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BEHAVIOUR AND BIOLOGY OF OVIS ORIENTALIS (URIAL) IN KOTAL WILD LIFE PARK AND BORRAKA WILD LIFE SANCTUARY IN KOHAT

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ABSTRACT

Kotal Wildlife Park and Borraka Wildlife Sanctuary in Kohat were studied for the behavior and biology of Urial. The population of Urial in Kotal Wildlife Park was more (n=20-25) than Borraka Wildlife Sanctuary (n=3-5). Urial (*Ovis orientalis*) belongs to order Artiodactyla, Family Bovidae and sub family Caprinae. Shapu and Gad were the local names of Urial. The climate was dry, subtropical and influenced by monsoon. It was hot in summer and cold in winter. Rain fall was more than 21 inches (525mm). Mostly grasses, shrubs and branches of *Acacia modesta*, *Monotheca buxifo1ia* and Olea spp. were fed. Urial was very shy animal and sensitive behaviors were observed during study in the Park and Sanctuary. It was determined that population was decreasing due to unfavorable circumstances (illegal shooting and poaching) for Urial inside the Park and Wild Life Sanctuary.

Key words; Urial, *Ovis orientalis*, Kotal Wildlife Park and Borraka Wildlife Sanctuary

INTRODUCTION

Wildlife, non domesticated part of the fauna is an important component of bio-diversity. The maintenance of global eco system had been possible only because of the bio-diversity that has existed over, during the entire history of life on earth. Animals, living part of colorful nature have always fascinated to human imaginations and figures abundantly in arts, crafts and literatures.

Ovis orientalis (Urial) is one of those wild mammals heavily populated in thick west forests of Peshawar. But now the situation is quite different due to excessive hunting and poaching of humans. Urial closely resembles with the Marco Polo sheep in general body texture and color. In Pakistan three sub species of Urial *Ovis orientalis vigeni*, *Ovis orientalis Blanfordi* and *Ovis orientalis punjabiensis* have been identified in Gilget, Baluchistan and Punjab, respectively. These three sub species can be differentiated by color of ruff (Roberts, 1977). The preferred species as noted by Schaller and Mirza (1971) are *Ellusin flagelltjera, Digitaria bicornis* and *Cenchrus pennisettjormis.*

Urial is one of those wild mammals, which were heavily hunted in the past and became endangered. Today there is no Urial and Chinkara even within a day's car journey from Peshawar (Robert, 1977). The status of species in Pakistan is, however endangered (IUCN, 2002) which may be more true for ladak and Punjab urial.

Kotal Wildlife Park and Borraka Wildlife Sanctuary support different kinds of wild animals and birds like Urial, Chinkara, Hog deer, Black partridge, Grey partridge and Chukor partridge etc. Park and Sanctuary are under the management of NWFP Wildlife Department covering an area of about 150 acres (60.67ha) and 5000 acres (2025ha). Flora and fauna of Park is quite safe from human and livestock interference owing to complete fence. Urial, hog, deer and chinkara were reintroduced in the Park. Main objectives of the Park are to provide adequate protection to wildlife and recreational facilities to the people around.

The study was conducted to assess suitability of habitat (biology and behavior), status and distribution of wild species (Urial) in Kohat.

MATERIALS AND METHODS

The behavior and biology of Urial in Kotal Wildlife Park and Borraka Wildlife Sanctuary were studied during research work from January to October, 2009.

Questionnaire: Questionnaires were prepared to collect data on common behaviors, habits, status and other activities of Urial.

Tools and Equipments: Camera, binocular telescope, measuring tape (100 feet), spring balance, pegs, paper bags, clipping instruments, quadrate (lm^2) and field book were used to record direct observations of animals, species composition, density and carrying capacity of the Park as well as the Sanctuary.

Selection of Observation Points: Kotal Wildlife Park and Borraka Wildlife Sanctuary consisted of Scrub forest having rough topography in general appearance. Since

Urial frequently roams about in the Park, which was observed by its foot prints and droppings. Therefore various representative observation points were selected to cover overall topography and vegetation. More attention was focused on areas where droppings and foot prints were frequently observed. These points were located at such places from where a clear and unobstructed view could be made.

Direct Observations: On spot observations on daily activities of Urial were documented at selected points. Observation points were at hidden places, not easily detected by animals. Time specification for taking direct observations helped to specify and utilize it for this special purpose. The best time for observation was 7 to 9a.m and 3 to 5p.m during study periods.

Grazing Capacity of the Area: Grazing capacity of entire area was determined for specific number of days without inducing a downward trend in forage production, forage quality or soil (Stoddard *et al.*, l975). Area of the Park was thoroughly surveyed and its vegetations were carefully observed. Keeping in view the species composition area was divided into three homogenous blocks for easy and accurate observations.

$$\text{Grazing capacity} = \frac{\text{Total available air dry forage}}{\text{Requirement of one animal unit month}}$$

However, true grazing capacity was determined by stocking an estimated number of animals and watching the habitat trends regularly.

RESULTS AND DISCUSSION

Biological activities, status and distribution of Urial under natural environment in Kotal Wildlife Park and Borraka Wildlife Sanctuary were recorded from July to October 2009.

Kotal Wildlife Park: Kotal Wildlife Park established in 1989-1990 over an area of 150 acres under the administrative control of Divisional Forest Officer Wildlife, Kohat. The Park was located in the North Western side of Koha at a distance of 6 km from city to Peshawar road. The Park laid between coordinates 33-34 to 33-35 North and 71-22 to 71-75 East.

Climate: The area falls in the sub tropical climatic zone. Rain fall was 200-300mm. Mean minimum and maximum temperature for summer and winter were 26.5-38 and 9-22 ˚C, respectively.

Vegetation: Park flora consisted of common species of the trees which were *Dodonaea viscose, Olea ferruginea, Olea ferruginea, Acacia modesta, Zizyphus nummularia, Eucalyptus camaldulensis, Eucalyptus camaldulensis, Monotheca buxifolia, Zizyphus mauritiana, Tamarix aphylla* and *Acacia nilotica*. Shrubs observed were *Dodonea viscose, Olea cuspidate, Zizphus numularia, Nannorophus ratichiana*. Grasses identified were *Cynodon dactylon, Cenchrus cciliaris, Saccharum spontaneum and Saccharum munija.*

Borraka Wildlife Sanctuary: Borraka Wildlife Sanctuary established in 1977, over an area of 5000 acres (2025 ha) was situated on the Western border of Kohat. The Sanctuary lied between coordinates 71-11 to 71-22 North and 33-30 to 33-34 East. The area consisted of hilly tract which supported reserve forest and vegetation.

Population: Population of Urial was not exactly known, because no valid census has been conducted in the Park and Sanctuary. The number of Urials ranged from 20-25 in Kotal Park and 4-8 in Sanctuary (Personal observation). There were 4 rams of different ages whereas rest of population consisted of ewes (personal communication with watchers) in Kotal Wildlife Park. During observations a herd of one ram two ewes was sighted in Borraka Wildlife Sanctuary.

Decreasing trend in population of Urial inside the Park and Sanctuary was noted due to illegal shooting and poaching of human beings.

Biological activities of Urial: Daily activities of animal varied in corroboration to weather of day and season of year. Urial usually feed early morning and late evening whereas rest at noon of sunny days. One male along with two females were noticed at 9:30 a.m. during observation on 15th of October, 2009. Seasonal activities of Urial were studied to determine reproductive requirements. Rams showed little interest in ewes during early October and at the end of October. Rams of all ages approached ewes from behind for matting purposes.

The feeding habits of Urial were studied by binoculars and later on identified visiting the spotted places. Most of the time animals were feeding grasses and browsing *Acacia modesta, Olea jerruginea* and *Zizyphus nummular.*

The droppings of Urial were in the form of little oval balls and deposited at one place.

Behavior of Urial: Urial was very shy animal and sensitive behaviors were observed during study span in the Park and Sanctuary. Once these animals were noticed grazing in the park and Sanctuary heard the voices of feet on vegetation, halted, jerked up their heads and run away from site.

Grazing Capacity of the Areas: Grazing capacity of the habitats was calculated as under.

Air dried forage production=	60.6 grams/m^2
Available air dried forage=	303 kg/ ha
Total study area=	2085 ha

Thus total available air dried forage=	2085x303= 631755 kg
Requirement of one animal unit=	9.1 kg
Therefore	
One animal unit month=	9.0x30=273 kg
So, for four months (one season) requirements of one animal unit will be =	27 x4=1092kg
Grazing capacity=	
Total available forage =	631755
Requirement of one animal unit=	578 A.U. 1092
As one animal unit=	3 Urial
Therefore numbers of Urial which can graze for one growing season=	578x3=1734

Grazing capacity of both habitats was favorable for Urial and not taxed with over grazing. The Urials were not suffering as a consequence of competition for food. But outside the park it is vulnerable and decreasing their strength even at the extinction stage. In a similar study on the *Ovis orientalis vignei* declared them vulnerable because it inhabits low, open country where people commonly graze their livestock (Nowak, 1999).

Robert (1997) reported that Urials were totally exterminated and few were survived in Koho-i-Murat hills. Mirza *et al.* (1980) surveyed the hills of salt range and documented estimates of Urials in Kalabagh Reserve (1288), Kala chitta hills (213) and Jehlum Valley hills (588). Hess *et al.* (1997) declared that in Punjab Urials were found as small scattered population throughout the Kalla chitta and salt Range. Awan (2001) observed that different factors like increase in poaching, grazing pressure, natural resources exploitation, pet trade, construction of roads, road vehicles, loss of habitats due to urban development and agriculture could contribute in reduction of the Urial's population. Similar factors were identified by Valdez (1982) responsible for reduced numbers in range of wild life at Mongolia.

The breeding capitation in Urials was noted in months of October when vegetation was lush and progressive in the Kotal Wildlife Park and Borraka Wildlife Sanctuary kohat comparable to report presented by Rachlo and Bowyer (1991) and Holand *et al.* (2003).

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