

PUNJAB URIAL IN CHAK JABBI AREA-KALA CHITTA RANGE

by

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Summary. The population of Punjab urial (*Ovis orientalis punjabiensis*) was estimated in parts of Kala Chitta range in January 1976. The animals were categorised according to age and sex and herd composition was studied. Other associated wildlife in the area was described. Vegetation and the animal habitat and feeding habits were studied. Forage production and carrying capacity of the range were also determined.

The area. The area surveyed (about 50 km²) forms a part of the Kala Chitta range (map). The elevation ranges from 250 m. to 710 m. Parent rocks are limestone and sandstone. In the limestone area the soil is thin and shallow but is capable of supporting fair tree growth. In sandstone area, weathering produces a thin arenaceous soil, entirely devoid of humus, only capable of supporting xerophytes.

The climate is sub humid, sub tropical continental. The meteorological data (covering 40 years) from Campbellpur 20 km to the North West of Kala Chitta range are given below:

Month	Temperature°C		Number rainy days	Mean monthly rainfall mm	Mean relative humidity %	
	Mean maximum	Mean minimum			0800 hrs	1700 hrs
January	16.4	2.2	3.5	57.3	81	49
February	19.8	5.2	2.5	26.3	75	42
March	23.6	10.7	5.3	55.3	74	44
April	29.5	15.2	3.8	39.5	60	35
May	36.3	20.3	2.2	21.5	43	25
June	40.8	26.1	1.6	19.5	41	23
July	37.6	26.0	5.8	120.5	65	45
August	36.3	25.8	6.6	105.8	69	48
September	35.3	22.8	2.8	50.3	63	44
October	31.5	14.2	1.4	19.0	56	33
November	24.2	7.2	1.1	13.8	65	39
December	18.1	3.3	2.2	55.5	68	49
Annual	29.1	14.9	38.8	584	63	40

Source: Regional Meteorological Centre, 46 Gulberg Road Lahore-3.

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Vegetation. The forests covering Kala Chitta range have been classified as the dry subtropical broad-leaved forest by Champion, Seth and Khattak (1965). The following species composition has been given by the authors for compartment 22 of Kala Chitta forests, stony soil over limestone:

- I. *Olea cuspidata*, *Acacia modesta*.
- II. *Sageretia theezans*, *Zizyphus nummularia*, *Ehretia aspera*, *Periploca aphylla*.
- III. *Gymnosporia* sp., *Dodonaea viscosa*, *Malhania fatteyporensis*, *Rhamnus pentapomica*.
- IV. *Chrysopogon montanous*, *Cymbopogon jwarancusa*, *C. schoenanthus*, *Heteropogon contortus*.
- V. *Asparagus* sp., *Cocculus pendulus*, *Ephedra foliata*.

Olea about 5 metre high and *Acacia* 6 metres. *Olea* dominates on northern aspects and *Acacia* on southern aspects.

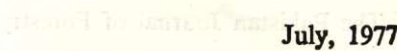
The following species were also recorded while surveying the area:

- II. *Carissa spinarum*, *Monothea buxifolia*, *Adhatoda vesica*.
- III. *Alhagi camelorum*, *Fagonia* sp.
- IV. *Ranunculus* sp., *Allium* sp., *Iris* sp.
- IV. a. *Enneapogon*, *Bromus*, *Cynodon dactylon*, *Desmostachya bipinnata*, *Eulaliopsis binata*, *Eragrostis* sp., *Agrostis* sp., *Digitaria nodosa*, *Bothriochloa ischaemum*, *Cenchrus ciliaris*, *Cenchrus* sp., *Tetrapogon villosus*, *Chloris dolichostachya*, *Panicum antidotale*, *Aristida depressa*, *Chrysopogon fulvus*.

The Urial. Punjab urial is a sub-species of *Ovis orientalis* Gmelin which is divided into three sub species namely: *vignei* Blyth, found in Northern Areas and Chitral, *blanfordi* Hume, found in Baluchistan and Sind and *punjabiensis* Lydekker, occupying salt and Kala Chitta hill ranges in the Punjab province.

Compared with other forms of urial, the Punjab urial have a reddish coat, a more conspicuous neck ruff and saddle patch, and a more circular sweep to the horns (Prater, 1971). Schaller and Mirza (1974) have identified the following sex and age classes:

Female: Adult ewes have a pale reddish—buff pelage, changing to whitish on the belly and inside of legs and to greyish on the face. The knees are white with a grey wedge of hair extending both upwards and down-wards. The horns are thin and small, roughly as long as the ears. Yearling ewes, 1½ years old, are somewhat smaller and lighter of build than adults.



Young: Young resemble the colour of the females. Horns are 4-8 cm long and are thicker at the base in males as compared to those of females.

Yearling male ($1\frac{1}{2}$ years): These are slightly smaller than the adult ewes. Pelage colour is more greyish. A thin line of black hair runs down the ventral side of the neck to mark the initiation of ruff. The horns are more massive and upto 15 cm long.

Class I male ($2\frac{1}{2}$ years): Larger than the yearling males, these have a broad black line of hair on the neck and a dark, horizontal stripe along the flank. The horns are 35 cm long and curved sharply backward. The scrotum is much larger than the yearling males and is greyish white.

Class II male ($3\frac{1}{2}$ years): The pelage is richer in hue, more reddish and a prominent neck ruff from chin to chest can be differentiated from class I males. Scrotum, like small rump patch is white instead of being grey in class III male and other older individuals. The grey pattern on the forelegs (both in females and young), turns white. The horns sweep outward and down for some 40-60 cm.

Class III male ($4\frac{1}{2}$ years): The rust coloured pelage is separated from the white belly by a prominent black flank stripe. A whitish patch, the saddle, bears a black vertical slash along its anterior side. The pelage, however, is quite variable and the saddle may be prominent in some and not others. The throat ruff is black and large, longest on the upper neck and on the chest, the former sometimes shows a touch of white. The horns sweep in a half-circle and are roughly 70-75 cm long.

Class IV male (fully grown): Full size is attained at the age of 8 to 9 years (Geist, 1971, cf. Schaller, 1974) but urial may do so somewhat earlier (Heptner et al., 1966, cf. Schaller, 1974). Rams are handsome, sturdy animals. Height at the shoulders is upto 81 cm and weight double than that of females. The throat ruff is large, white at the upper and the lower portions and hangs over half-way to the knees. The horns form almost a $\frac{3}{4}$ circle, with the tips at the level of the neck.

Population dynamics. Method: Urial like other big game species form discreet herds each of which remains confined to a certain part of the valley. For the purpose of estimation, the area was divided into different zones after a reconnaissance survey and each zone was thoroughly surveyed. Binoculars (8 x 30 and 7 x 50) were used for spotting and for further observation of the animals. Spotting of the animals was possible only after sunrise, 7.00 a.m. to 9.00 a.m. and before sunset, from 3.00 p.m. to 5.00 p.m. The animals could not be spotted in between as they remained hidden in vegetation.

The animals (censused in January, 1976) were classed according to age and sex. The young are born in March, thus the lambs of the previous year were 10 months old and showed mixed characters of the young and yearlings described already. Identification of females was easy. As the number of males in each herd was one or two there was little need to further categorise them for the purpose of identification.

The rut had long been over and the herds had disintegrated. The herds observed were stable and there was little likelihood of their disintegration. Males were seen straggling alone as well as in mixed herds.

Population. The results of the census are as follows:

Locality	No of animals			Total
	Males	Females	Young	
Dehrial Ohan	2	2	1	5
Chohian	2	—	—	2
Uembapar	1	2	—	3
Haidar Mar (Mith-yal Guzara	2	3	—	5
Hothan	1	6	—	7
Kirariwala	2	7	3	12
Tanewala	2	—	—	2
Ucihor	1	2	—	3
Harmal	1	3	1	5
Hubbo Ali	1	2	—	3
	15	27	5	47

Percentage of males in the population = 32

Percentage of females in the population = 57

Percentage of young in the population = 11

No. of young per female = 0.2

The rut had long been over and the breeding herds had already disintegrated to form herds of varying composition. The male/female ratio in the population was about 1 : 2. The males observed belonged to all age classes, the number of mature animals (more than 4½ years) was more as compared to the young age gradations. Two herds observed at Haidermar and Hothan had 3 males of 6, 6 and 8 years age respectively whereas in the herd observed at Kirariwala 2 males were of 7 and 8 years old. Only in two instances males were seen in groups of 2 each without being accompanied. All the 4 males were more than 5 years old. The number of young in the population, and the number per female (0.19) was alarmingly low, as compared to other ungulates e.g., 1.3 and 1.4 for markhor (*Capra falconeri falconeri*), Schaller and Mirza (1971) and 0.56 (1976) and 0.25 (1977) for the same in Chitral Gol (Aleem, 1976, 1977). Murphy and Whitten (1976) while studying the demography of dall sheep (*Ovis dalli*) reported data from McKinley Park, Alaska collected from 1939 to 1972 and stated a lamb/ewe ratio varying from 0.11 to 0.65 giving an average of

0.39. Heptner (1966) observed that the Asiatic urials have high twinning rates. Heptner (1966) also cited a study by Antipin reporting high twinning rates for argali sheep (*O. ammon*). Valdez (1976) conducted fecundity studies on wild sheep (*Ovis orientalis*) in Iran and found out that the fetal rate varied with the age of females. He reported an average of 1.38 to 1.15 for ewes of 1-4 years and 1.60 for ewes more than 4 years age for three different areas. Schaller (1971) has described a ratio of 0.75 for urial in Salt Range. He, however, stated a yearling/female ratio as 0.35 suggesting thereby the disappearance of more than half the young between the ages 6-18 months. As the young ones were 10 months old at the time of the study, a ratio less than 0.75 and more than 0.35 could be expected. The lowest estimates would show that at least 20 young would have been produced in the previous year, whereas only 5 were observed during the study period. The possible causes of this low number may be: mortality in juvenile stages, predation and capture of the young for keeping them as pets.

Factors affecting the population. The following factors are relevant to the growth of the population:

Poaching: The animal has been declared a protected animal and as such its shooting has been banned. But the reports about poaching have not been uncommon. The area is sparsely populated and the inhabitants are responsible for the disturbance of peace. The area is also subjected to felling and cutting practices and the persons employed on this job not only cause disturbance but also are a constant source of poaching. No reports have been made to the Wildlife Department for illegal shooting but interviews from the local people revealed that poaching continued unchecked. One instance was reported of a seizure of illegally hunted urial by the Deputy Commissioner, Campbelpur himself.

Competition: The animal is a favourite pet in the area and the young ones are captured for the purpose. In the small towns around Kala Chitta, at least 5 families were reported to be keeping urial as pets.

To determine the forage production in the study area 120 quadrats (one metre square) were clipped. The samples were distributed all over the area in each sub zone. The average forage production was calculated as 1028 kg-air dry/hectare. Considering the use factor as 0.5 (Khan, 1971), the forage availability would be 514 kg-air dry/hectares. The total production of the area therefore, is $5000 \times 514 = 2,570,000$ kg-air dry. This feed is adequate for a minimum of 1,000 animal units. According to Khan (1971), the available feed works out to be sufficient for 1100 animal units in comparable areas in Hazara district. The actual population is 800 A.U. of domestic livestock and 20 A.U. of wildlife including urial and chinkara (*Gazella gazella*). Under the present circumstances the forage availability is more than required by the grazing animals in the area.

The range condition, is therefore, good and not taxed with over grazing. The urial present on the range would not suffer as a consequence of competition for food. The disturbance caused by the local population and their livestock would however be a limiting factor.

Predation: The main predator in the area is the leopard (*Panthera pardus*). The population of the predator has been reduced and no reports were made of predation upon urial in

the recent past. The jackal (*Canis aureus*) and the Indian fox (*Vulpes bengalensis*) are the secondary predators but they may be effective on the stranded young. Yellow throated marten (*Martes flavigula*) were also seen in the area. These occasionally attack the young urial and because of their extreme agility can be successful in preying upon them. The predation toll, however, is not very high to affect the population size or structure.

Disease: Disease in juvenile stages can be another factor responsible for low number of young ones in the population. No concrete reports were, however, available.

Dogs: Shepherd dogs kept by the livestock owners are another source of damage to wildlife. They attack the urial and sometimes are successful in preying upon them. They also disturb the population and are sometimes used by the poachers in their secret hunts.

Food habits. The feeding habits of urial were studied through binoculars and later on identified by visiting the places spotted. The following species were found to be eaten:

Olea cuspidata, *Acacia modesta*, *Zizyphus nummularia*, *Carissa spinarum*, *Monotheca buxifolia*, *Alhagi camelorum*, *Ranunculus* sp., *Chrysopogon montanous*, *Heteropogon contortus*, and species of *Enneapogon*, *Bromus*, *Cynodon*, *Eulaliopsis*, *Eragrostis*, *Agrostis*, *Cenchrus*, *Bothriochloa*, *Panicum*, and *Aristida*.

The urial are extremely agile animals and keep on moving while feeding, even when food is abundant they cover large distances.

Most of the time the animals were observed feeding on grasses. The species found in abundance were: *Chrysopogon montanous*, *Heteropogon contortus*, and species of *Enneapogon*, *Bromus*, *Cynodon*, *Eulaliopsis*, *Eragrostis*, *Agrostis*, *Cenchrus*, *Bothriochloa*, *Panicum* and *Aristida*.

To study relative preference for browse, and forbs and grasses, two animals were observed on January 10, 1976 from 7.00 a.m. to 8.00 a.m. The animals alternated between feeding on browse and ground vegetation. The time spent on browse, and forbs and grasses is given below:

Time spent in minutes			
Animal No. 1		Animal No. 2	
Browse	Forbs and grasses	Browse	Forbs and grasses
3	5	4	5
2	4	6	8
5	6	3	4
7	9	2	6
4	8	4	5
2	5	2	4
		1	1
		3	2
Total	23	25	35

It was concluded that the urial spend more time grazing on forbs and grasses as compared to browsing on shrubs or trees.

The animals were found to be more active early in the morning whereas they became sluggish and started taking rest with the sun rising. No animals were observed during high sun. While browsing they fed themselves on low hanging branches of *Olea cuspidata*, *Acacia modesta* and such shrubs as *Zizyphus nummularia*, *Monothea buxifolia* and *Carissa spinarum*. Sometimes they were also seen standing on their hind legs to reach a branch otherwise out of reach.

While feeding, the animals showed variable behaviour. They acted quite independently even in groups. One group of 12 animals was observed for one hour (8.30 a.m. to 9.30 a.m.) in the clear weather and the following successive pattern was noticed:

Duration (minutes)	Activity	
	Lying down	Feeding
8	4	8
13	5	7
7	2	10
10	6	6
3	5	7
14	9	3
3	10	2
2	11	1

Associated wildlife. Observations on the occurrence of associated wildlife are as follows:

Chinkara (*Gazella gazella*): The gazelle occupy level lands in between the peaks and tend to avoid even moderate slopes. Only 3 animals (one female accompanied by a young and one solitary female) could be seen during the survey but the pellet group counts suggested a population of 20-25 animals. The chinkara exhibit a different mode of feeding. They prefer to graze late in the evening to quite late at night and very early in the morning. The 3 animals seen were spotted while grazing on *Chrysopogon* sp. but sensing the presence, they immediately took flight and were soon out of sight behind the ridge.

Hare (*Lepus nigricolis*): Hare often came across on paths during the night and were considered to be quite abundant.

Yellow throated marten (*Martes flavigula*): Only one animal could be seen on a ledge, one afternoon.

Partridges: Grey partridge (*Francolinus pondicerianus*), see see (*Ammoperdix griseigularis*) and chakor (*Alectoris chukor*) were seen quite often in coveys.

Birds of prey: Lanner falcon (*Falco bimarcus*) and peregrine (*Falco perigrinus*) were identified as the birds of prey.

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