they occur in China, India, Bangladesh, Burma and Pakistan (Ellerman and Morrison-Scott, 1951; Roberts, 1977).

RHINOLOPHIDAE Horseshoe bats

They are small insect eating bats characterized by the presence of a complex nasal structure that is composed of several distinct parts. The ears are pointed and large, the tragus is absent and the anti-tragus is well developed. The identification of members of this family is based on the variation in the structure of the complex nose leaf, which is thought to assist in their highly developed system of echo location.

Members of this family are gregarious and roost in clusters in humid places. They are nocturnal in feeding habits and do not emerge from their roost before darkness. Horseshoe bats are usually found in dark caves, man made tunnels or damp cellars where they hang freely by their hind legs with the head tucked in to the breast and enveloped by folded wings.

Two genera are reported to occur in Afghanistan. The genus *Rhinolophus* is represented by four species and *Asellia* is represented by one species only.

GREATER HORSESHOE BAT
Rhinolophus ferrumequinum (Schreber, 1774)

Distribution: Lalandar (Gaisler *et al*., 1968) and Laghman (Meyer-Oehme, 1965). Maimana, Belcheragh and Qala Bost (Aellen, 1959). Samangan and Kabul (Lindberg, 1961, 1962). Outside Afghanistan it is widespread in Europe, Turkmenistan, Iran, Syria, India, Nepal and parts of north Africa (Ellerman and Morrison-Scott, 1951; Harrison, 1964; DeBlase, 1980).

LESSER HORSESHOE BAT
Rhinolophus hipposideros (Bechstein, 1800)

Distribution: Jalalabad, Abdul Khel, Sarobi and Lalandar (Gaisler *et al*., 1968; Gaisler, 1970), Qalat (Aellen, 1959). Outside Afghanistan it is found in Europe, Turkmenistan, Iran, Pakistan, Arabia and north Africa. To the east its range extends into China and Japan (Ellerman and Morrison-Scott, 1951; Harrison, 1964; Roberts, 1977; DeBlase, 1980).

BLASIUS' HORSESHOE BAT
Rhinolophus blasii Peters, 1857

Distribution: Jalalabad, Sarobi, Kandahar and Sheberghan (Gaisler *et al.*, 1968). Outside Afghanistan it occurs in southern and northern Africa, southern Europe, Iran, Turkey and Pakistan (Roberts, 1977; DeBlase, 1980).

BOKHARA HORSESHOE BAT
Rhinolophus bocharicus (Kastschenko and Akimov, 1917)

Distribution: Mazare Sharif and Sheberghan (Aellen, 1959). Outside Afghanistan it has been recorded from Turkmenistan, Uzbekistan, Iran and Azarbaijan (Lay, 1967; DeBlase, 1980).

BLYTH'S HORSESHOE BAT
Rhinolophus lepidus Blyth, 1844

Distribution: Jalalabad, Kabul, Kandahar and Shibarghan (DeBlase, 1980). Outside Afghanistan it is found in China, India and Burma (Ellerman and Morrison-Scott, 1951).

HIPPOSIDERIDAE Leaf-nosed bats

They are characterized by a squarish nose-leaf which is used to emit squeals through the nose instead of the mouth as in other species. The nose-leaf may be small and simple as in the false vampires or large and complex as in the leaf-nosed bats. The intricate folds are lined with sensitive hairs. This peculiar structure of the nose appears in bats which are more rigidly nocturnal in habits and seek their prey among trees and bushes.

TRIDENT BAT
Asellia tridens (Geoffroy, E., 1813)

Distribution: Kandahar and Grishk (Neuhauser, 1969). Outside Afghanistan it occurs in north and west Africa, the Arabian peninsula, Iraq, Pakistan and Iran (Harrison, 1964; Roberts, 1977; DeBlase, 1980).

BICOLORED LEAF-NOSED BAT
Hipposideros fulvus (Gray, 1838)

Distribution: Laghman province (Meyer-Oehme, 1965), Darunta (Gaisler *et.al.*, 1968; Gaisler, 1970). Outside Afghanistan it has been recorded from Pakistan and Iran (Roberts, 1977; DeBlase, 1980).

MOLOSSIDAE Free-tailed bats

These insectivorous bats are characterized by the tail which projects conspicuously beyond the interfemoral membrane. The ears are rounded and joined together across the forehead, a small tragus is present. They lack a nose leaf and have a long wing with only a single rudimentary phalanx on the second digit. The nostrils open on to a pad.
The free-tailed bats are gregarious living in small colonies in caves, are shy and when detected retreat deeper into the crevices of their caves. They are swift flyers, emerging at sunset from their roost and travel large distances in search of food, returning back to their roost in the early hours of the morning.

EUROPEAN FREE-TAILED BAT
Tadarida teniotis (Rafinesque, 1814)

Distribution: Kabul (Meyer-Oehme, 1965). Outside Afghanistan it is found in southern Europe, northern Africa, the Middle East, Turkmenistan, Uzbekistan, Iran, India, China and Korea (Ellerman and Morrison-Scott, 1951; DeBlase, 1980).

EGYPTIAN FREE-TAILED BAT
Tadarida aegyptiaca (E. Geoffroy, 1818)

Distribution: Kabul (Meyer-Oehme, 1965). Outside Afghanistan it occurs in Africa, Yemen, Pakistan, India and Ceylon (Ellerman and Morrison-Scott, 1951; Roberts, 1977).

VESPERTILIONIDAE Evening bats

This is a widely distributed family represented by 38 genera worldwide. Members are distinguished by moderately developed ears with a well developed tragus. They are small to medium sized insectivorous bats. The muzzle is simple and lacks any leaf like appendages on the nose. The tail is long and is entirely enclosed in the membrane or only protrudes from it slightly. The ears are generally separate, their anterior borders have a distinct basal lobe. The second finger has a small phalanx. The skull lacks the postorbital process and the premaxillae are without palatal branches.

Like most other bat species they are nocturnal feeders emerging from their roost in caves, abandoned buildings, barns and hollow trees. Because of their abundance they seem to be particularly associated with human habitations using the crevices of the roofs of dark rooms or walls as their diurnal roost.

The Evening bats are represented by nine genera in Afghanistan. According to the number of species they are *Myotis* (5), *Vespertilio* (1), *Eptericus* (2), *Nyctalus* (1), *Pipistrellus* (5), *Scotophilus* (1), *Miniopterus* (1), *Otonycteris* (1), *Barbastella* (1), *Plecotus* (1).

LESSER MOUSE-EARED BAT
Myotis blythii (Tomes, 1857)

Distribution: Kandahar, Ghazni, Bamiyan and Shiberghan (Neuhauser, 1969). Outside Afghanistan it is found in north Africa, the Middle East, Turkey, India, Pakistan and China (Ellerman and Morrison-Scott, 1951; Harrison, 1964, DeBlase, 1980).

GEOFFROY'S BAT
Myotis emarginatus (Geoffroy, 1806)

Distribution: Khost (Neuhauser, 1969). Outside Afghanistan it occurs in Moroco, Algeria, south Europe, Turkmenistan, Israel, Pakistan and Iran (Ellerman and Morrison-Scott, 1951; Roberts, 1977; DeBlase, 1980).

WHISKERED BAT
Myotis mystacinus (Kuhl, 1819)

Distribution: Mazare Sharif and Shiberghan (Neuhauser, 1969). Outside Afghanistan it is found throughout Europe, Morocco, Turkey, Iran, Pakistan (Roberts, 1977; DeBlase, 1980), China, Mongolia, Korea and Nepal (Ellerman and Morrison-Scott, 1951; Roberts, 1977; DeBlase, 1980).

KASHMIR CAVE BAT
Myotis longipes (Dobson, 1873)

Distribution: Jalalabad and Grot Pialah (Meyer-Oehme, 1965; Gaisler *et al*., 1968; Gaisler, 1970). Outside Afghanistan it is reported from Iran, India and Pakistan Roberts, 1977; DeBlase, 1980).

HODGSON'S BAT
Myotis formosus (Hodgson, 1835)

Distribution: Kalat-us-Seraj (Meyer-Oehme, 1965). Outside Afghanistan it occurs in China, Nepal, India, Korea and Japan (Ellerman and Morrison-Scott, 1951).

PARTICOLORED BAT
Vespertilio murinus Linnaeus, 1758

Distribution: Shiberghan and Torkham (Neuhauser and DeBlase, 1974). Outside Afghanistan it occurs in Europe, Turkmenistan, Mongolia, India, Iran and China (Ellerman and Morrison-Scott, 1951; DeBlase, 1980).

SEROTINE BAT
Eptesicus serotinus (Schreber, 1774)

Distribution: Jalalabad and Kunduz (Gaisler *et al.*, 1968; Gaisler, 1970). Outside Afghanistan it is found in Europe, northern Africa, Lebanon, Israel, Turkey, Pakistan, India, Mongolia and China (Ellerman and Morrison-Scott, 1951; Harrison, 1964; Roberts, 1977).

SIND SEROTINE BAT
Eptesicus nasutus (Dobson, 1877)

Distribution: Besud and Jalalabad (Gaisler *et al.*, 1968; Gaisler, 1970). Outside Afghanistan it has been recorded in Pakistan, Iran, Arabia, Iraq and Turkmenistan (Harrison, 1964; Roberts, 1977; DeBlase, 1980).

BOTTA'S SEROTINE
Eptesicus bottae (Peters, 1869)

Distribution: Mazare Sharif (Neuhauser, 1969). Outside Afghanistan it has been recorded from Egypt, Yemen, Iraq, Oman, Turkmenistan, Kazakhistan, Tadjkistan, Pakistan and Iran (Ellerman and Morrison-Scott, 1951; Roberts, 1977; DeBlase, 1980).

MOUNTAIN NOCTULE
Nyctalus montanus (Barrett-Hamilton, 1906)

Distribution: Ismail Khel (Meyer-Oehme, 1965) and Jalalabad (Gaisler *et al.*,1968; Gaisler, 1970). Outside Afganistan it has been recorded in northern India (Ellerman and Morrison-Scott, 1951).

COMMON PIPISTRELLE
Pipistrellus pipistrellus (Schreber, 1774)

Distribution: Jalalabad, Kabul, Baghlan, Kunduz, Balkh, Maimana and Kandahar (Meyer-Oehme, 1965; Gaisler *et al.*, 1968; DeBlase 1980). Outside Afghanistan it is distributed in Europe, Morocco, Turkey, Turkmenistan, Tadjkistan, Uzbekistan, Kazakistan, Iran, Pakistan, India and northern China (Ellerman and Morrison-Scott, 1951; Roberts, 1977; DeBlase 1980).

HIMALAYAN PIPISTRELLE
Pipistrellus babu Thomas, 1915

Distribution: Kabul and Jalalabad (Meyer-Oehme, 1965), Bashgar (Nuristan) (Zimmermann, 1956), Kunduz, Baghlan, Balkh and Faryab (Meyer-Oehme, 1965; Gaisler, 1970). Outside Afghanistan it has been recorded from Pakistan, Nepal, Bhutan and India (Ellerman and Morrison-Scott, 1951; Roberts, 1977).

INDIAN PYGMY PIPISTRELLE
Pipistrellus mimus Wroughton, 1899

Distribution: Kalai-i-Shahi in the east (Meyer-Oehme, 1965). Outside Afghanistan it is found in Sri Lanka, India and Pakistan (Roberts, 1977).

KUHL'S PIPISTRELLE
Pipistrellus kuhli (Kuhl, 1819)

Distribution: Dilaram, Farah and Khost (Meyer-Oehme, 1965); Jalalabad (Gaisler *et al.*, 1968). Outside Afghanistan it occurs in south Europe, Africa, Arabia, Iran, Pakistan and India (Ellerman and Morrison-Scott, 1951; Harrison, 1964; Roberts, 1977; DeBlase, 1980).

INDIAN PIPISTRELLE
Pipistrellus coromandra (Gray, 1838)

Distribution: Jalalabad and Dare Nur (Gaisler *et al*., 1968; Gaisler, 1970). Outside Afghanistan it has been reported from southern China, Burma, Bhutan, India, Pakistan and Sri Lanka (Ellerman and Morrison-Scott, 1951; Roberts, 1977).

ASIATIC GREATER YELLOW HOUSE BAT
Scotophilus heathi Horsfield, 1831

Distribution: Jalalabad (Meyer-Oehme, 1965; Gailser *et al*., 1968). Outside Afghanistan it is reported from India, China, Burma, Bhutan, Pakistan and Sri Lanka (Ellerman and Morrison-Scott 1951; Roberts, 1977).

SCHREIBER'S LONG-FINGERED BAT
Miniopterus schreibersi (Kuhl, 1819)

Distribution: Jalalabad (Meyer-Oehme, 1965; Gaisler *et al*., 1968), Bamiyan (Gaisler, 1970), Kandahar (Aellen, 1959). Outside Afghanistan it is known from north Africa, southern Europe, the Middle East, Turkmenistan, Iran, India, Burma, Indonesia, Philippines, New Guinea and northern Australia (Ellermann and Morrison-Scott, 1951; Harrison, 1964; DeBlase, 1980).

HEMPRICH'S LONG-EARED BAT
Otonycteris hemprichi Peters, 1859

Distribution: Bagram (Meyer-Oehme,1965). Outside Afghanistan it is reported from north Africa, Turkey, the Arabian peninsula, Turkmenistan and Pakistan (Harrison, 1964; BeBlase, 1980).

EASTERN BARBASTELLE
Barbastella leucomelas (Cretzschmar, 1830/31)

Distribution: Wazir Bagh near Khost (Meyer-Oehme, 1965). Outside Afghanistan it occurs in Arabia, Turkey, Iran, Turkmenistan, Pakistan, China, India and Japan (Ellerman and Morrison-Scott, 1951; Harrison, 1964; Roberts, 1977; DeBlase, 1980).

GREY LONG-EARED BAT
Plecotus austriacus (Fischer, 1829)

Distribution: Qoul Karidah cave, 75 km southwest of Kabul. (Zimermann, 1956; Lindberg, 1961), Bamiyan (Gaisler, 1970). Outside Afghanistan it is reported from Europe, Iran, Syria, Israel, Pakistan, India, Mongolia, China and north Africa (Ellermann and Morrison-Scott, 1951; Harrison, 1964; Roberts, 1977; DeBlase, 1980).

Primates

Because of their intelligence primates stand on top of the mammalian tree. This order is composed of a large group of exceedingly varied animals which can be taxonomically divided into eight distinctive groups. However, normally they are separated into three groups: Lemur-like, monkey-like and man-like. Besides man only one other species of primate occurs in Afghanistan, the rhesus macaque *Macaca mulatta* belonging to the Cercopithecidae family (old world monkeys). These monkeys are omnivorous feeding on leaves, buds, flowers, fruits, invertebrates and small vertebrates. They have a well developed social organization and live in groups of up to 100 individuals. Most are arboreal and many species can leap long distances. They usually bear a single offspring after 140 to 210 days of gestation (Thorington and Anderson, 1984). Cercopithecids are hunted for food and fur and can become a nuisance near human habitations. The macaques are widely used in scientific and medical research.

RHESUS MACAQUE
***Macaca mulatta* (Zimmermann, 1780)**
Pashto: *bezow*
Dari: *shadey*

Description: The rhesus macaque is a thick-set monkey with a body length measuring 45-60 cm and a relatively short tail which averages about 20 cm in length. Body color is olive-brown to yellowish- brown with silvery buff tinges around the cheeks and on the belly. Winter coat is thick and luxuriant to guard against cold temperatures at the height of winter in its forested habitats. The face is sparsely haired. Palms and soles are naked and pinkish-gray in color. All digits end in blunted nails. Dorsal surfaces of the hand and feet are covered with hairs and the tail is thickly furred all over without a terminal tuft. Females have a conspicuous red callous in the caudal region. Adult males are muscular and develop prominent canine teeth and are larger than the females.

Habitat: 1,000-3,000 m. Montane forests and cultivations.

Habits: It is a highly gregarious species living in large troops which may consist of 30-100 individuals. They are mainly active during the day and forage both in trees and on the ground, depending on the availability of food. Troops have the habit of living close to human habitations and are destructive to crops, often raiding grain fields and vegetable patches. Depending on the food supply a troop may stay in the same locality for several days (Roberts, 1977). In India the rhesus is known to move regularly along a rough circuit within a particular territory, feeding as they move from one place to another (Southwick *et al.*, 1961). They sleep in trees and start looking for a bed site well before the approach of dusk.

Distribution: An arboreal species, the rhesus is widespread in the forests of eastern Afghanistan. In Nuristan they occur in Bashgul, Kamdesh, Barge Matal, Kamu and Landai River valleys (Habibi, 1977; Petocz and Larrson, 1977). They have been seen in oak forests near Nishai in central Nuristan (Petocz, pers. comm.). South of Nuristan the rhesus is found in the Pech valley and the headwaters of the Alishang and Alingar valleys of Laghman. In Paktiya they occured in the Manadeer and Spinghar forests (Sayad, pers. comm.). Widely distributed in the Indian sub-continent they are common in northern India. The species is found abundantly in the Asian tropical and forested highlands with its western range limits reaching the monsoon forests of eastern Afghanistan (Pocock, 1932; Prater, 1965).

Status: Common. The rhesus occurs in large numbers in the eastern forested zones. A major portion of its habitat has been destroyed in Paktiya in the past two decades and its numbers there may have shrunk considerably. Consumption of its meat is forbidden in Islam. Since its skin does not have a good commercial value it is not hunted in large numbers like the carnivores whose furs have a good market value. Groups numbering over a hundred animals can be encountered among cedar and oak trees in uninhabited regions of the Nuristan forests. They stay away from villages and fields during the daytime but are known to invade and cause damage to cultivations by feeding on them at dusk. Domesticated easily, young are caught by Gudjars (gypsies) and are trained to give dancing performances to street audiences in major towns and cities.

Carnivora

Carnivores stand fourth in actual numbers of living types (species) of mammals being surpassed by rodents, bats and Artiodactyla . In number of families they stand third. They have a worldwide distribution except for the Antarctic and some oceanic islands. The Carnivora are mammals of moderate to large size, with a generally primitive skeleton and a high ratio of brain to body weight (Stains, 1984). They include terrestrial and climbing animals. There are several genera of aquatic and semiaquatic mammals in this order also. They are both nocturnal and diurnal in their activity patterns and take shelter in caves, crevices, burrows and trees.

Carnivores generally have one or two litters per year and the litter size ranges from 1 to 13 (Walker, 1975). Offspring are born blind and helpless but with a covering of hair. The young are cared for by the mothers or in some species by both parents. They are not exclusively meat eaters and some species are omnivorous such as the bears and foxes which are known to consume berries, grasses, leaves, roots and tubers also.

Six of the seven known families are represented in Afghanistan. The number of species is distributed on the following basis according to families: cats (Felidae) 10, mustelids (Mustelidae) 8, dogs (Canidae) 6, mongooses (Herpestidae) 2, bears (Ursidae) 2, and hyena (Hyaenidae). Owing to their different characteristics carnivores are able to survive under varying conditions and thus are widely distributed throughout the country. Species distribution in the physiographic regions of Afghanistan is on the following basis:

Central highlands: Species endemic to the Hindu Kush range are the snow leopard, lynx and Pallas's cat. Wolf and red fox are widely scattered in most parts of the highlands throughout the country also. Stone marten, ermine and weasel are characteristic mustelids of this region.

Steppes: The jungle cat, caracal and to some extent the wild cat are typical of the steppes. The jackal abounds here while the corsac fox occurs in isolated pockets. Marbled polecat, striped hyaena and red fox are other typical residents while the badger is sometimes encountered. The common otter is found along the river banks of this region.

Southern semi-deserts: This region does not have a widespread distribution of carnivores. Jackal, sand fox, small Indian mongoose and marbled polecat together with the more abundant wolf and red fox occur here. The cheetah, however, is extinct in the country.

Monsoon forests: The leopard cat, yellow-throated marten and the Asiatic black bear are species peculiar to these forests. The leopard, snow leopard, wolf, jackal and common otter also inhabit various ecotones of this region.

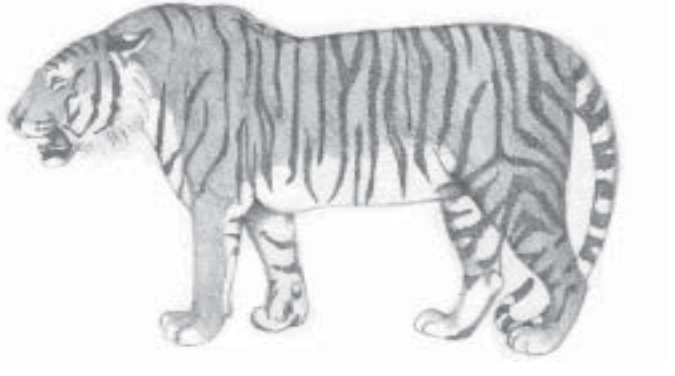
CASPIAN TIGER
***Panthera tigris virgata* (Linnaeus 1758)**

Pashto: *babr shaer*
Dari: *babr*

Description: The tiger is the largest member of the Felidae family. It has a compact head with a relatively short muzzle and lithe elongated body. Pelage color is orange-red with a series of traverse black stripes varying in length and width in each animal. The legs are stout with the forelimbs being more muscular than the hind limbs. The broad paws are armed with retractile claws. Distinctive black stripes and large size of the animal easily distinguishes it from other members of the cat family. The abdomen and throat are white. The tail, which measures about half the length of the body (90-100 cm), comprise solid black blotches. Males are considerably larger than females.

Habitat: Below 1,600 m. Reed beds, mountain taiga, swamps, mixed forests traversed by river and sub-tropical forests.

Habits: It lives a solitary life in the understory of thickets and hunting is essentially a solitary activity which is undertaken by stalking the prey. Hunting is done between dusk and dawn when the prey is most active. The usual method of hunting is to walk through its range in search of prey and upon seeing an animal it starts stalking towards it. Males mate with any estrous female they can find in their range whether they are resident or transient (Schaller, 1967). Tigers use a number of different sounds and postures to communicate with each other as they roam in their large



home range. Both male and female mark their range by spraying scent (Locke, 1954) and by making their feces conspicuous (Schaller, 1967). The roar is usually used as a long-distance communicatory signal. When fighting or threatening they growl, snarl and hiss at each other.

Distribution: Historical records indicate that the tiger was widespread in riverine habitats in Afghanistan. The first written record of the tiger is found in Babur's memoirs. Upon seeing the animal near Bagram, Babur ordered his soldiers to stalk it. This incident, which is reminiscent of the emperors of the past, occurred in March 1519 while Babur and his companions were headed from Kabul to Bagram. Aitchison (1889) gives the following account of a tiger kill. "On 19 January 1885 at our camp at Bala Murghab the body of a female tiger was brought to the general..." The tiger inhabited a large portion of the Amu Darya and Murghab river basins prior to its decline. Prior to 1950 it was only recorded from the river islands of Darqad and Imam Sahib in Takhar and Kunduz provinces of northern Afghanistan. A tiger was last killed in the Darqad area about 60 years ago. They have however, not been seen in recent years. In Central Asia the Caspian tiger has only been preserved in the lower reaches of the Amu Darya (Oxus river) basin and along its tributaries near the Aral Sea (Ognev, 1931). It has also been reported along the Caspian littoral of northern Iran (Harrington, 1977).

Status: Considered extinct in Afghanistan. In 1967 unmistakable tracks of a tiger were seen along the Darqad River (Kunhert, in Petocz 1973c). The animal was believed to have come from the Tadjkistan side of the border. No other sightings have been reported in the past 60 years. Its decline is attributed to over-hunting due to a high demand for its furs and extensive habitat destruction which takes place due to uncontrolled burning of thickets along the banks of the rivers which are cleared by the local inhabitants to provide new growth of grass for their livestock. As a result of an increase in human population tiger habitat is being cleared to provide more pastures for livestock.

SNOW LEOPARD
***Uncia uncia* (Schreber, 1776)**
Pashto: *gharanie prang*
Dari: *palang barfie*

Description: This medium-sized handsome cat has a beautifully marked coat with thick fur, long guard hairs and a dense and woolly underfur to protect it from cold blizzards which are common in its mountainous habitat. The body color is grayish with a light yellowish tinge and widely scattered black spots on the limbs changing to large black rosettes along the upper flanks and back. The long tail (80-100 cm) which is almost equal to its body length is thick and bushy and the dorsal surface bears two parallel rows of rosettes changing to solid black blotches one third toward the tip of the tail. Chest and belly fur is long with scattered black spots. It has a long broad nose, powerful jaws and short rounded ears with a black rim at the back of the ears. It stands about 55-60 cm at the shoulders with short forelegs and the paws appear massive in comparison to its size.

Habitat: 3,000-5,000 m. Alpine valleys and meadows, conifer forests.

Habits: The snow leopard leads a solitary life and travels long distances in search of food preying upon mountain ungulate species such as ibex, markhor, urial sheep and bharal in the Karakoram mountains and Ladakh (Lydekker, 1907). It is known to attack domestic stock and gets into

corrals to kill or maim the animals. Snow leopards have been observed to stalk prey during the daytime (Stockley, 1928; Habibi, 1977), thus its feeding habits are not exclusively nocturnal. Smaller prey includes hares and long-tailed marmots. It is an agile climber in rocky terrain and is capable of leaping long distances (Ognev, 1931). This cat takes shelter in natural caverns and under overhanging rocks and is fond of sun bathing on rocky ledges while resting in a remote spot (Schaller, 1980).

Distribution: Inhabits the northeastern and central Hindu Kush range and the Pamir valleys. Snow leopards have been observed in Moqor Qara Jelga Valley near Zor Kol Lake in the Big Pamir sector and Qazideh in the Wakhan corridor (Habibi, 1977) and near the town of Khandud (Petocz, pers. comm.). It has also been recorded near Qole Chaqmaktin, Teger Qorom and Berget Aya valleys of the Small Pamir (Naumann, pers. comm.). Local inhabitants report its occurance near the snow line Laghman and Nuristan. In the southern part of Badakshan the snow leopard is reported from the tundra zone of Zebak (Ashor Beg, pers. comm.). In central parts of Afghanistan it is found in the Ajar valley reserve (Abdul Haq, pers. comm.). Outside Afghanistan it is distributed in the Karakoram range and the Himalayas from Chitral to Bhutan (Prater, 1965; Roberts, 1977). In Tadjkistan it is encountered in the Pamir mountains, along the border with Afghanistan (Ognev, 1931).

Status: Its status in Afghanistan is threatened. Numbers have been declining due to high value in the fur business and it is stalked despite a hunting ban. It was estimated that about 50-80 animals were shot annually for export in the 1970's (Rodenberg, 1977). Most of the furs, according to fur traders, were exported to Europe or the North American markets in the 1970's. A lucrative market for furs of wildlife has sprung in Kabul in recent years. The shops have been observed to carry snow leopard pelts beside a large number of other species. In Wakhan the species faces retaliationary persecution from villages when it preys livestock, (Mishra and Fitzherbert, 2004). Despite a ban on its trade snow leopard skins are openly sold in fur shops in Pakistan. The skins are claimed to come from Afghanistan though poaching in Pakistan also takes place. Due to lack of protection endangered species such as the snow leopard are threatened with extinction in most parts of Afghanistan.

LEOPARD
Panthera pardus (Linnaeus, 1758)

Pashto: *prang*
Dari: *palang*

Description: The leopard is a muscular cat with laterally compressed body, stout legs, massive forepaws and a thick muscular neck. The face is roundish with long white whiskers. The short rounded ears are black on their dorsal surface. Body color is golden orange to grayish- fawn covered by black rosettes comprised of four or five spots. The summer coat is short and dense while in winter it is long, hairy and with considerable under wool. The throat, chest, belly and inside of the limbs are white. The tail which is about two thirds of the body length measures 80-90 cm. It is covered by a thick layer of fur with rosettes. A large male stands 65 cm at the shoulder but the females are smaller and lighter than the males.

Habitat: 1,500-4,000 m. Rugged mountains, coniferous forests, plains, semi-deserts and hilly steppes.

Habits: The leopard is a solitary animal that is mainly active at night. It cautiously stalks its prey which includes a large variety of animals such as wild goats and sheep, antelopes, monkeys, dogs, hares and rodents. Leopards are capable of carrying their kill onto a tree to consume it without disturbance from scavengers. They are known to attack and kill domestic livestock including animals as large as a donkey (Roberts, 1977). In the warmer tropical regions of India the leopard breeds throughout the year (Prater, 1965). The period of gestation varies from 98 to 105 days (Crandall, 1964). Litter size varies from two to four kittens which are blind at birth. Males remain in attendance of the litter when the female is suckling. It takes shelter in caves or in trees.

Distribution: Found in all of the major mountain ranges the leopard inhabits the Hindu Kush, Kohe Baba, Kohe Paghman and Safed Koh ranges of the central highlands, the Wakhan corridor and Darkad peninsula of Badakshan (Habibi, 1977). Despite habitat destruction it has still maintained a foothold in the Khost Fereng and Salang mountains (Sultani, pers. comm.). A specimen shot by Kullmann was taken from the Lataband pass between Kabul and Sarobi. Other records from eastern sections of the country are from the Logar valley, Dare Pech in Kunar province and along the border zone near Torkham (Kullmann, 1965). During a field trip to the Ajar Valley in October 1976 we came across a hunting party which had seen a leopard in the Surkhab bowl. Its geographical distribution is larger than any other member of the cat family and it is found over most of Africa and Asia (Morris, 1965).

Status: Threatened. A good market for furs has decreased numbers in most of its former habitats thus it is encountered rarely in some of the most remote and rugged montane regions. Considered a notorious killer of domestic animals a leopard is chased by hunting parties when it causes considerable damage to livestock. Rodenburg (1977) estimated about 80-100 animals were taken annually to supply the burgeoning fur market during a survey of furriers in Kabul. Despite a ban on the trade of its skins leopard skins are openly sold by vendors in the major cities of Afghanistan and Pakistan.

JUNGLE CAT
Felis chaus Schreber, 1777
Dari: *samuncha*

Description: A small cat which measures 60-70 cm in body length with a tail which is three quarters the size of the body with two or three narrow black rings at the distal one-third ending in a solid black tip. The ears are long with apical tufts of black hair. The body is dark sandy or yellowish-gray or tawny-red in color without any markings. The belly hair is pale cream and is relatively long. Usually there is a prominent dark brown median band running over the back. It has long legs with four or five brownish rings. The muzzle, throat and belly hair is white.

Habitat: 400-1,000 m. Semi-deserts, open plains, watercourses, reed beds and cultivations.

Habits: The jungle cat is not a strictly nocturnal felid and hunts in the late afternoon if the weather is cool. It is capable of excavating underground burrows in which it shelters during the daytime. The jungle cat captures its prey by stealth although it can run at high speeds and has been clocked running at 32 km/hr (Hatt, 1959). This cat usually feeds on small birds, rodents and snakes. Gestation period is about 56 days and three or four kittens is the usual litter size (Roberts, 1977).

Distribution: The jungle cat has established itself in the steppes along river drainages. Scully (1887) describes seeing it near Maimana. The Street Expedition reports shooting specimens in the Hari Rud basin near Herat and the Helmand river drainage. Moreover, they were presented a

live kitten captured in Kandahar. Niethammer (1966) reports it from Nangarhar province in eastern Afghanistan and Kandahar. In 1972 a specimen caught at the governor's compound in Meterlam, Laghman province was presented to the Kabul zoo (Naumann, 1973a). Outside Afghanistan the jungle cat is found from north Africa through southwest Asia to India and Indo-China (Ellerman and Morrison-Scott, 1951).

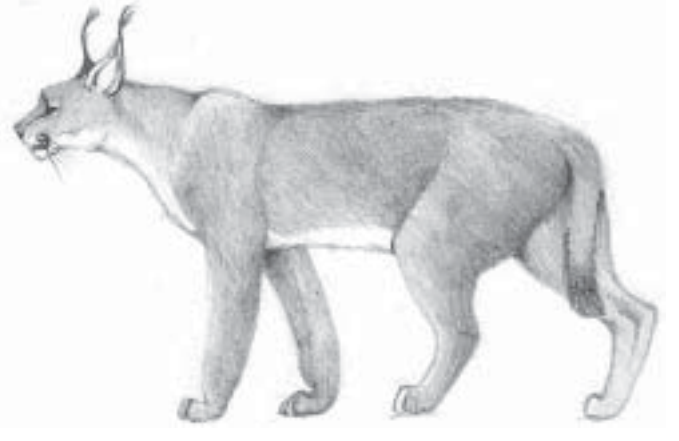
Status: Threatened. Hunting pressure could decimate the population seriously unless strong measures are taken to protect the wildlife of the country. Its furs were the most numerous in Kabul fur market among the specimens observed during a survey of Kabul furriers (Rodenburg, 1977).

CARACAL
Caracal caracal (Schreber, 1776)
Dari: *peshak qarah kol*

Description: A medium-sized cat with a slender build. Its coat is uniformly brick red with long limbs and the body fur is short and dense. The belly and inside of the limbs are creamy buff. The long ears are close set with conspicuous long apical tufts of black hair. The face has two short vertical bars above each eye. The tail which measures about 25 cm is only one third the head and body length and the average shoulder height varies from 40 to 46 cm.

Habitat: 500-1,000 m. Lives essentially in semi-deserts, hilly steppes and dry mountainous terrain.

Habits: The caracal is an agile hunter and is capable of overcoming large prey. It commonly stalks game birds such as wild pigeons and sand grouse and has the capability to hunt snakes (Harrison, 1968). This lithe cat stealths to a flock of birds and when close enough springs amongst them knocking one or two with lightning strokes of its paws (Ward, 1923). Its long legs and lithe build enables it to pounce on its prey and catch it in the air. Gestation period is about 70 days and litter size varies from two to six.



Distribution: Few records of caracal are known from Afghanistan. Nogge (1974) reports a specimen collected from Sare Pul of Jozjan province and a pelt from the Herat bazaar. Although rare, it occurs in the northern steppes. Collections of caracal in the Hari Rud, Murghab and Amu Darya basins in Turkestan verify their occurrence in northern Afghanistan. Outside Afghanistan it is found along the Iran-Turkmenistan border zone and southwards in Baluchistan and Sind (Roberts, 1977). The caracal occurs in northwestern and central India (Prater, 1965). It spreads from Turkmenistan, Iran and Arabia through the drier parts of northern Africa (Ellerman and Morrison-Scott, 1951; Lay, 1971).

Status: Threatened. The caracal has declined in its former habitats in northern Afghanistan. Hunting pressure accompanied by advances in agriculture which have resulted in habitat destruction are considered the main causes of population decline.

HIMALAYAN LYNX
***Lynx lynx isabellina* (Linnaeus, 1758)**
Dari: *siyah gosh*

Description: This medium-sized cat is distinguished by its short tail which is about 20 cm in length and terminates in a broad black tip. Body length is about 100 cm from the nose to the base of its short tail and it stands 50 cm at the shoulder. It has thick powerful legs, a massive broad skull and the pointed ears have distinct apical terminal tufts of black hair, hence it is called *siyah gosh* (black-eared) in Dari. Winter coat is silvery-gray with an undercoat of ginger-buff color. The summer coat is shorter and has a reddish-buff. The underparts are pale sandy-yellow. Unlike the northern boreal zone population of lynx the Himalayan race is paler and lacks the distinct pattern of spots commonly seen among Russian and Canadian specimens.

Habitat: 1,500-4,500 m. Adapted to a variety of habitats such as rugged mountains, alpine meadows and forests.

Habits: The lynx is not a strictly nocturnal animal and comes out of its den to hunt in the late afternoon. The prey consists of marmots, smaller rodents, hares, pikas and the young of ibex, Marco Polo and urial sheep and birds such as rock partridges, snow cocks and rock pigeons. It is a solitary animal which is known to hunt by scent following tracks with the nose close to the ground (Ognev, 1931). The gestation period is 60-63 days with a litter size of two or three (Burt and Grossenheider, 1952). Its long black ear tufts makes its ear movements conspicuous and helps it in signaling. The lynx has two throat tassels that move outward when the animal hisses.

Distribution: An inhabitant of montane biotopes the lynx is found in the Hindu Kush range. In Wakhan it has been observed near Sarhad and the Big and Small Pamirs (Habibi, 1977). It also penetrates the Zebak valleys (Ashor Beg, pers. comm.), with its range extending southward toward the forested regions of upper Nuristan. Specimens that were procured by the Kabul Zoo in the 1970's came from the Ghorband valley and the Shibar pass (Naumann and Nogge, 1973). It is common through the Himalayas with its range extending to outer Mongolia in Asia and is found in the tundra and boreal zones of Europe and North America including parts of Siberia (Ognev, 1931; Downing, 1948; de Vos and Matel, 1952).

Status: Threatened. Numbers have depleted in former habitats because of continued stalking by hunters who kill them to collect skins. An estimated 200-250 skins were procured for the fur market annually prior to the beginning of the civil war in Afghanistan (Rodenburg, 1977). Skins from Afghanistan are openly sold by vendors in Pakistan despite a ban on the sale of the product in the country.

LEOPARD CAT
Prionailurus bengalensis (Kerr, 1792)

Dari: *peshak jangali*

Description: This small cat measures about 55 cm in head and body length with the tail slightly larger than half the body length. The tail has irregular black spots except for its distal portion which has two faint rings and a black tip. The back of the short rounded-ears are black with circular white spots. It has long legs with black spots. The pelage is tawny and the body is marked with black spots. The face and forehead are marked with narrow vertical black stripes. The belly is creamy-white with a few scattered black spots.

Habitat: 1,000-3,000 m. Inhabits scrub, forests and jungles in hilly and mountainous regions.

Habits: The leopard cat is a nocturnal animal which lives in thick vegetation and can climb trees with ease and lives in the hollows of trees. It mainly feeds on small birds, rodents and flying squirrels. Little is known about its breeding biology. In India young are born in the spring with two to four kittens being the normal litter size (Prater, 1965). The leopard cat has been observed to interbreed with domestic cats (Sterndale, 1884) and a female from north Bengal kept as a pet became tame (Gee, 1962).

Distribution: Found in the forested regions of eastern Afghanistan. Based on specimens brought for sale to Kabul Zoo in the 1970's it is reported from Jalalkot in the Kunar valley, the Waygul forest of Dare Pech and Norgul in the lower Kunar valley. Naumann (pers. comm.) has occasionally seen the leopard cat in Dare Nur, northwest of Jalalabad. It is found throughout the warmer tropical forests of southeast Asia all the way to China and Korea. In Russia it occurs in the deciduous oak forests of southeastern Siberia (Ognev, 1931).

Status: Unknown.

WILD CAT
Felis lybica (Forster, 1780)
Dari: *peshak dashti*

Description: This small cat has a head and body length measuring about 50 cm. The tail is 25-30 cm long and it stands about 30 cm at the shoulder. The texture of the fur is similar to a short-haired domestic cat. The color varies from sandy through yellowish-gray to sandy-yellow or isabelline. It has grayish black spots over the body arranged in vertical lines except for the throat and chest which are white. The inner side of the forearm usually has two black bars. The upper parts of the limbs have broad dark bands with numerous dark cross lines on the outside. The long thin tail has four or five black rings with a black tip. Belly fur is whitish and grows long in winter. The ears have indistinct apical tufts in adult animals and the back of the ear is brownish in color.

Habitat: 500-2,000 m. Steppes, hills, clay valleys and sandy plains.

Habits: An inhabitant of arid areas and semi-deserts the wild cat lives in burrows where it finds shelter from the sweltering heat. It hunts rodents, birds and reptiles and in case of scarcity of prey it can survive on a diet of

insects (Prakash, 1959). Being a solitary animal pair bonding is short with the female taking care of the young. The gestation period is 56 days with two or three kittens being the usual litter size. Hybridization with domestic cats appears to be quite common (Roberts, 1977). Males mark their territory by squirting urine on objects such as grass and stones (Dorst and Dandelot, 1970).

Distribution: The wild cat is found in different variations and colors in the central Hazarajat mountains (Hutton, 1845) and the steppe region. The Street Expedition's (1965) collection includes a specimen from the stony steppes near Herat (Hassinger, 1973). Gaisler *et al.* (1968b) report taking a specimen from Bamiyan. A record from the eastern section of the country included a specimen on display at the Kabul Zoo museum taken from Waygul valley of Nuristan before destruction of the zoo. It has a widespread distribution in Asia and is found from Punjab and Sind into the Ganges Valley, Baluchistan and southern Iran (Prater, 1965; Lay, 1967; Roberts, 1977). Northwards it occurs in Turkmenistan and Kazakhistan (Ognev, 1931).

Status: Threatened. Rodenburg (1977) estimates seeing over 1200 pelts in Kabul in the shops of Kabul furriers manufactured into different articles. Although common, it is hunted at large. Indiscriminate hunting is likely to deplete numbers.

PALLAS' CAT
Otocolobus manul (Pallas, 1776)

Dari: *peshak kohi*

Description: The Pallas' cat has a thick and luxuriant dense silvery buff fur and is the size of a large domestic cat. The long tail which measures about 30 cm is thick and rounded with five or six narrow black rings and a black bushy tip. The body is unmarked except for three vertical black stripes in the lower back. The forehead and crown have scattered black spots and two black stripes radiate downward from the corner of each eye. The ears are rounded and set wide apart. The chin and upper throat are white while the fur on the underparts is long and blackish in color.

Habitat: 1,500-3,500 m. Rocky and treeless dry stony plateaus. Also lives in the steppes and deserts.

Habits: Little is known about the biology of the Pallas' cat. It is a diurnal hunter which preys on rodents, pikas, hares and game birds (Stockley, 1936). In the desert regions of Baluchistan it feeds on chukor (Anderson in Roberts, 1977).

Distribution: An inhabitant of alpine and sub-alpine valleys of mountainous regions. Skins brought to Kabul fur markets mainly come from the Salang Pass and Panjsher valley of the central Hindu Kush range. In northern Badakshan it occurs in the Wakhan corridor and the Zebak valleys (Ashor Beg, pers. comm.). Outside Afghanistan it is found in India and Pakistan (Prater, 1965; Roberts, 1977), Tibet and Russia (Ellerman and Morrison-Scott, 1951).

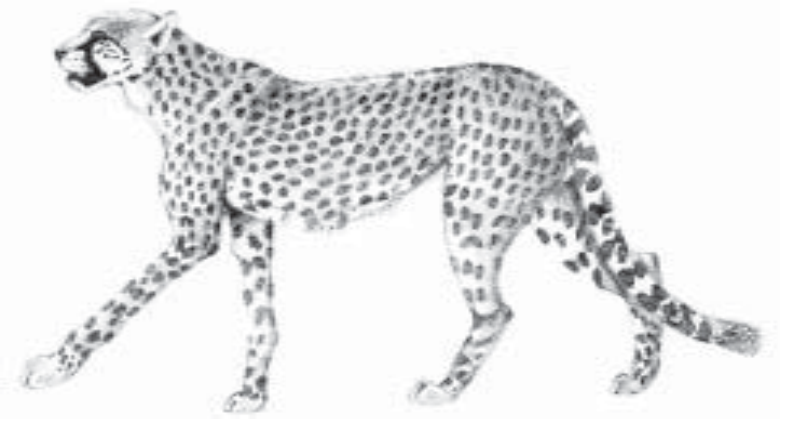
Status: Threatened. Formerly common in montane habitats but hunting and trapping has caused it to retreat to isolated valleys where it still occurs in suitable numbers.

CHEETAH
Acinonyx jubatus venaticus
(Schreber, 1776)
Pashto: *tazy prang*
Dari: *tazy palang*

Description: The cheetah is a lanky cat with long legs and a small head. Head and body length averages 150 cm and the tail measures 60 to 70 cm. It stands about 100 cm at the shoulder. The upper parts are tawny to pale buff while the under parts are white. A distinguishing mark of recognition is the two black stripes that extend from the eye to the mouth on each side of the face. The body is covered with round black spots including the extremities. The head has small rounded ears which are set far apart. The long feet resemble those of a dog with the claws blunt and slightly curved.

Habitat: 500-1,000m. Inhabits deserts, semi-deserts and open dry areas.

Habits: The cheetah uses stealth to approach its prey and in the final onslaught it sprints at a fast speed. Cheetahs can attain speeds of 100 km an hour for a distance of half a kilometer and hunt by sight rather than by scent. It is a powerful sprinter and the swiftest mammal. Cheetahs hunt in pairs or family groups during the cooler part of the day. Small antelopes such as gazelles are their main prey but hares and birds are also taken (Walker, 1975). Cheetahs have been tamed by man and used



as hunting animals for hundreds of years. In Afghanistan cheetahs were historically used to hunt game prior to their disappearance from the wild. The gestation period is from 85 to 95 days and there are two to four kittens in a litter.

Distribution: The cheetah is now extinct in Afghanistan but once occurred in the Helmand, Farah, Hari Rud and Murghab basins (Aitchison, 1889). Ognev (1931) lists cheetahs from three drainages which have their sources in northern Afghanistan. He reports seeing three animals in the Murghab basin. Other cheetah records are a skin photographed in the Herat fur market by Nogge in 1971 and a pelt purchased by Paludan in 1948 in Farah but their origin is unknown (Paludan, 1949). Cheetah populations in northeastern Iran were on the rise due to protection in the late 1970s especially in Khosh Yeilagh Wildlife Refuge (Harrington, 1977) but declined after the 1979 Islamic revolution. It is found in north Africa with its range extending into South Africa (Prater, 1965; Walker, 1975).

Status: Extinct in Afghanistan. Depletion of prey and the building of highways in its habitat are the main causes of population decline in the country. No sightings have been reported since the 1950s.

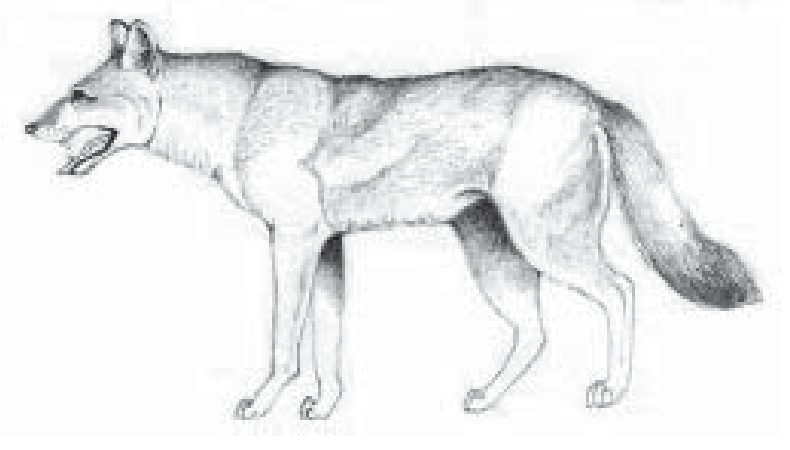
WOLF
Canis lupus Linnaeus, 1758

Pashto: *leva/shormos*
Dari: *gurg*

Description: The fur is long and coarse with the coloration ranging from light sandy-yellow to gray. A dark band forms along the back. Underparts and limbs are lighter in color than the back which contains black hairs. Winter coat is variegated with a mixture of long black and white hairs and the dense under wool is gray or bright buff. Summer coat is lighter, shorter and less dense. The face is grayish with a mixture of black and white hairs being blacker on the forehead. The bushy tail has a black tip with a darker dorsal surface. Males stand 65-70 cm at the shoulder with a head and body length of 100-130 cm and the tail is 30-45 cm long. Females are considerably smaller than males standing about 50 cm at shoulder height.

Habitat: 1,000-4,600 m. Alpine valleys, forests, steppes, scrub biotopes and settlements.

Habits: The wolf mainly lives in natural caves or excavates burrows (Allen, 1979). It is primarily nocturnal in activity and hunts in pairs or groups. With the scarcity of food in winter it forms large packs and in the remote regions of central Afghanistan it is reputed to attack humans in winter (Marouf, pers. comm.). In the mountainous regions the wolf feeds on wild ungulates, marmots, hares and birds. It also feeds on domestic



goats and sheep and can cause damage to flocks if left unchecked (Fulton, 1903). Dogs are preyed upon on the outskirts of towns and villages when the opportunity arises. Pair bonding may last for several years (Mech, 1970). The gestation period is about 63 days and the young are covered with short woolly hair and their eyes remain closed until the end of the first week after birth. In the early stages of life both parents regurgitate food to the pups which is brought to the den but as the pups grow they are fed fresh prey.

Distribution: Widespread throughout the country it is frequently encountered in the central highlands, the Kunar valley, Nuristan forests and the steppes. In summer wolves remain in mountains and with the scarcity of food during winter months descend to the valley bottoms or roams in packs in the plains. In Pamir wolves are commonly seen in winter months when they frequent the valley bottoms inhabited by Marco Polo sheep and Siberian ibex (Petocz, pers. comm.). They also occur in the Wakhan corridor and Zebak valleys of Badakshan. In central Hazarajat the wolf is common in Punjao, Lal-wa-Sarjangal and the Hari Rud Basin (Habibi, 1977). With the inadequacy of food in winter wolves are seen near villages in search of food. Such an animal was seen dead in the Ghazni river in 1971 after being chased by a pack of street dogs (Ayazi, pers. comm.). During heavy snowfalls, wolves are sometimes seen in the environs of Kabul city also. The wolf has a widespread distribution in Europe and North America and is found all over Asia (Ellerman and Morrison-Scott, 1951).

Status: Threatened. The wolf is pursued for its fur in large numbers. Occasionally observed in the mountainous sectors of the country. Numbers in the steppes are lower than the more isolated montane biotopes which serve as a natural protection.

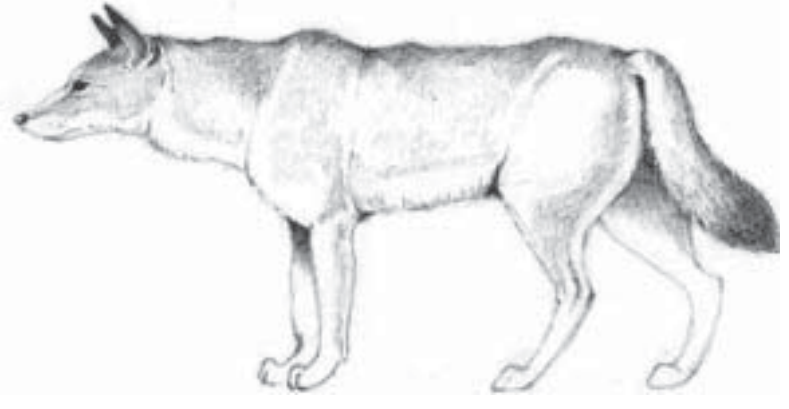
JACKAL
Canis aureus Linnaeus, 1758

Pashto: *sor landai/chagal*
Dari: *shagal*

Description: The coat is coarse and wiry. Body color is pale dirty-yellow mixed with brown and black hairs especially on the dorsal surface. The underparts are pale buff to creamy white. The tail is bushy and reddish-brown in color with a black tip. Head to body length is 60-75 cm with the tail measuring 20-25 cm. Adult males stand 38-42 cm at the shoulder with relatively shorter legs and a slimmer muzzle than that of the wolf.

Habitat: 300-3,500 m. Watercourse biotopes, steppes and stony deserts.

Habits: It is an omnivorous eater preying on rodents, birds and reptiles and will supplement its diet with fruits and insects (Donald, 1948; Prakash, 1959; Schaller, 1967). The jackal is also a resourceful scavenger and is seen in the environs of villages and towns in search of food during the night. It is nocturnal in habit and individuals call each other by yelping and barking. The jackal takes cover in bushes and fields and is capable of excavating its own burrow in which it hides during the day. The gestation period is about 63 days. The male helps in raising the young by procuring food and guarding the entrance of the den (Donald, 1948). Males mark their territory by depositing urine on bushes and clumps of grass.



Distribution: Widely distributed in the steppes and lowlands throughout Afghanistan, the jackal is found in a variety of biomes sometimes at altitudes over 3000 m. During a field survey a jackal was observed in Dashte Nawar waterfowl sanctuary (3200 m) in May 1976 (Habibi, 1977). In Seistan it is encountered frequently along the shores of Hamune Puzak lake where it hunts waders and other shorebirds. With the scarcity of food during winter jackals are seen in search of poultry and scraps near cities and towns at night throughout the steppes. To the east its range extends from the Jalalabad vale to the monsoon forests of Kunar and Paktiya provinces. The jackal is widely distributed in southeastern Europe, the Middle East, India and Pakistan, with its range extending to Burma and south eastern Siam (Prater, 1965; Harrison, 1968; Ellerman and Morrison-Scott, 1951).

Status: Rare. Although hunted for its fur it is still seen in most of its former range.

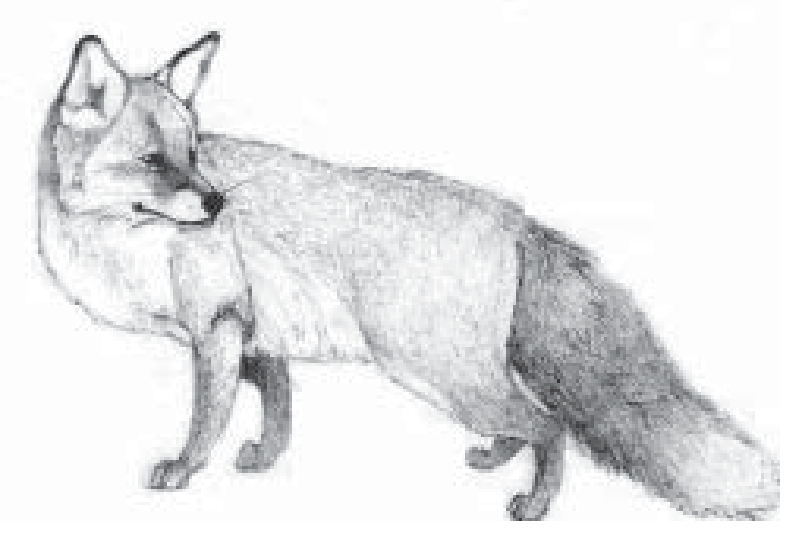
RED FOX
Vulpes vulpes (Linnaeus, 1758)

Pashto: *srah geydarah*
Dari: *robae surkh*

Description: The red fox has dense and heavy fur with long hairs. The dominant color of this widespread fox is red-brown, though Afghan specimens tend to be more yellowish than European races. There is an ill-defined dark median band over the back. The underparts are much lighter bearing a whitish or bluish-gray tone. The bushy tail is red-brown with a white tip. Winter coat is much heavier and slightly lighter colored than the summer coat. It is distinguished from the jackal by its smaller size and the relatively longer and bushy tail, the muzzle is more slender and the ears are larger than that of a jackal. The back of the pointed ears is dark brown. There is a patch of black hairs between the eyes and the nose. Head and body length is 60-70 cm and the tail is 35-45 cm long.

Habitat: 300-4,500 m. Montane valleys, rocky slopes, semi-deserts, watercourse biotopes, lake sides, cultivations and anthropogenic habitats.

Habits: The red fox is a solitary animal which is largely nocturnal. In winter it hunts during the daytime in arid areas capturing rodents, reptiles



and small birds. The diet also includes fruits and insects. The gestation period is 50-53 days and pair bonding lasts a long time during the breeding season (Southern, 1964). Litter size varies from 4-6 cubs which are born and remain hidden in a borrow until they are three to four weeks old. Once the cubs are mobile they emerge from the burrow and play near its entrance. Males mark their territory by urinating on bushes.

Distribution: The most common carnivore species, the red fox is widespread in habitats ranging from the southern deserts to the Pamir tundras. It is also found near populated centers. In March 1976 a male was spotted in Asmai mountain of Kabul searching for scraps near houses (Habibi, 1977). It was chased by several street dogs but managed to escape and hide among rocky crags. During a field survey in 1976 we came across the carcass of a red fox in the Ajar Valley Reserve farm killed by a shepherd's dog. To the north it is distributed in the Turkmenistan plains and at higher elevations found in the Pamir and Zebak valleys. It is also frequently encountered in the Hazarajat mountains (Habibi, 1977) Niethammer (1967) describes seeing over two dozen foxes in less than an hour's drive through the steppes of Abe Istada after sunset. Towards the west the red fox is found in Herat and Obeh with its range extending into the Seistan basin and Bakwa desert. The red fox is common throughout the northern hemisphere in Europe and Asia. In Africa it is found in the Nile valley (Ellerman and Morrison-Scott, 1951).

Status: Common. Due to increasing value of its fur the red fox is hunted in large numbers and if predation continues it could seriously affect populations in accessible habitats like the steppes and deserts where it has maintained good numbers. Large number of skins are sold in the fur markets of major cities in Afghanistan and Pakistan.

CORSAC FOX
Vulpes corsac (Linnaeus, 1768)
Dari: *robae karsak*

Description: It has dense and soft fur with long hairs. The pelage is rusty-colored with a prominent gray tone. The back and shoulders are darker than the flanks and the under parts are almost pure white. Winter coat is extremely dense and light gray in color. The long bushy tail is the same color as the dorsal part of the body and ends in a black tip. Head and body length is about 50 cm and the tail is 25-30 cm long.
Habitat: Below 1,000 m in dry steppes.

Habits: Information on the biology of the corsac fox is fragmentary. It lives in burrows and comes out at night to prey on rodents such as mice, rats, gerbils, hares and small birds (Ognev, 1931). Little is known about the reproductive behavior of this fox. Young are born in early spring and the litter may contain up to six pups.

Distribution: Found in the lower steppes of Afghanistan and the Turkmenistan plains. Kullmann (1965) remarks that the corsac is found in the arid steppes around Maimana. According to Naumann (1973b) local people reported it was hunted with dogs in Dashte Laili. However, he did not see any animals himself. In Iran the corsac is found along the Caspian sea shores (Lay, 1967; Harrington, 1977). It is distributed throughout Kazakistan and is common in the Transbaikal steppes (Ognev, 1931).

Status: Threatened. Lack of any substantial records suggest its numbers have depleted considerably in recent years.

SAND FOX
Vulpes rueppellii (Schinz, 1825)
Dari: *robah dashty*

Description: In general appearance the sand fox resembles the desert races of the red fox. It is smaller in size with a yellowish-buff color and the ears are large relative to the size of its head. Body length is 40-50 cm with a tail that measures 25-35 cm. The tail is full and bushy with a white tip and a conspicuous black mark at the upper part. The chest and belly are buffy-white and the soles of the feet are covered with long soft hairs which conceal the pads. The pelage is fine and soft with a dense underwool. The outer surface of the legs is rufous buff.

Habitat: 300-500 m. Predominantly deserts and semi-deserts.

Habits: It is an inhabitant of remote desert regions. There is little information about its biology except that it lives in wadis where rodents are plentiful (Harrison, 1968). In Pakistan the red fox has been collected in areas where there are large colonies of desert rodents indicating that it feeds on small prey (Roberts, 1977). According to Dorst and Dandelot (1970) they are more insectivore in their diet than other fox species.

Distribution: The only known record of the sand fox is a single specimen collected by Aitchison in Dashte Barang, Farah province in 1884 (Aitchison, 1889). Outside Afghanistan it is found in the deserts of northern Africa with its range extending eastward through the desert regions of Iran (Lay, 1967) to Baluchistan province in Pakistan (Roberts, 1977).

Status: Threatened. Lack of any substantial records suggest its numbers have depleted considerably in recent years.

BLANDFORD'S FOX
Vulpes cana Blanford, 1877

Dari: *robah khakey*

Description: The coat is thick, soft and furry. The color is light grayish or silvery gray with a brown tinge on the back and a blackish middorsal line. The tail which equals the head and body length is gray-brown in color with a black tip. Guard hairs on the tail have black tips. The flanks are grayish and the underparts white. The ears are thickly fringed with white hairs inside while the dorsal surface is grayish brown. It has a slender muzzle with a conspicuous black band below the eyes. Head and body length is 40-50 cm and the tail measures 35-40 cm.

Habitat: Below 1,000 m. Semi-deserts and steppes.

Habits: This fox which is an inhabitant of arid regions has been little studied. Hunters in Pakistan believe that it is more frugivorous than other foxes occurring there (Roberts, 1977). It is fond of melons and grapes and has been seen eating the Russian olive which is planted around villages in Baluchistan. The Blanford's fox feeds on small rodents and desert lizards also.

Distribution: Rodenburg (1977) counted four skins in Kabul fur shops but the exact location of their origin was not known. Blanford (1881) cites one record from Afghanistan. It is a skin sent to him from Kandahar. Elsewhere it is found in Iran (Lay, 1967), Uzbekistan and Turkmenistan (Bobrinski *et al*., 1965).

Status: Threatened. Its luxuriant fur is sought by furriers. No information is available on its occurrence in former habitats. It is possible that it has been exterminated from its former range in the southern lowlands.

STRIPED HYENA
***Hyaena hyaena* (Linnaeus, 1758)**
Pashto: *kozh*
Dari: *kaftaar*

Description: It is a medium sized carnivore with a head and body length of 120-135 cm and a coarse bushy tail 24-28 cm long. An adult male stands 68 to 76 cm at the shoulder, females are slightly smaller and lighter than males (Dunbar Brander, 1931). The hind quarters which are less developed than the fore form the distinguishing features of the animal in the wild. The head is large with a dog-like muzzle. Body color is tawny-yellow with broad vertical black stripes along the flanks and slender stripes around the outer surface of the fore and hind legs. A conspicuous crest of long hairs extends from the crown of the head to the pelvis giving the animal a shaggy look. The fore feet are much larger than the hind limbs hence it is called *kozh* (crooked) in Pashto.

Habitat: 500-1,500 m. Semi-deserts, dry steppes and crags.

Habits: The hyena mainly feeds upon carrion coming out at night after spending the day sheltering in underground burrows or natural caves. Its strong forepaws can dig meat from caches made by other animals

and the powerful jaws are capable of crushing bones and it can swallow whole pieces of bones which it is capable of digesting (Morris, 1965; Prater, 1965; Harrison, 1968). Although primarily a scavenger, it will also take live food such as tortoises (Hatt, 1959). In captivity the hyena feeds on a variety of fruits and vegetables. Young are born in spring and summer after a gestation period of about 105 days. Litter size varies from two to six pups. The newborn are blind and helpless and remain in their underground burrows until they are capable of venturing on their own. Hyenas emit a weird chattering call that resembles the crackling of a human laugh when they come out to feed at night. It is an unpopular animal in many parts of the world because of its tendency to raid human graves to dig and consume recently buried bodies. Males regularly mark their territory by rubbing their anal gland on stones.

Distribution: Occurs in the southern semi-deserts and the western and north-western steppes. Near Kandahar and Qalat hyenas are caught by hunters by entering their caves (Ayazi, pers. comm., 1970). Hassinger (1968) reports seeing a large hyena near Herat; he also purchased a skin in Herat which was said to have come from Qala Nau. To the east it is found in the Kabul river valley were Gaisler *et al*. (1968) cites a record from Somerkhail. The species is distributed across northern Africa, the Arabian Peninsula, Transcaucasia, Turkmenistan, Uzbekistan, Tadjkistan, Iran, Baluchistan and through India to Nepal (Ellerman and Morrison-Scott, 1951).

Status: Common. As the coarse fur is not of any economic value therefore it is not persecuted. Hyenas are trapped by professional hunters in Kandahar from their dens and forced to fight dogs, with tails tied to a pole or peg. However, they are released after being kept in captivity for a short period of time.

SMALL INDIAN MONGOOSE
Herpestes auropunctatus (Hodgson, 1836)

Pashto: *mush khurma*
Dari: *mush khurma*

Description: It has a slender build with short limbs. The long tail (about 20 cm) is three quarters the head and body length and tapers to a thin point. It is densely covered with hair except on the base where the pelage is shorter. The face is conical in shape with rusty colored hairs. The coarse fur is golden-buff or olive-buff in appearance with creamy-buff belly hairs. The ears are small with only the tip projecting above the pelage. The small eyes have a rusty-brown spectacle. The short feet are armed with relatively long claws which helps in burrowing.

Habitat: 500-1,000 m. Watercourses, steppes and cultivations.

Habits: The small Indian mongoose is diurnal in its hunting activities but hunts at night near towns and villages. It is often seen in agricultural areas where it uses water pipes as an underground lair (Roberts, 1977). The mongoose leads a solitary life preying on snakes, insects, lizards, rats, mice, small birds and their eggs. It has an omnivorous diet and is capable of taking vegetables (Harrison, 1968). The agility and quick movements of the animal enables it to capture snakes. The gestation period lasts six weeks with a litter size of two to four (Pocock, 1941). The young are practically hairless and open their eyes about two weeks after birth (Prater, 1965) and make a purring sound when suckling (Powell, 1913). It has a highly developed sense of smell, hearing and vision and will sit up on its hind legs to get a better view of the surroundings.

Distribution: Found in the semi-deserts of Kandahar and Seistan and the Jalalabad valley. Several live specimens caught in Kandahar, Dand and the vicinity of Grishk were seen in front of shops in the streets of Kandahar in December 1970 and April 1976 during field surveys (Habibi, 1977). Collections made by the Czechoslovakian Zoological team, lecturing at the Faculty of Medicine of Nangarhar University, are from Laghman and Jalalabad (Gaisler *et al.,* 1968). The Street Expedition's collection from Herat shows that its distribution extends westward as far west as Herat (Hassinger, 1973). In May 1977 an individual was observed crossing the Herat-Tourghundi highway during a field survey (Habibi, 1977). Naumann (1973b) reports seeing it in Dare Nur, northwest of

Jalalabad. The small Indian mongoose has an oriental distribution from Iraq, eastwards through Iran, Pakistan and India to the Malay states (Harrison, 1968; Ellerman and Morrison-Scott, 1951).

Status: Common in its distribution range. When young, it domesticates easily and is kept by snake charmers for display purposes.

COMMON GRAY MONGOOSE *Herpestes edwardsii* (E. Geoffroy Saint-Hilaire, 1818)

Description: Larger than *H. auropunctatus* it has an elongated tail which is slightly shorter than head and body length and is covered with long coarse hairs. The limbs are short with blackish claws. The body is covered with orange-brown coarse hair with darker feet and limbs of a reddish-brown color. The head is conical in shape and the ears are partially concealed in the body fur. Head and body length is 36-42 cm and the tail measures 32-39 cm. A wide sac-like pouch surrounds the anus.

Habitat: Below 1,000 m. Scrub, jungle and cultivations.

Habits: The common gray mongoose is a diurnal hunter and feeds on rodents, snakes, birds, lizards and scorpions. Found near towns and villages and when the opportunity arises it enters houses to steal food. The gestation period lasts about 60 days and two to three young are born in a litter. The young are helpless and blind at birth and the mother carries them in her mouth if the burrow is disturbed. Territory demarcation is done by rubbing the anal gland on protruding objects. It is a fearless fighter and will attack animals larger than its size. This mongoose kills snakes by swiftly leaping out of their range each time it is attacked thus tiring the reptile and then darting and seizing it near the head.

Distribution: Kullmann (1965) states that this species occurs in Afghanistan, however, he does not give any sighting record. Hassinger (1973) remarks: “Probably this species will be found to have a limited distribution in monsoonal Afghanistan and perhaps in the Jalalabad vale, Nuristan and eastern Afghanistan.” Due to lack of observation records its distribution remains uncertain in the country. Outside Afghanistan it is encountered from the Arabian peninsula, southern Iran, Baluchistan through India to Nepal (Ellerman and Morrison-Scott, 1951; Harrison, 1968).

Status: Unknown.

STONE MARTEN
Martes foina (Erxleben, 1777)
Dari: *dala khafaq*

Description: The stone marten has a soft fur with long and glossy guard hairs and a dense underfur. The upper side is almost uniform slate or gray brown. The underfur is brown. The limbs are considerably darker than the back. The throat is pure white or light straw. The white of the throat is broken down by brown patches and reduced to a very small area. Summer coat is shorter, coarser and darker. The tail is covered with long bushy hair and is considerably darker than the back. Head and body length is 40-55 cm and the tail is 25-30 cm long and it stands about 12 cm at the shoulder. The head is broad between the ears which are rounded and short. It has powerful forelimbs and the body is long and lithe. The claws are dark brown in color and are non-retractile. Males are generally larger than females.

Habitat: 1,000-3,500 m. Mountain ravines, canyons and bush-covered mountain slopes.

Habits: The marten is a solitary animal and is a diurnal hunter but in the vicinity of farms and villages it hunts at night. It has an omnivorous diet and is fond of fruits. Rodents, hares, pikas, birds and their eggs and

reptiles form the main food of the stone marten. It is a versatile animal capable of climbing trees and lives in the crevices of rocks or hollow trees. It is fond of basking during the day and is a capable swimmer. The young are blind, without hairs and helpless at birth. It is a vocal animal and emits loud screams or growling noises when excited.

Distribution: Throughout the montane terrain of the central highlands. It occurs in Ajar valley reserve (Habibi, 1977) and toward the north in Badakshan. Naumann (1972, pers. comm.) reports seeing a marten in the environs of Barak village in Badakshan province. Other records are given by Hassinger (1973) on the Shibar pass and Naumann and Niethammer (1973) who state: "According to the Wakhis the stone marten occurs near Qala Panja in the lower Wakhan valley." Novikov (1956) considers western Pamirs as part of its distribution range in Central Asia. Skins of stone marten were seen in the village shop of Waygul in Nuristan (Petocz, pers. comm.). The species is widely distributed in Europe and Asia and its distribution extends from Spain to the northern parts of China and Sikkim (Ellerman and Morrison-Scott, 1951).

Status: Threatened. Due to its ability to adapt to a wide variety of habitats it has maintained a foothold in montane habitats remaining at higher elevations which are sparsely inhabited by man. Continued persecution for its valuable pelt could reduce populations if not protected. Pelts are sold by furriers in Afghanistan and Pakistan.

YELLOW-THROATED MARTEN
Martes flavigula (Boddaert, 1785)

Dari: *dala khafaq zard towq*

Description: Larger than the stone marten it has a long tail which is three quarters the body length. The coat is relatively coarse, short and glossy. The back is brownish-yellow, gradually deepening posteriorly to brown. The back is variegated with deep brown, black and yellow colors. The neck and limbs are dark brown and the throat and upper portion of the chest are golden yellow, emphasized by dark bands running down the nape. The rest of the underparts are light or creamy yellow and the tail is jet black and not bushy. The rounded ears are low set. Both the fore and hind feet have sharp claws that assist in climbing. Head and body length is 60-75 cm and the tail is 40-45 cm long.

Habitat: 500-2,500 m. Monsoon forests, mountain slopes with cliffs.

Habits: It is generally a diurnal animal hunting on the ground and in trees. The prey consists of squirrels, birds, mice, rats, birds and their eggs. They also consume fruits, nectar from flowers and insects (Prater, 1965). It is said to be fond of honey and Roberts (1970) has observed an individual entering a hollow high up a tree which was occupied by nesting bees. The young are born in spring and summer with two to three in a

litter. The gait is clumsy on ground but it is agile and swift in trees and is capable of leaping from one branch to the other without difficulty.

Distribution: Reaches the western limits of its distribution in the Nuristan forests. Paludan (1949) reports seeing a yellow-throated marten in the cedar forests near Pashki in Nuristan. He was also offered skins for sale at Gusalek and Wama in Nuristan. Outside Afghanistan it occurs in Chitral, Kashmir, the Himalaya and Assam hill ranges (Prater, 1965).

Status: Threatened. Lack of any substantial records and the availability of few skins in fur shops indicates it is rare.

MARBLED POLE CAT
Vormela peregusna (Güldenstädt, 1770)

Dari: *mer mushan, mush palang*

Description: The marbled pole cats' body is boldly patterned with irregular dark brown and white blotches. It possesses offensive scent glands to warn off enemies. The face has striking masks with broad bands running above and below the eyes. Inside of the short ears, which are set wide apart, are fringed by white hairs. Its long body is smaller than a stone marten and it has short limbs. The tail is bushy with intermixed black and white hairs. Body fur is glossy and of reddish color merging to black over the shoulders. Head and body length is 27-35 cm and the tail is 12-18 cm long. Females are smaller and lighter in build than males.

Habitat: 500-2,500 m. Semi-deserts, steppes and hilly country.

Habits: The polecat lives in burrows which it digs with its powerful claws. It is adapted to a fossorial existence and comes out at night to hunt small rodents, birds and reptiles. When threatened it hisses and arches its bushy tail on its back to give it an effect of larger size and emits an offensive odor from its anal glands. In cold weather it comes out of its burrow to bask in the sun. The gestation period lasts about nine weeks with a litter size of three to four young (Prater, 1965).

Distribution: Found in the steppes all over the country. Hutton (1845) reports it from Kandahar province. A juvenile pole cat was on sale in Kandahar in 1976 which had been caught in the outskirts of the city

(Habibi, 1977). Hassinger (1973) notes purchasing a freshly killed male from a farmer near Kandahar. Naumann (1973b) remarks sighting pole cats at Dashte Laili near Sheberghan and Tashkurghan (Khulm) in the north. Gaisler *et al*. (1968) comments as follows on its occurrence: "According to the statement of the natives, the individual had been captured at the Alingar river near Laghman." Kabul furriers report it also occurs in Maimana and Tange Shadiyan of Mazare Sharif. Also sighted in the steppes around Abe Istada and near Kabul (Petocz, pers. comm.). It spreads westward to Lebanon and is found in the steppe country of the Caucuses and the Altai foothills (Ellerman and Morrison-Scott, 1951). To the east it is found in Pakistan with its range extending to China (Roberts, 1977).

Status: Rare. Encountered in fair numbers in the steppes. Skins are not commonly utilized for fur articles therefore trapping is not as prevalent as other Mustelid species.

ERMINE
Mustela erminea Linnaeus, 1758
Dari: *mosh tazy*

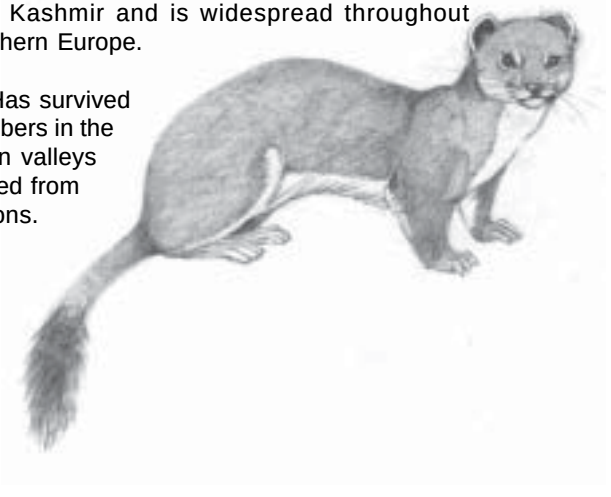
Description: The Ermine has a long cylindrical body with short limbs which are armed with sharp claws. It has a blunt muzzle, rounded ears and dark black eyes. Body color is chestnut brown. The chin, throat and undersides are creamy white. The tail is slender and has a conspicuous black tip. The winter coat molts into a creamy white color. Body length is 19-23 cm and the tail is 7-9 cm long.

Habitat: 2,500-4,500 m. Alpine valleys, montane watercourses, rocks and crags.

Habits: It is a solitary animal which mainly feeds on rodents, pikas, birds and insects. It lives in burrows dug by rodents and is capable of pursuing voles in their burrows because of its small size. Little is known about its breeding biology. Litter size varies from five to ten animals and the young are born in spring. It is capable of swimming as well as climbing trees. In Europe it inhabits a variety of habitats varying from farmlands near the shores to the Arctic tundra.

Distribution: Found in the alpine zones of northern Badakshan. Petocz (pers. comm.) saw an individual hunting a vole in Rastdara valley of Zebak. Naumann's (1973) observations include the valleys of Darwaz peninsula. Outside Afghanistan it is distributed in Chitral, the Karakoram mountains and Kashmir and is widespread throughout Russia and northern Europe.

Status: Rare. Has survived in sufficient numbers in the remote mountain valleys which are isolated from human habitations.



WEASEL
Mustela nivalis Linnaeus, 1766
Dari: *raasu*

Description: A small carnivore with an elongated, slender body which is conical in shape. The tail is about a quarter of the body length and is densely covered with short hairs. The pelage is short, dense and lacks the gloss present in the marbled pole cat. The color is uniformly brown with a whitish throat and belly, the dorsal surface of the fore feet is also white. The muzzle is short and obtuse. The ears are short and rounded with only the tips projecting above the fur. The limbs are short, the digits armed with whitish claws, the palms and soles are hairy. Head and body length is about 35 cm and the tail measures 70 cm.

Habitat: 1,500-3,500 m. Montane biotopes, rock cavities.

Habits: It is a bold hunter capable of tackling prey larger than itself. The weasel is diurnal in habits feeding mainly on small rodents, birds, pikas and lizards. It lives in burrows, under rocks and hollow tree cavities. Little is known about its breeding biology. It breeds once a year producing three to nine young in spring (Dahl, 1954). Pocock (1941) notes that the Altai population mates in February giving birth to young in May with a litter size which does not exceed five in number.

Distribution: Occurs in the Paghman range and the sub-alpine valleys of the Hindu Kush. A pair was observed in July 1966 feeding in a sedge meadow in Shakar Dara mountains of the Paghman range (Habibi, 1977). According to Kullmann (1965), Niethammer found weasel remains in the pellet of a predator near Paghman. Ellerman and Morrison Scott (1951) collected two specimens, one 72 km north-west of Kabul and the other from Shibar pass in the Ghorband valley.

Status: Threatened. Uncontrolled exploitation for furs has reduced numbers to isolated populations in higher valley heads.

RATEL
Mellivora capensis (Schreber, 1776)
Dari: *samur*

Description: A thickset animal with two sharply contrasting colors. The top part of the head, neck and back are silvery gray while the limbs, belly, chest and the lower part of the face are jet black. It has a broad head with a short muzzle and small external ear pinnas. The ratel has powerful fore limbs with long claws that are blackish in color, adapted to digging hard ground. The claws of the hind feet are shorter. The pelage is coarse and lacks any underfur. The tail is short, white on the upper side and black on the under side. Body length is 60-75 cm, tail 15-25 cm and it stands about 25 cm at the shoulder. It has a sac-like gland around the anus which emits an offensive secretion.

Habitat: Under 1,000 m. Foothills, river valleys and steppes.

Habits: The ratel has an omnivorous diet and is active both during the day and night. It feeds on rodents, birds, frogs and insects (Blanford, 1888). Ratels have also been recorded to prey on lizards (Ognev, 1935; Harrison, 1968). Pocock (1941) notes that they kill cobras for food also. It lives in burrows which it digs with great agility and is capable of climbing trees. The ratel is an aggressive animal and puts up a bold fight when threatened and is capable of warding off enemies larger than its size. The gestation period is 180 days and the usual litter size is two (Walker, 1975).

Distribution: There are no collection records of the ratel from Afghanistan. However, Novikov (1956) includes northern Afghanistan in its range of distribution. The closest records of this species are from the Hari Rud, Murghab and Amu Darya river valleys in Turkmenistan by Sapozhenkov *et al*. (1963). Its distribution in Africa ranges from South Africa north to Sudan. In Asia the ratel is found in the Arabian peninsula, Iran, Turkmenistan, Pakistan, India and Bangladesh.

Status: Unknown.

BADGER
Meles meles (Linnaeus, 1758)
Dari: *gor kaw*

Description: It has a heavy build, coarse and loose pelage with highly distinctive facial coloration. Two longitudinal black stripes which broadens posteriorly enclose the eyes and the ears. The nose, forehead and cheeks are white broken by the black stripe which extends all the way to the neck. All four limbs are blackish in color and the body is a grizzled gray-brown. With its thick-set body and strong claws it is capable of digging extensive burrows. It attains a body length of 100 cm and the short tail which measures about 25 cm is densely covered with hairs.

Habitat: Under 2,500 m. Steppes and semi-desert.

Habits: The badger is well adapted to digging extensive burrows in which it hides during the day. It has an omnivorous diet and consumes rabbits, small rodents, insects, fruits, roots and acorns. It is not a vicious animal but will defend itself effectively with a nasty bite and its long claws. The gestation period lasts about seven months and two to three young are born in early spring (Morris, 1965). Implantation of the ova is known to be delayed in this species as in the marten.

Distribution: There are no reliable records of the badger from Afghanistan but according to Bobrinski *et al.* (1965) it can be found in northern Afghanistan. Niethammer (1967) notes: “Once we were shown a pelt of *Meles meles* said to have come from Badakshan”. Kullmann (1965) remarks: “According to their distribution in Iran *Meles meles* probably occurs in the vicinity of Maimana, but no reliable records exist about their identification.” A live specimen brought to Kabul Zoo in 1970 was reported to have been taken in Behsud in central Afghanistan (Naumann, 1973). These statements indicate that it occurs in the northern steppes of Afghanistan. It is found in much of Europe and Asia extending its range all the way to China.

Status: Unknown.

COMMON OTTER
***Lutra lutra* (Linnaeus, 1758)**
Dari: *sage abi*

Description: It has a conical body with a dense short fur coat, olive on the dorsal surface and silvery-brown on the throat and abdomen. The underfur is extremely dense and delicate. The back is grizzled due to the pale tips of the guard hairs. The guard hairs are highly glossy and the long muscular tail is about half the head and body length. The ear pinnae are small and the broad head is flattened, features which help it swim under water effortlessly. The muzzle has a number of stiff white vibrissae. Both fore and hind limbs have elastic webs between each toe armed with short claws. Head and body length is 75-90 cm and the tail is 35-45 cm long.

Habitat: 500-2,000 m. Watercourses of the major rivers, streambeds.

Habits: It is a graceful swimmer and hunts fish with great dexterity and is capable of twisting and turning in water with the aid of its tail. It mainly lives on fish but will eat frogs, crayfish and waterfowl. The otter is a nocturnal hunter and lives in burrows along the banks of rivers marking its territory by rubbing the anal glands on stones or clumps of vegetation. It has delayed implantation and the gestation period lasts from 288 to 380 days (Harrison, 1968). Two to four young are born during the spring. The young are helpless at birth and do not venture into water until they are two to three months old (Roberts, 1977).

Distribution: The otter lives along watercourses in the southern, northern and central regions where it is active by night catching fish and is thus not seen frequently. It was common along the Helmand and Arghandab rivers in the past where it was frequently observed (Murray, 1887; Hutton, 1945). Skins in Kabul fur shops are said to come from Badakshan. Paludan (1949) purchased skins at Gusalek in Nuristan. Skins purchased by the Street Expedition were from the Anjuman Pass in Panjsher and Juwain in Seistan (Hassinger, 1973). Niethammer remarks seeing skins which were obtained from Maidan-Tal valley, west of Kabul. Naumann (pers. comm.) reports seeing them on the banks of Landai Sin in Nuristan. Three young specimens procured by the Kabul Zoo in 1970 came from the vicinity of Khanabad. Petocz (pers. comm.) observed otters on the banks of the Hari Rud near Herat and in the Kantiway river near Chaman in Nuristan. The species is widely distributed through Europe and Asia.

Status: Threatened. The fur is used to make articles such as hats and coats. Large scale hunting has reduced numbers in recent years. Seen only in isolated areas where hunting and trapping is limited. Furs are seen on sale in shops in Afghanistan and Pakistan.

BROWN BEAR
Ursus arctos isabellinus Linnaeus, 1758

Pashto: *kher yezh*
Dari: *khers nasvary*

Description: The brown bear has a reddish-brown color. The pelage is long with a thick underwool with the shoulders having a rump of longer hair. It has a massive head with small rounded ears. The limbs have long claws, whitish or pale brown in color. Those of the forefeet are longer and adapted to digging. Males are larger than females measuring 150 to 220 cm in head and body length with a short tail which is about 8 cm long.

Habitat: 2,500-5,000 m. Alpine and sub-alpine valleys, montane forests.

Habits: Brown bears are solitary and each individual occupies a territory of its own. It is an omnivorous animal feeding on a variety of foods including fruits, bulbs and roots of plants, insects, fish, rodents and small crustaceans (Roberts, 1977). It is known to attack and take livestock. The gestation period lasts for about 240 days and the female generally gives birth to two cubs in January. The newborn stay with the mother until she emerges from hibernation in spring. The cubs are born blind and

weight about 500 grams at birth. It goes into hibernation sometime in October, digging a lair under a boulder where it remains dormant for a period of about five months.

Distribution: An inhabitant of alpine valleys and forested regions it occurs in the Big and Small Pamirs and in Nuristan. In 1968 Kullmann shot a young animal in Tulabai valley of the Big Pamir. Another record from Tulabai valley is a specimen shot by a foreign hunter in 1973. Several sleeping pits utilized by bears were seen in Abe Khan and Teli Boy valley heads during a field survey in the summer of 1973 (Habibi, 1977). Naumann (1973) remarks on its range in Teger Qorom of the Small Pamir. A young specimen purchased by the Kabul Zoo is reported to have come from Panjsher valley. The record from eastern Afghanistan is that of a skin purchased by the Third Danish Expedition at Wama, Nuristan (Paludan, 1949). They are also reported to occur near Chaman in the Kantiway valley of western Nuristan (Petocz, 1977, pers. comm.). It is widely distributed in the Himalayas, northern and central Asia, eastern Europe, and North America.

Status: Threatened. Rare in the forested regions of Nuristan. Hunting pressure has caused a decline in this part of the country. Its numbers are low in the alpine Badakshan valleys also.

ASIATIC BLACK BEAR
***Ursus thibetanus* G. (Baron) Cuvier, 1823**

Pashto: *thour yezh*
Dari: *khers siyah*

Description: It has dense shiny black hairs and a pale creamy yellow V shaped mark on the chest. There is a ruff of long hairs fringing the cheeks and running down all the way to the shoulders. It is smaller in size than the brown bear and stands about 75 cm at the shoulder. The rounded ears are set far apart. The claws are pale-brown in color, the tail is small measuring about 8 cm in length. Males are considerably larger than females measuring up to 180 cm in head and body length.

Habitat: 1,500-3,000 m. Forests, sub-alpine valleys and alpine meadows.

Habits: It is an agile climber and is found in coniferous and deciduous forests. The black bear is a nocturnal creature with omnivorous feeding habits. The food includes fruits, acorns, grass, flowers, insects, crustaceans, rodents and it supplements its diet with lizards in the drier parts of its range. Black bears are reputed to attack livestock preying on

sheep and goats and raid crops. It digs its own burrow or sleeps in the hollow of trees several meters above the ground. Mating takes place in October and the young are born in January or February. It does not undergo prolonged hibernation and emerges to forage in winter. Black bear cubs are caught when young and trained to give dancing performances to street audiences. They are handled with a noose tied to the inner cartilage of the nose.

Distribution: Various records of live sightings and skins of the black bear reveal it occurs in the monsoon forests of eastern Afghanistan. Petocz (1972) remarks on a sighting by local people in Aligar valley, Laghman province. During a field trip in the winter of 1971 we were shown an untanned skin of an adult at Kamu village, Nuristan (Habibi, 1977). The inhabitants also reported killing a young animal in the nearby forest. Specimens procured by the Kabul Zoo are said to have come from the vicinity of Barge Matal in Nuristan. Povolny (1966) remarks on a young animal wounded by local hunters 20 km north of the village of Darunta, west of Jalalabad. The Third Danish Expedition (1948-49) purchased skins from Wama and Pashki in Nuristan (Paludan, 1949). Villagers living in the Paron and Waygul valleys of Nuristan keep smoldering logs smoking near their fields of maize to ward off black bears from destroying their crops (Petocz, pers. comm.).

Status: Its status in Afghanistan is Threatened. Numbers have depleted in large parts of its range due to indiscriminate hunting. Seen only in isolated pockets in remote parts of the eastern forests but it is considered a disturbance around agricultural fields in Nuristan.

Perissodactyla

Perissodactyla or the odd-toed ungulates includes the horses, tapirs and rhinos. They are medium to large mammals adapted to running. The weight of the body is borne on the central digits with the third digit longest on all four feet. In the horses and asses only the third digit is functional in all four feet and is encased by hooves. The development of the foot is a specialization which enables the horses to run swiftly. It is not that well developed in the rhinoceros and tapirs. Members of this order are herbivores and they are either browsers or grazers. The structure of their teeth facilitates them in chewing coarse vegetation. Only a few members of this order survive having a greater assemblage of families in the past geologic ages which are known only through fossil records.

ONAGER OR ASIAN WILD ASS
***Equus hemionus* Pallas, 1775**
Dari: *ghora khar*

Description: The onager has a reddish-tan coat with creamy-white legs and belly and a dark brown mane. The head is broad with a rounded muzzle, the upper lip is covered with stiff fawn hairs. The ears which measure about 20 cm have dark brown tips. It stands about 120 cm at the shoulder and the tail is 30-40 cm long terminating in a coarse tuft of black hairs. The hooves are black and there is a horny callous inside the upper part of the forelegs.

Habitat: 500-1,500 m. Semi-deserts, arid plains, treeless biotope.

Habits: The onager is a gregarious animal which has the tendency to congregate in large numbers after the rainy season. It prefers to feed on grasses and is a grazer. Bachelor stallions form small groups of their own or wander singly while the dominant stallions stay with the females. During the rut the males fight viciously to gain dominance. Gestation lasts about 320-330 days (Veselovsky and Volf, 1965) with one foal being born at a time. Stallions emit a shrieking bray when courting an estrus female.

Distribution: According to Emperor Babur (1504) the wild ass occurred near Khurd Kabul, Ghazni and in the Katawaz plain. Babur, in his memoirs, gives the following account of a wild ass hunt: “A hunting circle was formed on the plain of Katawaz where deer (kiyak) and wild ass were plentiful and always fat. Masses went into the ring, masses were killed...” Aitchison (1889) remarks seeing a large herd of onagers galloping on the plain of Gulam-i-Maidan of the Hari Rud valley. Connolly (1840) notes the occurrence of *gora khar* (onager) between Helmand and Bandan hills in Iran. During a reconnaissance survey of Herat province in June 1976 we were informed by several sources that the wild ass was still hunted near the Afghan-Turkestan border in that province and parts of Badghis (Habibi, 1977). The animals were believed to come from the Turkmenistan side. A hunting party managed to kill four animals in 1975 and capture one alive in a camouflaged ditch.

Outside Afghanistan it is known from Turkmenistan, Tibet and Mongolia (Ellerman and Morrison-Scott, 1951). In the Middle East the onager has been reported from Iran (Lay, 1967), Iraq and Syria (Harrison, 1972). Eastward it occurs in the Rann of Kutch in India (Prater, 1965).

Status: Considered Threatened in Afghanistan. From the above records it is evident that the onager was once widespread in the southern semi-deserts and Heart steppes. However, lack of any records in former habitats suggest that the onager population has been drastically reduced in Afghanistan.

Artiodactyla

The Artiodactyla or even-toed ungulates range in size and their distinguishing feature is the foot, which has an even number of well-developed digits and the body weight is borne by the median digits (the third and fourth). They live in a variety of habitats ranging from scorching deserts to alpine valleys near the snowline. They are herbivorous animals that survive on a wide variety of plants such as grasses, leaves and woody material in which there is a relatively low amount of nutrients.

The Bovidae, the largest family of this order, includes the goats, sheep, cows and the popularly known antelopes and gazelles. These animals comprise at least 200 different species scattered all over the world. The sheep, however, only inhabit the northern hemisphere and are not found south of the equator. Their preferred habitats are the highlands of Asia and the North American continent and some parts of southern Europe. The bovids form an important group as many species have been domesticated by man for economic use.

The Cervidae, considered the commonest large wild animals in the world, are divided into eight major groups, two of which, the true deer of Eurasia and North America and the hollow-toothed deer of North and South America, comprise about 90 percent of all known forms. The red deer *Cervus elaphus* is common in most parts of Europe and Asia and spreads from the British Isles throughout Europe and eastern Siberia into the Middle East to Afghanistan. North of the Himalayas it spreads to the Tien Shan mountains. Musk deer *Moschus moschiferus* once plentiful all over east Asia has become extremely rare in its former range.

Of the four different kinds of pig-like animals occurring in a large belt of Eurasia three species are exclusively found in the oriental region with the exception of wild boar which ranges from western Europe and northern Africa throughout most parts of Asia as far as China.

GOITERED GAZELLE
***Gazella subgutturosa* (Güldenstaedt, 1780)**

Pashto: *oseye*
Dari: *ghazal*

Description: A small gazelle with reddish-gray pelage. The belly and throat are pure white. Winter coat is more luxuriant with longer hairs. The legs have dark brown tufts of hair on the knees of the fore limbs. The hooves are sharp and black in color. It has large dark eyes with a prominent pre-orbital gland below the eye which enlarges during the rut. The flank band is absent in the winter coat while the summer coat has an indistinct line of reddish-brown hairs separating the white belly fur from the flanks. The face has a chestnut brown band from the corner of the eye to the mouth. The males have well-developed lyrate horns with prominent ridges varying in size from 20 to 30 cm. Females are either hornless or some have rudimentary horns which are slender and fragile.

Habitat: Under 1,000 m. Scree covered semi-deserts, arid plains and treeless areas.

Habits: The goitered gazelle is an inhabitant of barren country and has the tendency to live in large herds. Such gregarious character resulted in large scale destruction of the population with the advent of all terrain vehicles and modern rifles. It is a mixed grazer and browser living on a variety of xerophytic vegetation and covers large distances in search of food and is capable of surviving without water, deriving its moisture needs from the vegetation it eats (Taylor, 1968; Habibi, 1991). During the rut the preorbital glands of the male gets dilated and a streak of black substance flows over the skin under the eyes which the males rub against plants and other objects to mark their territory (Habibi, *et al*., 1993). Territorial males are highly vocal and aggressive and constantly chase and herd females grunting at them with their tail held stiffly in an upright position. The young are born in March and April with a number of females producing twins. The lambs remain concealed under a bush or rock for a period of two to three weeks and are visited by the mother to suckle. After this brief period of concealment they are able to follow their mothers and start eating plant material.

Distribution: Found in the steppes and semi-deserts. Aitchison (1889) attests seeing several bands near Herat. He gives its range of distribution from Quetta, extending through the desert country of Kandahar to Herat. The Street Expedition, 1965 (Hassinger, 1973) collected specimens from the vicinity of Grishk. They also saw a male near Kalat. Naumann (1973) has observed them in the Registan and Margo deserts. In northern Afghanistan the goitered gazelle is sparsely distributed in the Khulm plain and parts of Hairatan desert. Lambs collected from these areas were seen on sale in Kabul in 1973 (Habibi, 1977). Officials of the Herat Livestock Company reported seeing a small band in Hamdan desert, south of Herat in 1976. Recent reports from the Registan desert indicates it still occurs in this southern scree desert (Barakzai, 2002, pers.comm.). The goitered gazelle ranges from the Arabian peninsula through Iraq, Iran, Turkmenistan to Mongolia and Northern Tibet.

Status: Threatened. Formerly hunted in classical fashion when individuals were separated from a herd and chased by tazi (hound) dogs. Such sustainable hunting practices were outmoded with the availability of all terrain vehicles, motorcycles and paved roads which traverse gazelle country. Groups are mercilessly chased to exhaustion until they succumb and are then slaughtered. Over-hunting has limited gazelle populations to isolated pockets in the remote Registan, Margo and Hamadan deserts.

SIBERIAN IBEX
***Capra ibex* Linnaeus, 1758**
Pashto: *mugley*
Dari: *ahu rung*

Description: It is a heavy and thick set animal with a large beard, long scimitar shaped horns in the male with prominent corrugations tapering to relatively slender tips. The horns of some adult males grow over 120 cm. They curve significantly forming three quarters of a complete curve. Females and young are reddish brown in color in summer turning dark-gray in winter. The males have a dark brown coat with a pale saddle patch. Winter coat varies in color with some males having creamy white necks and shoulders. Females have shorter horns that curve backward and measure up to 30 cm. The underwool is long and soft. The short tail is bushy and covered with long black hairs. There is a mid dorsal brown stripe extending from the shoulder to the tail.

Habitat: 2000-5000 m. Alpine valleys, permafrost zones, cliffs and rocky crags.

Habits: The ibex is a gregarious animal living in small herds ranging in size from 2-30 animals. Herd size is usually larger during the rut in autumn when the large males start associating with the females. During the rut there is fierce competition among the males with the dominant individuals associating with the females and threatening the smaller males when they attempt to approach the females (Schaller, 1977; Habibi, 1994). Appropriation of the female is achieved by setting up a hierarchial system which is recognized and respected by members of the group once the larger males establish their dominant position. After the rut the males leave the female groups and form bachelor herds. Young are born toward the end of May in a remote area which is secluded and well concealed. Twinning is common in ibex and the young are capable of following their mother a few days after birth. They are dependent on their mother's milk for a period of four weeks after which they start grazing. The ibex is a crepuscular feeder mainly active at dawn and late afternoon. It is capable of digging in deep snow to find forage. In summer it lives near the snow line but comes down to the valley bottoms during winter months with the accumulation of snow.

Distribution: It is found throughout the Hindu Kush and Kohe Baba range. The ibex has been observed in the Big and Small Pamir, the Darwaz peninsula and the alpine valleys of Zebak in the north (Habibi, 1977), and is common in the alpine areas of southern Badakshan and northern Nuristan (Petocz, pers. comm.). Ibex also occurs in the central highlands of Afghanistan and is found in large numbers in Ajar Valley Reserve of Bamiyan province, Tange Gharu and Lataband passes, the Khost Fereng mountains of Baghlan (Sultani, pers. comm.) and the Kohe Baba and Paghman mountains. To the west it occurs in the Safed Koh valley heads. Outside Afghanistan the Siberian ibex is distributed throughout the Himalayan region and the Pamir, Altai and Tian Shan mountains to the desert regions of southern Mongolia (Valdez, 1985).

Status: Rare. Has maintained good numbers and it is the most abundantly available mountain ungulate in Afghanistan. However, the availability of rifles due to the ongoing civil war may have endangered populations. Prior to the war in 1978 about 5000 animals were estimated to occur in and around the Ajar Valley Reserve (Shank *et al.,* 1977) and the Pamir population is likely to number several thousand animals.

WILD GOAT OR BEZOAR GOAT
Capra aegagrus Erxleben, 1777

Pashto: *trey*
Dari: *ahu trey*

Description: The wild goat has a thick set body with scimitar shaped horns that are not heavily knobbed but bear irregular protuberances. The horns are keeled in front and compressed laterally and measure over 100 cm in adult males. Males are silvery-gray with a sooty gray chest, throat and face, a dark beard and a dorsal line of black and gray hairs extending from the neck to the tail. A rust brown transverse stripe is present across the front of the shoulders. The belly and limbs are chestnut brown. Females and young are reddish-brown in body color with a brown mid dorsal line from the shoulders to the base of the tail. The horns of females are shorter, curve backward and measure about 15 cm. Females and young have a dark stripe running from the corner of the eye to the muzzle.

Habitat: 2500-3500 m. Barren rocky mountains and hills, cliffs and crags.

Habits: The wild goat is a gregarious animal grazing and browsing on desert vegetation. In winter it may continue feeding during the day while in summer it restricts its activity to the early morning hours and late afternoon, continuing to feed after dusk. While browsing it will stand on the hind legs to reach higher branches. Their social habits are similar to those of ibex and the large males do most of the breeding after they have established dominance in a group. Females in estrus are courted by these males and when mating takes place the males start looking for other females and may leave the group altogether. The gestation period varies from 150 to 155 days (Schaller, 1977) and the young are born sometime in April. Twinning is common in the wild goat. The kids stay with their mother for a period of six to eight months and even after weaning they are attached to the mother. The attachment fades when the female gets pregnant again and tries to drive off the young by threatening them with the horns or rushing at them.

Distribution: The range of the wild goat includes the Uruzgan mountains and the headwaters of the Helmand river extending north towards Gulran in Farah province and Sharak of Ghor province. No animals were observed during a field survey in May 1976 in the Uruzgan habitat. However, shepherds reported seeing a group of females on a steep mountain ridge near Gezab. Hunters from Kandahar report the occurrence of these goats in valley heads which feed the Arghandab river (Habibi, 1977). The range of the wild goat extends from the eastern Mediterranean through the Taurus mountains in Turkey to Iran and the drier mountains of Baluchistan and Sind in Pakistan.

Status: Threatened. Like other members of the genus *Capra,* the wild goat is well adapted to rocky biotopes. With colonization of their habitat by man, accompanied by over hunting, their numbers have dwindled and small bands have been forced to live in inaccessible parts of the highlands.

MARKHOR

***Capra falconeri* (Wagner, 1839)**

Pashto: *mar khura*
Dari: *ahu markhur*

Description: The markhor is a sturdy animal with relatively short legs and broad hooves. Its vertically spiraling horns are atypical of all goats. Adult males attain a horn size of up to 120 cm. They have a long beard and long shaggy hairs on the neck, shoulder and above the hocks. Body color is reddish gray and the tail is short and sparsely covered with black hairs. The ventral surface of the tail is naked. Belly and legs are creamy white. There is considerable variation in horn shape and size on the basis of which several sub-species have been recognized. In all races the horns are close at the base and diverge outward in a spiral twist. Females have shorter horns measuring about 35 cm in length, usually bearing one and a quarter twist.

Habitat: 1,000-4,000 m. Conifer forests, stony ravines, cliffs and gorges.

Habits: It is a gregarious animal living in small groups. Mature males join female groups during the rut but lead a solitary life the rest of the year living in more inaccessible parts of the range. The markhor is crepuscular in its feeding habits but in winter the animals remain active most of the daytime. It is a mixed browser and grazer and is capable of climbing

trees effortlessly browsing on the leaves and acorns of oaks. During the rut the animals come down to the lower valleys where males and females congregate from late October to December. The gestation period varies from 162 to 170 days (Roberts, 1977). Twins are common and occasionally triplets may be born (Pottinger, 1911). The young are dependent on their mother's milk for a period of six weeks after which they start foraging. They stay with their mothers until the next rutting season.

Distribution: Three sub-species of markhor are found in Afghanistan. Viable numbers of *C.f. falconeri* exist in the headwaters of the Alingar and Alishang rivers in Laghman (Petocz, 1972). Seasonal concentrations occur in different sections of Nuristan including the Kamu, Kamdesh, Barge Matal, Pech Parun and Waygul valley heads and the Spinghar forests of Paktiya (Habibi, 1977). The range of *C.f. megaceros* extends from the Kohe Safi region of Kapisa to the Tange Gharu and Lataband passes, east of Kabul (Petocz, 1973). There are indications that *C.f. heptneri* is confined to the Darwaz peninsula of northern Afghanistan. Elsewhere the markhor is found in the Chitral forests of Pakistan, the Karakoram mountains and the Baluchistan highlands.

Status: Its status in Afgfhanistan is Threatened. Formerly widespread in the rugged mountains of Nuristan (Robertson, 1896). Range utilization by ever increasing domestic stocks and use of firearms has reduced markhor populations in all habitats. Viable populations existed in Nuristan until the late 1970's. As many as 56 animals were seen in a single day during a survey conducted in August-September of 1977 (Petocz, 1977). Destruction of forests in eastern Afghanistan has resulted in a decrease in markhor populations in recent years.

MARCO POLO'S SHEEP OR PAMIR ARGALI

***Ovis ammon polii* Blyth, 1841**
Pashto: *marco polo gertsa*
Dari: *ahu marco polo, qashqar*

Description: Male Marco Polo sheep develop long outward curving horns. In mature rams the spiraling horns measure 120-160 cm in length, they are broad at the base curving outward with a sharp fronto-orbital edge. They have massive bodies which are almost twice the size of other species of wild sheep (Clark, 1964). The summer coat is short, sandy-reddish in color while the winter coat has a grayish appearance and the thick underwool gives the animal a bulky appearance. The legs and belly are creamy white. The tail is short and not bushy. The rump patch is white and there are no markings on the legs which appear longer than wild goats. Females have short horns measuring about 15 cm with slight annulation in the frontal part. Males attain a shoulder height of 110 cm and a mature ram may weigh up to 115 kg.

Habitat: 3,500-4,500 m. High mountain plateaus, alpine valleys and sedge meadows.

Habits: It is a gregarious species living in large herds. Females and young may form groups of up to 50 animals. The females are accompanied by yearling males. As the males grow they start forming bachelor bands and with the passing of time join a group of adult males. In summer the females feed at lower elevations near the valley bottoms while the males stay close to the snow line. They are crepuscular in their feeding activity being active mainly in the early hours of the day and toward sunset. A group of females and young observed during the summer resumed their feeding activity between 1600-1700 hours and remained active until dusk. In winter they are more active during the daytime and continue feeding through the afternoon. The Marco Polo sheep is mainly a grazer living on grasses and sedges. The rut takes place in November and early December and the young are born in May and early June (Lydekker, 1907). During the rut males contest for supremacy and fights take place between rival males. The rams rise their fore feet off the ground prior to clashing and bang their horns with full force. The impact of the clash results in a loud cracking sound and contributes to the chipping of the horns or cutting the skin on the bridge of the nose if the blow is not neutralized with the horns.

Distribution: The range of the Marco Polo sheep in Afghanistan is restricted to the Afghan Pamir valleys. In the Big Pamir segment seasonal concentrations occur in western Tulibai, Sargaz and Abe Khan valleys while in the eastern sector they are found in the valleys draining into Zor Kol lake (Habibi, 1977). In the Small Pamir segment they occupy the valleys north of Aksu river and Waghir valley. Total population found in the two segments of the Pamirs, excluding the Wakhgir valley was estimated to be about 2,500 animals in the mid 1970s (Petocz, 1973). Outside Afghanistan they are found in the Pamir mountains of Tadjkistan, the Tagdumbash region of China and the Kilik and Khunjerab passes in Pakistan (Valdez, 1982).

Status: It status in Afghanistan is Threatened. It was well protected in the Big Pamir segment prior to the start of the civil war in Afghanistan. Only a dozen animals were taken by foreign hunters through an organized hunting program of the Afghan Tourist Organization. Although hunted in the Small Pamir by Kirghiz, predation rate was not high and did not cause any significant demographic or social damage to the population two decades ago when the animals were studied. According to the Wakhis, the Marco Polo sheep is still found in both sectors of the Afghan Pamir. Mishra and Fitzherbert (2004) also observed the Marco Polo in the Big Pamir in summer of 2002 during a visit to the Wakhan.

URIAL SHEEP
***Ovis orientalis* (Linnaeus, 1758)**
Pashto: *sra gertsa*
Dari: *ahu nekhsheyr, mel*

Description: The body has a reddish-gray color, the long legs and belly are creamy white and the white rump patch is not as distinct as in the Marco Polo sheep. Adult males develop a conspicuous chest ruff of coarse hair which starts under the chin and ends between the fore legs. The ruff hairs are white in the throat region and black further down. The horns which curve out from the body measure 65-75 cm in mature rams. They stand about 76 cm at the shoulder. Females have shorter upward curving horns measuring about 13 cm.

Habitat: 500-4,000 m. Alpine and sub alpine valleys and steppes.

Habits: It is a gregarious animal forming large herds where populations have not been decimated. Mature males live in small bands outside the

rutting season, often at higher elevations than the females and their young. They rest during the day and feed in the early morning hours and toward sunset. In the alpine valleys they mainly take grasses but those populations living in arid habitats browse also (Roberts, 1977). During the day they shelter under a tree or rock. In the Zebak valley a group of males was observed at an elevation of nearly 4000 m during the summer months. The animals were resting in the open close to the snow line on a patch of grass without any shelter. When threatened the urial emits a shrill sneeze call which can be heard at a distance of several hundred meters. The rut starts in October and lasts until November. The gestation period appears to be about 160 days. The young are active and are capable of following their mothers within a few days after birth. Twinning is not common in the species.

Distribution: At least four sub-species of urials are thought to occur in Afghanistan within a range extending from the Zebak mountains in the north east to the Selselya Siyah Koh of southwestern Afghanistan. The Afghan urial *O.o. cycleros* is believed to have the widest distribution of any wild ungulate in the country with occurrences noted throughout the central Hindu Kush mountains into the Hazarajat. They have been found in Qolatu and Pushte Chob ranges of Ajar Valley reserve and from there migrate to distant valleys of the central Hazarajat. As reported by local hunters, urial migrations occur between headwaters of the Helmand River to winter ranges in Uruzgan. East of Kabul, the Afghan urial is found in the Kohe Safi region of Kapisa province (Petocz, 1973). The same sub-species is found in the Safed Koh range in Herat and Badhgis provinces eastward towards the Bande Bayan in Ghor province. The Badakshan urial is known from the mountains bordering Chitral between Zebak and Sanglech. Movements westward towards Jurm to summer ranges occur in early spring but the extent of their distribution in other areas of Badakshan is not known. The Lataband urial is known only from specimens collected from hunters in the Lataband pass area near Kabul. Baluchistan urial is believed to occur in the more southerly parts of Kandahar and Ghazni provinces but this is yet to be confirmed. It has a widespread distribution extending from Europe to the Himalayas. The urial is found in the Mediterranean islands, Turkey, Iran, parts of the Arabian Peninsula, with its range extending eastward to northern Tibet.

Status: Insufficient data is available to assess the status of this very widespread ungulate in the country. Afghan urials probably numbered in the thousands prior to the start of hostilities in the country but the population sizes of the other three sub-species are likely to be much smaller because of their more limited distribution.

BACTRIAN DEER
Cervus elaphus bactrianus Linnaeus, 1758

Dari: *gawzn bakhtari*

Description: The Bactrian deer is related to the red deer which is found from Europe through Asia and North America and is the only cervid which occurs in Afghanistan. It is a moderate deer in size and stands about 120 cm at the withers. The body color is a uniform yellowish-gray without any rusty tones. The legs and belly are creamy white. The white rump patch extends to the hock area, the tail is short and lacks bushy hair. The antlers are of medium size, usually with five tines. Two terminal tines generally bifurcate toward the sagittal plane of the body. The antlers are shed in March and April. New antlers start growing within a few days after the shedding of the old ones and are covered with a sheath of velvety hair.

Habitat: Below 1,000 m. Broad leafed forests, reed beds and woodlands.

Habits: It lives in small herds ranging in size from three to six animals (Heptner, Nasimovich and Bannikov, 1988). In summer groups feed mainly at night and rest during the day in shaded areas. In winter most of the day is spent in feeding. It is a good swimmer and can move fast when disturbed. During the rut dominant males start bellowing to attract females. Sexually aroused males mark trees by peeling off the bark with their antlers, stomp the ground with their hooves and saturate it with urine. The males form harems in which several females are kept. Mating takes place in late September. Gestation lasts about 240 days. At birth the fawns are not stable on their legs but are capable of running and jumping within two weeks.

Distribution: The last two strongholds of the Bactrain deer remain in the wetlands of Amy Darya (Oxus) near Imam Sahib, in Kunduz province and the river islands of Darqad in Takhar, along the Afghan-Tadjkistan border. Deer transplanted in Ajar valley thrived in a narrow growth of willows in Ajar Valley (Shank *et al.*, 1977). Outside Afghanistan the Bactrian deer is found in Tadjkistan and Turkmenistan.

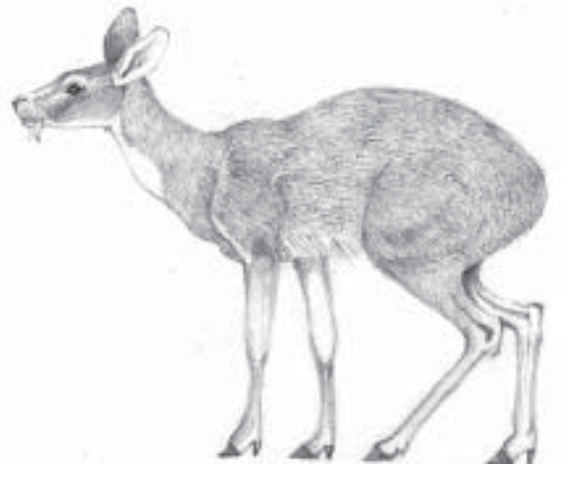
Status: Threatened. The Bactrain deer population has declined in Afghanistan. Unchecked habitat destruction, and an influx of settlers in former deer range accompanied by natural calamities has resulted in the decimation of deer population. The Ajar Valley population, which was well protected for two decades, was reported to have been hunted in the early 1980's (Alexander, 1980).

MUSK DEER
***Moschus moschiferus* Linnaeus, 1758**
Dari: *ahu khutan*

Description: A small-sized deer. Its hind legs are longer than the fore and it lacks antlers. It has large rounded ears, the upper canines are elongated below the lower jaw, particularly in the males. Body hair is coarse and lacks any underwool. General body color is brownish-gray. The lower cheeks, throat and belly are whitish. The summer coat has pale horizontal rows of spots extending from the shoulder to the pelvic region. The tail is completely buried in long hairs of the anal region. The musk gland is situated beneath the abdominal skin in males. When fresh it has an unpleasant odor but when dry it acquires the scent of musk. An adult male from Gilgit was measured 53 cm at the shoulder with a total body length of 94 cm and an ear length of 9.4 cm (Roberts, 1977).

Habitat: 1,500-3,000 m. Conifer and oak forests.

Habits: It is a solitary animal and shows territorial tendencies, depositing its feces in the same spot and rubbing the cuadal scent glands against branches and stones which is an indicator of territorial behavior (Kirchshofer, 1972). Musk deer are usually active in the early morning



and late afternoon and spend the day laying in a secluded spot. It survives by eating a variety of vegetation including leaves, grasses, bark and twigs of trees and lichens. The rut takes place from November to December and the young are born in early June.

Distribution: The distribution of the musk deer in Afghanistan remains obscure and vague. According to local inhabitants from Nuristan this deer occurred in the former Kafiristan (Nuristan) valleys and forests. Paludan (1948) reports seeing a musk deer in Parun valley near Pashki in Nuristan. During an expedition in 1977, the presence of musk deer in the area of Nisheigram and Maktosho, Nuristan was reported to the survey party by locals (Petocz, pers. comm.). Naumann (1971) received reports of this animal from Kamu, Nuristan. Outside Afghanistan its distribution extends across the Himalaya to Nepal, southwestern China and the boreal forest regions of Russia.

Status: The musk deer is heavily hunted because of its delicious meat and the high value of its musk pod which is sought throughout the Middle East. Although evidently inhabiting the forests in different parts of Nuristan, it must be regarded as extremely rare.

WILD BOAR
Sus scrofa Linnaeus, 1758

Pashto: *sarkuzy*
Dari: *khuge*

Description: The wild boar is a bulky animal with a thick neck and short legs. Skin color is dark gray covered with long coarse black and brown bristles. The pointed ears are set forward and densely covered with hairs. The small eyes are set close to the base of the ears. The bristles on the lower cheeks are longer. Adult males have well-developed lower canines which curve upward. The short tail terminates in a tuft of brownish bristles. Males are larger and heavier than females and stand about 90 cm at the shoulder and may weigh over 100 kg.

Habitat: 500-2,000 m. Marshes, swamps, woodland and reed beds.

Habits: It is a gregarious species living in small groups. The wild boar is a nocturnal animal emerging at dusk to feed, looking for its preferred food by means of its acute sense of smell. It is bold and fearless and if surprised it reacts by attacking the intruder. The boar is largely vegetarian in diet but will eat meat if the opportunity arises. It survives on seeds, fruits, leaves, tubers and carrion. It is capable of digging the ground with its snout, which is adapted to such a method of foraging. Groups are

destructive to farm crops and uproot more crops than they can actually consume.

Distribution: Scattered through the steppe and semi-desert region the wild boar inhabits watercourse biomes. To the north the boar is common in the river islands of Amu Darya in Darqad, Imam Sahib and the banks of the Balkh and Murghab rivers. In central Afghanistan, it occurs along the headwaters of the Hari Rud and further south in the basin of this river in Herat and the Sabzak pass in Badghis (Habibi, 1977). In the southern deserts its distribution extends along the banks of the Helmand, Farah and Khash Rud rivers. A major concentration occurs in Marja farm of the Helmand Valley Authority. Local inhabitants report its occurrence in the Kunar forests also. Outside Afghanistan it is widely distributed throughout Europe, Asia and North America.

Status: As one of the most common wild ungulate in the country, it occurs in significant numbers in marshes and swamps protected by rich growth of reeds and scrub. Considered unclean in Islam, the wild boar is untouchable and persecuted only when it becomes a nuisance to crops. The species is widely reputed for damaging large tracts of cultivation in areas where it has secured a strong foothold.

Lagomorpha

Lagomrophs are divided into two distinct groups. The Ochotonidae which include pikas are found in montane biotopes throughout Eurasia and North America. Leporidae, hares and rabbits, are scattered over Asia, Europe, parts of Africa and North and South America in significant number of species and races. The hares and rabbits have a short tail and the pikas lack a tail. The fur is soft and fine in pikas and thick and soft in the Leporidae. They have two pairs of incisors in the upper jaw of which the second pair, situated behind the first pair, is unfunctional. The incisors grow throughout life and are covered by enamel. Pikas are diurnal animals that live in rocky areas while rabbits and hares are mainly active at dusk and night. They eat only vegetation preferring grasses and herbs but during winter when there is a scarcity of food they will eat the bark of young trees and the stems of shrubs.

CAPE HARE
Lepus capensis Linnaeus, 1758

Pashto: *kherr suy*
Dari: *khargush khakey*

Description: The pelage is fine and dense with a soft woolly texture. The body color is blue-gray with a thick underwool during the winter. The belly hair is pure white. The tips of the large ears are black and measure about 12 cm in length. Head and body length averages 41 cm and the heavily tufted tail is about 5 cm long, the back of the tail is covered with black hairs. The feet have powerful claws and the soles of the fore feet are thickly covered with hair. The hind feet are almost twice as long as the fore which enables it to spring effortlessly.

Habitat: Alpine and sub-alpine valleys, semi-deserts, scrub and sandy biotopes.

Habits: The cape hare is crepuscular in activity and leads a non-social life living under rocks and bushes and does not excavate its own burrow. It lives by feeding on grasses, herbs and leaves. In winter when there is a scarcity of food it resorts to eating twigs of shrubs and small trees. A male kept in captivity practiced coprophagy by eating its night pellets (Roberts, 1977). The cape hare is a swift animal and dodges its prey by hopping in a zig-zag fashion to confuse its enemy. It comes out to feed before sunset and remains active after it is dark. When fighting individuals chase each other and rear on their hind feet to attack the rival with their fore paws and attempt to bite.

Distribution: Widely scattered throughout the country the cape hare occurs in the alpine Pamir valleys where it was commonly observed during field surveys in the summer months (Habibi, 1977). In the central regions it occurs in Kohe Baba range and the undulating hills of the Hazarajat region and Ghor. In the steppes it has been reported by Niethammer (1965) from Herat to Delaram. Field observations by the Third Danish Expedition (Paludan, 1949) are from the Seistan region and the Sabzak pass in Badghis province. The Cape hare is widely distributed in Africa, Asia and Europe (Ellerman and Morrison-Scott, 1951).

Status: Common. A high demand for furs has resulted in population decimation in the steppes but in the more remote montane ranges it is still widespread.

INDIAN HARE
Lepus nigricollis F. Cuvier, 1823

Description: The Indian hare has a black or dark brown patch of hairs on the back of its neck from the ears to the shoulder. It has slender limbs and long broad ears. The relatively short fur is pale cream and black in color. The ears are covered with short hair and are nearly naked on their anterior surface. The short tail is covered with pure white hair with a narrow band of reddish-brown and black hairs. Belly hair is soft and creamy white in color. Both the fore and hind feet have strong claws. Head and body length measures about 48 cm.

Habitat: 500-1,000 m. Scree-covered deserts, forests.

Habits: The Indian hare is a solitary animal which comes out from its hiding to feed at sunset. It is territorial in nature and grazes on shoots of grass, forbs, leaves and twigs. They do not excavate burrows and hide under bushes, clumps of vegetation and rocks. Some individuals have been observed to use the burrows of other animals (Taber *et al.*, 1967) .

Distribution: This species has been recorded solely from eastern Afghanistan. A young specimen collected by the Czechoslovak team lecturing at Nangarhar University comes from the vicinity of Behsud in the Jalalabad vale (Gaisler *et al.*, 1968). To the southeast its range extends into the Spinghar forests of Paktiya province (Sayed, pers. comm.). Outside Afghanistan it is mainly found in the Indian sub-continent (Prater, 1965; Roberts, 1977).

Status: Unknown. Little is known about this hare in Afghanistan but due to lack of records it is probably rare.

AFGHAN PIKA
Ochotona rufescens (Gray, 1842)
Dari: *pang mush afghany*

Description: The general coloration is reddish sandy with soft silky fur and a blue-gray underfur. The belly fur is creamy-buff. In size it is slightly smaller than a guinea pig and lacks any traces of a tail. Its conspicuous ears are circular in outline. The upper incisors bear a longitudinal groove on the anterior surface and a second pair of small incisors is situated behind the central pair. The hind foot is slightly elongated. The hind feet have four toes while the fore-feet five which are armed with sharp black claws. The soles of the feet are covered with hairs except for the black digital pads.

Habitat: 1,000-3,500 m. Rock and structure biotopes.

Habits: The Afghan pika is a gregarious species that lives in burrows. They are diurnal and do not hibernate. They excavate their own burrows under rocks, the roots of trees and shrubs. It has the habit of storing food and is often seen busy biting off shoots of grass and carrying it to its underground storage. In spring pikas are very industrious, carrying food into their burrows throughout the day. They are agile animals and can leap over large rocks using them as vantage points to observe the habitat. When excited it emits a high pitched whistle. They are known to practice coprophagy by eating their nighttime feces (Walker, 1975) and have the habit of depositing their feces in front of their burrow in one place.

Distribution: Widespread in the central regions along wet biotopes. The Afghan pika spreads from the Salang Pass towards Uruzgan and Sabzak pass in the north-west, encompassing the Paghman range, Kohe Baba, Firoz Koh and Spinghar. Field observations are from Bande Amir and the Gezab region in Uruzgan province (Habibi, 1977). Outside Afghanistan it occurs in the mountainous regions of Pakistan, the Elburz mountains of Iran (Harrington, 1977) and the Trans-Caspia in Russia.

Status: Common. Observed in the remote mountainous regions where there are no human habitations.

LARGE-EARED PIKA
Ochotona macrotis (Günther, 1875)

Dari: *pang mush gosh daraz*

Description: Slightly larger than the Afghan pika with a reddish-brown pelage and larger ears. The fur is soft and silky with a grayish-blue underfur. The circular ears which measure about 2.5 cm are covered with hairs both dorsally and ventrally. It lacks a tail and measures about 20 cm in body length. In winter the entire soles of both fore and hind feet are covered with hairs, while in summer the plantar pads are exposed.

Habitat: 2,000-4,000 m. Alpine and sub-alpine valleys.

Habits: The large-eared pika is diurnal in activity and feeds on a number of plants and has the habit of cutting vegetation and taking it to underground burrows. It emits a thin piping whistle, and when calling jerks its body upwards. This pika lives in rocky habitats where there is abundant snowfall during the winter months. The storage of large stockpiles of food helps it survive periods of heavy snowfall when there is a scarcity of food.

Distribution: Restricted to the alpine valleys of Badakshan and Nuristan. Observations in the Big Pamir sector include Tulibai and Abe Khan valleys and Rastdara of Zebak (Habibi, 1977). Naumann (1973b) has sighted the pika near Sarhad and Putukh in the Wakhan corridor. The Third Danish Expedition (Paludan, 1949) reports its occurrence in Estiewe, along the Badakshan-Nuristan border zone. Petocz (pers. comm.) has observed them in numerous areas in the Big and Small Pamirs and in the alpine zones of western Nuristan. Outside Afghanistan it is found in the Himalayan region of Pakistan with its range extending as far as Nepal (Prater, 1965).

Status: Common in the high mountain valleys where there are no human habitations.

Rodentia

The rodents comprise 35 families and include a third of all the mammalian genera and over half of the total species of living mammals. They are split in more than 350 genera thus constituting the largest order of animals possessing mammary glands. Their distribution is worldwide, some are terrestrial, others arboreal and some are specialized for underground life, while others live a semi-aquatic life. The incisor teeth of rodents grow throughout life and they are used as a chisel to cut hard materials thus preventing them from growing backward and piercing the roof of the mouth. They often grind their incisor teeth together, apparently to keep them in proper condition. The tails of some species break off readily when the animal is caught by the tail, enabling it to escape. They have a high birth rate which enables them to maintain a stable population. Rodents are important economically as some species destroy insects and weeds. Others are harmful and carry parasites that transmit dangerous diseases.

Rodents have the ability to adapt themselves to extreme temperature fluctuations and physical features and are found in habitats varying from forests to scrub, swamps, grasslands, farmlands and human habitations. They are divided into three primary groups:
The Myomorphs or mouse-like animals are the most numerous among rodents. The following families are found in Afghanistan. Cricetidae, 19 species. This family includes the hamsters, gerbils, jirds and voles. Muridae, 5 species. Includes the rats which mostly inhabit anthropogenic habitats. Dipodidae, 5 species. Composed of the jerboas which inhabit the steppes and semi-deserts. Gliridae, 1 species. The forest dormouse is the only known species from Afghanistan that lives in alpine and steppe habitats. Hystricomorph or porcupine-like. One species, the crested porcupine (family Hystricidae) occurs mainly in the steppes of Afghanistan. This is the largest of four species distributed over Africa, west and south Asia and southern Europe. The Sciuromorph is the most advanced group of all rodents. These squirrel-like animals are found all over Eurasia, Africa and the Americas. They have hundreds of distinct forms that are divided into 40 genera. One family Sciuridae, including five species, is recognized in Afghanistan.

As a result of widespread hunting of various predator species in some parts of the country the number of rodents, which have the ability to live near human habitations, is on the rise resulting in health hazards to humans and the destruction of crops (Petocz, 1973b).

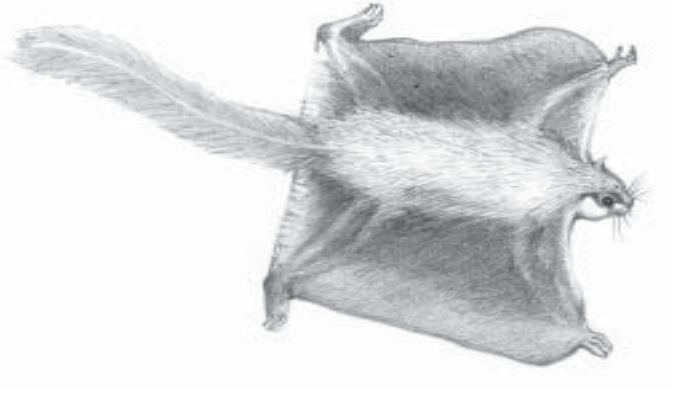
GIANT FLYING SQUIRREL
Petaurista petaurista (Pallas, 1766)

Dari: *kaftar mush buzurg*

Description: It is a large squirrel with long thick hairs. General body coloration is mahogany-red. The round head has a blunt muzzle, reddish-chestnut in color with a ring of black hairs circling the large eyes. The ears are covered with hairs on both surfaces and do not project above the head. The belly fur is orangish in color. Both the hind and fore feet are covered with hairs, all digits bearing sharp curved claws. A flap of skin, which helps the animal in gliding from one branch to another, stretches from the wrist to the metacarpal joint of the hind leg. The tail is generally longer than the body length, covered with thick hairs the same color as the hairs on the back, with a black tip. Head and body length averages 40 cm and the tail is 42 cm long. Females are slightly smaller than males.

Habitat: 1,500-2,500 m. Conifer and oak forests.

Habits: A nocturnal species, it is capable of maneuvering among the branches of trees in the darkness of the night. It spends the day curled up in the hollow of a tree well above the ground. The food consists of cones of pines, fruits, walnuts and acorns. It is a superb glider and accomplishes this feat by climbing the top branches of a tree and as it jumps to the lower branches of another tree it spreads its skin flaps gently gliding to



the approaching branch. The giant flying squirrel can cover distances up to 70 m in such leaps. When it reaches the opposite branch it extends all four feet to reduce the shock of impact. The young are born in spring with two being the normal litter size (Prater, 1965).

Distribution: An oriental species, the giant flying squirrel occurs in the monsoon forests of Nuristan, Laghman and Paktiya. It has been recorded from Kamu in Nuristan (Habibi, 1977), Sensa in Dare Pech and the Spinghar forests in Paktiya (Niethammer, 1967). Outside Afghanistan it is found in the Chitral and Himalayan forested regions in Pakistan, India and Nepal with its range extending to Malaysia and Indo-China (Prater, 1965).

Status: Threatened. Destruction of its habitat due to removal of forest cover is likely to have deleterious effects on its population.

SMALL KASHMIR FLYING SQUIRREL

***Hylopetes fimbriatus* (Gray, 1837)**

Dari: *kaftar mush dum bareek*

Description: It is smaller than *Petaurista petaurista*, has a large head, prominent ears, large eyes and an elongated muzzle. The ears have little hair. The dorsal fur is pale ashy-brown with some black hairs, the belly is dull white. The body fur is short and not luxuriant as in *P. petaurista*. The tail is broad and bushy with a black tip and measures about 30 cm. A flap of skin stretches from the wrist of the fore-limb to the hind feet. The palms of all feet are naked and armed with sharp claws, the upper surface of the feet is covered with dark brown hairs. Average head and body length is 28 cm and the tail is about 30 cm long.

Habitat: 1,500-3,600 m. Conifer and oak forests.

Habits: It is a nocturnal species sleeping in a sheltered place during the day. Not shy of humans it lives near human habitations and has been seen to shelter under the roof of houses (Roberts, 1977). This squirrel eats various kinds of nuts and leaves of deciduous trees. The young are born in summer, they are naked and helpless, and are under the care of the mother for eight to ten weeks. It is a prolific glider and can leap over 50 m with the aid of its elastic flaps (Niethammer, 1967).

Distribution: The monsoon forests of Nuristan and Paktiya. Babur reports it from Nejrab in the sixteenth century (Babur, 1921). The Third Danish Expedition record includes a specimen from Estiewe, along the border zone between Nuristan and Badakshan. Niethammer (1967) has seen them in Pech valley in eastern Afghanistan. Outside Afghanistan it occurs in Chitral and Gilgit in Pakistan, Kashmir and northwestern India (Prater, 1965; Roberts, 1977).

Status: Threatened. Exploitation of its forested habitat is likely to have reduced the populations of this species in the monsoon forests of Afghanistan.

LONG-CLAWED GROUND SQUIRREL

Spermophilopsis leptodactylus
(Lichtenstein, 1823)
Dari: *senjab kalan*

Description: Body color resembles its sandy surroundings, summer coat is yellowish sand-buff while the delicate and silky winter fur is rusty-sand in appearance and is much denser than the summer coat. The throat, neck and belly are white. Both fore and hind feet are armed with sharp claws about 10 mm long. The soles of feet are covered with hairs which conceals the calluses. The ears are short with folds around the auditory meatus and are concealed in the head fur. The tail is less than the body length, covered with hairs and the same color as the dorsal section of the body. Head and body length averages 25 cm and the tail is about 8 cm long.

Habitat: Below 1,000 m. Clay and loess biotopes.

Habits: The long-clawed squirrel lives mainly in sandy country and steppes. It is diurnal in feeding habits and is usually active in the early morning and evening hours during the summer. In winter it continues to feed most of the day. The food consists of rhizomes, artemesia, fruits and occasionally insects such as beetles. It has the habit of digging large areas of fixed sand to obtain the roots and bulbs of plants. The whole feeding area is covered with holes and heaps of piled earth and sand. It is not a true hibernator and goes through sleeping periods during winter depending on the severity of weather (Ognev, 1940). The young are born in late spring. Litter size ranges from three to six.

Distribution: It is found in the northern and western steppes. The Third Danish Expedition reports it from Maimana and Sheberghan (Paludan, 1949), in the northwest, Kullmann (1970) collected it 30 km west of Kunduz in the north and the Street Expedition reports it from Herat, Mazare Sharif, Maimana and Kunduz. Outside Afghanistan it occurs in Turkmenistan and northern Iran (Ellerman and Morrison-Scott, 1951; Lay, 1967).

Status: Unknown. It does not seem to be taken by fur hunters in Afghanistan therefore it is likely that it is found in relatively stable numbers.

GROUND SQUIRREL
Spermophilus fulvus (Lichtenstein, 1823)

Dari: *senjab zameney*

Description: The pelage is coarse in texture, the dorsal region is cinnamon-buff while the sides and belly are a lighter pink-buff. The muzzle is rather blunt and the eyes are well developed. The forefeet have sharp claws while the hind feet are clawless and the palms are naked. The tail is flattened and bushy, the dorsal side of the tail differs little from the general tone of the back. There is a distinct black ring at end of the tail. The cheek pouches are poorly developed.

Habitat: 1,000-3,500 m. Sandy steppes and alpine plateaus.

Habits: The ground squirrel is a typical inhabitant of the steppes and semi-desert regions. It has the habit of living in colonies and members of a colony flock together preferring to live in damp places and near water. It is a timid animal, constantly on guard, looking around and standing upright on its hind legs and hides in a flash when it senses danger. They are diurnal feeders coming out of their burrows after sunrise and feed near the den on grasses and sedges. When the sun gets hot they take refuge in their burrows and emerge in the late afternoon. Mating takes place in spring after hibernation. The young are born naked and blind. Average litter size is six (Ognev, 1940). The young develop rapidly and start grazing freely in the vicinity of their burrows when they are about six weeks old.

Distribution: Widespread in the Katawaz plain where it is commonly seen in large numbers basking in the sun during spring months along the Ghazni-Moqur highway. Vertically its range extends up to 3200 m to the Dashte Nawar waterfowl sanctuary. To the west it is found as far as Herat and Obeh. Outside Afghanistan it is reported from Russia, Turkmenistan, northern Iran and Kashgar (Ellerman and Morrison-Scott, 1951; Lay, 1967).

Status: Common. Ground squirrel numbers were on the rise in the 70's as a result of fewer predators, such as foxes in its range, which were hunted indiscriminately because of a burgeoning trade in their furs.

LONG-TAILED MARMOT
***Marmota caudata* (Geoffroy, 1844)**
Dari: *vondok/tabarghan*

Description: The marmot has long, coarse hair, the dorsal fur is golden orange in color with a mixture of black hairs, adults have a long ruff of hairs on either side of the neck. It is short limbed and has a bulky appearance. The tail is bushy with a solid black tip and is relatively long measuring about 30 cm. The belly fur is rusty-orange in color. The hind feet have five digits and the fore have four. All are armed with powerful claws which are used to dig hard ground. The upper lip is divided and reveals the incisors which are covered with a dirty white enamel. Head and body length is about 50 cm. Adult males weigh over 4 kg. during the summer months when food is abundant.

Habitat: 2,000-4,000 m. Rocky outcrops, sub-alpine and alpine valleys, sedge meadows.

Habits: The marmot is a gregarious species living in large colonies. It excavates a system of burrows in which several animals may live; there are several entrances to the burrow system. They are diurnal and come out of their burrows to bask in the sun and feed on nearby vegetation. They are herbivorous feeding on a variety of grasses, flowers, bulbs and shrubs such as artemisia (Ognev, 1940). The long-tailed marmot spends long hours feeding in the spring and summer months as a result of which they build up sub-cutaneous fat reserves. With the onset of the cold weather they go into hibernation. When they sense danger a member of the colony gives a warning signal by whistling sharply. This alerts others to the danger. They flee when the source of danger gets close. When resting they sit on their haunches to get a better view of their surroundings. Despite their apparent bulkiness they are swift and can scamper over rocks without difficulty.

Distribution: A widespread species throughout the montane biotopes of Afghanistan, the marmot is seen in large numbers in the alpine Badakshan valleys of the Big and Small Pamir, and the Zebak and Sanglech area of southern Badakshan and the Darwaz peninsula. In central Afghanistan it occurs near the Dashte Nawar waterfowl sanctuary, the Hindu Kush, Kohe Paghman and Kohe Baba ranges. To the east it has been seen in the valley heads of Nuristan. Outside Afghanistan it is found in Turkmenistan, the Himalayan mountains in Pakistan and India, Kashmir and Chinese Turkestan (Ellerman and Morrison-Scott, 1951).

Status: Common. Marmots are sometimes trapped for their furs in the Pamir which are then exported from the area via peddlers to the markets of Badakshan and Kabul. In some parts of Nuristan, they are eaten as common fare and in other sections certain parts of the body are used as a medicinal food.

CRESTED PORCUPINE
Hystrix indica Kerr, 1792

Pashto: *skon*
Dari: *jarah*

Description: The distinguishing feature of the crested porcupine is its spiny armature over the dorsal part of the body. These quills commence from the forehead and extend backward along the spine to the middle of the back reaching a length of 30 cm in adults on the back of the neck. The spines are erected when the animal is excited. The face and muzzle is covered with coarse hair, the ears are rounded and partly covered by hairs. Both fore and hind feet are covered with hairs and armed with robust claws. The pelage is dark chocolate brown and the spines are banded creamy white and dark brown. The quills at the base of the short tail are white, they are open ended and produce a rattling noise when the animal wishes to warn off impending danger. It is a large rodent with adults reaching a size of 70 cm from nose to tail and weighing over 15 kg.

Habitat: 500-2,600 m. Clay and loess, watercourse, rock and structure biotopes.

Habits: It is a social species with two or three sharing the same burrow. They dig their own extended burrows which they use for several years if not disturbed. The porcupine feeds on the bark of trees, roots, bulbs, tubers and ripe fruits (Champion, 1927). They have the habit of carrying bones to their burrows and gnawing on them. The gestation period lasts about 112 days, the young are well developed at birth with their eyes open (Roberts, 1977). They remain with their mother for several months. When attacked the porcupine erects its quills in a crescent, the spines are immediately shed if they become impaled on an object and can inflict considerable injury on its enemy.

Distribution: Scattered throughout the country at varying elevations. It is common along the river shores in the southern semi-deserts and steppes. In the eastern section it is recorded from the Jalalabad and Dare Nur valleys with its range extending into the forests of Nuristan and westward to Herat. Outside Afghanistan the species is distributed in the Middle East, Turkmenistan and the Indian sub-continent (Harrison, 1972; Roberts, 1977).

Status: Common. Being of no commercial value the crested porcupine is not hunted.

SMALL FIVE-TOED JERBOA
Allactaga elater (Lichtenstein, 1828)

Description: It has long hind legs, armed with short but stout claws, suited for jumping, short fore-limbs and long ears, rounded at the tips, which measure up to 35 mm. The body fur is soft and silky, sandy in color with a mixture of black-tipped hairs. The lower cheeks and belly are pure white. The tail is long, covered with hairs and has a bushy tip of longer black and white hairs that is flat and feather shaped. The head is round with a short muzzle, with long vibrissae and large eyes. The upper incisors are pruodont and used for digging. Average head and body length is 110 mm, the tail averages 160 mm in length.

Habitat: 400-2,500 m. Sandy plains, clay and loess.

Habits: It is nocturnal in activity, spending the day in burrows which it digs itself. Each animal occupies its own burrow with an escape tunnel that is used when a predator enters the burrow (Roberts, 1977). They are social animals living in colonies, coming out at night and can be seen jumping around among shrubs and bushes in search of food. They are herbivorous and eat the seeds of grass as well green leaves of grasses and chenopods (Lay, 1967). When frightened they can jump over two meters in one hop and when pursued they will leap in a zig-zag manner, dodging and confusing the enemy. The young are born in spring, they are blind and are not active until they reach adult size.

Distribution: Found in the steppes and southern desert. Niethammer (1965) reports it is particularly abundant between Grishk and Dilaram. Further west it occurs in Herat province. To the east it has been reported from Ghazni and the Logar valley. The Street Expedition (Hassinger, 1973) collected specimens from Kunduz and Mazare Sharif in the north. Gaisler *et al.* (1967) reports it from Dashte Hairatan, 25 km north-west of Kunduz. Outside Afghanistan it is found from Kazakistan to Turkmenistan, Iran and Baluchistan in Pakistan (Lay, 1967; Roberts, 1977).

Status: Common. Seen along the roadside in desert areas.

HOTSON'S FIVE-TOED JERBOA
Allactaga hotsoni Thomas, 1920

Description: It is similar to *A. elater* in appearance with large ears, long tail with a black and white bushy terminal which is rounded rather than being flat. The body color is sandy-yellow or grayish buff. Head and body length averages 125 mm and the tail is about 170 mm long.

Habitat: 400-1,000 m. Clay and loess biotopes.

Habits: Its activity patters and mode of life are similar to *A. elater.* It is also a strictly nocturnal creature coming out at night to feed on vegetation.

Distribution: It has only been recorded from the Bakwa and Registan deserts in the south-west of the country. Niethammer (1965) reports them from the vicinity of Grishk and Delaram while the Street Expedition caught specimens in Grishk and Kang (Hassinger, 1973). Outside Afghanistan it is found in the Baluchistan sandy regions of Iran and Pakistan (Lay, 1967; Roberts, 1977).

Status: Unknown.

EUPHRATE'S JERBOA
Allactaga euphratica Thomas, 1881

Description: The pelage is long and soft, the dorsal surface is slate-gray, the contour hairs on the back has black tips. The belly and underparts are pure white. The muzzle is blunt with black and white vibrissae. The ears measure about 37 mm from notch to tip. The terminal tuft of the tail is trizonal on its dorsal side, it has a whitish zone followed by a blackish brown band and a pure white tip. It is a moderate sized jerboa with the head and body length averaging 120 mm, the average length of tail is 170 mm.

Habitat: 1,800-3,200 m. Structure and dry montane biotopes.

Habits: Like other jerboas it is strictly nocturnal in feeding habits and feeds in the vicinity of its burrow. It is remarkably fast and is capable of finding its burrow in darkness without difficulty when pursued. It has several pregnancies in a year (Misonne, 1959), the young are born naked and do not open their eyes until the second week of life.

Distribution: An inhabitant of foothills and mountainous regions, *A. euphratica* lives in higher and rougher terrain than any other Afghan species of jerboa (Hassinger, 1973). It has been recorded around Kabul near Tange Gharu pass, Beni Hisar, Kargah and Paghman. In the central regions it occurs in Dashte Nawar, the Unai and Shibar passes. Specimens obtained south of Kabul are from Logar (Niethammer, 1965). Outside Afghanistan it occurs in Syria, Jordan Saudi Arabia, Iraq and Iran (Lay, 1967; Harrison, 1972).

Status: Unknown.

GREATER THREE-TOED JERBOA *Jaculus blanfordi* (Murray, 1884)

Description: The long tail terminates in a black and white flag. The toes on the hind feet are covered with cream colored hairs. The head is large with a blunt muzzle and rounded black eyes. The ears are comparatively smaller than other jerboas found in the country and are oval in outline. The muzzle has long, stiff white vibrissae which measure almost the total head and body length of about 120 mm. The long tail measures 190 mm in length. The body fur is pale sandy-buff in color, it is long and soft. The lower cheeks and belly are pure white.

Habitat: 400-1,000 m. Sandy, clay and loess biotopes.

Habits: The burrows are made in sand dunes and the entrance plugged with loose sand. This jerboa is strictly nocturnal avoiding the daytime heat by staying in its burrow and comes out well after darkness. It is agile and can leap over two meters in a hop when disturbed. It mainly feeds on seeds and succulent halophytic vegetation (Roberts, 1977). They do not drink water and obtain their moisture needs from the vegetation they eat. The young are born naked and blind with relatively short tails. They remain in the burrow for a period of two months before they venture out.

Distribution: The Registan and Bakwa scree-covered deserts, the Helmand delta in Nimroz province and northern steppes in the vicinity of Balkh. Outside Afghanistan it is found in the eastern desert plains of Iran and Baluchistan deserts in Pakistan (Lay, 1967; Roberts, 1977).

Status: Unknown.

FOREST DORMOUSE
Dryomys nitedula (Pallas, 1779)

Description: Body color is pinkish-gray with a striking pattern of dark blackish hairs on either side of the face from the ears to the muzzle and around the eyes. The lower cheeks and throat are yellowish-white, the tail is long and bushy, flattened dorso-ventrally and shorter than the head and body length which in adults reaches about 95 mm. The feet have naked soles, each digit bearing sharp recurved claws. The ears are small, rounded with the dorsal surface covered with sparse hairs. The muzzle is conical with long vibrissae.

Habitat: 1,000-2,800 m. Rock, watercourse and structure biotopes.

Habits: The forest dormouse is a nocturnal feeder and lives in tree hollows and crevices of rocks where it makes nests from woven grass. It is an omnivorous feeder subsisting on berries, nuts, wild fruits and acorns (Roberts, 1977). Stomach contents of specimens trapped in Iran contained grasshoppers (Lay, 1967) and examination of their excrement in Israel showed remains of beetles (Nevo and Amir, 1961). They are known to eat the eggs of birds in Europe. The young are born blind and naked and their eyes do not open until they are sixteen days old. In Israel each female produces two to three litters per year (Nevo and Amir, 1964). In Russia they hibernate during the winter months (Ognev, 1940), but studies of the Israeli population shows that they remain active through the winter.

Distribution: Sparsely distributed in mountainous regions in the Hindu Kush and Paghman ranges. To the west it is found in Herat. Chaworth-Musters (1939 in Hassinger, 1973) collected specimens from Paghman, the Salang Pass and Herat. Outside Afghanistan it is widely distributed in southern Europe, Transcaucasia, Turkmenistan, Israel, Iran and the northwestern regions of Pakistan (Ellerman and Morrison-Scott, 1951).

Status: Unknown.

FIELD MOUSE
Apodemus sylvaticus (Linnaeus, 1758)

Description: The dorsal fur is grayish-brown, the belly, lower throat and cheeks are grayish white. The tail is covered with short hairs, the dorsal surface is brownish-gray while the ventral surface is whitish. In appearance it looks like a large house mouse. The muzzle is pointed and the ears rounded and protrude above the forehead. Head and body length averages 90 mm, with the tail being slightly larger than the body length.

Habitat: 1,500-3,000 m. Wet and dry montane biotopes.

Habits: The field mouse is a nocturnal feeder. It digs its own burrows and is a gregarious species. The diet consists of seeds, berries, wild fruits and insects. It has the habit of storing food and carries it into the burrow for use in winter months when there is a scarcity of seeds and berries. It breeds from spring through fall and produces four or five litters per year with an average litter size of five to six (Corbett, 1966). The young are born naked and blind and by the second week they are well covered with hair.

Distribution: This species is adapted to high country. It is found in the central highlands with its range extending from the monsoon forests of eastern Afghanistan to the Sabzak pass in the north west. In Paktiya it has been observed on the Peiwar pass. In Badakshan the field mouse has been collected in Ishkashem at the entrance to the Wakhan corridor (Hassinger, 1973) and in Qala Panja (Niethammer, 1969). The Third Danish Expedition reports it from Wama and Pashki in Nuristan (Paludan, 1949). This Palearctic species is found over most of Europe, Turkmenistan, Tadjkistan, northern Kirghiztan, Iran and Pakistan. Eastward it occurs in the Himalaya from Ladakh to northeastern India (Ellerman and Morrison-Scott, 1951).

Status: Unknown.

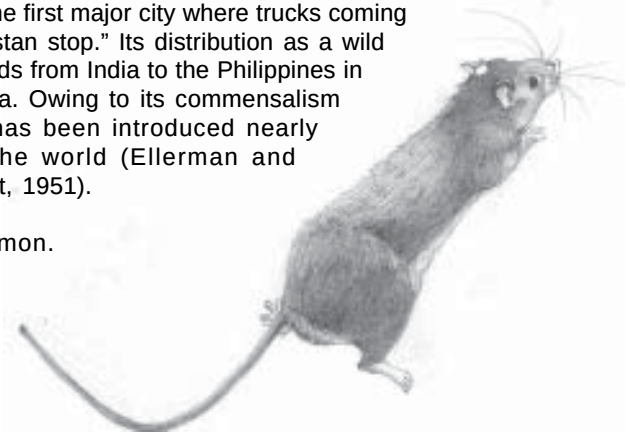
BLACK RAT
Rattus rattus (Linnaeus, 1758)

Description: The dorsal fur of this rat is dark grayish-brown, the tail is semi-naked and slightly larger than body length. Adults attain a head and body length of 160 mm. The muzzle is long and pointed, the ears round and naked and the eyes are round and black. The hind feet have five digits while the fore-feet have four.

Habitat: 400-1,600 m. Structure biotope and cultivations.

Habits: The black rat is a commensal of man, living in human habitations. It lives on grains, fruits, insects, garbage, meat and vegetables. It is a social animal and lives in large groups in a system of interconnected burrows in houses and storages. They are prolific breeders and females breed throughout the year producing six to seven large litters a year. Litter size is about ten. The young are born blind and naked but they develop quickly. Black rats are vectors for fatal diseases such as bubonic plague and typhus.

Distribution: Recorded only from the eastern sections of the country in the Jalalabad valley, Dare Nur and Nuristan. The Third Danish Expedition made collections in Gusalek and Wama in Nuristan, Gaisler *et al.* (1967) reports it from Behsud, Meterlam, Jalalabad, Somerkhel, Sarshahi and Dare Nur. All these localities are in eastern Afghanistan. Hassinger (1973) notes: "The Afghan distribution of these rats suggests that this commensal arrived in Jalalabad from W. Pakistan. Jalalabad is the first major city where trucks coming from W. Pakistan stop." Its distribution as a wild species spreads from India to the Philippines in southeast Asia. Owing to its commensalism with man it has been introduced nearly throughout the world (Ellerman and Morrison-Scott, 1951).



Status: Common.

TURKESTAN RAT
Rattus rattoides (Hodgson, 1845)

Description: The dorsal fur is grayish in color and the belly creamy-white. The ventral surface of the tail is pinkish-gray while the dorsal surface is a darker gray. Average head and body length is 170 mm, the tail averages 210 mm.

Habitat: 300-2,500 m. Coniferous forests, rock, watercourse and structure biotopes.

Habits: It is omnivorous in feeding habits and behaves similar to the black rat. The Turkestan rat is capable of surviving away from man and has adapted to coniferous forests and mountainous regions. It is a social animal and lives in large groups when it invades human habitations.

Distribution: It is a widespread species in mountain zones from the east through the central highlands to the base of Safed Koh in western Afghanistan. Outside Afghanistan it is found in Turkmenistan, Kirghizistan, Uzbekistan, Tadjkistan, Pakistan, Nepal and China (Ellerman and Morrison-Scott, 1951).

Status: Common.

HOUSE MOUSE
Mus musculus Linnaeus, 1758

Pashto: *muzak*
Dari: *moosh*

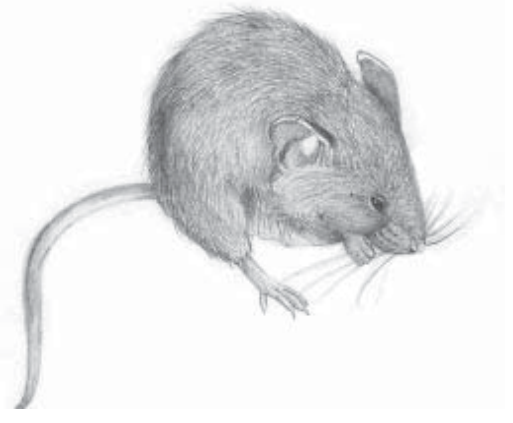
Description: The dorsal fur is grayish-brown, the tail is semi-naked and pink-gray in color. The muzzle is sharp and pointed, the ears are round and semi-naked. The belly fur is whitish. Head and body length averages 75 mm with the tail about 80 mm long.

Habitat: 300-3,000 m. Structure biotope.

Habits: It is an omnivorous mouse and mainly nocturnal in feeding habits. It feeds on grains, meat, vegetables, insects and household items such as leather and soap. They are prolific breeders and the females are capable of producing a litter every month. The young are born naked and blind in a nest made from household items such as bits of cloth material, wool, paper and other rubbish. Within three weeks the young are weaned and leave the nest. They are vectors of diseases such as typhus.

Distribution: The whole of Afghanistan, mainly anthropogenic habitats. According to Schwarz and Schwarz (1943) wild forms occur in Central Asia. It is distributed world-wide through introduction by man (Ellerman and Morrison-Scott, 1951).

Status: Common. Being a commensal of man it is found in areas where there are human settlements.



SHORT-TAILED BANDICOOT RAT *Nesokia indica* (Gray and Hardwicke, 1830)

Description: The general color of the body is grayish-brown, the belly fur is grayish-white. The naked tail is shorter than head and body length, the ears are short, naked and rounded. The muzzle is not as pointed as in *Rattus* species. The fore-feet are large and armed with long claws which assist in digging. Head and body length reaches 160 mm and the tail is 120 mm long.

Habitat: 400-2,000 m. Watercourse and structure biotopes.

Habits: The bandicoot rat lives in damp areas where it can dig its burrows in loose soil. The burrows are close to the surface of the ground consisting of a network of tunnels. The entrances of the burrows are plugged with loose soil. It mainly feeds on grass roots and bulbs. Based on pregnant and lactating females caught in different times of the year breeding activity appears to take place throughout the year (Walker, 1975; Taber *et al.*, 1967; Lay, 1967; Roberts, 1977).

Distribution: This rat has an extensive range in the northern, southern and eastern steppes and the Jalalabad valley. It has been trapped on cultivated terraces and along the banks of irrigation ditches. The Street Expedition, however, collected a single specimen from a sandy ridge in the Khash Rud valley where there was no free water with characteristic semidesert vegetation (Hassinger, 1973). Outside Afghanistan it is found in India, Pakistan, Turkmenistan, Iran with its range extending westward toward northern Arabia and Egypt (Ellerman and Morrison-Scott, 1951).

Status: Common. It is considered a pest in cultivated areas because its burrowing habits damage irrigation channels which are vital to the production of crops in areas where there is a scarcity of water.

LONG-TAILED HAMSTER
Calomyscus bailwardi Thomas, 1905

Description: In general appearance it resembles a gerbil but it lacks the cheek pouches of hamsters. The body fur is long and soft, the dorsal area is pale smoke-gray and grizzled drab, the lower cheeks, throat and belly are pure white. The tail is well furred, the ventral surface is white and the dorsal surface has a mixture of black and white hairs. The muzzle is pointed and the ears large, naked and pinkish in appearance. Average head and body length is 80 mm with the tail measuring about 85 mm.

Habitat: 400-3,500 m. Rocky slopes and arid regions.

Habits: It is a gregarious animal feeding on seeds, buds and flowers of wild plants. They have the habit of storing food which they use in winter months, when there is a scarcity of new growth. They live in rocky terrain and are able to jump over rocks and boulders without difficulty. Lay (1967) found a nest built in a narrow horizontal crevice in rock strata in Iran at an elevation of 3400 m.

Distribution: It is widely distributed in rocky habitats in the central Hindu Kush range, northwestern and southern steppes and Jalalabad valley. To the south it has been trapped near Dilaram and Kandahar (Niethammer, 1965; Hassinger, 1973). To the northeast it occurs in the Nuristan forests. Outside Afghanistan it is found in Turkmenistan, Iran and Baluchistan in Pakistan (Lay, 1976; Roberts, 1977).

Status: Unknown.

GRAY HAMSTER
Cricetulus migratorius (Pallas, 1773)

Description: The color of dorsal fur is bluish-gray with white cheeks, throat and belly hairs. The tail is relatively short and well furred. The muzzle is blunt and the ears are rounded, covered with short hairs on both surfaces. It has large cheek pouches which it stuffs with food. Hassinger (1973) reports trapping a specimen weighing 28 g had 4.5 g of legume leaves, seeds and seed pods in its cheek pouch. Average head and body length is 105 mm and the tail measures 35 mm.

Habitat: 1,000-1,350 m. Rock and structure biotopes.

Habits: The gray hamster is a bold species and has adapted to living in human habitations. Lay (1967) reports gray hamsters killed and partially ate jerboas and frogs which were put in the same cage. They are mainly graminivorous but will take insects and other small prey and have the habit of foraging in a large area. They seek shelter in burrows which they excavate themselves. They gather food in their pouches and, disgorge and store it in their chambers. Despite the fact that they live in cold environments they do not seem to hibernate in winter. Niethammer (1965) reports trapping them in December and January when the ground was covered with snow.

Distribution: Found throughout the country except in the southern deserts. In the Wakhan corridor it has been collected at an elevation of 3,000 m in Baba Tangi (Niethammer, 1965). To the east its range extends to Paktiya. Outside Afghanistan it is found in Greece, southern Russia, Turkmenistan, Pakistan, Syria and Palestine (Ellerman and Morrison-Scott, 1951).

Status: Common.

BALUCHISTAN GERBIL
Gerbillus nanus Blanford, 1875

Description: It is a naked-soled gerbil of medium size, sandy-buff in color, the cheeks and belly are pure white. The ears are rounded, hairless and pinkish-brown. The long tail is covered with brownish-buff hairs on the dorsal surface and creamy white ventrally. Head and body length averages 79 mm and the tail length averages 112 mm. The hind feet are elongated.

Habitat: 400-1,000 m. Clay and loess, watercourse and structure biotopes.

Habits: The Baluchistan gerbil is nocturnal in feeding activity and lives in burrows which it excavates. It feeds on seeds, freshly sprouted grass (Lay, 1967) and insects. Breeding seems to occur throughout the year. The young are born naked and blind. They develop quickly and are weaned by the end of the third week (Prakash *et al.,* 1971). This gerbil appears to remain active throughout the year without hibernating or aestivating (Roberts, 1977).

Distribution: In Afghanistan its range is restricted to the southern semi deserts. The Street Expedition collected specimens from Kandahar (Hassinger, 1973) and Niethammer (1965) reports it from Bost in Helmand province. Outside Afghanistan it occurs in Baluchistan, Arabia and Palestine extending westward to north Africa and Somalia (Harrison, 1972).

Status: Unknown

CHEESMAN'S GERBIL
Gerbillus cheesmani Thomas, 1919

Description: This is a slender build medium-sized gerbil, the dorsal fur is sandy buff in color. The cheeks, belly and interior parts of the legs are white. The tail is pale sandy buff dorsally and white on the ventral surface. It is densely covered with short hairs. The soles of feet are predominantly hairy. The muzzle is short and rounded with well developed black and white vibrissae. Head and body length averages 100 mm and the tail is about 130 mm long.

Habitat: 400-1,000 m. Sandy biotopes.

Habits: It is nocturnal in feeding habits and lives in burrows with wide entrances that are not plugged. They seem to eat seeds and herbs. Little is known about their breeding habits. Roberts (1977) notes that breeding probably takes place throughout the year with the majority of litters produced in spring and summer months.

Distribution: Its distribution is restricted to the southern deserts and is found in the Helmand river basin in the scree-covered Bakwa and Registan deserts. The Street Expedition (Hassinger, 1973) collections are from Kandahar, Spinboldak and Grishk. Niethammer (1965) records it from Farah, Kandahar and Bost. Outside Afghanistan it has been recorded from Pakistan, Iran and the Arabian peninsula (Harrison, 1972; Roberts, 1977).

Status: Unknown.

INDIAN GERBIL
Tatera indica (Hardwicke, 1807)

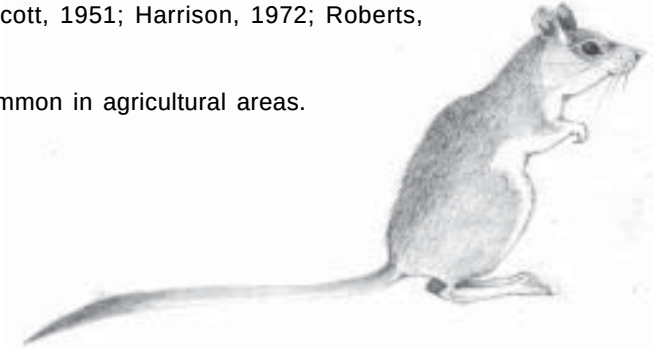
Description: The Indian gerbil is a large rodent with a long tail. The dorsal fur is reddish-fawn while the throat, abdomen and inside of limbs are white. The muzzle is pointed with long vibrissae and the eyes are large. The hind feet are well developed as a result of which it has the habit of hopping and sitting on its hind feed while foraging. The tail is grayish both dorsally and ventrally, the distal part has longer hairs terminating in a tuft. Males are larger than females. Average head and body length reaches 160 mm and the tail is about 170 mm long.

Habitat: 400-1,000 m. Clay and loess, watercourse and structure biotope.

Habits: It is a gregarious species living in burrows with multiple exits which they excavate themselves and has the ability of living in and near human habitations. The Indian gerbil is omnivorous in feeding habits and eats seeds, leaves, flowers of wild plants and insects. The young are born throughout the year resulting in their proliferation. Litter size is four or five and the adult female produces an average of 18 young annually (Jain, 1970). The young are blind and naked at birth, they develop quickly and by the end of the third week are fully weaned (Roberts, 1977).

Distribution: To the east it occurs in the Jalalabad valley, Somerkhel and Meterlam in Laghman province (Gaisler *et al.*, 1967). Specimens collected by the Street Expedition are from Herat, Kandahar and Jalalabad (Hassinger, 1973). Outside Afghanistan it occurs in India, Sri Lanka, Pakistan, Nepal and Iran with its westward range extending to northern Arabia (Ellerman and Morrison-Scott, 1951; Harrison, 1972; Roberts, 1977).

Status: Common in agricultural areas.



GREAT GERBIL
Rhombomys opimus (Lichtenstein, 1823)

Description: The great gerbil is a large rodent, reddish-fawn in color dorsally with a white belly. The rather thick tail is covered with hairs with the distal part having a bushy appearance. The soles of the strong feet are hairy with well developed black claws. The muzzle is broad with small ears covered by hairs on both the inner and outer surfaces. Males attain a head and body length of 170 mm and the tail measures about 150 mm. Females are slightly smaller than the males.

Habitat: 400-1,000 m. Clay and loess, watercourse and structure biotopes.

Habits: They are colonial, diurnal in activity and live in an extensive burrow system in sands and oases where they inhabit embankments along irrigation canals and ruins. It is herbivorous living on succulent desert plants and grasses (Lay, 1967). This gerbil does not hibernate and is active above ground when there is snow on the ground (Roberts, 1977). The young are produced in spring and summer. Litters have an average of five young (Walker, 1975).

Distribution: It is an inhabitant of semi-desert conditions and has been reported from the northern steppes of Mazare Sharif, Kunduz, Balkh and Pule Khumri (Kullmann, 1965; Meyer-Oehme, 1965; Hassinger, 1973). To the north-west it occurs in the environs of Bala Murghab with its distribution extending westward to Herat. Outside Afghanistan it is found in Turkmenistan, Mongolia and Iran (Ellerman and Morrison-Scott, 1951).

Status: Common near human habitations.

INDIAN DESERT GERBIL
Meriones hurrianae (Jordon, 1867)

Description: The body hair is sandy-buff in color with some black tipped hairs, the belly is creamy. The tail is covered with hairs which are longer in the distal one third region terminating in a tuft. The claws are well developed and blackish in color. The ears are small, rounded and covered with short hairs. Head and body length is 125 mm with the tail slightly longer.

Habitat: Below 1,000 m. Clay and loess biotopes.

Habits: It is a gregarious species living in colonies in extensive burrows with multiple entrances and ventures out during the day to feed on seeds, leaves, stems and roots of grass and insects (Prakash, 1959). Members of a colony are active throughout the year and have the habit of storing food in their burrows (Prater, 1965; Roberts, 1977).

Distribution: The presence of this gerbil has not been verified by collections in recent decades and its distribution remains questionable in Afghanistan. Thomas (1919) notes it from Kelat-i-Ghilzai between Ghazni and Kandahar. Outside Afghanistan it is widespread in Pakistan and India.

Status: Unknown.

PERSIAN JIRD
Meriones persicus (Blanford, 1875)

Description: The dorsal fur of the Persian jird is sandy-buff in color with a sprinkling of black hairs. The belly is pure white. The tail is hairy with a prominent bushy tip and creamy white on its ventral surface. The ears are comparatively long measuring 22 mm. The claws on the hind feed are whitish in color. It attains an average head and body length of 145 mm with the tail averaging 170 mm.

Habitat: 700-2,500 m. Rock and watercouse biotopes.

Habits: It lives in rocky areas making use of crevices in rocks or burrows which are not extensive and comes out to feed at dusk but is not highly gregarious, hence it is rarely encountered. The Persian jird is omnivorous in feeding habits subsisting on grass roots, seeds and insects. It does not hibernate in winter but may go through periods of torpidity in which it does not emerge from its hiding place (Roberts, 1977).

Distribution: It has a widespread range extending from the Jalalabad valley to the Herat oasis along the southern flank of the Hindu Kush range. In the mountainous regions it has been recorded from Paghman, Ghazni, Shibar Pass, Unai pass, Bamiyan and Khenjan in central Afghanistan (Niethammer, 1965; Hassinger, 1973). To the east it occurs in Dare Nur, Meterlam, Somerkhel and Jalalabad (Gaisler *et al.,* 1967). Outside Afghanistan it is distributed in Turkmenistan, Iran, Turkey and Pakistan (Lay, 1967; Roberts, 1977).

Status: Unknown.

MIDDAY GERBIL
Meriones meridianus (Pallas, 1773)

Description: Dorsal pelage is pinkish or cinnamon-buff in color. The ears are the same color as the back, with a fringe of longer pale-buff hairs along the front edge. The tail is bright ochraceous above, paler below with the terminal part slightly tufted, the dorsal part of which is tipped with black hairs. Belly and underside are white. The soles of the hind feet are fully furred, the claws white in color. Average head and body length is 120 mm, the tail measures 105 mm.

Habitat: Below 700 m. Clay and loess habitats in semi-deserts.

Habits: It is nocturnal in habits and lives in colonies in farm fields and open areas with bushes and grass. Burrow openings are under thorny shrubs concealing them from predators (Allen, 1940). This gerbil feeds on a variety of seeds, grasses and fresh leaves of desert bushes.

Distribution: The northern steppes and wetlands of Amu Darya. Specimens collected are from Kunduz and Dashte Hairatan, north of Kunduz (Gaisler *et al*., 1967; Hassinger, 1973). Niethammer (1965) found bones of *M. meridianus* in owl pellets near Darqad on the banks of the Oxus (Amu) river. Outside Afghanistan it is distributed in Turkmenistan, Mongolia, northern China and north-eastern Iran (Ellerman and Morrison-Scott, 1951).

Status: Unknown.

LIBYAN JIRD
Meriones libycus Lichtenstein, 1823

Description: The dorsal pelage varies in color from cinnamon buff to tawny olive with a sprinkling of black tipped hairs. The fur is soft and dense with a distinct gloss on the dorsal aspect when reflected in light. The tail is densely covered with short pinkish buff hairs and a black terminal tuft. Color of the belly hair varies from light gray to white. The soles of the hind feet are hairy and the claws black. Its small ears are covered with hairs on both surfaces and the black and white vibrissae are well developed. Head and body length averages 135 mm and the tail measures 130 mm.

Habitat: Below 2,000 m. Clay and loess, scree-covered deserts.

Habits: It is a gregarious species living in colonies with an extensive system of burrows with more than one entrance. They are both nocturnal and diurnal in activity and feed on seeds, leaves and bulbs. When living near cultivations they damage crops. These jirds have the habit of giving an alarm call by drumming rapidly on the ground with their hind feet (Vesey-Fitzgerald, 1953). Libyan jirds store food in their burrows and during the coldest part of winter they seldom emerge above ground (Roberts, 1977).

Distribution: The Libyan jird is found in the dry regions of the country including the northern and western steppes. To the east it has been reported from Jalalabad and Somerkhel (Gaisler *et al.*, 1968). Specimens collected by Niethammer (1965) in the south east are from Kalat and Abe Istada. Outside Afghanistan it occurs in Turkmenistan, Baluchistan and Iran with extension of its range through Arabia into Egypt and parts of northern Africa (Ellerman and Morrison-Scott, 1951; Harrison, 1972).

Status: Common in dry regions.

SUNDEVALL'S JIRD
Meriones crassus Sundevall, 1842

Description: The body fur is sandy-buff with a mixture of black tipped hairs, the tail is whitish on its ventral surface, the soles of feet are covered with white hairs except for a patch on the heel. The tail is about 15 mm shorter than the head and body length which averages 110 mm.

Habitat: Below 1,000 m. Clay and loess, watercourse and sand biotopes.

Habits: The Sundevall's jird is nocturnal in feeding activity and lives in burrows. It is mainly herbivorous but has been recorded to feed on locusts in Arabia (Vesey-Fitzgerald, 1953). It has the habit of storing caches of seeds in its burrow (Lay, 1967). Little is known about its breeding activity. In Arabia litters are produced in spring and summer (Lewis *et al*., 1965).

Distribution: It has only been recorded from the Bakwa, Registan and Margo semi-deserts of the south (Hassinger, 1973). Outside Afghanistan it is found in Arabia with its range extending westward to Algeria in northern Africa, Iran, Iraq and Pakistan (Harrison, 1972; Roberts, 1977).

Status: Unknown.

ZARUDNY'S JIRD
Meriones zarudnyi Heptner, 1937

Description: In general appearance it is similar to *M. crassus* but is a much larger jird. Head and body length averages 141 mm, with a long tail that averages 155 mm. The skull and ears are also considerably larger than other species of *Meriones* found in Afghanistan. The external pinnae of ears measure 25 mm, they are rounded and furred on both sides. The soles of the feet are haired except for a naked strip which extends from the calcaneum to the middle of the metatarsal region (Hassinger, 1973).

Habitat: Below 1,000 m. Steppes and structure biotopes.

Habits: This jird excavates its own burrows in dry soils and has been found in the ruins of old buildings (Hassinger, 1973) indicating that it has commensal habits. Its activity is both nocturnal and diurnal. Not much is known about the breeding habits of this little known species except that young are born in spring and summer.

Distribution: Known only from the arid steppes of the northwest. The Street Expedition collected two specimens north of Maimana and on the edge of the Maimana oasis (Hassinger, 1968). Outside Afghanistan it has been recorded in Uzbekistan (Ognev, 1940).

Status: Unknown.

NORTHERN MOLE VOLE
Ellobius talpinus (Pallas, 1770)

Description: The dorsal fur of the mole vole is dark brownish-gray, the underparts are a dull gray. The forehead and the fur between the eyes is black. It has a short tail covered with hairs. The muzzle is short and the eyes are small, the external ear conches are undeveloped. Both fore and hind feet are armed with sharp claws. The soles of all feet are naked. Head and body length averages 110 mm and the tail is 10 mm long.

Habitat: Below 1,000 m. Clay and loess, structure biotopes.

Habits: The mole vole lives in flood plains and sandy areas where it excavates horizontal burrows just beneath the surface of the ground. It is active both day and night, usually venturing out at night in search of food which consists of grasses, roots, seeds, tubers and tulip bulbs. The young are born from April to October. Females give birth to as many as four litters annually with two to four young per litter (Ognev, 1940).

Distribution: Found in the plains of northern Hindu Kush. The Street Expedition collected it from Mazare Sharif and Maimana (Hassinger, 1973) and Niethammer (1965) reports it from the Taloqan and Balkh plains in the north. Outside Afghanistan it occurs in southern Russia, Turkmenistan and Mongolia (Ellerman and Morrison Scott, 1951).

Status: Unknown.

AFGHAN MOLE VOLE
Ellobius fuscocapillus Blyth, 1843

Description: The body of this mole is cylindrical in form with short fur which is golden-ginger in color, the belly is grayish-yellow. The muzzle is rounded and short, the incisors are pruodont, covered with white enamel and are exposed in front of the mouth. The eyes are reduced to tiny pinholes and the external pinnae of the ears are so tiny that they are concealed in the fur. The tail is extremely short and covered with hairs. The feet are armed with claws but they are not well developed. Head and body length averages 130 mm and the tail averages 13 mm in length.

Habitat: 1,000-2,600 m. Clay and loess, steppe and structure biotopes.

Habits: This mole is adapted to subterranean existence and digs tunnels beneath the ground surface which are used to search for roots, bulbs and tubers that comprise its main diet. They have the habit of storing food in their underground burrows (Ognev, 1940). It uses its front teeth to dig soil and the fore and hind feet are used to push and kick the soil backward (Lay, 1967).

Distribution: The Afghan mole vole has been collected from several localities in the mountainous regions of central Afghanistan. To the west it occurs in the Herat oasis and the Murghab river basin (Scully, 1887; Niethammer, 1965; Hassinger, 1973). Outside Afghanistan it is found in Baluchistan, Iran and Turkmenistan (Lay, 1967; Roberts, 1977).

Status: Unknown.

ROYAL'S HIGH MOUNTAIN VOLE
Alticola roylei (Gray, 1842)

Description: This vole has a cylindrical body with a short and blunt muzzle. The ears are prominent, rounded and well covered with hairs. The eyes are larger than other species of voles. The tail is about half the head and body length which averages 107 mm. The dorsal fur is silver-gray while the belly fur is paler gray and the feet are white. The vibrissae are well developed and reach 35 mm in length.

Habitat: 2,000-4,300 m. Montane and sub-alpine valleys.

Habits: It is active during the day time and can be seen among rocks looking for food and collecting vegetable matter which it hides in rock fissures or under stones for storage and consumption in winter months. This mountain vole shares the habitat of pikas and has similar habits. It does not hibernate in winter and tunnels under the mantle of snow. Being herbivorous it eats various grasses, leaves of mountain shrubs, roots and bulbs. The nest is made in a secure place under a rock.

Distribution: Just as its name applies this mountain vole is found in high country. It has been recorded from the Shibar and Salang passes in central Afghanistan, Ishkashem and Qala Panja in the Wakhan corridor and Tulabai valley in Big Pamir and the Paghman range (Niethammer, 1965; Hassinger, 1973). Outside Afghanistan it occurs in Turkmenistan, Mongolia, India and Pakistan (Ellerman and Morrison-Scott, 1951).

Status: Unknown.

SOCIAL VOLE
Microtus socialis (Pallas, 1773)

Description: The dorsal color varies from dull to reddish fawn, the underparts and belly are grayish-white. The tail is fawn above and a paler buff color below. It is a small vole measuring 140 mm in head and body length with a short tail that averages 22 mm in length. The muzzle is broad and rounded, the vibrissae are short reaching about 25 mm. The ears are small, rounded and project slightly above the pelage. The claws are inconspicuous and short.

Habitat: 1,000-2,000 m. Montane valleys.

Habits: The social vole is a colonial species favoring grassy terrain and agricultural land. It is also found in bushy scrub and uninhabited mountain valleys. The burrows are extensive, interconnecting into one another. They are active both during the day and night and live on grass blades, herbs and seeds. Population dynamics of this vole show an average longevity of 874 days per female. During a life span the female has 13 litters with an average of 5.5 young per litter (Bodenheimer and Dvoretzky, 1957). Fluctuations in population during times of food abundance lead to high numbers resulting in immense damage to agricultural lands in the Middle East.

Distribution: Known only from a single record from Ghilzai (Kalat) in the Kohe Baba range of central Afghanistan by the Third Danish Expedition (Paludan, 1949). Outside Afghanistan it occurs in Turkmenistan, Kazakistan, Iran, Syria and Palestine (Ellerman and Morrison-Scott, 1951)

Status: Unknown.

AFGHAN VOLE
Microtus afghanus (Thomas, 1912)

Description: The dorsal pelage is pinkish-buff with a sprinkling of brown color on some of the guard hairs. The flanks gradually turn paler merging with the whitish underparts. The claws have brown bases and yellow tips. The white vibrissae, with black roots, are long attaining a length of 32 mm. The ears are small measuring 10 mm. Head and body length averages 105 mm and the tail is 25 mm long.

Habitat: 1,500-3,400 m. Clay and loess, watercourse and structure biotopes.

Habits: Colonial in habits they live in an extensive system of burrows with multiple exits which are interconnected. The Afghan vole is a timid animal active during the daytime and rarely leaves its burrow at night. It is wary of its surroundings when it comes out to feed on grass near its burrow's entrance. When it senses danger, it immediately darts back into its burrow. As the vegetation near the burrow entrance is eaten, it digs another passage to a point where more food is available (Ognev, 1940).

Distribution: The Afghan vole is an inhabitant of steppes and mountainous areas. It has been recorded from central Afghanistan. To the west it extends to the Sabzak pass between Herat and Qala Nau. Specimens from the southeast are from Moqur (Niethammer, 1965). Outside Afghanistan it is found in Turkmenistan from the Caspian sea through Uzbekistan to Tadjkistan (Ellerman and Morrison-Scott, 1951).

Status: Common in anthropogenic habitats.

COMMON FIELD VOLE
Microtus arvalis (Pallas, 1778)

Description: The dorsal pelage is buffy-brown with a light tinge of yellow. The underparts are whitish with a splattering of rusty yellow hairs. The ears are short and round, inconspicuous and hidden by the body fur and the eyes are minute. Soles of feet are naked. Average head and body length is 115 mm and the tail is 35 mm long.

Habitat: 2,000-3,000 m. Clay and loess and watercourse biotopes.

Habits: It is a colonial species excavating its own burrows. With the growth of the colony they disperse and occupy new tunnels. They are both nocturnal and diurnal in activity and during the daytime are busy collecting food which they store in their burrows. Most of the feeding takes place at night. The common field vole mainly feeds on green grass, herbs, roots and leaves. The diet is supplemented by seeds and insects. Its reproductive rate is high. Females have an average of six litters per year with four to nine young (Ognev, 1940). The young grow extremely rapidly and by the end of the second week they become independent. At times when food is abundant they multiply in large number. When food conditions are not favorable in an area the colony moves to another site with abundant food.

Distribution: It has been recorded in humid areas in the Hindu Kush range and Paghman mountains of central Afghanistan. Outside Afghanistan it is distributed in the temperate zone of Europe, western Siberia, Kazakistan, Iran and Mongolia with its range extending to Manchuria (Allen, 1940; Ellerman and Morrison-Scott, 1951).

Status: Unknown.

PAMIR VOLE
Microtus juldaschi (Severtzov, 1879)

Description: The back fur of the Pamir vole is pale gray-straw with brownish-black tips of long guard hairs. The under parts are whitish with a hue of brownish-straw tinge. The paws are covered with white fur. The claws are short and white in color. The dorsal part of the tail is brownish while the ventral section is white. The small ears, which measure about 12 mm, are covered with hairs on both surfaces. Average head and body length is 112 mm and the tail is 35 mm long.

Habitat: 2,000-4,000 m. Streams and rivulets of sub-alpine and alpine valleys.

Habits: It is colonial in habit and excavates its own burrows in damp soil. The food consists of grasses, weeds, wild flowers, tubers and roots. Like other voles they are highly fertile and when food is abundant they multiply rapidly devouring the vegetation near their burrows and then move on to a new locality. Little is known about their breeding biology. Young are born during the summer months and grow rapidly.

Distribution: Northern Badakshan, the Wakhan corridor and the Pamir mountains. In central Afghanistan it has been recorded from Panjao, in the Kohe Baba mountain chain by the Third Danish Expedition (Paludan, 1949). Petocz (pers. comm.) observed it in Tulabai valley of the Big Pamir and Aksu valley in the Small Pamir section of Afghanistan. Outside Afghanistan it is found in the Pamir mountains of Tadjkistan (Ognev, 1940).

Status: Common in alpine glens to which its range is restricted.

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Geographical Gazetteer

This gazetteer lists the approximate locations of areas mentioned in the text. For larger regions such as provinces the central coordinates are provided.

Abdel Khel	34° 30' N 70° 26' E	Dilaram	32° 15' N 63° 25' E
Abe Istada	32° 20' N 68° 20' E		
Ajar Valley	35° 20' N 76° 30'E	Farah	34° 25' N 62° 00' E
Alingar	34° 40' N 70° 20' E		
Alishing	34° 40' N 70° 15' E	Gardez	33° 40' N 69° 30' E
Anjuman Pass	35° 50' N 70° 20' E	Gezab	33° 25' N 66° 40' E
Asadabad	34° 35' N 71° 10' E	Ghazni	33° 35' N 68° 40' E
		Ghorband	35° 00' N 68° 50' E
Badakshan	37° 30' N 70° 45' E	Ghulam-I-Maidan	34° 20' N 62° 20' E
Badghis	35° 00' N 64° 00' E	Golestan	32° 35' N 63° 50' E
Baghlan	36° 20' N 68° 55' N	Grishk	31° 42' N 64° 35' E
Bagrami	34° 54' N 69° 30' E	Grot Pialah	34° 44' N 70° 10' E
Bakwa Desert	33° 00' N 62° 00' E		
Bala Murghab	35° 35' N 63° 30' E	Hamdan Desert	34° 00' N 62° 00' E
Balkh	36° 50' N 66° 55' E	Hamune Puzuk	31° 30' N 61° 40' E
Bamiyan	34° 50' N 68° 03' E	Hazarajat	34° 00' N 67° 00' E
Barak	37° 10' N 70° 45' E	Heart	34° 15' N 62° 10' E
Barge Matal	35° 40' N 71° 35' E		
Bashgar	35° 40' N 71° 15' E	Imam Sahib	37° 15' N 69° 05' E
Belcheragh	35° 46' N 65°15' E	Ishkashem	36° 45' N 71° 45' E
Beni Hisar	34° 35' N 69° 30' E	Ismail Khel	33° 31' N 69° 51' E
Berget Aya	37° 25' N 73° 35' E		
Besud	34° 30' N 70° 15' E	Jalalabad	34° 25' N 70° 30' E
Big Pamir	37° 20' N 73° 30' E	Jalalkot	35° 20' N 71° 30' E
		Jurm	36° 50' N 70° 45' E
		Juwain	31° 40' N 61° 30' E
Chakh Nur	34° 30' N 70° 20' E		
Chamkani	33° 25' N 69° 45' E	Kabul	34°30' N 69° 25' E
Charikar	35° 00' N 69° 30' E	Kalat-us-Seraj	34° 45' N 70° 10' E
		Kamdesh	35° 30' N 71° 30' E
Dand	31° 50' N 65° 55' E	Kama	34° 20' N 70° 30' E
Dare Nur	34° 35' N 70° 30' E	Kamu	35° 45' N 71° 20' E
Dare Pech	35° 15' N 71° 20' E	Kandahar	31° 35' N 65° 50' E
Darqad	37° 15' N 69° 50' E	Kang	31° 10' N 61° 40' E
Darunta	34° 32' N 70° 25' E	Kargah	34° 37' N 69° 20' E
Dashte Barang	32° 15' N 61° 30' E	Katawaz Plain	32° 40' N 68° 00' E
Dashte Hairatan	36° 50' N 68° 50' E	Khandud	37° 10' N 73° 00' E
Dashte Laili	36° 40' N 65° 20' E	Khost	33° 25' N 70° 00' E
Dashte Nawar	33° 40' N 68° 20' E	Khost Fereng	36° 20' N 69° 15' E

Khulm Plain	36° 40' N 68° 00' E
Koh Daman	34° 40' N 69° 20' E
Kohe Safi	34° 40' N 69° 50' E
Konar	34° 00' N 68° 15' E
Kunduz	36° 44' N 69° 05' E
Laghman	34° 35' N 70° 15' E
Lal-wa-Sarjangal	34° 25' N 66° 50' E
Lalandar	34° 20' N 70° 40' E
Lashkargah	31° 20' N 64° 20' E
Lataband Pass	34° 30' N 69° 40' E
Logar Valley	34° 05' N 69° 15' E
Maidan Tal	34° 30' N 69° 20' E
Maimana	35° 56' N 64° 45' E
Mander	33° 30' N 69° 30' E
Margo Desert	30° 30' N 62° 30' E
Mazare Sharif	36° 50' N 67° 10' E
Meterlam	34° 00' N 70° 15' E
Moqor	32° 50' N 68° 00' E
Moqor Qara Jelga	37° 20' N 73° 30' E
Nejrab	34°45' N 69° 50' E
Nimroz	31° 30' N 61° 30' E
Nishai	34° 15' N 70° 20' E
Nuristan	35° 45' N 71° 15' E
Obeh	34° 40' N 65° 15' E
Paghman	34° 40' N 69° 15' E
Panjao	34° 25' N 67° 15' E
Panjsher	35° 30' N 69° 40' E
Peiwar Pass	33° 05' N 67° 30' E
Paktiya	33° 35' N 69° 30' E
Pule Khumri	35° 58' N 68° 55' E
Qachqar cave	34° 40' N 70° 55' E
Qala Bost	31° 30' N 64° 25' E
Qala Nau	34° 55' N 63° 15' E
Qala Panja	37° 10' N 73° 15' E
Qalat	32° 35' N 69° 50' E
Qazideh	36° 40' N 72° 20' E
Qole Chaqmaqtin	37° 20' N 73° 40' E
Qoul Karidah	34° 30' N 69° 10' E
Registan	31° 00' N 65° 00' E
Sabzak Pass	34° 45' N 63° 15' E
Salang Pass	35° 25' N 69° 20' E
Samangan	36° 20' N 68° 15' E
Sanglech	36° 30' N 71° 25' E
Sare Pul	36° 15' N 65° 55' E
Sarhad	37° 15' N 73° 15' E
Sarobi	34° 35' N 69° 50' E
Seistan	31° 45' N 61° 30' E
Shamshir Ghar	31° 35' N 65° 45' E
Sharak	34° 10' N 64° 30' E
Sheberghan	36° 40' N 65° 45' E
Shibar	34° 50' N 68° 20' E
Small Pamir	37° 20' N 74° 20' E
Somerkhail	34° 20' N 70° 20' E
Spinboldak	31° 05' N 66° 30' E
Takhar	36° 50' N 69° 30' E
Tange Gharu	34° 30' N 69° 30' E
Tashkurghan	36° 40' N 67° 45' E
Teger Qorom	37° 25' N 73° 30' E
Torkham	34° 15' N 71° 10' E
Tourghundi	35° 20' N 62° 20' E
Unai Pass	34° 30' N 68° 30' E
Uruzgan	32° 40' N 67° 00' E
Wama	35° 45' N 71° 20' E
Waygal	35° 50' N 62° 00' E
Wazir Bagh	33° 25' N 69° 55' E
Zaranj	31° 15' N 61° 50' E
Zebak	36° 35' N 71° 30' E
Zor Kol	37° 40' N 74° 00' E

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Index - Common names