

Distribution, Status and Habitat Utilization of *Alectoris chukar* in Machiara National Park District Muzaffarabad Azad Kashmir

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ABSTRACT

A study was conducted to gather information about the distribution, population, presence and habitat utilization of *Alectoris chukar* in Machiara National Park. Surveys were usually scheduled early in the morning (5 to 8 AM) and at evening (3 to 6 PM). The areas, which *Alectoris chukar* occupied, had dominant vegetation of *Morus alba*, *Barberis lycium*, *Acacia arabica*, *Ficus palmata*, *Acacia modesta*, *Dodnea viscosa*, *Dilbergia sisso*, *Ailanthus altissima*, *Melia azedarach*, *Olea ferruginea*, *Zanthoxylum alatum*, *Celtis eriocarpa*, *Grevia violosa*, *Indigofera heterantha*, *Juglans regia*, *Pinus roxburghii* and *Pinus wallichiana*. The destruction of habitat (by overgrazing, grass cutting, land slides & encroachment) hunting and road construction in the Park area is the major threat to the existing wild life including *Alectoris chukar*.

Key Words: Distribution; Status and habitate; *Alectoris chukar*; Muzaffarabad

INTRODUCTION

The state of Azad Jammu and Kashmir (AJK) is located in the lower hills of Himalayas. It lies between 73° - 24 E to 73° - 75 E longitude and 33° - 36 N to 35° - 07 N latitude in the Sub-Continent (Anonymous, 1996). It covers an area of 13,297 km². Elevation from the sea level ranges from 902 feet in the South (Manawar) to 20750 feet in the north (Shonter top) (Anonymous, 2002). Climatic conditions of Azad Jammu and Kashmir vary with altitudinal variations. It varies from sub-tropical to temperate (Anonymous, 1996). About half (42.62%) of area of the total landmass of the state is covered by the valuable forests and grazing lands (Termizi & Rafique, 2001). Having fascinating topography, diverse vegetation and varied climatic conditions, AJK is blessed with a wide variety of fauna (Aziz, 2003).

Machiara National Park (study area) is situated in the North of the AJK, at about 35 km north to Muzaffarabad (Fig. 1). Machiara National Park is present on the left side of the Neelum River of the Neelum valley and is also linked to Kaghan valley of the NWFP. It is located on longitude 73° - 37 E and latitude 34° - 31 N in Azad Jammu and Kashmir and was up-graded from game reserves to National Park in 1996, covering an area of 33437 acres between 1300 m to 4735 m (Aziz, 2003). Due to the height from sea level and annual average rainfall, different types of the ecosystem and forests are found in Machiara, which include moist, dry temperate and dry coniferous forests.

This area is blessed with mixed fauna of Palearctic and Oriental Zoogeographical region (Aziz, 2003). *Pinus wallichiana*, *Pinus roxburghii*, *Cedrus deodara*, *Abies pindrow*, *Aesculus indica*, *Juglans regia* and *Prunus pardus*

are the most important and familiar trees of the park. Some of the very important and globally threatened species of animals including *Panthera uncia*, *Moschus moschiferus*, *Selenarctos thibetanus* and *Tragopan melanocephalus* (Ahmed, 1997).

In Pakistan, it is very adaptable to all kinds of the arid, rocky and hilly country ascending to the higher mountain valleys of the inner Himalayas ranges (Roberts, 1991) and bare, arid hillside of the Punjab and western Himalayas (Wood Cock, 1980).

In AJK, it inhabits barren, stony, sparse scrub covered hillsides, ravines and neighborhood of the river valley (Anonymous, 1985). In AJK, so far no study work has been conducted on the *Alectoris chukar*. The present study conducted in Machiara National Park is the first step in this connection and is aimed at to explore the current distribution, population status and habitat utilization of *Alectoris chukar* in Machiara National Park (MNP) and to find out the factors affecting the population of this bird.

MATERIALS AND METHODS

Six months study surveys were conducted from May 2004 to October 2004 to determine the distribution, population status and habitat utilization of *Alectoris chukar* in Machiara National Park. For this purpose, the study area was divided in to three major study zones, A, B and C (Table I), which according to climatic conditions, vegetations, habitat and physical barriers, were further subdivided in to different localities.

Some potential areas (compartment No. 9, 10 & 11) of Machiara National Park harboring *Alectoris chukar* were surveyed for achieving the objectives. During the survey,

direct and indirect methods were used to gather information about its presence, distribution, population status and habitat utilization. The callings, feathers, fecal droppings and information collected from local residents, shepherds, hunters and game watchers of the area provided best indirect evidences for determining its status. For direct observation, the potential areas were thoroughly surveyed. Surveys were usually scheduled early in the morning from 5 to 8 AM and at evening from 3 to 6 PM. Day hours were utilized in gathering indirect evidences.

For observation Binocular (8 x 40) was used. Altimeter was used to measure the altitudes of the places, where *Alectoris chukar* was physically sighted or its indirect evidences collected. The date, form (adult or juvenile), type of evidence (calls, feathers, nests etc.), habits, weather conditions and dominant vegetation were also recorded during the survey for future references.

RESULTS AND DISCUSSION

The survey was conducted to determine the distribution, population status and habitat utilization of *Alectoris chukar* in three study zones of Machiara National Park, between May 2004 and October 2004. This survey was carried out in four localities of study zone "A", 13 localities of study zone "B" and eight localities of study zone "C" (Table I).

Alectoris chukar has worldwide distribution, found in India, Afghanistan, Middle East (Mitchell, 2000) and Western Himalayas, east to central Nepal (Ali & Ripley, 1987). It is distributed throughout Pakistan in certain places, that is Punjab, Sind, Baluchistan, Chitral, Salt range, Swat, Kohistan and Gilgit (Wood Cock, 1980; Roberts, 1991). This bird is also found throughout the AJK (Anonymous, 1985).

During the study period, *Alectoris chukar* were found occupying three study zones of the Machiara National Park, those were thoroughly surveyed.

Sum total of 166 bird's population was estimated in the 25 localities of three study zones of study area. Of these 22 adults were found in four localities of study zone A, 76 adults in 13 localities of study zone B and 50 adults in the eight localities of study zone C (Table I; Fig. 1).

In study zone A, the total average population was estimated as 40 individuals during the whole study period. However, the autumn population (n = 43) was higher as compared to summer population (n = 37). The zone A population during different months of two seasons showed fluctuation. The population in the months of August and September remained same (n = 44) but showed slight decline (n = 41) in October, while during the summer season, the population showed a slight increasing trend from May through July (Table II, Fig. 3).

The study zone B had highest population (n = 76)

Table I. Division of the study area comprising forest compartments, adjacent villages and elevation ranges

Study Zones	Forest Compartment	Localities	Elevation ranges (ft)
A	Com. 9A	Ghatian, Gali Khaiter.	5000-13892
B	Com. 9B, Com. 10	Machiara, Kabaya Khaiter, Pasnian Palla, Kokan, Panjur	4659-15500
C	Com. 11	Panjur Galli, Minha, Serli Sacha	5883-13434

Table II. Population estimation of *Alectoris chukar* in different months of the summer and autumn seasons during the year 2004

Zone	Summer				Autumn				G. Total
	May	June	July	Sub Total	Aug.	Sep.	Oct.	Sub Total	
A	35	36	40	37	44	44	41	43	40
B	78	70	71	73	74	88	75	79	76
C	35	40	45	40	54	67	59	60	50
Total	148	146	156	150	172	199	175	182	166

among three zones with average population of 73 individual in summer and 79 individual in autumn. The highest population (n = 78) in May was followed by a decline in June (n = 70) and July (n = 71), however the population gradually increased in August (n = 74) and September (n = 88) with marked decline (n = 75) in the month of October (Table II, Fig. 3).

The population of this bird in zone C was similarly affected during the different months of summer and autumn. The average population of 40 birds in summer increases to average population of 50 birds in autumn with the highest population (n = 67) in September followed by October (n = 59) and August (n = 54). Similarly during the summer season, the population (n = 35) in May gradually increased in June (n = 40) and July (n = 45) (Table II, Fig. 3).

The over all seasonal data indicated that there is almost an increasing trend that touches the maximum number (n = 199) in the month of September (Fig. 2). This number may be due to the breeding output of this bird, since this bird breeds in summer. The further decline in the month of October may be due to the change in its activity pattern as the climate gradually becomes harsh and most of the area is devoid of crops and other vegetation covers that intern might change the behavior and activity pattern of this bird. This bird was also found more active and vocal during the summer and early autumn as compared to late autumn the low summer population might be due to the reasons that in this season the bird occupied high altitude, which some times are inaccessible and can cause discrepancies in estimating its population.

Habitat. During the survey, this bird was found associated with degraded foothill scrub, comprising *Dodonea viscosa* as described by Roberts (1991). *Alectoris chukka* is very adaptable to all kinds of the arid, rocky, hilly, stony, sparsely scrub-covered hillsides, boulder-strewn ravines (Ali & Ripley, 1987; Roberts, 1991).

Fig. 1. Population estimation of *Alectoris chukar* in different study zones of the study area

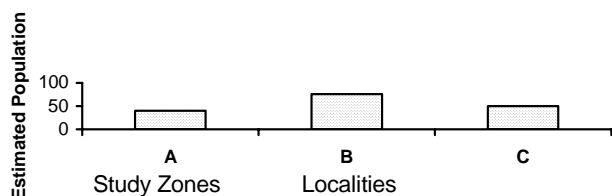


Fig. 2. Overall population trend of *Alectoris chukar* in different months of the summer and autumn seasons during 2004

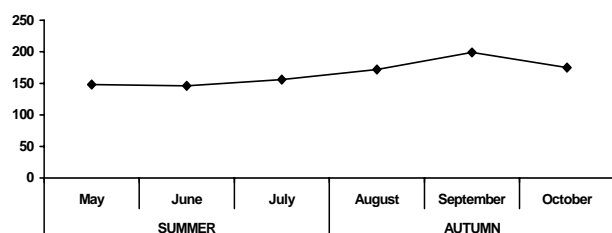
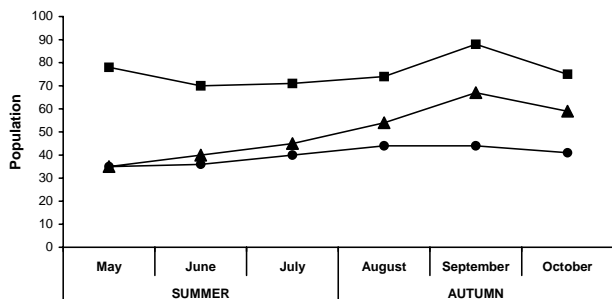


Fig. 3 Seasonal population trend of *Alectoris chukar* in different study zones of the study areas during 2004



During the survey, this bird was found preferring the habitats of the study area having dominant vegetation of *Dodnea viscosa*, *Melia azedarach*, *Acacia arabica*, *Ficus palmata*, *Morus alba*, *Barberes lycium*, *Juglans regia* *Pinus roxburghii*, *Pyrus communis*, *Ailanthus altissima*, *Indigofera heterantha*, *Adhatoda vasica*, *Grevia violosa*, *Zanthoxylum alatum*, *Aesculus indica*, *Pinus wallichiana* and *Olea ferruginea* (Table II).

Altitudinal range. *Alectoris chukar* was found occupying different altitudinal ranges in different zones and months. It was found between 4000 and 9000 ft in zone A 3670 and 8500 ft in zone B and 4500 and 7500 ft in zone C (Fig. 4).

Altitudinal variation of this bird was noted from 3670 to 8500 ft in May, 4000 to 9000 ft in June and July, 3600 to 8000 ft in August and 3500 to 7500 ft in September and 3500 to 7000 ft in the month of October (Fig. 5).

Roberts (1991) described that in summer, it has been seen at 11000 ft in Chitral and up to 13000 ft in western Gilgit. During the summer season, this bird was seen as high

as at 9000 ft in Galli Khaiteer of study zone "A", 8500 ft in Machiara and Kayan of zone "B" and 7500 ft in Panjur Galli of zone "C".

Food. *Alectoris chukar* feeds primarily on the seeds of cheat grass, Russian thistle, rough fiddle neck, seeds of Indian rice grass, Curly dock and mustard. It also eats grass blades, stems and buds of a variety of plants, wild onion seeds, grasshopper and caterpillar (1988).

Earlier, Roberts (1991) reported that the food of this bird consist of vegetable matter including seeds, leaves, berries and bulbous roots. In season of good rains, grass seeds are the staple diet but in hard winter, they dug extensively, leaving conspicuous excavation on bare slopes, where they have been foraging for bulb and rhizome. They require water daily and often descend at about 8 AM. In the study area this bird was observed mainly feeding on the roots, grains, insect, green vegetable matter, grains of the Maize and also the falling fruits of the *Ficus palmate* and the fruit of *Barberes lycium* between 6000 and 8000 ft.

Breeding. This bird is gregarious outside the breeding season, where plentiful covers in the autumn can often-number 20 to 30 birds. These may be family groups as a pair, can rear large broods (Roberts, 1991). During the survey this bird was seen in groups of 2 - 4 or some times 5 - 7 and found starting pairing from March and breeding during early April to July, depending on altitude.

It was also noted that, this bird started breeding early at low elevation as compare to the higher elevation, as described by Roberts (1991) that in the Himalayas it ascend to alpine pastures and does not start breeding until late June but in lower elevation breeding starts from March.

Roberts (1991) also reported the normal clutch of 6 to 9 eggs in drier habitats, whereas Bates and Lowther (1952) in Kashmir found four clutches varying from 15 to 19 eggs. During the survey, 7 eggs were reported in the nest at the locality Pasnian of study zone B.

Cover type used by nesting Chukar includes grass/forbs, rock and shrub, where a most common structure used for nest was rock out crop (57%) (Lindbloom et al., 2003).

Alectoris chukar makes nest in a depression scratched in the ground constructed under shrubs or well concealed by rocks and bushes in rocky areas or may occasionally has a dump nest (Johns guard, 1988). Roberts (1991) described that nesting occurs over a long period of time according to latitude and altitude and the main nesting is in April and early May that is scantily lined with bits of dried grass. During the survey, the nest of Chukar was seen on the ground under the shelter of the bush in steep, semi-arid areas with little vegetation of *Dodonea viscosa*, *Acacia arabica* and *Ficus palmata* at an elevation of 4909 ft the locality Palla of the study zone B.

Activities. During the survey, the bird was found much active during dawn and dusk and was found performing different activities like sitting, calling, eating, watching and flying, during the survey. Roberts (1991) has also reported

Fig. 4. Altitudinal range of *Alectoris chukar* in different zones of the study area between May 2004 and October 2004.

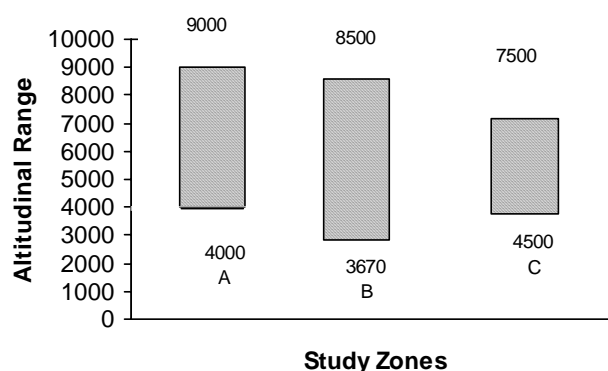
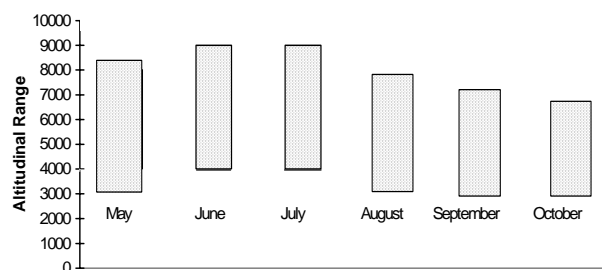


Fig. 5. Altitudinal variation of *Alectoris chukar* in different months of the study period.



that, this bird is very active in the early morning and evening.

CONCLUSIONS

It is concluded from the present study that:

- Majority of the birds and other Wild animals, which are rare, are present in Machiara National Park. Of these are Tragopon, Monal Pheasant, Koklas pheasant, Snow Partridge among birds and Capra ibex, Grey goral among mammals.

- Alectoris chukar*, although is common in Machiara national Park, it is hunted by locals that can cause its population decline.
- Machiara National Park has (Study zones A, Band C) is very rich in population of *Alectoris chukar*, especially the zone B is the area where a highest population is found, also provides very much suitable habitat for the this bird
- The local community in the Park is degrading the biodiversity of the Park.
- Majority of the people living around the Park are very poor, uneducated and unaware of the biodiversity conservation.
- Hunting and habitat destruction are major threat to wild life.

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