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ECOLOGY AND HABITAT PREFERENCE OF CHUKAR PARTRIDGE *ALECTORIS CHUKAR* (GRAY) IN GARHWAL HIMALAYA, INDIA

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ABSTRACT

The biotic characteristics and habitat preference of the Chukar partridge *Alectoris chukar* was studied from January, 2003 to June, 2004 in District Pauri Garhwal, Uttarakhand. The habitat of Chukar comprised of temperate forest, scrubs, grassland, crop fields and rocks, from which 45 species of plants representing 23 families were recorded. The family Fabaceae has largest number of 6 species (including both shrubs and herbs), followed by the grass family Poaceae (5 species). During the study, 41 species of birds and 5 species of mammals were found sharing habitat with Chukar partridge. All five micro-habitats viz., forest, scrub, grassland, crop fields, and rocks were used by Chukar partridge through out the year. Scrub habitat and crop fields were used comparatively more especially during the breeding and post breeding period. Rocks were used in all the months.

Key words: Ecology, Habitat preference, Chukar partridge, *Alectoris chukar*.

INTRODUCTION

A habitat represents an area which provides food, protection cover and breeding ground, etc., to animal. Information on the habitat characteristics and preference is prerequisite for management point of the view. The Himalayan Chukar partridge *Alectoris chukar chukar* (Order-Galliformes, Family-Phasianidae) is found throughout the western range between 1200 to 5000m elevations (Hume and Marshall 1879, Ali and Ripley 1983). It inhabits open, arid, rugged slopes covered with scattered trees, perennial shrubs and long grass (Kukreti *et al.* 2005). Our present knowledge on ecology and behaviour of this partridge is very little and still based on accounts of the nineteenth century (Hume and Marshall 1879). In this paper, the floral and faunal components along with habitat preference of Chukar partridge in Garhwal Himalaya are described.

MATERIAL AND METHODS

The study was conducted near Ranshi, Garhwal (Pauri) district of Uttarakhand (30° 15'N and 78° 30'E, 1950m), located on the south facing slope and spread in 4 km^2

area (Fig. 1b). The area is comprised by 17.0 % temperate mixed forest (*Pinus roxburghii, Cedrus deodara, Cupressus* sps.), 26.50 % scrubs (*Rubus, Berberis, Rhus, Euphorbia* etc), 37.50 % grass land and 36.0 % rocks and bare ground. The crop fields of an adjacent village which are generally used to grow Kharif crops (paddy, pulses, millets etc.) during May to October and Ravi crops (wheat, barley, mustard etc.) during November to April also constitute a part of the habitat. The study area experiences moderate climate and receives 144 mm^3 annual rainfall. The mean maximum and minimum temperature fluctuates between 13°C to 23°C and 7° C to 18° C respectively.

With the help of quadrate and point count methods, common vegetation and animals (birds and mammals) of the habitat were recorded. From the vantage points selected at different altitudes in study area, a population of Chukar was monitored for 7-10 days every month. From January 2003 to June 2004, percent time spent by Chukar each habitat viz., forest, scrubs, grassland, crop fields and rocks was recorded. Data was analyzed by standard statistical method 't' test (Fisher 1963).

RESULTS

Floral and faunal characteristics of the habitat:

Total 45 species including trees representing 23 families were identified as the vegetational components (Table 1). The family Fabaceae dominated with six species (including both shrubs and herbs) followed by a grass family Poaceae. The Euphorbiacea and Pinaceae families were represented by three species each. Anacardiaceae (one shrub and herb species each), Lamiaceae, Rosaceae, Liliaceae, Plumbaginaceae, and Rubiaceae have 2 species each. The remaining families, viz., Meliaceae, Moraceae, Tiliaceae, Apiaceae, Berberidaceae, Menispermaceae, Sapotaceae, Saxifragaceae, Beraginaceae, Cyperaceae, Gerniaceae, Liliaceae, and Papaveraceae were represented by single species. The vegetation composition data revealed that the percent frequency of shrubs was high (34%). The frequency occurrences of some perennial shrubs like *Rhus parviflora, Eupatorium arborium, Berberis asiatica, Desmodium caudatum, Rosa brunonaii,* and *Stephania elegans* were found relatively high. In the herbs, *Rumax hastatus, Anophalis adenata, Cynoglossum glochidiatum, Bochmeria platyphylla,* and *Spermadictyon sauvealens* were dominant.

Among animals 41 species of birds and 5 species of mammals were recorded

Table 3. Percent time spent by Chukar partridge *Alectoris chukar* in different habitats in Garhwal Himalaya

Month	Period of observation (hrs)	Percent time spent in different habitats (in hours)				
		Forest	Scrubs	Grassland	Crop fields	Rocks
Jan. 03	50	9.10±1.80	29.62±2.23	13.80±3.01	15.50±2.92	31.88±6.86
Feb.	60	9.08±1.33	25.10±3.63	10.03±2.23	29.50±3.23	26.25±5.27
Mar.	83	11.83±2.54	24.87±3.09	9.46±1.41	27.90±3.42	25.86±3.72
Apr.	120	12.48±0.57	34.89±1.86	8.78±2.72	20.21±1.15	23.52±2.93
May	137	13.03±0.42	42.20±4.14	7.64±1.10	14.07±4.30	22.33±4.11
Jun.	140	12.17±0.36	39.45±5.62	8.14±0.63	16.02±2.43	24.22±2.37
Jul.	104	7.53±1.66	40.23±7.21	16.85±1.72	24.83±3.23	10.46±2.20
Aug.	102	6.23±0.57	30.20±6.66	19.20±2.37	36.34±7.26	8.03±0.83
Sept.	96	5.92±1.12	25.25±2.67	16.15±1.42	46.44±8.03	6.20±0.73
Oct.	99	5.31±0.21	20.40±3.86	12.53±1.83	54.61±7.32	7.12±1.61
Nov.	85	5.82±0.42	32.21±2.57	11.80±1.86	38.57±3.81	11.56±2.30
Dec.	83	5.25±0.36	34.10±3.20	9.90±1.32	34.02±2.46	16.25±1.36
Jan. 04	71	6.30±0.23	27.97±6.76	8.32±1.12	23.24±2.37	34.17±7.36
Feb.	66	7.23±0.46	30.62±2.24	8.03±0.86	32.02±3.03	22.10±2.67
Mar.	72	8.29±1.26	26.11±2.24	7.42±1.23	32.12±2.86	26.01±3.63
Apr.	56	11.28±1.12	26.50±7.12	6.54±0.82	25.25±1.63	30.42±2.26
May	49	13.63±1.23	38.46±1.53	5.54±1.01	20.12±1.86	22.15±1.87
Jun.	47	11.62±0.82	31.80±5.25	8.24±0.38	23.51±2.56	24.82±2.69
Jul.	40	9.25±1.23	32.64±3.82	16.11±1.23	26.05±3.36	15.92±2.12

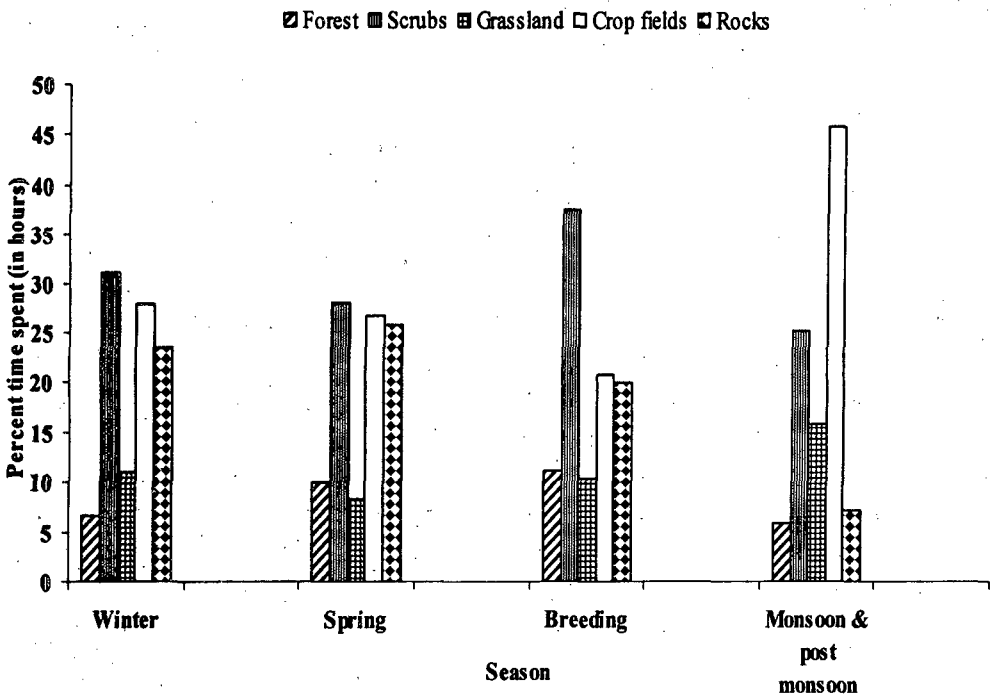

Fig. 1. Seasonal habitat preference of Chukar partridge *Alectoris chukar* in Garhwal Himalaya

Chukar partridges were observed using the rocks for resting, basking and roosting purpose. During the winter when temperature falls down from November to February, Chukars were observed basking on the rocks. This type of behaviour to maintain their body temperature is observed in many animals. A perfect concealment of Chukar partridge with rocks also reduces a chance of easy detection by the predators.

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REFERENCES

Ali, S. and Ripley, S.D. 1983. *Handbook of birds of India and Pakistan*. Vol. II. 2nd Edition. Oxford University Press, Bombay.

Baker, S.E.C. 1928. The *fauna of British India including Ceylon and Burma. Birds. Vol. V*, Taylor and Francis, London. Pp. 469.

Chandola, A., Saklani, M., Bisht, M. S. and Bhatt, D.1983. Reproduction strategies in birds of tropics. In *"Terrestrial Adaptation in Vertebrates.* (Eds. N. S. Margaris and R. J.Reiter, Plenum Publishing Corporation, New York / London. Pp.145 - 164.

Christensen, G.C. 1996. Chukar *Alectoris chukar. The Birds of North America. Philedelphia*: The Academy of Natural Sciences of Philedelphia. (Ed. F.G. Poole), Pp. 1-20.

Fisher, R.A. 1963. *Statistical method for research works.* Oliver Boyd, London.

Galbreath, D.S. and Moreland, R.1953. The Chukar Partridge in Washington. *Biology Bulletin II.* Washington Department of Game, Olympia, Washington, USA.

Hume, A.O. and Marshall, C.H.T. 1879. *The Game birds of India, Pakistan, Bangladesh,Burma, and Sri Lanka,* Calcutta, 1: 169-176.

Hupp, J. W., Smith L. M. and Ratti, J.T. 1980. Grey partridge nesting biology in eastern South Dakota. In: *Proceedings of Perdix II. Grey partridge Workshop* (Eds. S.R. Peterson and L. Nelson, University of Idaho, Moscow), Pp. 55–69.

Kukreti, M., Phurailatpam, S. and Bisht, M. S. 2005. Ecology of Chukar partridge *Alectoris chukar* in Garhwal Himalaya. *Proceeding of the 3rd International Galliformes Symposium, World pheasant Association.* (Eds. R.A. Fuller and S.J. Browne., Fordingbridge, UK). Pp. 195-198.

Mackie, R.D. and Buechner, H.K. 1963. The Reproductive cycle of Chukar. *J. Wildlife Management*, 27(2): 247-260.

Middleton, A.D. 1936. Factors controlling the Population of the Partridge (*Perdix perdix*) in Great Britain. *Proc. Zool. Soc. London*, 106: 795–815.

Middleton, A.O. and Chitty, H. 1937. The food of adult partridges, (*Perdix perdix* and *Alectoris rufa*) in Great Britain. *J. Animal Ecology,* 6: 322–336.

Molini, W.A. 1976. *Chukar partridge: Species management plan.* Nevada Department of Fish and game, Reno, Nevada, USA.

Potts, G. R. 1970. Studies on the changing role of weeds of the genus *Polygonum* in the diet of partridges. *J. Applied Ecology,* 7: 567–576.

Southwood, T.R.E and Cross, D.J. 1969. The ecology of partridge. III. Breeding success and the abundance of insects in natural habitats. *J. Animal Ecology*, 38: 497–509.

Westerskov, K.1966. Winter food and feeding habits of the partridge *Perdix-perdix* in the Canadian Prairie. *Canadian Journal of Zoology,* 44:303–322.