

Threatened Mammals of Pakistan

(Category Wise Details of Threatened Species)

The species accounts are only given for the country of Pakistan, for species in threatened categories i.e. Critically Endangered, Endangered and Vulnerable. Habitat, distribution, threats and national status are compiled and assessed on the basis of Pakistan's Mammals CAMP data. Conservation measures and priorities are recommended after overall analysis of CAMP exercise as well as consideration of other dynamics.

CRITICALLY ENDANGERED (CR)

***Ursus thibetanus gedrosianus* Blanford, 1877** **Balochistan Black Bear**

Description: This subspecies is primarily distinguished by its much smaller size than others. The head and body length of an adult male with the tail is found to be 80 cm. This Balochistan subspecies has comparatively short, coarse fur and quite often this appears to change to a reddish brown color.

Habitat: Rugged arid mountains with sparse shrub vegetation.

Recently Known Localities: Khuzdar, Sheengar, Pab Range, Kohi-e-Siya in Kharan, Takhte-Suleman, Muth, Marghar, Neel Takhi, Tanbo, Khaseen Kund, Paritaghar, Tattoo, Chishki, Pichighar, Moonmandi, Sukhdasht and Koi Zindodasht.

Threats: Habitat degradation, killing for pride, thrill and bravery as it's is also considered an enemy species.

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Further research and data is needed to ascertain the population trends and prioritize conservation implications. Public education and awareness along with strict effective law enforcement is recommended.



***Ursus arctos isabellinus* Horsfield, 1826** **Brown Bear**

Description: The brown bear of the Himalayas varies much in size and color, which generally appears as a sandy or reddish brown. There is a conspicuous hump of longer hairs over the shoulders and no noticeable ruff of longer hair on the neck. The ears are small and rounded and the lips are noticeably protruding and mobile.

Habitat: Temperate grasslands, alpine meadows, sub alpine scrub zones, areas above tree line

Recently Known Localities: Deosai National Park, Lalazar, Kabkot, Sadpara, Khunjerab National Park, Askoli.

Threats: Disturbance in the habitat, considered enemy species, killing for thrill and bravery for medicinal uses of organs, including enhancing sexual potential; shooting out of excitement as people consider it as a harmful species; hunting- due to regional/international trade for medicine.

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Strict law enforcement, public education and awareness about this important species, effective implementation of the existing policies and management plans. Integrated research on wildlife and human conflicts and applied conservation aspects may be undertaken.



***Mellivora capensis* (Schreber, 1776)**

Ratel or Honey Badger

Description: Its coarse body fur is sharply divided horizontally in two contrasting colors. The top half of the head, upper neck and back are silvery-grey, whilst the limbs, belly, lower cheeks and muzzle are jet black. The fore-limbs are powerfully developed and bowed inwards like those of the bear. Males are slightly heavier and an adult specimen may weight up to 10kg.

Habitat: Hot desert, caves, other subterranean habitat near expanding human settlements due to the availability of bones.

Recently Known Localities: Extremely rare in the more densely populated tracts of the Indus basin but occurs in the southern part of Balochistan as well as southern Sindh. Some observations have been recorded in the Kirthar National park, Mahal Kohsitan Wildlife Sanctuary, Surjan, Sumbuk, Othiano, Eri game reserve, Mekran, Lasbela, Kalat and Chaghai.

Threats: Habitat fragmentation, reduction of food species and it is considered an enemy species.

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Further field research and public awareness is recommended.



***Hyaena hyaena* (Linnaeus, 1758)**

Striped Hyaena

Description: The Striped Hyaena has a conspicuous crest of longer hair extending like a mane from the crown of the head to the pelvis. The ears lack any bursa or pouch-like fold on their outer margin and are sharply haired and black skinned. The legs are relatively long and slim. The dorsal crest generally has black hair and these are erected when the animal is nervous or excited.

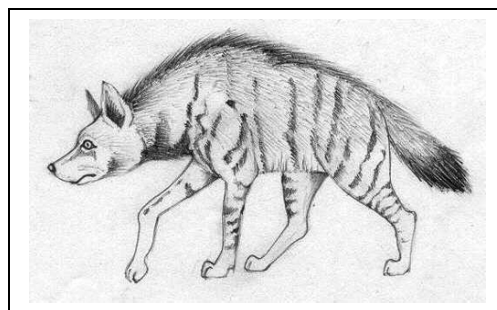
Habitat: Rocky areas, hot desert, wild open valley, semi-desert areas.

Recently Known Localities: Kall, Bhal, Palugram, Daphar Plantation, Jals park, Qaderabad, Sukh-Beas near Chunian & Changa Manga, Kirthar National Park.

Threats: It is considered as an enemy species, habitat destruction and fragmentation. Due to the non-availability of natural food tends it tends to scavenge near human habitations and increasing incidents for its killing.

National status: Critically Endangered

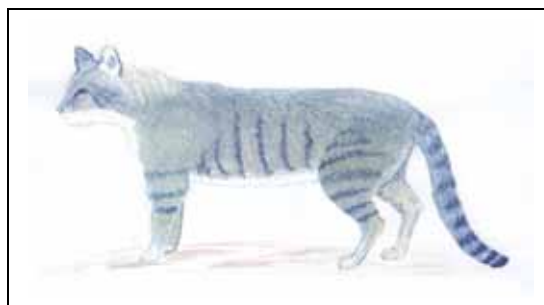
Conservation Measures/ Priorities Suggested: Further field research wherever it is recently reported to determine the status and to understand better the negative trends, habitat quality and population trends.



***Felis margarita* Loche, 1858**

Sand Cat or Dune Cat

Description: *Felis margarita* is smaller than the other two species (*F. silvestris* and *F. chaus*), generally with a longer tail and shorter legs. The distal one-third of the tail bears two or more thin black rings and the terminal tuft is black. The fore legs have four or five faint, dark brown stripes on the upper part of the outside limb. A striking feature is



that the pads of the paws are entirely covered with long grayish hair. The length of the head and body of a male is 57cm.

Habitat: Hot desert

Recently Known Localities: Balochistan, Nushki

Threats: Persecution by Houbara hunters.

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Further research to assess the population and habitat assessments is recommended.

***Caracal caracal* (Schreber, 1776)**

Caracal or Red Lynx

Description: *Caracal caracal* is more slender in build and smaller than the Himalayan Lynx. The body fur is comparatively short and dense. The backs of the ears are entirely black with a frosting of white hairs. The face bears conspicuous black marking in the form of two short vertical bars above each eye and a broad black smudge above the corner of the mouth and at the base of the vibrissae. The area around the lips and the chin is whitish.

Habitat: Subtropical / Arid subtropical thorn forest, scrubland, rocky areas, hot desert, wild open valley, semi desert.

Recently Known Localities: Lal Sohanra National Park, Kirthar National Park, Runn of Kutch Wildlife Sanctuary

Threats: habitat fragmentation, shortage of food due to drought effects, poisoning by shepherds, and increasing human disturbance in the core habitats.

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Further research on the state of habitat and status of the species in the wild is recommended in Lal Suhanra National park, Kirthar National park, Nara Game Reserve, Kala Chitta Range, Dureji Game Reserve and Chumbi Surla Wildlife Sanctuary and wherever reported.

***Panthera pardus* (Linnaeus, 1758)**

Panther or Leopard

Description: A large male *Panthera pardus* may stand up to 66cm at the shoulder; the head and body length is 117cm. The tail is very long and slender averaging about two third of the head and body length. Panthers from the more arid regions of Balochistan weigh more than 40 kg. It has a deep, laterally compressed body with comparatively short, stout legs and very broad and large paws. The neck is thick and muscular; ears are black on their dorsal surface with conspicuous round, white spots. The body color varies from a golden orange color to a paler greenish fawn, closely marked all over with black rosettes. The tail and forehead bears spots.

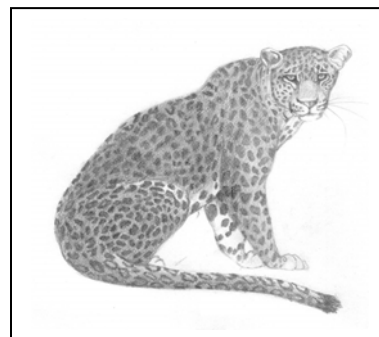
Habitat: Oriental faunal zone in the northern mountains westward along the western mountains into ranges around Quetta.

Recently Known Localities: Ayubia National Park, Manglot Wildlife Park, Dareen, Toreshore, Zari, Khalifat range, Penchar

Threats: Considered as enemy species, degradation and fragmentation of the habitats, shortage of food species, shooting out of excitement or fear, over exploitation, hunting-and gathering of parts for illegal trade.

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Research to evaluate status of the food species, state of the remaining habitat, status of the wild populations and census of the species, especially in NWFP is recommended. Funding for research and conservation is crucially required.



***Uncia uncia* Schreber, 1775**
Snow Leopard or Ounce

Description: *Uncia uncia* is similar in general appearance to *Panthera pardus*. It is generally smaller in size with a relatively longer tail which is much thicker and bushier. The tail is the most striking feature. The head and body length varies from 100-120 cm; it stands about 56-60cm at the shoulder. The forelegs are relatively short and powerful and the paws appear particularly large. It has long, broad nose with powerful jaws and relatively short, rounded ears. The body color is grey to grayish buff with widely scattered black spots on the outer surface of the limbs, merging to large, black rosettes along the upper flanks and back.

Habitat: Alpine dry steppe, permanent snow fields, rocky areas in the palaerctic range of northern mountains.

Recently Known Localities: Bar valley in Gilgit, Skardu, Ghizar, Tooshi game reserve in Chitral, Chitral Gol National Park, Kohistan, Naran, Mahodand and Utrot valleys in Swat, Khunjerab National park (Dhee nullah), and Passu Glacier.

Threats: Human disturbance through livestock grazing, habitat fragmentation, reduction in the population of prey animals, poisoning by shepherds, Illegal trade of animal parts, hunting for regional/international trade in its fur.

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Investigative research needs to be carried out on human-wildlife conflicts in this case, evaluation of the availability of food species, state of habitat and status of species is recommended. It is important to explore exact numbers of the adequate populations of wild ungulates in the core habitat, satellite imagery techniques may also be used to study its dispersal and migration for effective monitoring and conservation efforts; effective conservation education and awareness is needful.

***Equus hemionus khur* Pallas, 1775**
Indian Wild Ass or Onager

Description: It is larger than the Wild Asses of Ethiopia and the Sudan. Onager is a reddish tan animal with creamy white legs, lower neck, belly, inside of thighs and buttocks. It differs from the domestic strain. The upright stiff mane of hairs ends abruptly and consists of dark chestnut hairs.

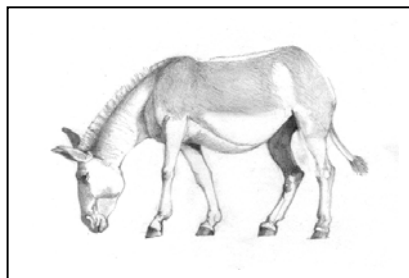
Habitat: Hot desert, semi-desert, areas with poor vegetation cover.

Distribution: Nagar parker bordering areas, mud flatlands of Runn of Katch.

Threats: habitat loss, poaching, taming for domestication, killing out of excitement, picking of young ones for domestication.

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Research is needed to know current remaining individuals in fragmented areas of Sindh. Strict law enforcement is imperative for future survival of the species.



***Gazella subgutturosa* (Sykes, 1831)**
Goitred Gazelle or Persian Gazelle

Description: *Gazella subgutturosa* is indistinguishable from the much more familiar Indian Gazelle. The head and body length is about 100.7cm (3.5ft). Adult males weigh up to 24 kg. The ears are long and slender. The inside of the ear is thickly fringed with white hairs. The tail is longer than that of the wild goat. The body is covered with long, rather coarse reddish-grey hairs in winter. In summer the body fur is shorter and reddish- brown in color.

Habitat: Sandy-stony flats and rocky/ stony flats, hot desert of



Balochistan.

Recently Known Localities: Jhalwar in Balochistan.

Threats: Ruthless hunting is the main threat, loss of habitat through up-rooting of anchor plants, habitat fragmentation through increasing human intrusion, over grazing from domestic livestock, prolonged drought, mining (extraction) activities and excessive hunting.

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Control illegal hunting by strict law enforcement, habitat quality assessment is recommended and monitoring of existing populations and public awareness is highly recommended.

***Ovis ammon polii* Linnaeus, 1758**
Marco Polo Sheep

Description: The long outward curving horns, developed in mature males are striking features of *Ovis ammon polii*. The legs and belly are creamy-white without any darker pattern on the frontal area. The neck in the rams tends to be heavy and muscular. The tail is short and not bushy. In both sexes the legs appear relatively long and slender.

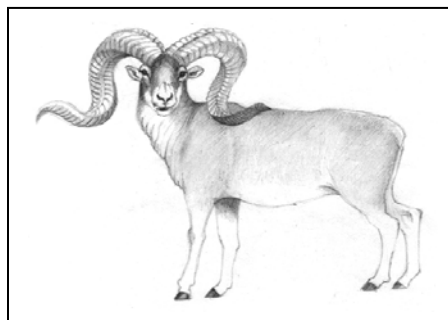
Habitat: Alpine areas near high mountains and snow fields, alpine scrubland and grassland

Recently Known Localities: Extreme southern tip of Pamir plateau in Pakistan at Khunjerab Pass and Kilik Mintika Passes. Northern ranges of Karakorums, Karchnai nullah in Khunjerab National Park, Sakhtarabad

Threats: Poaching and trade of parts, human disturbance, competition with domestic livestock in its core habitat.

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Further research to know latest population trends is recommended in the core habitats in the areas of Khunjerab National Park and Kilik Mintika reserves. Education of remote mountain communities about the importance of the species, strict law enforcement as well as regular mentoring of the existing populations is highly recommended. Reduction in grazing pressure is highly recommended.



***Marmota himalayana* (Hodgson, 1841)**
Himalayan Marmot

Description: This Marmot is about the same size as the long-tailed marmot, but can be distinguished by the more subtly colored long tail. The top of the head is not black nor is there any distinctive outer ring of black hairs around the eyes. The face is a darker brown than the rest of the body. The ears are small, rounded and thickly fringed with hairs both inside and outside.

Habitat: Alpine grasslands at the edges of the glaciers and rocky areas with deep soil.

Recently Known Localities: North and North-east of Skardu, North of Shyok river. It is confined to fewer parts in Pakistan; otherwise it is widely distributed extraliminally.

Threats: Grazing activities in its limited habitat

National status: Critically Endangered

Conservation Measures/ Priorities Suggested: Further research to ascertain the current status of population and state of habitat is recommended.

ENDANGERED (EN)

***Moschus chrysogaster* (Hodgson, 1839)**
Musk deer

Description: This little deer has very peculiar speckled coarse fur, hind legs longer than the fore, longer than a high arched spine and conspicuous upstanding ears which are rounded in outline and

thickly fringed on the inside with white hairs. It is a shy species confining to upper limits of the high altitude grasslands and shrub lands.

Habitat: Mixed coniferous forest in winter and Birch forest in summer, also high altitude grasslands and shrub lands.

Recently Known Localities: Machiara National park, Salkhla Game reserve, Ghamot Game reserve, Bar palas, Gumrat valley, Fairy meadows, Darel range, Dir Kohistan, Moji game reserves.

Threats: Very high human interference through poaching, hunting, timber collection, over grazing from livestock. At times the young ones mix with the domestic livestock herds. Regardless of the sex and age group and maturity of musk pods the pods are collected even in the non-breeding season. Local trade is common, over exploitation of the medicinal and other diet plants from its core habitat.

National Status: Endangered

Conservation Measures/ Priorities Suggested: Strict law enforcement, field-based research to determine current latest population in all areas of occurrence is urgently needed. Development and implementation of the species recovery plans is crucially important.

***Canis lupus pallipes* Sykes, 1831**

Wolf

Description: This species is considerably smaller than those found in subarctic regions of the northern hemisphere. A large male weighs 24kg. There is little color variation and usually grayish fawn in color. The face is greyer having a mixture of black and white hairs, being blacker on the forehead with predominantly white and fawn hair around the eyes. Short bushy tail which barely reaches the hocks and is black-tipped with black predominant on the dorsal surface.

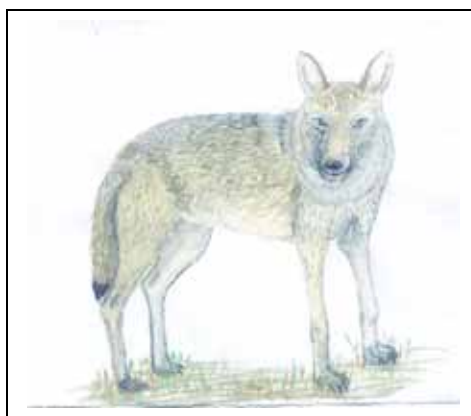
Habitat: Subtropical scrubland, tropical dry scrubland, hot desert, open areas, tropical thorn forest.

Recently Known Localities: Occurs in all mountainous regions from Balochistan up to Chitral, Gilgit, and Baltistan in the north. Also in Deosai National park in the areas of Karabos, Bubind and Sadpara. Extremely rare throughout the Indus plains and survives mainly in the desert regions such as Cholistan and Tharparkar. In Balochistan its range appears to extend over the whole province from the Makran coast to Zhob.

Threats: Decline in habitat quality due to decline of prey species, it is considered an enemy species, also habitat is degraded due to the land-use pattern and fragmentation, increasing human interference through developmental activities, decrease in the quality of habitat due to forest clearing, hunting and decline in its prey species. It is almost gone from Khirthar National Park and Thar.

National status: Endangered

Conservation Measures/ Priorities Suggested: It is difficult but restoration of food species in the wild should be one priority. Conservation education and public awareness is recommended. Further research highlighting status of the wild populations, man-wildlife conflicts and potential solutions through changing public attitudes and education is recommended.



***Muntiacus muntjak* (Zimmermann, 1780)**

Indian Muntjac or Barking Deer

Description: *Muntiacus muntjak* has short hind legs. The outer vestigial hooves are hardly developed at all and may even be entirely lacking. It has large round ears; in males upper canines are elongated. Adults stand 41-61cm high at the shoulder with the body length 80-100cm. the body fur is short, soft and highly glossy with no under-fur and it is generally a bright yellowish-red color. Unique head appearance as the male develops two long bony pedicles covered with skin and from these the short horns extend. The horns are less than 165mm in length usually inward curving at the tips and shed annually (May or June).

Habitat: Himalayan foothill zone, tropical dry deciduous forest, tropical thorn forest, remaining fewer numbers only in bushlands.

Recently Known Localities: Margalla Hills National Park, Khanpur range, Lethrar.

Threats: Habitat loss, poaching near the Margalla Hills National Park boundaries, non-woody vegetation collection from the core habitat.

National status: Endangered

Conservation Measures/ Priorities Suggested: Strict law enforcement, research investigating habitat quality and current population trend is recommended.

***Nyctalus leisleri* (Kuhl, 1817)**

Leisler's Noctule or Hairy-armed Bat

Description: This is a medium-sized Noctule of a darker color than the common Noctule. The dorsal fur is blackish-brown and the belly fur is a paler brown. The low, rounded ear is blackish and naked, both anterior and hind margins being convex when viewed from the side. The average head and body length is 67mm.

Habitat: Buildings, forested regions and hollow trees.

Recently Known Localities: northern Mountains of Pakistan.

Threats: Habitat degradation but further investigation is required.

National status: Endangered

Conservation Measures/ Priorities Suggested: Extensive field research to know its habits, ecological role, status trends, distribution and public awareness is recommended.

***Boselaphus tragocamelus* (Pallas, 1766)**

Nilgai or Blue Bull

Description: Nilgai are sturdy animals with stout legs and a rather long, sloping horse-like neck and a coarse mane of long hairs mixed with grey and white. The hair covering the body is short and wiry. Adult males are bigger than females with noticeably higher sloping shoulders and very thick muscular neck. The tail is white on the ventral surface.

Habitat: Scrubland, desert scrubland, temperate grasslands and areas of tropical thorn forest.

Recently Known Localities: Dodlan, Bajwat, Changa Manga, Kasur (only bordering areas), Lal Sohanra, Ravi Siphon.

Threats: Habitat loss due to human interference through shifting agriculture patterns, over-grazing pressure due to excessive domestic livestock, non-woody vegetation collection, poaching, drought and restricted range and pollution in the habitat.

National status: Endangered

Conservation Measures/ Priorities Suggested: Research is needed to further investigate the present status and state of the habitat. Public awareness is very important to terminate the developmental activities taking place in its core habitat. Effective law enforcement is crucial.



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

Flare-horned Markhor

Description: The spiraling horns of this Markhor are diverging outwards. The average head and body length is 149.8cm. In appearance the animal is sturdy with short, thick legs and broad hooves. Both sexes are a reddish-grey color with more yellowish buff tones in the summer coat and more grey in winter. The short tail with black hair is naked at the ventral surface. The belly and legs are creamy white with a conspicuous dark brown stripe extending from the shoulders to the base of the tail.

Habitat: Rocky areas, open valleys, dry alpine and cold desert zone, temperate steppic forest, dry temperate forest.

Recently Known Localities: Tooshi, Chitral Gol National Park, Gilgit region.

Threats: Habitat loss through increasing human settlements and pressure as well as poaching are the main causes of its population loss.

National status: Endangered

Conservation Measures/ Priorities Suggested: Further conservation research is recommended to determine the exact population trends in the areas such as district Kohistan. Monitoring of remaining populations and their habitats is also required throughout its occurrence range. Sustainable use through community-based trophy hunting programmes to be further promoted.

***Pseudois nayaur* (Hodgson, 1833)**

Bharal or Blue Sheep

Description: Similar to the wild sheep but with slightly shorter legs and more stocky. The coat of this species is blue and legs and belly is white. There is no trace of any chest ruff in adult males. In the summer coat the underwool is shed in ragged patches and the fur becomes reddish grey in color. Slightly longer tail with hairs on it. The horns of the male are cylindrical and very broad at the base, curving almost horizontally outwards.

Habitat: Alpine pastures and snow fields, alpine scrub zones.

Recently Known Localities: Northern ranges of Karakorums, Shimshal Valley, Sakhtarabad nullah, Knunjerab national Park.

Threats: Habitat loss due to extensive livestock grazing in the core habitat, poaching and disease.

National status: Endangered

Conservation Measures/ Priorities Suggested: Extensive research and monitoring of remaining population is recommended. Strict law enforcement and community-based conservation/ sustainable use are recommended depending on the population size and habitat conditions.

***Ovis vignei punjabensis* Lydekker, 1913**

Punjab Urial

Description: Punjab Urial is a social animal which travels gregariously. Often males tend to be smaller and stockier in build compared with the sub species in Balochistan and mature rams develop a conspicuous saddle mark in the form of a vertical band of mixed and black and white hairs. It often has horns which are much larger at their base than those of the Balochistan population



Habitat: Subtropical/tropical dry scrubland, scrub forest tropical thorn forest, low-hill range, rolling stones

Recently Known Localities: Salt Range, Kala Chitta Hills, Kalabagh Reserve.

Threats: Habitat fragmentation creating isolated pockets of the species, increasing human interference, roadways, habitat loss due to over grazing and shifting agriculture, capturing of fawns as pet, hybridizers, sub-national/national trade.

National status: Endangered

Conservation Measures/ Priorities Suggested: Effective system of sustainable use may provide a long-term answer for its conservation. Creation of wildlife corridors in isolated pockets to safeguard existing populations is strongly recommended. Habitat assessment and regular monitoring of the various scattered populations is imperative.

***Ovis vignei vignei* Blyth, 1841**

Ladakh Urial

Description: The body fur is more grayish in winter and less red, chest ruff is comparatively short with black hairs predominantly. The horns turn inwards at their tips and often the wrinkles or corrugations are rather shallow and indistinct.

Habitat: Gentle slopes of alpine areas and upper temperate zone.

Recently Known Localities: Northern Himalayas, Chitral, Gilgit, Shigar, Bunji, Rondu Baltistan.

Threats: Habitat degradation, poaching, lamb picking, disease transfer from domestic livestock.

National status: Endangered

Conservation Measures/ Priorities Suggested: A systematic range management practice for livestock and wildlife is recommended. Public awareness about the importance of the species and research is recommended evaluating impact of local communities on the core habitat. Sustainable use may be recommended to have a long-term conservation solution.

***Eupetaurus cinereus* Thomas, 1888**

Woolly Flying Squirrel

Description: Slightly larger in body size, with a comparatively smaller bushy tail than the other species inhabiting Pakistan. The dorsal fur is brownish grey having a scattering of pale buff-tipped hairs. The ears are slightly smaller and feet are comparatively larger and stronger than *Petaurista*.

Habitat: Dry temperate ecological zone, blue pine and juniper forests, cavity dweller in the rocks and cliffs at around 9,000 feet.

Recently Known Localities: Hindukush range in Chitral and Gilgit.

Threats: Fast habitat loss/ degradation and fragmentation through timber extraction, selective logging in the core habitat.

National status: Endangered

Conservation Measures/ Priorities Suggested: Conservation education and public awareness about its importance, research to evaluate the status and state of habitat is recommended. Timber extraction from its core habitat must be stopped.

***Platanista minor* Owen, 1853**

Indus Dolphin or Bhulan

Description: *Platanista minor* is one of the world's most specialized freshwater dolphins, confined to the fluvial. It differs from other dolphins in the broad, spade-shaped flippers and the rostrum, or beak which is relatively long and very slender. The color is purplish grey, being paler ventrally. The skin is soft and satiny to the touch in surprising contrast to harsh skin of shark.

Average body length is 1.3 m and average weight is 21kg.

Habitat: Fresh waters, riverine habitats such as Indus.

Recently Known Localities: Sukkur, Guddu and Chashma barrages.

Threats: Habitat degradation due to construction of dams and barrages, increased water pollution, over fishing practices, considered harmful species by fishermen, occasionally got stranded in Canals.

National status: Endangered

Conservation Measures/ Priorities Suggested: Conservation education, public awareness and habitat assessment is recommended and effective law enforcement is crucial. Industrial effluents entry must be stopped in the tributary rivers. Sustainable fish harvesting practices in its habitat would keep the species safe.



VULNERABLE (VU)

***Rousettus aegyptiacus* (E. Geoffroy, 1810)**

Egyptian Fruit Bat

Description: Medium sized fruit bat with a comparatively large head and dog like muzzle. There is short vestigial tail. The hind feet are large with well developed claw on each of the five digits. The wing span is about 61cm (24 in). the skin of the wing and the tail membranes is dark brown in contrast to jet black of other species. When hanging vertically in its diurnal roost the head is normally carried at right angles to the rest of the body. The dental formula is incisors 2/2, canines 1/1, pre molars 3/3 and molars 2/3 and weight of this species is 78g.

Habitat: Inhabit in caves, in the sea cliffs near Clifton.

Recently Known Localities: Sindh (Karachi and at Lak Bidok in Lasbela)

Threats: Habitat destruction, further investigation is needed.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Further research to evaluate the status of population, diurnal roosts and state of habitat is recommended. Public awareness is recommended.

***Rhinolophus ferrumequinum* (Schreber, 1774)**

Greater Horseshoe Bat

Description: The noseleaf of Greater Horseshoe Bat consists of a thin, flattened disc of naked pinkish brown skin just above the upper lip. At its upper or posterior end and between the eyes the noseleaf narrows to a thin pointed appendage which is referred to as the lancet. As the name implies, this bat is one of the larger species and is almost twice the size of the other four *Rhinolophus* recorded in Pakistan.

Habitat: Northern Himalayan valleys, dark roosting places, dry climate of southern Balochistan.

Recently Known Localities: Dir Kohistan, Balochistan (Kalat and Nushki)

Threats: Habitat degradation, however, further investigation is needed..

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Further research to evaluate the status of population, diurnal roosts and state of habitat is recommended.

***Triaenops persicus* Dobson, 1871**

Persian Trident Bat

Description: These bats exhibit great diversity in coloration, through gray, brown, and red. Individuals in some areas are pale buff, almost white. Head and body length is 35 to 62mm and adult weight is 8 to 15 grams.

Habitat: Dry temperate forest; inhabit sheltered natural caves, underground channels, crevices, cliffs.

Recently Known Localities: Sindh (Gharo, Thatta)

Threats: Habitat degradation, however, further investigation is needed.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Further research to evaluate the status of population, diurnal roosts and state of habitat is recommended.

***Myotis mystacinus* (Kuhl, 1817)**

Whiskered Bat

Description: Distinctively colored with the dorsal fur blackish basally, but brown distally. Ventrally, the hairs are again blackish basally but whitish or creamy white distally. In their diurnal roost at the onset of dusk they can be heard giving a rather low-pitched buzzing squeak.

Habitat: Desert, semi desert, warm tropical land montane forest, moist temperate forest.

Recently Known Localities: Punjab and North West Frontier province

Threats: Habitat degradation, however, further investigation is needed.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Further research to evaluate the status of population, diurnal roosts and state of habitat is recommended

***Pipistrellus savii* (Bonaparte, 1837)**

Savi's Pipistrelle

Description: This is relatively small pipistrelle with the dorsal fur markedly darker and contrasting with pale brown belly-fur. The tragus is half the ear length and the thumb is relatively short.

Habitat: Well wooded areas.

Recently Known Localities: NWFP and Punjab

Threats: Habitat degradation, however, further investigation is needed..

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Further research to evaluate the status of population, diurnal roots and state of habitat is recommended

***Rhinolophus hipposideros* (Bechstein, 1800)**
Lesser Horseshoe Bat

Description: These bats are distinguished from those of the genus *Rhinolophus* by the feature of nose and ear, the character of teeth and greater posterior width of the skull. Many species of *hipposideros* have a sac behind the nose leaf that can be averted at will. The nose leaf and ears often twitch while these bats are hanging. These bats fly lower than most bats and catch insects.

Habitat: Inhabit in sheltered natural caves, man made tunnels and pathways.

Recently Known Localities: Gilgit, Malakand agency, Zhob district in Balochistan.

Threats: Habitat degradation, however, further investigation is needed.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Further research to evaluate the status of population, diurnal roots and state of habitat is recommended.

***Manis crassicaudata* Gray, 1827**
Indian Pangolin or Scaly Anteater

Description: The Indian Pangolin has a relatively tiny head, a hump-backed body and a thick tapering tail almost equal in length to its body. The scales bear fine longitudinal striation on their surface. There is hardly any external ear and the muzzle tapers to a narrow, down-curving snout. The hind legs are stout and rather columnar with five blunt pinkish white toe nails.

Habitat: Desert areas, barren hilly areas, also in sub-tropical thorn forest.

Recently Known Localities: Around Mangla, Potohar and Salt Range across Indus south to near Karachi and northward in the mountainous areas upto Kallat.

Threats: Habitat Loss, occasionally killed out of fear for having an odd shape.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Extensive field research to evaluate the state of habitat and status of population as well as public awareness is recommended.

***Vulpes rueppelli* (Schinz, 1825)**
Rueppell's Fox or Sand Fox

Description: Smaller than the common red fox but similar in its general appearance. The enormous ears are its distinctive feature. The tip of the tail is white. There is an area of black-tipped hairs about three inches from the base of the tail. The soles of the feet are completely covered with long, soft fawn hairs which conceal the pads.

Habitat: Desert, rolling sand dunes

Distribution: Balochistan, Chaghai & Kharan desert, It is a palerarctic species.

Threats: Habitat degradation, also considered as a game enemy species, exploited for skin trade.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Extensive field research to evaluate the state of habitat and status of population as well as public awareness is recommended.



***Ursus thibetanus thibetanus* G. [Baron] Cuvier, 1823**
Asiatic Black Bear or Himalayan Black Bear

Description: *Ursus thibetanus* in northern Pakistan has the black body fur at back reaches a length of 50mm. There is a ruff of extra-long, coarse hairs fringing the cheeks and running down each side of the neck. The body is jet-black except for the muzzle which is reddish brown.

Habitat: Himalayan moist temperate forest and Himalayan dry temperate forests. Unlike the Brown Bear, it does not ascend above the tree line alpine regions.

Recently Known Localities: North West Frontier Province, Azad Kashmir.

Threats: Habitat degradation, killing out of excitement, considered as an enemy species and there is gradual decline of population.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Habitat assessment, public awareness, and conservation education is recommended.

***Axis porcinus* (Zimmermann, 1780)**
Hog Deer or Para

Description: Small deer with short delicate legs and rather bulky heavy body. Its pelage is coarse, and the general coloration is dark olive-brown, lacking any rufescent tinges when viewed from a distance. It has round ears which are fringed from inside with white hairs. The short tail is quite bushy. The surface of the horns is somewhat smooth with less corrugation.



Habitat: Shrub dominated wetlands, artificial terrestrial plantations like Changa Manga, riverine area.

Recently Known Localities: Changa Manga Plantation, Head Qadarabad, Ferozwalla, Head Marala, Taunsa wildlife Sanctuary, Riverine forests in Sindh.

Threats: Degradation of its core riverine habitat and high poaching pressure, habitat loss.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Effective Law enforcement, monitoring of the commercial exploitation of the habitat (typha cutting) is a high priority. Public awareness and control of the increasing human induced habitat changes are recommended.

***Gazella bennettii* (Sykes, 1831)**
Chinkara or Indian Gazelle

Description: The fur smooth, highly glossy and reddish-buff in color. The tail is medium long and covered with a dorsal crest of black hairs. Chinkara resembles closely the Goitered Gazelle in external appearance and color but without enlarged larynx. The sides of the face are patterned with broad dark chestnut stripes from the corner of the eye to the muzzle bordered above, and below by white stripes.



Habitat: Hot desert, subtropical/tropical scrubland, tropical thorn forest, riverine areas, semi deserts and foothills.

Distribution: Manglot Park, Hingol, Cholistan, Thal and Thar

Threats: Over-exploitation through ruthless hunting, poaching, fawn picking, habitat degradation and fragmentation.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Further research is recommended to assess the quality of the wild habitat and status of population. Monitoring of remaining population and effective law enforcement is recommended to safeguard the remaining population.

***Naemorhedus goral* (Hardwicke, 1825)**
Himalayan Goral or Grey Goral

Description: Head and body length is 105cm and weight 25-35kg. Small in size with small horns. Body coloration in summer is generally dark grayish blue. The tail is longer than that of wild goat species, not extending below the level of the belly and covered with black and grey hairs. The legs are sturdy and goat like in appearance. The chest and belly are paler grey and there is a conspicuous white patch in the upper throat with one or two white spots on the lower muzzle and cheek.

Habitat: Subtropical pine, high altitude of scrubland, moist temperate forest.

Distribution: Margala National Park, Palas, Mardan mountains

Threats: Habitat loss due to fragmentation, wild fires, fuel wood collection, poaching.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Human Intrudence in the core habitat should be minimized through improvement management measures and strict law enforcement is recommended.

***Capra falconeri megaceros* Hume, 1875**

Straight-horned Markhor

Description: It is diurnal, gregarious and crepuscular species.

Habitat: Temperate steppic forest, temperate semi evergreen scrub forest, scrub forest.

Distribution: Kohe-e-Safed, Takatu range, Suleman range, Torghar mountains.

Threats: degradation of habitat and excessive illegal poaching, local trade.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: State of habitat, latest distribution patterns, and habitat quality should be assessed. Effective law enforcement as well as prioritization of species in provincial and national wildlife surveys and conservation plans is recommended. There is an urgent need to control the human interference in the core habitat.



Ovis vignei cycloceros

Afghan Urial

Description: This species is gregarious, diurnal, prefers gentle slopes of the higher mountain ranges in association with scattered Junipers.

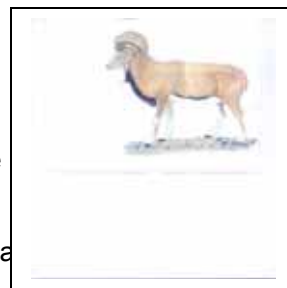
Habitat: Juniper forests

Recently Known Localities: Tanishpa, Shin Narai, Kundar, Khund in Torghar Wakhan, Zarghoon areas.

Threats: habitat loss in the quality of habitat and fragmentation, drought and increasing human interference, hunting and lamb picking for recreation.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Further research to assess the quality of the habitat, overall population trends is recommended. In future, sustainable use may be recommended after determining overall populations level.



***Lepus capensis* Linnaeus, 1758**

Cape Hare

Description: Distinguishable in the field by its generally greyer body fur and slightly heavier build. It differs from the desert hare in having a much longer and softer pelage with a thick, blue-grey under wool during the winter. There is a fairly distinctive black margin to the tips of the ears and the back of the tail is pure black. The head-body length averages 413mm and the tail averages 85mm. The belly fur is comparatively longer and pure white.

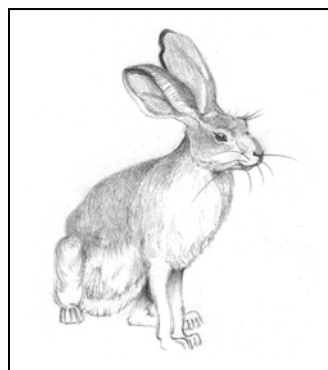
Habitat: Arid, semi-arid, gravel sandy and sandy habitat.

Recently Known Localities: Azad Kashmir, Northern areas, western mountains and mountains and western Balochistan, Soon valley, Nag valley, Kharan.

Threats: Poaching, habitat degradation through human interference, use of pesticides, over grazing and fuel wood cutting.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Assessment of the habitat and extensive field research and public awareness is recommended.



***Petaurista petaurista* (Pallas, 1766)**

Giant Red Flying Squirrel or Indian Giant Flying Squirrel

Description: Head and body length up to 520mm. Tail up to 630mm. Dorsal pelage rich chestnut-brown. Tail black-tipped and hind foot with completely naked sole. In the dorsal region there is a scattering of creamy hairs. The long tail with black tip generally averages slightly more than head and body length. The head is round with a blunt muzzle and the area around the nose is pinkish in color.

Habitat: Moist & dry temperate forest in the northern mountains of the oriental zone.

Recently Known Localities: Baluchistan, Murree Hills, Kaghan Valley, Swat, Chitral and Azad Kashmir

Threats: Habitat loss due to small scale subsistence logging, selective logging and clear cutting

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Extensive field research to evaluate state of habitat, distribution and status of the current population as well as public awareness is recommended.

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

Small Kashmir Flying Squirrel

Description: Smaller than *Petaurista*, having a comparatively short tail, more upstanding prominent ears and a relatively short tail, and a more pointed muzzle. The ears are hairless with the outer margin sharply concave towards the tips. The body fur is shorter and the belly fur is creamy white in color. The dorsal fur is a dull pinkish buff color mixed with black hairs. There is a distinctive 'V' shaped pattern of black hairs across the shoulders. The incisor teeth are coated with bright red enamel.

Habitat: Moist & dry temperate forest in the northern mountains.

Recently Known Localities: Murree Hills, Kaghan Valley, Azad Kashmir, Kohistan, Hazara, Swat, Nathiagali and some areas in Gilgit.

Threats: Habitat loss due to small scale subsistence logging, selective logging and clear cutting

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Extensive field research and public awareness is recommended.

***Dryomys nitedula* (Pallas, 1778)**

Forest Dormouse

Description: The body fur is pinkish-grey in color. The lower cheek and the throat are yellowish-white. The feet are strongly developed with naked soles. The tail is darker grey than the rest of the body and feather-shaped.

Recently Known Localities: Kharwaki Baba, Shirani State Forest, Kurram Valley, Kingergali Game Reserve, Pallas, Harboi

Habitat: Riverine and mountain slopes, juniper forest of Balochistan.

Threats: Habitat loss and further investigation is necessary to understand the threats.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Extensive field research and public awareness is recommended.

***Apodemus sylvaticus* (Linnaeus, 1758)⁷**

Himalayan Wood Mouse or Field Mouse

⁷ Few researchers strongly believe that this species of *Apodemus* is not threatened and may put into near threatened category as it is easily trapped and encountered. Many specimens were collected by ZB Mirza in Chitral Gol National park.

Description: In general appearance this field mouse looks like a rather large house mouse with the same semi-naked tail and sharp pointed muzzle. The tail is also markedly bi-colored, the dorsal surface being brownish-grey and the ventral surface whitish.

Distribution: Himalayan range, Dir, Chitral, Kaghan, Higher mountain slopes.

Habitat: Rocky mountain slopes, sub-alpine shrub, temperate forest, dry temperate coniferous forest.

Threats: Land sliding, Habitat loss through selective logging and clear cutting as it lives in the vulnerable habitats.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Extensive field research to know the status of population and quality of habitat is recommended.

***Gerbillus cheesmani* Thomas, 1919**

Cheesman's Gerbil

Description: This is another gerbil adapted to burrowing in shifting sand dunes. In external appearance it resembles *G. gleadowi* in all respects, having a pale gingery buff or reddish fawn pelage with pure white belly, throat and cheeks.

Habitat: Desert subtropics.

Distribution: Balochistan

Threats: habitat Loss, human intrusion and huge traffic in the core habitat.

National status: **Vulnerable**

Conservation Measures/ Priorities Suggested: Extensive field research to assess the habitat, and public awareness is recommended.

Threatened Mammals in Protected Areas of Pakistan:

The following table shows the total Protected Areas of Pakistan. It is clear that most of area is still found in the game reserves leaving considerable opportunity for the interference of man with wildlife.

Table 9: Protected Areas in Pakistan

| Region/ Province | National Parks | Wildlife Sanctuary | Game Reserves | Total PAs |
|-----------------------------|----------------|--------------------|---------------|--------------|
| Azad Jammu & Kashmir | 2 | 0 | 7 | 9 |
| Balochistan | 2 | 14 | 9 | 25 |
| Punjab | 2 | 39 | 20 | 61 |
| NWFP | 5 | 3 | 28 | 36 |
| Sindh | 1 | 35 | 14 | 54 |
| Federal Territory | 1 | 1 | 1 | 3 |
| Northern Areas | 4 | 5* | 9 | 18 |
| Total | 17 | 97 | 88 | 206 |
| % of Country's Land Surface | 3.41 | 3.23 | 4.52 | 11.16 |

(Source: Sheikh, K. 2003)

* Two of the Wildlife Sanctuaries in the Northern Areas were redesignated as Controlled Hunting Areas in October 1998.

** 11.16 means that this much area belongs to PA from the total land surface area of Pakistan.

The following table shows few Protected Areas of Pakistan and other key areas with distribution of the selected species of mammals.

Table 10: Few Selected Species of Mammals with their distribution in Protected Areas of Pakistan and other locations.

| Sr. No. | Scientific and Common Name | IUCN National Red List Status | Protected Areas/ Other Respective Location |
|---------|--|-------------------------------|--|
| 1. | <i>Caracal caracal</i> – Caracal or Red Lynx | Critically Endangered | Lal Suhanra National Park, Kirthar National Park, Runn of Kutch Wildlife Sanctuary |
| 2. | <i>Felis margarita</i> – Sand Cat or Dune Cat | Critically Endangered | Around Zangi Nawar lake in Chaghai district |
| 3. | <i>Hyaena hyaena</i> – Striped Hyaena | Critically Endangered | Kirthar National Park |
| 4. | <i>Uncia uncia</i> – Snow Leopard | Critically Endangered | Naltar Wildlife Sanctuary, Chitral Gol National Park, Khunjerab National Park |
| 5. | <i>Ursus arctos isabellinus</i> – Brown Bear | Critically Endangered | Deosai National Park, Khunjerab National Park, Satpara Game Reserve |
| 6. | <i>Ursus thibetanus gedrosianus</i> – Balochistan Black Bear | Critically Endangered | Zhob (Sulaiman Range), Pub Range, |
| 7. | <i>Canis lupus</i> – Wolf | Endangered | Hazar Ganji National Park. |
| 8. | <i>Capra falconeri falconeri</i> – Flare-horned Markhor | Endangered | Chitral Gol national park, |

| | | | |
|-----|--|-------------------|--|
| 9. | <i>Dryomys nitedula</i> – Forest Dormouse | Vulnerable | Kharwaki baba in NWFP |
| 10. | <i>Eupetaurus cinereus</i> Woolly Flying Squirrel | Endangered | Sai Nullah in Chilas |
| 11. | <i>Moschus chrysogaster</i> Musk Deer | Endangered | Machira National Park |
| 12. | <i>Muntiacus muntjak</i> Barking Deer | Endangered | Margalla hills National Park |
| 13. | <i>Nyctalus leisleri</i> – Leisler's Noctule or Hairy-armed Bat | Endangered | Punjab and NWFP province |
| 14. | <i>Ovis vignei punjabensis</i> Punjab Urial | Endangered | Kirthar National Park, Kalabagh Game Reserve |
| 15. | <i>Petaurista petaurista</i> – Giant Red Flying Squirrel Or Indian Giant Flying Squirrel | Endangered | Murree hills, Kaghan valley |
| 16. | <i>Platanista minor</i> Indus Dolphin | Endangered | Taunsa Wildlife Sanctuary Indus River |
| 17. | <i>Pseudois nayaur</i> Marcopolo Sheep | Endangered | Khunjerab National Park. |
| 18. | <i>Ursus thibetanus</i> – Asiatic Black Bear or Himalayan Black Bear | Endangered | Balochistan, Shirani Tribal area and Danasarwad NWFP |
| 19. | <i>Apodemus rusiges</i> (syn: <i>sylvaticus</i>) – Himalayan Wood Mouse or Field Mouse | Vulnerable | Dir, Chitral, Kaghan in NWFP. |
| 20. | <i>Gerbillus cheesmani</i> – Cheesman's Gerbil | Vulnerable | Balochistan |
| 21. | <i>Naemorhedus goral</i> – Himalayan Goral or Grey Goral | Vulnerable | Margalla National Park, Votala game reserve. |
| 22. | <i>Ovis vignei cycloceros</i> – Afghan Urial | Vulnerable | Balochistan |
| 23. | <i>Rhinolophus ferrumequinum</i> – Greater Horseshoe Bat | Vulnerable | Kalat and Nushki in Balochistan |
| 24. | <i>Rhinolophus hipposideros</i> – Lesser Horseshoe Bat | Vulnerable | Gilgit, Malakand agency and Zhob district |

Major Threats to Pakistan's Mammals

Most imminent threats to the mammalian species in Pakistan include habitat loss or total degradation of habitat in the case of a few species. Human interference has increased manifold and the species would be naturally becoming restricted to the core habitats zones. Some other threats include;

- Habitat fragmentation
- Habitat loss due to exotic animals
- Clearing and excavation of land
- Hunting for medicine
- Hunting for recreation
- Hunting for food
- Damming
- Hybridization
- Change in wild behavior
- Extensive pesticide use
- Poisoning
- Air and water pollution
- Interspecific competition from livestock
- Political unrest causing numerous land conflicts
- Trade of animal parts in the local markets
- Trade for market; overexploitation
- Disease
- Drought

Intrusion of man in the habitat and ecosystems of many species has caused catastrophic effects on the animal ecology and population dispersal. Species such as Barking Deer *Muntiacus muntjac* and Gray Goral (*Naemorhedus goral*) have almost disappeared from the wild following the rapid growth of cities such as Islamabad, which kept its beauty for a long time. However, recent development of roads and infrastructure and high demand for natural scenery near human settlements has made serious negative impacts on the wild populations. A few species such as Rhesus Monkey (*Macaca mullata mulatta*) are finding less wild food and have adapted to come near the cities of Islamabad, Nathia Gali, Kala Bagh, and Murree to find food and, in fact, have become habituated to the food provided by the residents/ visitors.

In case of bats, felling of roost trees for widening of roads is a common threat to fruit bats. Deforestation for different reasons such as roads, housing, landslides, excessive tree-felling and lack of implementation of the forest plantations has also had a negative impact on various species. Bats that are living in caves which are tourists attractions such as ruins in Taxila, Wah Gardens and many places near Lahore, and all these species are prone to roost disturbance. Some species of bats such as fruit bats are considered pests and are persecuted as such (Molur *et al.*, 2002).

Many ungulate species face hunting pressure from the local communities as well as lack of watch and ward from authorities. Most of these species are hunted for recreation and meat. However, ongoing trophy-hunting and community-based conservation programs all over the country have restricted this threat; however, still there is a long way to go for the ungulate species found in the Sindh and Punjab provinces.

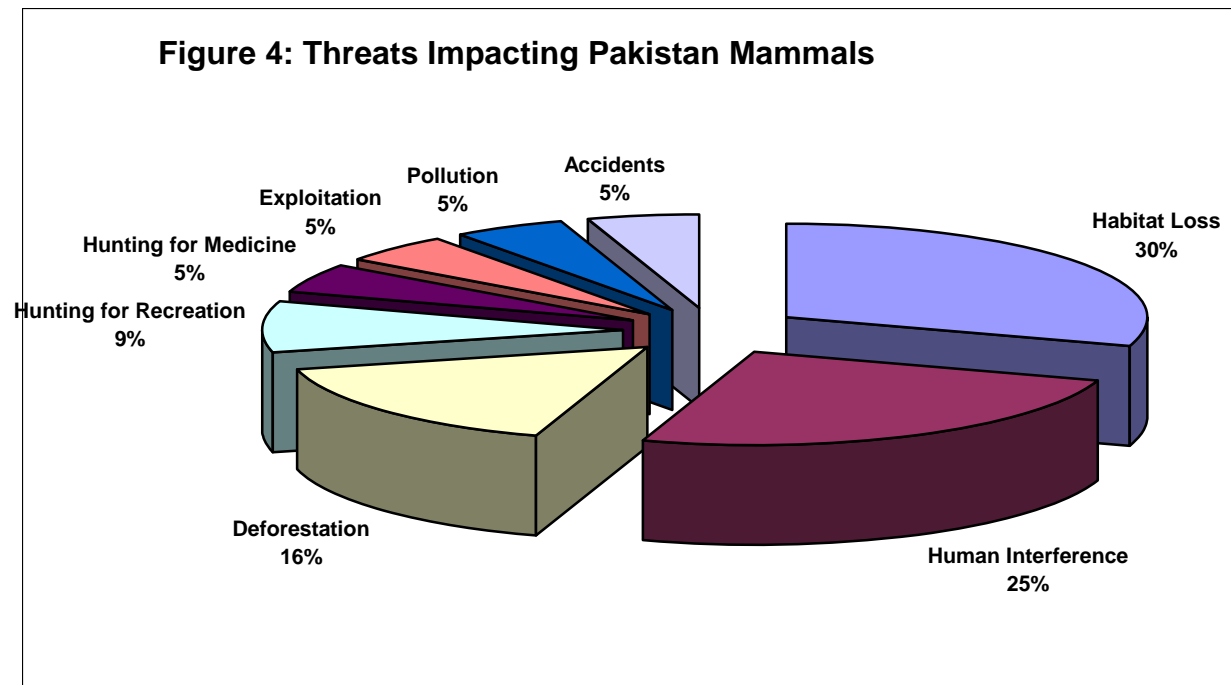
Rodents are affected by land clearing, roads development, extensive housing projects, waste of water into wild areas and eventual decrease in the burrowing sites.

Inconsistent conservation policies and lack of the implementation of action plans has also resulted in many negative impacts on the species. Pakistan's Biodiversity Action Plan have also prioritized species conservation but is also following a "slow track" of implementation due to lack of financial and

human resources. Forest conservation and development policies also have not been properly implemented. The loss caused by deforestation causes reduction in habitat quality.

Other indirect or direct threats are caused due to

- Lack of Scientific Research
- Poor Understanding of Ecosystem Approach
- Invasive or Alien species
- Pest Species
- Absence of Legislative Reforms
- Lack and/ or absence of direct benefits for communities in preserving biodiversity:
- Lack of Community-based Initiatives
- Weak Establishment and Infrastructure of Protected Areas



Conservation/ Management Recommendations:

Conservation measures and priorities are suggested in the section dealing with the species description; however, key conservation recommendations are suggested below as a next step for the conservation, management and sustainable use of mammalian species in Pakistan.

- Carry out detailed field research on species of mountains and wetlands especially those that have been categorized CR, EN and VU.
- Carry out inventory of all Protected Areas' biodiversity.
- Carry out detailed analysis of zoos, museums and other institutions having specimens, samples, skins and collection of various mammalian species for updated inventory.
- Organize field projects on migratory mammalian species especially in the bordering areas of Pakistan with Iran, India, Afghanistan and China.
- Train wildlife personnel for updated and improved wildlife management.
- Create incentive-based community-oriented conservation programmes all over the country.
- Develop special research projects to study the food web and food security of various species in the wild.
- Organize detailed field visits of students, researchers, scientists and interested individuals to remote areas of the country where many key species of mammals reside and breed or to which they migrate.
- Link research with action-oriented projects.
- Develop an environment of active collaboration among various institutions to develop suitable conservation projects for the protection of various species.
- Species such as Black Bear, Woolly Flying Squirrel, Indus Dolphin, Snow Leopard and Blackbuck require much research on their survival, behavior and breeding. Such data would immensely help the conservation of these endemic and critically endangered species.
- Train staff of captive facilities in handling of the wild animals.
- Develop training for captive breeding techniques and programmes and provide appropriate exposure of individuals and agencies involved with captive breeding to experts and to the most up-to-date facilities.
- Maintain information on all projects promoting conservation and sustainable use of biodiversity in Pakistan.
- Improve collaboration and information exchange among agencies that collect information relevant to the conservation of biodiversity.