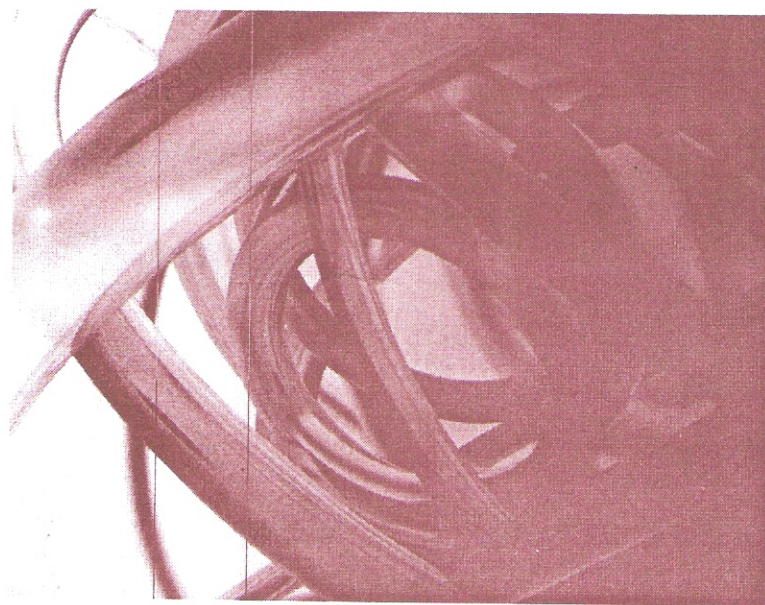


Volume: 3-4

Number 1-2, 2005-6

ISSN: 1811-0576

# Journal of Natural Sciences



Editor in-Chief  
Prof. Dr. Shahid Mahbood Rana  
Editor  
Dr. Muhammad Akbar Khan



GC University, Faisalabad

## Status of Wildlife Species and Their Management in Ghomat Game Reserve District Muzaffarabad

Qamar-u-Zaman Qamar, Muhammad Siddique Awan, Maqsood Anwar and  
Shahid Mahboob

Department of Zoology University of Azad Jammu and Kashmir, Muzaffarabad  
(QZQ, MSA and MA), Department of Zoology GC University, Faisalabad (SM)

**Abstract.** - Wildlife survey in Ghomat Game Reserve, Upper Neelum Valley, Azad Jammu and Kashmir was conducted from April to September, to determine the distribution and current status of important wildlife species. Total 12 species of mammals and 35 species of birds were recorded in this reserve. Results of the survey showed that population of most of the wildlife species have become very low. These species include musk deer (*Moschus moschiferus*), snow leopard (*Uncia uncia*), brown bear (*Ursus arctos*), leopard cat (*Felis bengalensis*), wolf (*Canis lupus*), snow partridge (*Lerwa lerwa*), chukar (*Alectoris chukar*), Himalayan monal (*Lophophorus impejanus*) and Kashmiri koklas (*Pucrasia macrolopha*). These species are considered endangered locally. Population of these wildlife species is very low with respect to the potential habitat available in this game reserve. The habitat status for wildlife in the area showed that *Sassuria lapa* and *Aconitum* sp. were very rare and might be near to extinction. Human settlements are also found in the game reserve and they own a large number of livestock. Local communities poaching, mining, over-grazing and deforestation were the causes of degradation of biodiversity in the study area.

**Key Words:** Wildlife, Game Reserve, Species, Biodiversity.

### INTRODUCTION

Azad Jammu and Kashmir (AJK) is a part of Great Himalayas that branches off from Nanga Parbat (Negi, 1983), stretching from longitude 73°-75° in the East and from 32°-35° latitude in the North (Qayyum, 1984). AJK lies within lower Himalayan ranges except upper Neelum Valley which lies in inner Himalayas. Himalayan fauna resemble both the Palearctic and Oriental zoogeographical regions (Negi, 1983; Roberts, 1977). Presently, Musk deer, Brown bear, Leopard cat, Himalayan ibex, Himalayan snow cock, Snow partridge and Rock partridge have become locally endangered in inner Himalayan part of AJK. Population of wildlife species have declined as a result of increased human pressure for several reasons such as military activities and hunting. Their heavy demand for timber, fuel wood and fodder is a cause of habitat degradation (Qurashi, 1990; IUCN, 1996). The human population is

## STATUS OF WILDLIFE IN MUZAFFARABAD

increasing at a rate of about 2.9 percent per year more land has been brought under plough after deforestation in hillsides (Anwar, 1989). No authentic surveys of biodiversity have been carried out in AJK at government level, which is prerequisite for conservation initiatives. International conservation agencies such as WWF and IUCN have started developing management plans in AJK for the conservation of biodiversity of the protected areas. Present study was carried out to determine the distribution and current status of important wildlife fauna, factors affecting on biodiversity and to propose their conservation plan for Ghomat Game Reserve.

### MATERIAL AND METHODS

Ghomat Game Reserve is located in the upper Neelum valley which is a part of inner Himalayas. It is 170 km north of Muzaffarabad, capital of Azad Jammu and Kashmir. The area was declared Game Reserve on 28 July, 1982 with total area of 27, 283 ha. Ghomat Game Reserve is linked with Muzaffarabad through Neelum valley road, running parallel to Neelum River (previously known as Kishan-Ganga). Elevation of the game reserve ranges from 2439 m to 4949 m from sea level. The study area lies between latitude 35° 24' N and longitude 73° 57' E. Study area comprises of dry temperate conifer forest, sub-alpine, high alpine pastures and cold desert (Champion, 1965; Robert, 1977). The area is out of monsoon range; however, some rain is received during the summer. Most of the precipitation is received in the form of snow during the winter. Ghomat Game Reserve is characterized by rugged topography, V-shaped valleys, glacial out wash terraces along nallahs and dendrite and parallel type of drainage patterns.

Field tours were conducted from April to September, 2001 to collect data on wildlife and its habitat. Socio economic data was gathered by meeting with the people of the local villages. On the basis of natural topographic conditions area was divided into 6 zones. Medicinal plants were collected and their local use was noted on the basis of the indigenous knowledge of the local people. Mammals were estimated according to the methods described by Anwar, (1989); Rab *et al.*, (1991) and Khalid *et al.*, (1995). Local old hunters were consulted about the winter habitat of musk deer. Estimation was made by observing the foot tracks on the snow. This method is useful when weather is clear and during early morning hours before the snow begins to melt. Their hides, droppings and hairs were used for evidences of their presence. Direct counting was done for Himalayan ibex and Rhesus monkey.

Bird was by call method as described by Gaston (1981). Position of censor was selected opposite to the expected habitat, which remain close due to narrow V-shaped valleys. During the summer, tracking through out the area was used.

## RESULTS AND DISCUSSION

### *Mammals*

Rhesus Monkey (*Macaca mulatta*): Rhesus monkeys were observed in July-August in Ghomat Game Reserve, they are confined to dry temperate coniferous forest. In the study area, their habitat is characterized by gentle slopes, flat area and small ridges covered with vegetation. Same habitats have also been reported in Dir (Roberts, 2000).

In August, during day time they were seen mostly in the crop areas (maize) near the forest edge. According to the local people, they destroy maize crop as well as the fodder stored under trees or in cliffs of rocks during winter, hence causing the economic loss.

Himalayan ibex (*Capra ibex*): Sixty individuals were counted at 5 localities in 4 herds and a single individual. The size of the herd ranges from 10-21 individuals (Table 2). Maximum herd of 30 adult males has been reported in Pakistan by Roberts (1977). In Ghomat, herd No. 2 and 5 consisted of males, while herd No. 1 and 3 consisted of both the sexes, but according to Roberts (1977) adult males remain separate from females.

Musk Deer (*Moschus moschiferus*): Musk Deer often remains in its particular territory which is not much large. During early morning and evening time, it traversed the territory in search of food that mostly consists of young shoots of *Butula utilis* and mosses which are exposed from snow cover.

In the study area, it was found in sub-alpine ranges at 3048-3963 m elevation at different aspects and is associated with birch forest in winter. Foot tracks in the snow were also observed in dry temperate coniferous forest at the elevation of 2590 m. During summer its droppings and hides were observed at the elevation of 3963 m among the scrub forest (Rhododendron and Juniper) in strips and patches of steep rocks. The population of musk deer in the game reserve is very low as compared to its potential habitat. It is being killed by poachers due to high demand of its musk pod.

## STATUS OF WILDLIFE IN MUZAFFARABAD

Snow Leopard (*Uncia uncia*): The population of snow leopard had reduced in the area because animal is ruthlessly killed due to high demand of its fur. Natural prey of snow leopard i.e. ibex, Musk deer and Pheasants have reduced in number due to poaching that ultimately effected its population.

Himalayan brown Bear (*Ursus arctos*): The study area consists of large portion of potential habitat of brown bear. But, due to over-grazing and poaching pressure, it has become endangered in this area. During summer, a female with two cubs was observed who was escaping from unknown danger. During this action female was looking around and waiting for young who were not seen following her. Although the area consist of large potential habitat but due to high demand of its fat and penis for medicinal use, animal is under severe pressure of poaching.

Black bear (*Selenarctos thibetanus*): Black bear is present in dry temperate coniferous forest with thick under shrub cover from 2440 m to 3050 m elevation. Their activity such as extraction of *Arisaema Jacquemontii* at the elevation of 3048 m was observed just above the tree line at some places. Black bear is well known to the local inhabitants due to its perdition on sheep, goats and destruction of maize crop during August. At the elevation of 2744 m the hairs of black bear were observed in a hollow trunk of *Abies pindrow*. According to the local people it was the hibernating site of the animal.

Leopard Cat (*Felis bengalensis*): According to the local people, it was abundant in this area in the past. But during the last two decades with the introduction of modern weapons, this animal was ruthlessly hunted due to high demand of fur.

Wolf (*Canis lupus*): During September six individuals were observed in location A at the elevation of 3659 m. Their foot prints and hairs were observed in the large pocket of a steep rock. In Ghomat Game Reserve population of this animal is very low due to habitat degradation and human encroachment.

Long Tailed or Kashmir Marmot (*Marmota caudata*): It is the largest rodent inhabiting Ghomat Game Reserve and is much common throughout upper Neelum valley. In July-August, marmots were observed every where above the tree line at the elevation between 3050-3960 m. It prefers to confine itself to slope and flat areas having thick layer of soil. They were also seen among the rock slides where they dig their burrows under the rock boulders. They were usually observed collecting grass in their burrows.

Small Kashmir Flying Squirrel (*Hylopetes fimbriatus*): Population of small Kashmir flying squirrel was estimated on the basis of indirect evidences such as droppings, walnuts showing quadrilateral holes under conifers, bitten shoots and bark of *Butula utilis*. In Ghomat Game Reserve it was found between 2440-3350 m elevation associated with coniferous and birch forest. Walnuts having quadrilateral holes were collected at the elevation of 2440-2590 m often seen dumped under conifers, which shows that animal use the conifers as protective cover during day time. Dropping were collected from 2440-3350 m which were found under conifers and birch trees and some in the cliffs of steep rocks.

In addition to the above mentioned wild mammals, some other mammals were also observed. Among these Red fox, yellow throated marten and beech marten are common in the area. Their activities like foot prints, predation on poultry were frequently observed during the survey.

#### *Birds*

Snow partridge were seen in flocks with 5-10 birds in each flock above 3660 m elevation (Table 1). The birds were mostly observed on rocks having small patches of herb and scrub vegetation, gentle slopes and among rock slides which are inaccessible to livestock. During the summer, birds prefer open habitat near snow line. Himalayan Snow Cock (*Tetraogallus himalayensis*) was well-adapted bird in high alpine habitat of Ghomat Game Reserve. In early summer, the birds were observed at 3350 m elevation but, during late summer they were seen at comparatively higher altitudes (4570 m).

According to local people presence of Himalayan ibex is the indication of potential habitat of Himalayan snow cock, which was confirmed during the study. Instead of steep rocks, they were observed on flat gentle slopes. They prefer to remain in open area and avoid thick scrub cover which is probably for the protection from natural predators such as snow leopard and yellow throated marten. In Ghomat Game Reserve, number of birds in a flock ranges from 6-16 individuals (Table 1). Chukar partridge (*Alectoris chukar*) were recoded only one group of 10 individuals at the elevation of 2590 m near Ghomat village (Table 1). Its population seems very low in Ghomat Game Reserve. Koklas Pheasant (*Pucrasia macrolopha*) was very common in upper Neelum valley. In Ghomat Game Reserve, where the potential habitat is very small (around Kundi and Ghomat villages), only 9 calls were recorded during five days. Its population has been estimated at 18 birds in the study area. Himalayan Monal (*Lophophorus impejanus*) were recorded in coniferous forest at the elevation of 2440-2740 m.

## STATUS OF WILDLIFE IN MUZAFFARABAD

In August 2000, two mix flocks of immature and females were flushed at the elevation of 3960-4270 m in the scrub area. It possesses keen sense of sight and always remains active (Johnsgard and Paul, 1986). A male pheasant, just after dwindling from roosting site, started calling at a frequency of about 1 call per minute without looking around. It uttered a long alarming call when disturbed. It is capable of digging the humus layer very deep with its powerful beak in search of roots and tubers.

### RECOMMENDATIONS

The decline in wildlife population can be controlled through the protection of remaining population, habitat protection and improvement for which cooperation of local communities is needed. Government of AJK and conservation agencies should consult political leaders and civil administrative authorities of Chilas and Hazara to stop illegal invasion of their people into protected area. Efforts should be made to stop transhumant grazing system. Potential habitat of wild species should be free from livestock grazing to promote their expansion. Tax per head of livestock should be imposed to discourage transhumant grazing system, which will help in reducing the livestock numbers or they leave the area. A limited predator control programme is essential in conservation of these species. Permanent inhabitants of the area are fully dependent on the natural resources such as livestock grazing, fuel wood, thatching material, timber and guchi collection. To minimize their impact on protected area, it is necessary to provide alternate sources of income and facilities. Education campaign should be started in upper Neelum Valley and booklets distributed free of charge in the area. There should be a prescribed syllabus about importance of wildlife at school and college level. Area should be under jurisdiction of Wild Life Department. Interruption of Forest Department should be prohibited. Arms should be banned in the area. Poaching matters that often end in "Jerga\*" should be discouraged. Any staff member or officer of Wildlife Department who is involved in "Jerga", settlement should be dismissed from his service.

Local people should be given jobs in the protected area instead of outsiders. Kundi and Kaley jander areas which are used as refuge by wild animals from poachers should be declared as part of the protected area. High officials of Wildlife Department should visit the area regularly. Exploitation of wild medicinal flora should be banned. Other areas in Neelum Valley having high potential of wild fauna and flora like Shonther and Gagghi should be surveyed and declared as protected areas. Wildlife Department and concerning NGO's should initiate periodic survey of wildlife and its habitat with close

collaboration of Zoology Department, University Azad Jammu and Kashmir Muzaffarabad.

#### REFERENCES

- Anwar, M. 1989. Development of a Management Plan for Grey goral in the Margalla Hills National Park. Ph.D. Dissertation, Utah State University, USA.
- Champion, J. 1965. Forest types of Pakistan. Pakistan Forest Institute, Peshawar, pp. 500.
- Gaston, A.J. 1981. Field study techniques for census of pheasants. In: Pheasants in Asia (ed. C.W.D. Savage), pp. 44-48.
- IUCN. 1996. Natural resources and environmental survey of Azad Jammu and Kashmir. The World Conservation Union, Karachi, pp. 79.
- Johnsgard, P.A. and Paul, A. 1986. The Pheasants of the World. Oxford University Press, New York, pp. 297.
- Khalid, U., Ghafoor, A. and Raja, N.A. 1995. A Musk deer survey in Pallas valley, District Kohistan, N.W.F.P. Pakistan. Pak. J. Forestry, 45 (1): 9-12.
- Negi, S.S. 1983. Himalayan wildlife habitat and conservation. Indus Publishing Company, New Delhi.
- Qurashi, A.R. 1990. Revised Forest Management Plan for the forest of Neelum Valley, AJK Forest Department Muzaffarabad, pp. 215.
- Qazi, I.A. 1994. Pakistan: Country and the forest. in Hand Book of Forestry, PARC Islamabad, Pakistan, pp 1-31.
- Roberts, T.J. 1977. The Mammals of Pakistan. Ernest Benn Limited London and Tone bridge, England. pp. 500.
- Rab, A., Sahibzada, S. and Afzal, M. 1991. Consort behavior of free ranging Rhesus monkeys (*Macaca mulatta*) of Pakistan. Pakistan J. Zool., (23): 219-224.

## STATUS OF WILDLIFE IN MUZAFFARABAD

Table I. Number of Various Mammals and Birds Observed in Ghomat Game Reserve. A = Kundi and Kalejander, B = Hula and Bunder Gall, C = Kamakdori Na, D = *Gall Nar*, E = *Saral Nar*, F = Ghomat.

S.No	Species	Habitat Preferred	Elevation (m)	A	B	C	D	E	F	Total
1.	<i>Capra ibex</i>	High alpine	3660-4570	30	19	-	1	10	-	60
2	<i>Moschus moschiferus</i>	Sub alpine	2590-3960	2	1	-	2	6	3	12
3	<i>Panthera uncia</i>	Migratory	2440-3050	1	-	-	-	1	-	2
4	<i>Ursus aroctos</i>	Sub-alpine	3660-3960	3	-	-	-	2	-	5
5	<i>Selenarctos tibetanus</i>	Temprate forest	2440-3050	2	1	-	-	2	-	5
6	<i>Macaca mulatta</i>	Temprate forest	2440-2745	44	10	-	-	38	30	122
7	<i>Hylopetes fimbriatus</i>	Temprate forest to sub-alpine	2440-3355	5	6	-	-	7	2	20
8	<i>Felis bengalensis</i>	Migratory	2440-3050	-	-	-	-	1	-	1
9.	<i>Canis lupus</i>	Migratory	2440-3660	6	-	-	-	-	-	6
10.	<i>Lophophrus impejanus</i>	Coniferous forest to high alpine	2440-4270	12	-	-	-	8	4	24
11.	<i>Pucrasia macrolopha</i>	Coniferous forest, thick cover of shrub	2440-3050	9	-	-	-	7	2	18
12.	<i>Tetragallus himalayensis</i>	High alpine slopes & flat ridges	3355-4570	16	14	-	-	16	-	46
13.	<i>Lerwa lerwa</i>	High alpine slopes & flat ridges	3660-4570	17	14	-	-	-	-	31
14.	<i>Chukor partridge</i>	Beside the conifers and steep ridges	2440-2590	-	-	-	-	-	10	10

Table 2. Herd Size of *Capra Ibex* in Ghomat Game Reserve.

Locality	Herd No.	No. of Adult Male	No. of Adult Female	No. of Young	Total
A	1	16	3	2	21
A	2	-	7	2	09
B	3	2	12	5	19
D	5	1	-	-	01
E	4	-	6	4	10
Total		19 (48.33%)	28 (46.66%)	13 (21%)	60