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## Distribution, population, and habitat utilization of *Alectoris chukar* in district Malakand Khyber Pakhtunkhwa, Pakistan

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**Abstract**

A study was conducted to collect information about the distribution, population, presence and habitat utilization of *Alectoris chukar* in District Malakand. Surveys were usually scheduled early in the morning (4 to 7 AM) and at evening (5 to 10 PM). The areas, which *Alectoris chukar* occupied, had dominant vegetation of *Acacia arabica*, *Acacia modesta*, *Pinus wallichiana*, *Pinus roxburghii*, *Dodonaea viscosa*, *Dilbergiasisso*, *Ailanthus altissima*, *Melia azedarach*, *Celtis eriocarpa* and grasses. The destruction of habitat (by overgrazing, grass cutting and landslides) hunting, shooting, capturing, dynamite, digging and road construction were the major threat to existing wildlife including *Alectoris chukar*.

**Keywords:** Distribution, habitat, *Alectoris chukar*, Malakand

**1. Introduction**

*Alectoris chukar* was first introduced to North America in 1893 as a game species and provides revenue to state wildlife agencies through hunting [1]. The difficult steep, often remote terrain they occupy provides a challenge and a thrill to hunters and the meat is considered very tasty [1-2]. Chukars are commonly found in semi-deserts, grasslands, or scrub (an environment with low trees and shrubbery), not in pear trees, though they can be seen in them on occasion climate is arid to semiarid, water is generally available from scattered sources, and the temperature varies [1-3].

*Alectoris Chukar* is used source of all of their tissue proteins, like major muscle mass, is from dietary protein and amino acids [5]. As herbivores, their main source of food is annual and perennial grasses and forbs which are non-grass herbs usually found in prairies [5]. Some other sources of nutrition include seeds of weeds, wild fruits, leaves and bulbs which they are able to dig up with their bills. Since these birds live in drier environments, they need to have an adequate water resource available at all times, especially during the summer months [5]. When raised on a farm or by other forms of breeders, a chukar's diet is somewhat different. It mainly consists of yellow corn, soybean meal, wheat bran, limestone, fat and salt [5].

Pairs form in mid-March after a male performs a courtship display involving a head tilt and a showing of his barred flanks [6]. Both begin to call and participate in a "tidbit ting display" pecking at various objects. During drought seasons, when food is scarce, breeding may be restricted to a few birds. Males guard the female from access by other males [1-7]. The status of the *Alectoris chukar* is permanent resident, Breeding Habitat are not permanent, Nest Location not permanent and number of broods [8]. The present study was conducted to determine the distribution, population and habitat utilization of *Alectoris chukar* in district Malakand, Pakistan.

**2. Materials and Methods**

Six months study surveys were conducted from June 2015 to December 2015 to determine the distribution, population and habitat utilization of *Alectoris chukar* in district Malakand. For this purpose, the study area was divided into eight major study zones, A, B, C, D, E, F, G and H. During the survey, direct and indirect methods were used to gather information about its presence, distribution, population and habitat utilization. The callings, feathers, fecal droppings and information collected from local residents, hunters and game watchers of the area provided best indirect evidences for determining its status. Surveys were usually

scheduled early in the morning from 4 to 7AM and at evening from 5 to 10 PM. The time of survey I was taking under the following material. Camera, water, battery, rifle, blank page, ballpoint, Binocular, hunting Chukar, brown cloths.

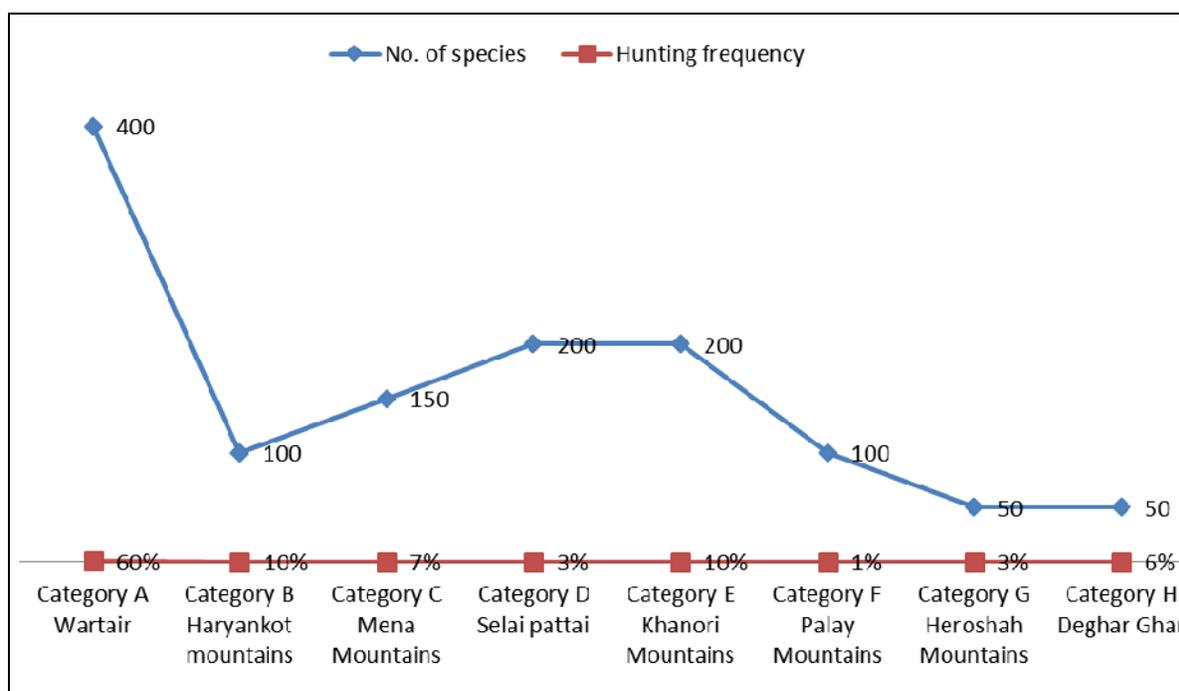
**Table 1:** Shown material used during survey

Camera	Picture capturing	Binocular	Observation
Water	Thirsty	Hunting Chukar	To call another Chukar.
Battery	Light		
Rifle	Protection		
Blank page	Record note		
Ball point	Writing		
Brown cloth	Mimicry		

### 3. Results

The survey was conducted to determine the distribution, population and habitat utilization of *Alectoris chukar* in eight study zones of District Malakand between June 2015 and December 2015. During the study period, *Alectoris chukar* was found occupying eight study zones of the District Malakand. A sum total of 1250 bird's population was estimated in eight study zones of the study area. In study zone A, the total average population was estimated as 1250 shows (Table 1) individuals during the whole study period. There may be variation in zone a population during different months of two seasons. The population in the months of August and September remained same, but showed a slight decline in

October, while during the summer season, the population showed a slight increasing trend from July through August. The study zone A had highest population (n = 400) among the eight zones. The highest population (n = 400) in May was followed by a decline in June (n = 300) however the population gradually increased in August (n = 420) and September (n = 430) with the marked decline (n = 75) in the month of October. The overall seasonal data indicated that there was almost an increasing trend that touches the maximum number (n = 1250) in the month of September. This number may be due to the breeding output of *Alectoris chukar*, 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. *Alectoris chukar* was also found more active and vocal during the summer. The low summer population might be due to the reasons that in this season the bird occupied high altitude which sometimes are inaccessible and can cause discrepancies in estimating its population. *Alectoris chukar* belongs to 1 order and 1 family *Alectoris chukar* is national birds of Pakistan. Locally known as zark for male and zarka for female. It can live rocky locations, mountainous in mixed habitat types. Climate is arid to semiarid, temperature varies and water is generally available from scattered sources, nest simple scrapes lined feather or grass in brushy areas or rocky.



**Fig 1:** *Alectoris chukar* biodiversity in District Malakand.

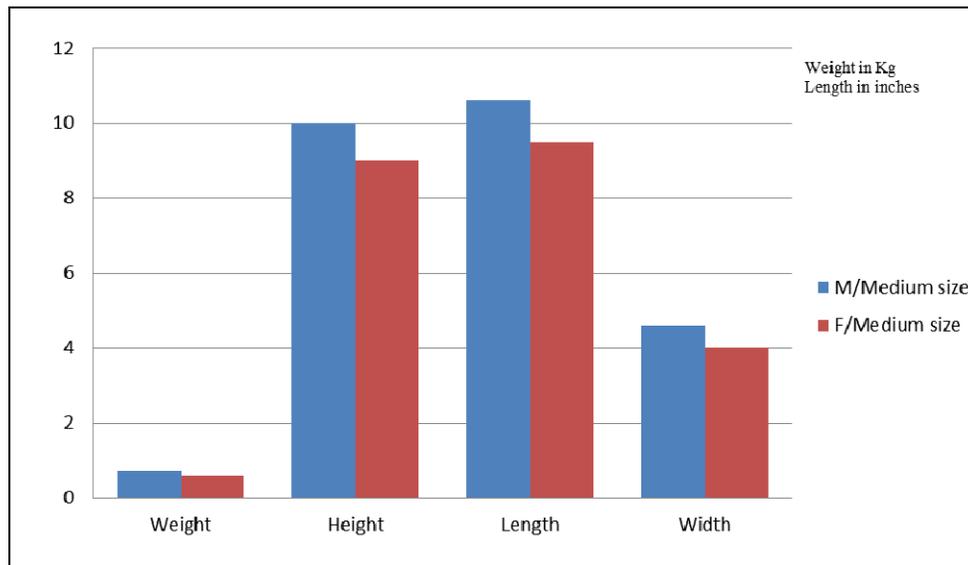


Fig 2: Morphometric measurement of *Alectoris chukar*.

Table 2: Physical description of *Alectoris chukar*.

S. No.	Basic	Explanation
1	Age of sexual maturity	Depend on environment, food.
2	Breeding season	March mid to July.
3	Range of egg per session	5 to 20.
4	Average time of hatching	22 to 25 days.
5	Young one capable, flight	2 to 3 week.
6	Food	Small grasses, Insect, grain, leaves, seed, fruit, nut.
7	Male sound	Okookoo chuck chuckchuckchekchekch.
8	Female sound	Chuck chuckckuck chuck chukerchuker.
9	Spur	Male present and female absent.

#### 4. Discussion

The current survey was carried out in District Malakand, from July to December 2015. Chukars breed once yearly depending on environmental conditions. Breeding occurs from April to July, Range eggs per season, 7 to 21, Average time to hatching, 24<sup>[1-7]</sup>. According to the different results were obtained in the present survey (Table 2) because they suggested April to July breeding season for *Alectoris chukar* and the present study recorded breeding season from March Mid to July. Range eggs per season, 7 to 21 and were collected 5 to 20 eggs per season. The most common call was a low *chuck, chuck, chuck* used by both sexes that changes gradually to a *chukar, chukar* and can be heard from long distances<sup>[1-7]</sup>. The different results were obtained in the present research (Table 2) the *chuck chuckchuck* was not used by both the sexes and can, not be changed gradually to *chuker, chuker* in the present research work. Male sounds were different from the female. The male only produced sound to *Okookoo chuck chuckchuckchekchekch* for the calling of female and the female produced *chuck Chuckchuckckuck* gradually change to *chukerchuker*.

Chukars are generally opportunistic and forage on vegetation, including grass and forb seeds, green grass, forb leaves, and some shrub fruits, according to relative abundance and seasonal availability<sup>[1-7]</sup>. According to the same results were obtained in the present research (Table 2, 1). *Alectoris chukar* is a medium-sized partridge. Males (510-800g) are

slightly larger than females (450-680g) in length and mass<sup>[1-9]</sup>.

#### 5. Conclusion

From the current research work it may be concluded that the destruction of habitat (by overgrazing, grass cutting and landslides) hunting, shooting, capturing, dynamite, digging and road construction were the major threat to existing wildlife including *Alectoris chukar*.

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