HABITAT STUDY OF CHUKAR PARTRIDGE (*ALECTORUS CHUKAR*) IN DISTRICT MALAKAND - A CASE STUDY OF TOWN THANA

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ABSTRACT

The present study described the status of Chukar partridge (*Alectorus Chukar)* habitat, ecology and causes of decreasing its population in town Thana of district Malakand. Primary data was collected through visits to the study areas in the morning and late afternoon along with the three helpers to study its habitat and their different activities in the study areas and through questionnaire survey. Secondary data was collected from literature. Dabber Tangy (Chrhat), Obukhwarh, Topdara areas sampling points were selected for data collection. Many flocks were observed during the study in which the average numbers in each flock was 10-12. Majority of the respondents 22 (55%) replied that Chukar is present in abundance at Topdara, 28 (70%) replied that its population is decreasing due to habitat destruction and 20 (60%) replied that Jackal is its main ecological predator. Majority of the respondents i.e. 34 (85%) replied that to control illegal hunting and trapping of Chukar and 24 (60%) replied that Suitable Habitat for Chukar is rocky and shrubby vegetation. Majority of the respondents i.e. 23 (57.5%) replied that there is illegal hunting of Chukar, 40 (100%) replied that hunting can be legalized through legal license and permits, and 27 (67.5%) replied that Causes of habitat destruction of Chukar is due to human population increase. Chukar mostly feed on wild seed and grain. There is an urgent need to conserve Chukar by improving their habitat in the study area, avoiding illegal hunting and facilitate the wildlife department for monitoring of the area, giving incentives to the community of the area and regulating hunting in the study area.

Key words: Chukar partridge habitat; population trend, threats, breading and feed.

INTRODUCTION

Chukar partridge (*Alectorus Chukar*) is a medium sized partridge belong to the Family Phasiandae. Chukar partridge is grayish-brown bird with above buff belly and having black dark line across the forehead and eyes while down the neck contrasts the white throat. Male weight varies from 510 gm to 800 gm and is slightly larger than female which range from 450 gm to 680 gm. Males are monogynous (Christensen 1970).

Chukar partridge prefers arid rocky and hilly country ascending to the higher mountain of Himalayan uphill ranges. This bird is found associated with

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degraded foothill scrub, comprising *Dodonea viscose*. *Alectorus Chukar* is very adaptable to all kinds of the arid, rocky, hilly, stony, sparsely scrub-covered hillsides, Its native range is in Eurasia, Turkey, Israel, India, Afghanistan, Pakistan along the inner ranges of the Western Himalayas to Nepal. This bird is mainly found at elevation of 2000 m to 4000 m except in Pakistan where it is found around 600 m elevation. They are rarely found in highly humid or rainfall areas. (Rasmussen & Anderton 2005, Whistler & Hugh, 1949, Roberts 1991). In Pakistan it is commonly found in Baluchistan, Sind, Malakand, Swat, Dir, Chitral, Gilgit, Margala Hills, Kurram valley, Safedkoh, Kirther range, Indus Kohistan, AJK and Baldistan. Mostly this bird is residential in nature. Flight is generally restricted to short distances downhill, usually when flushed. (Baker & Stuart, 1922).

Chukar partridge is relatively unaffected by hunting or loss of habitat due to its remote and physically demanded terrain preferences. Its numbers from year to year are largely affected by weather pattern during its breading season (Duarte & Vargas 2004). Apart from the above description the human population has increased many folds in the recent years which caused illicit shooting, killing and pouching of wild animals and great destruction to their natural habitat. Therefore, it is desired to protect such natural resources from extinction. This bird is sometimes preyed by Golden Eagles (Ticehurst, 1927). Birds in captivity can die from Mycoplasma infection and outbreaks of other diseases such as Erysipelas (Lateef, 2006). Common ecological predators are Jackal, Snakes, Fox and wild dogs.

The breeding season of Chukar partridge is summer. They mature at the age of 9 to 10 months. The breeding season starts from April to May, clutch size is 8 to 24 eggs and incubation period is 22 to 24 days. The male may also performs a high step stiff walk while making a special call. The female may then crouch in acceptance and the male mounts to copulate, while grasping the nape of the female. (Whistler and Hugh 1949, Baker and Stuart 1922, Finn and Frank 1915, Ali and Ripley, 2001).

Chukar partridge is diurnal in nature and feed on the ground in the morning and afternoon. (Christensen 1954). Chukar partridge eat a wide variety of seeds and insects as food. Males perform tidbitting displays, which make a courtship feeding where the male pecks its food and the female may chase to peck in response with head lowered, wing lowered and neck fluffed. (Johnsgard 1973, Oates 1898).

In District Malakand, various natural habitats are found which are suitable for different wildlife species growth and reproduction. The common wildlife found in the area include Jackal, Monkey and Wolf. Among birds, Chukar, See-see, Black partridge, Gray partridge, Sparrows, Bulbuls, Doves, etc are common. The

present study was conducted in town Thana of District Malakand to collect data on status of Chukar partridge, which comes under the category of sub-tropical broad leaved forest with main anniual rainfall lies between 250 mm to 750 mm and temperature ranges fron 10°C to 38°C. The protection and conservation of Chukar partridge is essential in the study area for which basic data on the population and habitat is required. (Pers. Comm. DFO Wildlife, Batkhela).

MATERIALS AND METHODS

Study area

The study was conducted in Thana area which is situated in district Malakand, Khyber Pakhtoonkhwa, Pakistan, at 34° 38' 26" North, 72° 4' 29" East, having an elevation range between 1800 - 2100 feet. It is bounded by a rage of mountains on the north-east separating it from district Swat and another range of mountains to the West separating it from district Batkhela. Thana is bounded on the north by district lower Dir and on south-east by Palai area of district Malakand.

MATERIALS

In order to study Chukar partridge different activities, behavior and its habitat in the study area, various instruments were used. For direct observation of Chukar partridge binocular was used and camera was used to take picture of different places, where *Alectorus Chukar* was physically sighted. While for indirect study a questionnaire was developed, which was designed according to the objectives of the study. The study survey was carried out with the help of three helpers.

METHODOLOGY

Field survey was conducted from the summer from the month June to august. Both direct and indirect methods were used to gather information about Chukar partridge Habitat. Walter, (2000) studied habitat use, diet, movements and reproduction of Chukar in Succor Creek State Park of Malheur County, information about ecology and its management of the gray partridge is based mostly on studies carried out in agricultural areas of the Europe and North America. The information collected from wildlife department, local residents, shepherds, hunters and watchers of the area which provided best indirect evidences for determining its habitat description. For direct observation, the potential areas were thoroughly studied and divided into three sample points i.e. Obukhwarh, Dabber tangy (Chrhat), and Topdara areas. Study was usually scheduled early in the morning from 5 to 8 AM and at evening from 5 to 7 PM. Day hours were utilized in gathering indirect information i.e. by questionnaire and

through a interview from 40 respondents. In this questionnaire the first initial five questions is about the respondent and then nineteen questions is about the objectives of the study.

RESULTS AND DISSCUSSION

Results

During field surveys, Chukar partridges were observed associated with foothill scrub, comprising *Dodonea viscosa* as reported by Roberts, (1991), and moving along with their chicks in flocks in the study area. Many flocks of Chukar partridge were observed in the field where their number varied from 7 to 15. Turan (1990) reprted in a study various flocks in which the number of individual varies from 30 to 50 individuals. Egg shells of Chukar partridge were also seen at different places. The food of Chukar partridge consisted of wild seeds and grains while they also eat herbs and insects as reported by Roberts (1991), that the food of Chukar partridge consist of vegetable matter including seeds, leaves, berries, grains bulbous. The main causes of Chukar partridge population decline in the study area were increase in human population, illegal hunting habitat destruction and their ecological predators, including Jackals and Snakes which eat and destroy the eggs of Chukar partridge. Biddulph (1881) conduct a research study in New Zealand in which he found the major enemies of Chukar partridge were cats, stoats, rats, hedgehogs and harriers, mostly the get damages to Chukar in their immature stages when they are unable to fly during nesting season. While Williams (1950) reported that the eagle is the major predator in Gilgit, Pakistan. Alcorn and Richardson (1951) reported that snakes destroyed the eggs of Chukar partridge in the nests. Further study were taken with the help of questionnaire, forty respondent are interviewed and questionnaire are felled which are discussed below in detail.

DISCUSSION

Population

In the field survey the population of Chukar partridge was studied with two parameters which were given in the following table: 1. the data collected from the three sample areas of the study area in which more of the respondent replied that Chukar population is abundant in Topdara. While major of the respondent replied that Chukar population is remains constant, it because that due to Talibanization the Chukar population become decreases but when Pakistan military take hold over him and the Chukar habitat area become preserved then again Chukar population status come to its original status.

Table. 1. Field survey the population of Chukar partridge

Respondents		Area of Chukar Abundance			Trend of population		
		A*	B*	C*	A#	B#	C#
Total	40	10	8	22	20	9	11
%	100	25	20	55	50	22.5	27.5

Denotation:

A* Dabber tangy (Chrhat) B* Obukhwarh C* Topdara
A# Remain constant B# Decreasing C# Increases

Threats

Threats to Chukar partridge were studied under the following parameters which are given in the table: 2. Different respondents have different opinions but the major response of respondents about these parameters was that, i.e. the reason of Chukar population decreasing is due to habitat destruction and their major ecological predator was Jackal, while Williams (1950) reported that the common ecological predator of Chukar partridge was eagles in Gilgit, Pakistan. Local and common disease of Chukar partridge was bird flu (it is mostly due to poultry form located near Chukar habitat), while it was reported that Chukar partridge was susceptible to several diseases such as Newcastle, Mycoplasmosis and Coccidiosis etc. by Petrak (1982), Calnek *et al*. (1991), Cole *et al*. (1995) and Rosskopf and Woerpel (1996). There is illegal hunting of Chukar partridge and destruction of Chukar population due to rapid increase in human population and their encroachments to Chukar habitat.

Table 2. Threats to Chukar partridge

Respondents		Reasons of population decline		Major Predators			Local and common diseases			Illegal hunting of Chukar		Causes of habitat destruction	
		A*	B*	A#	B#	C#	A+	B+	C+	A-	B-	A^	B^
Total	40	12	28	24	9	7	21	11	8	23	17	27	13
%	100	30	70	60	22.5	17.5	52.5	27.5	20.5	57.5	42.5	67.5	32.5

Denotation:

A* Illegal hunting & trapping B* Habitat destruction
A# Jackal B# Fox C# Eagle
A+ Bird flu B+ Newcastle disease C+ Do not know
A- Yes B- No
A^ Human population increase B^ Environmental changes

Habitat

For Chukar habitat the following parameters were selected which are given in the Table 3. Major response of the respondents about these parameters were, i.e. suitable habitat for Chukar partridge is Rocky and shrubby vegetation, as reported by Roberts (1991) that "Chukar partridge is adoptable to all kind of the arid, rocky, hilly, stony, and sparsely scrub covered hillsides habitat" while Lindbloom (1998) reported that Chukar partridge found in rock and shrub cover types while in spring and summer they were found in grass and forbs covers. Basic needs of Chukar partridge are available in their habitat, local people should be involve in Chukar habitat improvement and upto great extent efforts made by wildlife department for the improvement of Chukar habitat by Control illegal hunting and trapping and majority of respondents replied that Chukar prefer mostly wild seeds and Grains as a food. Christensen (1996) reported the food habits of Chukar partridge in North America that in winter Chukar partridge diet is green grass leaves, in spring their diet is seeds of cheat grass and red-stem filaree along with insect and variety of young plants germination in addition with forbs and green grasses which appears in spring. While in during summer and early fall, the primary source for food is seeds is primary source of food along with cheat grass. It was also reported that Chukar partridge feed mainly on seeds, weeds, grasses, and to lesser extent, insects by Woodard *et al*. (1993), Robbins (1998), and Cetin and Kirikci (2000).

Table 3. Chukar habitat

Respondents		Suitable Habitat for Chukar			Availability of basic needs		involvement of local people in habitat improvement		Efforts made by wildlife department		Food and Forage	
		A^{*}	B^{*}	C^{*}	$A^{\#}$	$B^{\#}$	A^{+}	B^{+}	A^{-}	B^{-}	**$A^{\wedge}$**	**$B^{\wedge}$**
Total	40	9	24	7	33	07	40	0	34	6	31	9
%	100	22.5	60	17.5	82.5	17.5	100	0	85	15	77.5	22.5

Denotation:

A*	Rocky and herbaceous	B^{*} Rocky and shrubby vegetation	C^{*} Barren hills
$A^{\#}$	Yes	$B^{\#}$ No	
A^{+}	By giving incentives	B^{+} Any other	
A^{-}	Control illegal hunting and trapping	B^{-} Awareness raising program	
$A^{\wedge}$	Wild seeds, Grains	$B^{\wedge}$ Herbs and insects	

Breading

For Breading of Chukar partridge following parameters were studied which is given in the table: 4. Major response about these parameter were, i.e.

the breading season of Chukar partridge is from April to May as described by Roberts, (1991) that its breading season is April to July, Clutch size of Chukar partridge is mostly between 10-20 while Roberts (1991) reported it is from 6 to 9 eggs and Chukar partridge mostly likes to makes their nest in Rocks cover with grass while Lindbloom *et* al. (2003) reported that Chukar partridge used cover type for their nest which includes grass/forbs, rock and shrubs.

Table 4. Breading of Chukar partridge

Respondents		Breeding season		Clutch size of Chukar			in which places Chukar make their nests	
		A*	B*	A#	B#	C#	A+	B+
Total	40	24	16	11	20	9	31	9
%	100	60	40	27.5	50	27.5	77.5	77.5

Denotation:

A*	April-May	B*	April-June		
A#	1- 10	B#	10-20	C#	20-30
A+	Rocks cover with grass	B+	Bushy areas		

Other information

Some of information related to Chukar partridge is listed below in table 5, in which the major response of respondents were, i.e. hunting of Chukar partridge can be legalized by issuing proper and legal license and permits, daily movement of Chukar partridge was mostly in evening and morning as Reported by Roberts (1991) that Chukar partridge is very active in early morning and evening, local purchasing rate of Chukar was 500-5000 PKRs, and Chukar was purchase mostly for rearing. While cultural value of Chukar partridge domesticated by local people for their hobby and for trapping.

Table 5. Information related to Chukar partridge

Respondents		How the hunting of Chukar is legalized		Movement of Chukar		Rate/Chukar		People purchase Chukar for rearing		Cultural value of Chukar domesticated by local people	
		A*	B*	A#	B#	A+	B+	A-	B-	A^	B^
Total	40	40	0	30	10	25	15	40	0	22	18
%	100	100	0	75	25	62.5	37.5	100	0	55	45

Denotation:

A*	Legal license and permits	B*	Any other
A#	Evening and Morning	B#	Evening, morning and also in noon
A+	500-5000	B+	Above 5000
A-	Yes	B-	No
A^	Hobby	B^	Trapping

CONCLUSIONS

Study findings showed that Chukar partridge population is still in abundance in the study area despite of heavy deforestation, use of insecticide, illegal hunting and poaching, increase in human population, explosions and shelling. It was concluded that Chukar partridge was found in barren hills and prefer rocky, stony habitat mostly with muddy slops associated with grasses and also with degraded foothill scrub forest. Main reason of their habitat destruction is increase in human population. Jackal, Foxes and Eagles were their main predators while snakes predate on their eggs, and Bird flu and Newcastle disease have been found as their local and common diseases. The breeding season of Chukar partridge lasts from April to May. They farm pairs for breeding towards mid of February and their clutch size varies from 15 to 20 eggs. The young chicks are protected by both parents i.e. male and female and also feed them. Chicks move with their parents in the home range up to eight months. Chukar partridge build their nests in rocks covered with grasses, mostly by *Cymbopogon jawarancusa*.

RECOMMENDATIONS

- For illegal hunting and shooting hunting should be Regulated of Chukar partridge by issuing proper hunting licenses and permits in the study area.

- Core habitat areas of Chukar must be protected from human use to avoid its habitat loss and degradation.

- In order to avoid illegal hunting and poaching, awareness must be created by village conservation community and other Extension programs of wildlife department.

- Malakand District is very large area and there are always the problems of proper monitoring and watching. The number of watchers in the study area is very less. Therefore the number of watcher should be increased in order to ensure the proper use of law.

- To establish breeding center for Chukar partridge breeding purposes i.e. to increase the population of Chukar partridge and reduce the mortality rate of Chukar partridge at young stages which is due to ecological factors or human or any other.

- There is no Game reserve and wildlife park in the study area, which are very big problems for the researchers, visitors and tourists and to constructed rest house for researchers and visitors. By the establishment of rest house the socio economic uplift will be improved.

- Land owners and other stakeholders of the study area should be given incentives or shares in revenue from hunting.

- Wildlife personnel especially watchers should be facilitated with necessary equipment and communications system for affective monitoring in the area.

- Encroachment of human population is to be avoided in Chukar habitat area.

- Local peoples should be encouraged by awareness raising programs and wildlife village community developments programs to participate in wildlife management and conservation with wildlife department.

- Water points and proper plantation should be done to strengthen their habitat.

- Wildlife veterinary center is to be established in the area for proper treatments of their diseases.

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Appendix - I
Questionnaire

1. Respondent Name & No._____
2. age_____ 15-25 b) 25-35 c) Above 35
3. Sex_____ a) Male b) Female
4. Educational status a) Educated b) Uneducated
5. Occupation_____

A. In which areas of Thana Chukar is in abundance?
a) Dabertangi (Charat) b) Ubokure c) Topdara

B. Why the population of Chukar is decreasing?
a) Illegal hunting & trapping b) Habitat destruction

C. Ecological predator of Chukar?
a) Jackal b) Fox c) Eagle

D. What measures are being adopted by wild life department for habitat improvement of Chukar?
a) Control illegal hunting and trapping b) Any other

E. What kind of habitat is suitable for Chukar population?
a) Rocky and herbaceous b) Rocky and shrubby vegetation c) Barren hills

F. Food and Forage requirement of Chukar?
a) Wild seeds, Grains b) herbs and insects

G. Do the people do illegal hunting of Chukar?
a) Yes b) No

H. How can we legalize the hunting of Chukar?
a) Legal License and permits b) any other

I. Causes of Chukar habitat destruction?
a) Human population increase b) Environmental changes

J. How local people will be involved in habitat improvement of Chukar?
a) By giving incentives b) Any other

K. What is the general trend in population of Chukar in Thana in these days?
a) Remain constant b) decreasing c) Increases

L. What is the local rate of per bird?
a) 500-5000 b) above 5000

M. Whether people purchase it for rearing?
a) Yes b) No

N. In which place Chukar like to make their nests?
a) Rocks cover with grass b) Bushy areas

O. What is the breading season of Chukar?
a) April-May b) April-June

P. Clutch size of Chukar?
a) 1- 10 b) 10-20 c) 20-30

Q. What is the culture value of Chukar domestication of the local people?
a) Hobby b) Trapping

R. Whether the basic needs of habitat like food, water and shelter/protection is available?
a) Yes b) No

S. Local diseases of Chukar partridge?
a) Bird flow b) Newcastle disease c) Do not know

T. Daily movement of Chukar in their home range/Habitat?
a) Evening and Morning b) Evening, morning and also in noon