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Passerines Breeding from Chandertal Wetland in Lahaul Spiti District of Himachal Pradesh, India: A New Record

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ABSTRACT

Birds belonging to Passeriformes are commonly known passerines and constitute the most rich and diverse group among the avian orders. Studies on avian fauna of Chandertal wildlife sanctuary and wetland in greater Himalayan range of Himachal Pradesh, unveiled four passerines species belong to four different families. The studied area (wetland) is internationally known Ramsar Site (No. 1569) due to its characteristic and a few endangered flora and fauna. The lake with 2.5 km circumference and few small semi-permanent water bodies interspersed with grassy meadows and rocky pastures, hosts different alpine chordates and non-chordate fauna. *Erymophila alpestris* (L., 1758), *Pyrrhocorax graculus* (L., 1758), *Phoenicurus ochruros* (Gmelin, 1774) and *Motacilla citreola* Pallas, 1774 have been recorded in small flocks along with their juveniles and immature during summer season of each consecutive for six years (2008-2012 and 2014).

Key words: Chandertal wetland, avian fauna, passerines, breeding, juveniles

INTRODUCTION

Passerines are the birds belonging to Passeriformes which is most rich and diverse group among all avian orders. Saha (1998) accounted 629 passerine species out of total 1166 Indian birds. Mahabal (2005) enlisted 447 avian species inhabiting Himachal Pradesh of which 250 species belonging to only Passeriformes. Of the total account of Himachal Pradesh, Lahaul and Spiti district harbours only 74 avian species including yellow-billed chough as resident to Himalayas while Horned Lark as resident with summer migration. In the relative percentage of residential status of birds of Himachal Pradesh, Lahaul and Spiti district represent about 45% birds as resident to Himalayas, 21% as summer visitor, 19% as seasonal altitudinal migrant, 9% as resident with local movements and only 2-3% as winter visitor.

The avian diversity of the Trans-Himalayan cold desert of Ladakh is represented by 310 species belonging to 150 genera of 50 families and 16 orders. Passerines dominate the whole avian of Ladakh with 157 species (Tak and Paliwal, 2008). Tak and Paliwal (2008) described 72 bird species including Horned Lark, Yellow-Billed chough, Black Redstart and Citrine Wagtail recorded from Pin Valley National Park in Lahaul and Spiti district of Himachal Pradesh. Although much scientific study has been carried out on different aspects of the birds of Himachal Pradesh but the detailed faunal studies and breeding status of resident and migratory species have not yet

reported so far from Chandertal wetland cum Wildlife Sanctuary situated in Tran-Himalayan region of Lahaul and Spiti district. Therefore, the present study is the first records of breeding status and juveniles of the four passerines from high altitude cold desert wetland.

Erymophila alpestris, *Pyrrhocorax graculus*, *Phoenicurus ochruros* and *Motacilla citreola* commonly known as Horned Lark (Alaudidae), Yellow-billed Chough (Corvidae), Black Redstart (Muscicapidae) and Citrine Wagtail (Motacillidae), respectively are four passerines observed with their juveniles and immature. The studied area is an international Ramsar site since its wetland and harbours unique and some endangered floral and faunal elements. The alpine meadows and pastures along with sandy and rocky areas surrounding the Chandertal Lake acts as perfect breeding grounds for such high altitude birds in summer season. With the onset of summer, snow melts and wetland support the growth of floral species which in turn provides the congenial environment of food resources for breeding, growth and development of aquatic and terrestrial invertebrate and vertebrate species.

The resident birds are endemic to Western Himalaya, breed in higher altitudes during summer but as the conditions become unfavourable in winter, migrate to lower altitudes. About 26.8% species observed to show such vertical movements during summer-winter seasons. The seasonal altitudinal movements are peculiar feature of bird's migration in Himalayas for breeding in higher elevations of Himachal Pradesh (Mahabal, 2005).

MATERIALS AND METHODS

The Chandertal wildlife sanctuary is an internationally known Ramsar site and wetland of national importance situated across the famous Kunzam Pass (4520 m amsl) on Manali-Kaza state highway No. 30 (Fig. 1). The sanctuary is situated at 320 29'N latitude and 770 36'E longitude with an altitude of 4337-4830 m above mean sea level, falling in the 1 B Tibetan Plateau Biogeographic zone and wetland exhibits half moon shaped rock basin Lake (4370 m amsl) formed by glacial melt in land locked depression with single outlet which drains down into Chandra river. Lake with crystal clear water inhabits shrimps and larvae of trichopterans etc. A few semi permanent land locked water reservoirs are also present which help in wetland formation. The air density, atmospheric pressure, concentration of oxygen, carbon dioxide and water vapours are quite

Fig. 1: A view of Chandertal wetland in Lahaul Spiti district of Himachal Pradesh, India

low. High atmospheric transparency and insolation of high intensity during morning to noon make area warmer but rapid radiation during evening and night hours along with high wind velocity results in excessive coldness.

Various field surveys were carried out in the study area from June to early October months since 2008-2012 and 2014. Major observations were made on meadows and pasture around the lake and other semi permanent water bodies present in the sanctuary. The steppe and rock crevices were also observed for nesting habits etc. The birds were observed with naked eyes and 10×50 super Zenith field binocular along with 1000 mm tally lens of Quester make. Nikon D-80 camera with zoom tele-lenses was used for field photography of birds. The identification of birds was carried out with the help of field guides of Grimmet *et al.* (1999) and Kumar *et al.* (2005) and nomenclature of Manakadan and Pittie (2001). The HBI number mentioned in the text is the number given to the described species of bird in the book entitled "Handbook of the Birds of India and Pakistan" (Ali and Ripley, 1974).

OBSERVATIONS AND DISCUSSIONS

In Chandertal wildlife sanctuary, we observed 41 avian species spread over 7 orders of which Passeriformes constitute maximum 19 species. Among these four passerines were found breeding of which the different aspects (taxonomic status etc.) along with their photographs of adults and immature have been given in Fig. 2.

Family: Alaudidae; **Genus:** *Erymophila*; **Species:** *alpestris*
1758. *Alauda alpestris* Linnaeus, Syst. Nat., ed. 10, 1:66.
2001. *Erymophila alpestris* Manakadan and Pittie, Buceros, 6(1): 13.
HBI No.: 895-897, **Common name:** Horned Lark

Description: Adult male possess whitish forehead and throat. Black band on crown appears like horns. Beak black and black band on lore extends downward the ear-coverts of both side but do not touches the black band on breast. Its upper parts are sandy with pinkish upper mantle and nape. The under parts are creamy white. In juveniles, the upper parts are diffusely spotted with yellowish buff while under-parts are pale yellow.

Habitat: Mostly high altitude steppes, stony screes, bare stony mountains and alpine pastures are its preferable places.

Habits: It forages, walks and runs in short spurts with constant body movements. These are mostly in pairs or small flocks. Feeds on grass seeds and insects.

Distribution: Throughout Himalayas from North Pakistan to Sikkim.

Family: Corvidae; **Genus:** *Pyrrhocorax*; **Species:** *graculus*
1766. *Corvus graculus* Linnaeus, Syst. Nat., ed.12, 1:158.
2001. *Pyrrhocorax graculus* Manakadan and Pittie, Buceros, 6(1): 25.
HBI No.: 1045, **Common name:** Yellow-billed Chough

Fig. 2(a-g): Different species of birds, (a) Adult of horned lark, (b) Immature horned lark, (c) Immature and adult of yellow billed chough, (d) Adult male of black red start, (e) Adult female and immature of black red start, (f) Adult male and (g) Adult female and immature of citrine wagtail

Description

Adult: Bill is yellow, short and slight straight. Legs red but claws black. Wings, tail, upper-and under-parts are black with metallic gloss. Narrow wing tips with less pronounced fingered primaries.

Juveniles: Legs black, dull olive-yellow bill, body lacks metallic gloss.

Habitat: High mountains especially in Alpine area.

Habits: Gregarious and feed upon invertebrates. Breeds during March to May.

Distribution: Resident and subjects to altitudinal migration. Common in higher Himalayas in Pakistan, Nepal, Bhutan and India from tree line up to about 8600 m above mean sea level.

Family: Muscicapidae; **Genus:** *Phoenicurus*; **Species:** *ochruros*
1774. *Motacilla ochruros* Gmelin, Reise Russland, 3: 101, pl.19,
2001. *Phoenicurus ochruros* Manakadan and Pittie, Buceros, 6(1): 16.
HBI No.: 1671-1672, **Common name:** Black Redstart

Description: Head, neck and upper breast are black. Wings are brown. Remaining under-parts and tail are rufouse orange. Adult female is almost entirely dusky brown. Juvenile possess diffuse dark scaling on upper-and under-parts but broadly resemble with adult female.

Habitat: Breeds in Tibetan steppe like meadows and scree above tree line, stony grounds with Caragana scrub.

Habits: Breed in May to early August and build nest in rock crevices. Tail vibrates frequently. It is mainly terrestrial, hops and run on ground, perches on boulders and bushes and then flies to ground to pick up insects.

Distribution: It is altitudinal migrant from Western to Eastern Himalayas.

Family: Motacillidae; **Genus:** *Motacilla*; **Species:** *citreola*
1776. *Motacilla citreola* Pallas, Reise Russ. Reich. 3: 696.
2001. *Motacilla citreola* Manakadan and Pittie, Buceros, 6(1): 13.
HBI No.: 1881-1883, **Common name:** Citrine Wagtail. Fig. 2

Description: Female possesses broad yellow supercilium which reaches the yellow of throat, crown grey and yellow under parts. In males the head and under parts are yellow while upper-parts are dark olive-green. The median and greater coverts are with white tips. Juveniles possess dark malar stripe and band across breast.

Habitat: Spends summer on marshy patches below melting glaciers and winters around lakes.

Habits: Gregarious in winters, prefers wetlands, feeds mostly on aquatic molluscs, crustaceans, insect's larvae and seeds.

Distribution: Resident and common in Himalayas up to 5000 m in India, Pakistan, Nepal, Bhutan and Bangladesh.

The parental care has been observed in all these four species which make smaller flocks and mostly busy in feeding own self and their immature. As the immature were unable to predate and fly longer, on arrival of their parents, they make little noise by wide opening the mouth for food and flickering the growing wings. In such high altitude alpine area, summer is best season for breeding due to abundant food availability (Namgail and Yom-Tov, 2008). The length of the breeding season, food resources, clutch size and predation are critical for the evolution of passerine reproductive patterns in alpine meadows (Zhao *et al*., 2005).

Horned Lark found to be most abundant among other birds. Yellow-billed Chough makes small groups consisting of adult male and female with their 2-3 immature. Black Redstart and Citrine Wagtail too dispersed in smaller flocks. All of these four species have also been reported by Tak *et al*. (2008), as breeding birds from Ladakh area which exhibits almost similar geographic conditions with present studied area. Chandertal wetland is a protected area, since hunting and poaching are not allowed, but increased anthropogenic interference may affect the natural congenial makeup of high altitude cold desert wetland ecosystem which suits to the semi-arid native and migratory species. Although, lake remains frozen for 3-4 months of about six months winter but even, devotees mainly from Lahaul and Spiti and Kullu districts and some other areas make traditional and ritual visit around the lake and took holy dip during summer months of the year which may also disturb the natural life of rare faunal species. The national and international tourists and trekkers stay here in tents while a few of them dare to go on the adventurous and famous trek to Baralacha La and Leh area of the Trans Himalayan region. Many different groups of Shepherds with their herds were noticed there which may cause overgrazing. The habitat loss and fragmentation strongly affect the distribution and abundance of passerines breeding in steppe (Knick and Rotenberry, 2002). These visit the area every year during summer season but their hunter dogs may pose threat since most passerine nesting are of ground type (Zhang *et al*., 2006).

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