



AN ASSESSMENT OF DIVERSITY OF AVIAN SPECIES IN KAIS WILDLIFE SANCTUARY, KULLU (HIMACHAL PRADESH)

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ABSTRACT

In the present studies the Bird diversity of Kais Wildlife Sanctuary, Kullu has been documented and assessed for the first time. A total of 78 bird species belonging to 29 families and 10 orders has been recorded from the study area. Most dominant family is Muscicapidae represented by 12 species, followed by Accipitridae & Phylloscopidae (7 species each). Of the 78 bird species, two species are residents/partial migrants, one species shows winter migration, four are either residents/summer migrants, 15 summer visitors and the rest are residents to this area. According to IUCN status, out of 78 species of birds, Himalayan griffon (*Gyps himalayensis*) is listed under category Near Threatened, Egyptian vulture (*Nephron percnopterus*) under the category Endangered and rest of the bird species were listed under the category of Least Concern.

KEY WORDS: Birds, Diversity, Himalaya, Wildlife Sanctuary, abundance.

INTRODUCTION

Himalaya is very rich and diversified in its faunal diversity due to varied climatic conditions and topography. It ranges from tropical environment in the foothills to arctic environment in the Trans-Himalayan region. The state of Himachal Pradesh covers an area of 56,019 square kilometers and lies in the north-western hill tracts of Himalaya. The state is located between 32° 22' 40" N lat to 30° 12' 4" N lat. and 75° 47' 55" E long to 79° 4' 20" E long. The great variations in altitudes of Himachal Pradesh has offered varied topography and vegetation exhibiting a wide variety of habitats each supporting its distinctive type of fauna particularly bird diversity. Birds vary in their habitats, diversity, abundance and distribution throughout the world. Diversity of birds is often more in tropical regions than temperate regions. Occurrence of some bird species is in small numbers whereas others are represented by huge numbers which gives variability in their abundance. Some species have small restricted ranges to particular area only while others undertake long route migrations throughout the world. Out of 10,000 bird species of the world, the Indian subcontinent harbours about 1342 bird species belonging to 21 orders, 88 families and 432 genera (Ali and Ripley, 1983a & b). Of which 618 bird species belonging to 20 orders are represented in the state of Himachal Pradesh (Kumar, 2015). It is now well-established fact that human interferences like pollution, unsustainable agricultural practices, overexploitation of natural resources, climate changes, fragmentation and loss of habitats have caused significant decline in biodiversity. Therefore the studies on bird diversity and abundance provide valuable information about monitoring of biodiversity and environment of the world at local, national and global level (BirdLife International, 2015). The present studies on avifauna have carried out in Kais Wildlife Sanctuary situated between

32° 03' 10" N & 77° 12' 32" E, north; 32° 02' 42" N & 77° 12' 32" E, east; 31° 59' 38" N & 77° 10' 17" E, south; 32° 00' 23" N & 77° 09' 19" E west in Kullu district of Himachal Pradesh which is divided into two beats Tandla and Matikochar. The total geographical area of the Sanctuary is 12.61 Km² with an altitude of about 2800 to 3680 masl.

The study of relevant literature reveals that the initial work on population estimation of avifauna received attention from eminent scientists. Studies on diversity and status of avifauna present in different parts of the state have been conducted by various workers like Whistler (1926 a & b), Ali (1949), Gaston *et al.* (1981). Whistler (1926 a & b) studied the birds of Kangra and Kullu districts respectively. Ali & Ripley (1983a & b) presented a summarized account on avifauna of Himachal Pradesh. Pandey (1989) studied birds of Pong Dam and adjacent localities and documented over 415 avian species. Number of studies has been carried out on different aspects of avifauna of Himachal Pradesh like geographical and altitudinal distribution patterns by some workers like (Mahabal and Sharma, 1990; Singh *et al.*, 1992; Mahabal, 1996, 2000, 2005; Thakur *et al.*, 2002, 2010, and Singh, 2006, 2011). Sharma *et al.* (2009) recorded the occurrence of 210 species of birds in Simbalbara wildlife sanctuary. Miller (2010), Thakur and Mattu (2011), Thakur and Narang (2012), Kumar and Paliwal (2015), Thakur and Mehta (2015) also documented avifauna of Himachal Pradesh from different localities of the state. Kumar *et al.* (2014) recorded 93 species from Kalatop Khajjiar wildlife Sanctuar. Kumar (2015) documented 618 species of birds belonging to 20 orders and 91 families from Himachal Pradesh. The birds present in Kais Wildlife sanctuary have been insufficiently explored. Very less literature is available on avifauna of Kais Wildlife Sanctuary. The present work is first time compilation of bird diversity of this sanctuary.

MATERIALS & METHODS

During present study an area of some 12.61 sq km of Kais Wildlife Sanctuary has been explored. Surveys are conducted in Kais Wildlife Sanctuary from January to April 2018. The birds are observed in the field from 6:00am in the morning and from 4.00pm in the evening. Average 5 hrs are spent in the field daily. Random Sampling Technique is followed for counting the birds in the study area. Birds are observed with an aid of prismatic (10*50 DPS) Olympus field binoculars. Field identifications are carried out with the help of various field guides (Ali and Ripley, 1983; Grimmett *et. al.*, 2003; Kazmierczak, 2000). The data recorded in each survey is analyzed for population estimation and status of bird species.

RESULTS & DISCUSSION

During present study on avifauna of Kais WLS of Kullu district of Himachal Pradesh, 78 species of birds belonging to 29 families and 10 orders have been recorded. Birds sighted during the surveys are categorized based on their migratory nature as follows: R =Resident, R/PM=Resident

with Partial movements, R/SM=Resident with summer influx, SM=Summer Migrant, as well as their conservation status following IUCN Red Data list of species (2018 version). Family Muscicapidae, the largest bird family of India as well as Himachal Pradesh (Manakadan & Pittie, 2001; Mahabal, 2005, Thakur, 2008; Thakur *et.al.* 2010 and Kumar, 2015) has been found to be represented by 12 species in this area, followed by families Accipitridae (7 species), Phylloscopidae (7 species), Corvidae (6 species) and Paridae (5 species). However families Columbidae, Cuculidae, Picidae, Leiothrichidae, Fringillidae represented by 3 species each & rest of the families are represented by either 2 species or 1 species each (as given in Table 1). In total the highest numbers of individuals of bird species are observed in summer (287 individuals) with passerine birds (241 number of individuals alone) representing the highest in numbers. In winter the numbers of individuals of birds are observed less (166 individuals of birds). In winter also the total count of individuals of passerine birds (135 individuals) is highest among all bird species as given in table 1.

TABLE 1: List of Birds of Kais WildLife Sanctuary

| S.No. | Common name | Scientific name | In month of February | | In month of April | |
|-------|-------------------------------|----------------------------------|----------------------|--------|-------------------|--------|
| | | | Matikochar | Tandla | Matikochar | Tandla |
| 1 | Koklass pheasant | <i>Pucrasia macrolopha</i> | 0 | 0 | 1 | 0 |
| 2 | Kaleej pheasant | <i>Lophura leucomelanus</i> | 1 | 0 | 2 | 0 |
| 3 | Himalayan griffon | <i>Gyps himalayensis</i> | 3 | 0 | 2 | 0 |
| 4 | Egyptian vulture | <i>Neophron percnopterus</i> | 0 | 0 | 20 | 0 |
| 5 | Booted eagle | <i>Hieraetus pinnatus</i> | 1 | 0 | 0 | 0 |
| 6 | Tawny eagle | <i>Aquila rapax</i> | 0 | 0 | 1 | 0 |
| 7 | Shikra | <i>Accipiter badius</i> | 0 | 1 | 0 | 0 |
| 8 | Eurasian sparrow- hawk | <i>Accipiter nisus</i> | 1 | 0 | 0 | 0 |
| 9 | Black kite | <i>Milvus migrans</i> | 0 | 1 | 0 | 0 |
| 10 | Red wattled lapwing | <i>Vanellus indicus</i> | 0 | 3 | 0 | 0 |
| 11 | Rock pigeon | <i>Columba livia</i> | 4 | 2 | 0 | 0 |
| 12 | Eurasian collared-Dove | <i>Streptopelia decaocta</i> | 0 | 0 | 2 | 1 |
| 13 | Oriental turtle dove | <i>Streptopelia orientalis</i> | 0 | 1 | 1 | 1 |
| 14 | Eurasian cuckoo | <i>Cuculus canorus</i> | 0 | 0 | 1 | 1 |
| 15 | Asian koel | <i>Eudynamys scolopaceus</i> | 0 | 0 | 3 | 1 |
| 16 | Greater coucal | <i>Centropus sinensis</i> | 0 | 0 | 1 | 1 |
| 17 | Himalayan swiftlet | <i>Aerodramus brevirostris</i> | 2 | 0 | 0 | 0 |
| 18 | Oriental pied hornbill | <i>Anthracoceros albirostris</i> | 1 | 0 | 0 | 1 |
| 19 | Great barbet | <i>Megaliama virens</i> | 0 | 0 | 0 | 3 |
| 20 | Himalayan woodpecker | <i>Dendrocopus himalayensis</i> | 0 | 0 | 2 | 0 |
| 21 | Brown-fronted woodpecker | <i>Dendrocopus auriceps</i> | 1 | 0 | 0 | 0 |
| 22 | Scaly bellied woodpecker | <i>Picus squamatus</i> | 0 | 1 | 0 | 1 |
| 23 | Long tailed minivet | <i>Pericrocotus ethologus</i> | 8 | 2 | 0 | 0 |
| 24 | Slaty headed parakeet | <i>Psitacula himalayana</i> | 0 | 4 | 0 | 0 |
| 25 | Plum headed parakeet | <i>Psitacula cyanocephalus</i> | 2 | 2 | 0 | 0 |
| 26 | Red billed blue magpie | <i>Urocissa flavirostris</i> | 3 | 5 | 3 | 5 |
| 27 | Yellow billed blue magpie | <i>Urocissa flavirostris</i> | 0 | 0 | 5 | 4 |
| 28 | Rufous treepie | <i>Dendocitta vagabanda</i> | 0 | 0 | 0 | 2 |
| 29 | Spotted nutcracker | <i>Nucifraga caryocatactes</i> | 0 | 0 | 0 | 1 |
| 30 | Red billed cough | <i>Pyrhocorax pyrrhocorax</i> | 1 | 0 | 1 | 1 |
| 31 | Large billed crow | <i>Corvus macrorhynchos</i> | 7 | 4 | 15 | 10 |
| 32 | Grey-headed Canary-Flycatcher | <i>Culicicapa ceylonensis</i> | 0 | 0 | 4 | 8 |
| 33 | Spot winged tit | <i>Parus melanolophus</i> | 0 | 3 | 7 | 4 |
| 34 | Rufous-vented tit | <i>Periparus rubidiventris</i> | 0 | 0 | 1 | 2 |
| 35 | Grey crested tit | <i>Lophophanus dichrous</i> | 2 | 1 | 6 | 5 |
| 36 | Green backed tit | <i>Parus monticolus</i> | 0 | 1 | 3 | 1 |
| 37 | Great tit | <i>Parus major</i> | 0 | 0 | 12 | 6 |
| 38 | White tailed nuthatch | <i>Sitta himalayensis</i> | 1 | 0 | 0 | 0 |
| 39 | Black throated Tit | <i>Aegithalos concinnus</i> | 0 | 0 | 1 | 0 |
| 40 | Hodgsons treecreeper | <i>Certhia hodgsoni</i> | 0 | 0 | 2 | 6 |
| 41 | Bar tailed tree creeper | <i>Certhia himalayana</i> | 1 | 0 | 9 | 4 |

| | | | | | | |
|-----------------------------------------------|---------------------------|----------------------------------|-----|----|-----|-----|
| 42 | Eurasian wren | <i>Troglodytes troglodytes</i> | 0 | 1 | 0 | 0 |
| 43 | Himalayan bulbul | <i>Pycnonotus leucogenys</i> | 3 | 7 | 0 | 0 |
| 44 | Himalayan black bulbul | <i>Hypsipetes leucocephalus</i> | 0 | 0 | 4 | 2 |
| 45 | Sulphur bellied warbler | <i>Phylloscopus griseolus</i> | 0 | 0 | 2 | 1 |
| 46 | Buff-barred Warbler | <i>Phylloscopus pulcher</i> | 0 | 0 | 0 | 1 |
| 47 | Lemon-rumped warbler | <i>Phylloscopus chloronotus</i> | 0 | 0 | 1 | 1 |
| 48 | Humes leaf warbler | <i>Phylloscopus humei</i> | 0 | 0 | 1 | 0 |
| 49 | Blyths leaf warbler | <i>Phylloscopus reguloides</i> | 0 | 0 | 3 | 0 |
| 50 | Whistlers warbler | <i>Seicercus whistleri</i> | 0 | 0 | 2 | 4 |
| 51 | Ashy prinia | <i>Prinia socialis</i> | 0 | 5 | 0 | 0 |
| 52 | Plain prinia | <i>Prinia inornata</i> | 0 | 0 | 6 | 0 |
| 53 | Oriental white-eye | <i>Zosterops palpebrosus</i> | 3 | 1 | 3 | 1 |
| 54 | Common babbler | <i>Turdoides caudata</i> | 15 | 8 | 0 | 0 |
| 55 | Jungle babbler | <i>Turdoides striata</i> | 0 | 6 | 0 | 0 |
| 56 | Streaked laughingthrush | <i>Trochalopteron lineatum</i> | 1 | 0 | 1 | 0 |
| 57 | Rufous-bellied Niltava | <i>Niltava sundara</i> | 0 | 0 | 1 | 1 |
| 58 | Verditer Flycatcher | <i>Eumyias thalassinus</i> | 0 | 0 | 10 | 7 |
| 59 | Indian robin | <i>Copsychus fulicatus</i> | 1 | 1 | 0 | 0 |
| 60 | Blue whistling thrush | <i>Myophonus caeruleus</i> | 4 | 2 | 1 | 2 |
| 61 | Spotted Forktail | <i>Enicurus maculatus</i> | 0 | 0 | 1 | 0 |
| 62 | Little Pied Flycatcher | <i>Ficedula westermanni</i> | 0 | 0 | 5 | 1 |
| 63 | Ultramine flycatcher | <i>Ficedula superciliaris</i> | 0 | 0 | 0 | 1 |
| 64 | Blue Fronted Redstart | <i>Phoenicurus erythronotus</i> | 0 | 0 | 0 | 1 |
| 65 | Plumbeous redstart | <i>Phoenicurus fuslignos</i> | 0 | 1 | 0 | 1 |
| 66 | White capped redstart | <i>Phoenicurus leucocephalus</i> | 1 | 1 | 0 | 0 |
| 67 | Indian chat | <i>Cercomela fusca</i> | 1 | 0 | 0 | 0 |
| 68 | Grey bushchat | <i>Saxicola ferreus</i> | 0 | 0 | 7 | 4 |
| 69 | White-Collared Blackbird | <i>Turdus albocinctus</i> | 0 | 0 | 1 | 2 |
| 70 | Grey winged blackbird | <i>Turdus boulboul</i> | 0 | 4 | 1 | 0 |
| 71 | Brown accentor | <i>Prunella fulvescens</i> | 12 | 7 | 0 | 0 |
| 72 | Rock bunting | <i>Emberiza cia</i> | 6 | 0 | 15 | 8 |
| 73 | Common chiffchaff | <i>Fringilla coelebs</i> | 0 | 3 | 0 | 0 |
| 74 | Grey wagtail | <i>Motacilla cinerea</i> | 0 | 0 | 0 | 2 |
| 75 | Black and yellow Grosbeak | <i>Mycerobas icterioides</i> | 0 | 0 | 0 | 2 |
| 76 | Collared Grosbeak | <i>Mycerobas affinis</i> | 0 | 0 | 1 | 1 |
| 77 | Russet Sparrow | <i>Passer rutilans</i> | 0 | 0 | 2 | 0 |
| 78 | House sparrow | <i>Passer domesticus</i> | 2 | 0 | 0 | 0 |
| | | | 90 | 76 | 175 | 114 |
| TOTAL NUMBER OF INDIVIDUALS OF BIRDS OBSERVED | | | 166 | | 287 | |

TABLE 2: Staus of bird species observed in Kais Wildlife Sanctuary

| S.No | Order | Family | Common Name | Scientific Name | Migratory Status | IUCN Status |
|------|------------------|---------------|--------------------------|----------------------------------|------------------|-------------|
| 1 | Galliformes | Phasianidae | Koklass pheasant | <i>Pucrasia macrolopha</i> | R | LC |
| 2 | Galliformes | Phasianidae | Kaleej pheasant | <i>Lophura leucomelanus</i> | R | LC |
| 3 | Accipitriformes | Accipitridae | Himalayan griffon | <i>Gyps himalayensis</i> | R | NT |
| 4 | Accipitriformes | Accipitridae | Egyptian vulture | <i>Neophron percnopterus</i> | R | EN |
| 5 | Accipitriformes | Accipitridae | Tawny eagle | <i>Aquila rapax</i> | R | LC |
| 6 | Accipitriformes | Accipitridae | Booted eagle | <i>Hieraetus pinnatus</i> | R/PM | LC |
| 7 | Accipitriformes | Accipitridae | shikra | <i>Accipiter badius</i> | R | LC |
| 8 | Accipitriformes | Accipitridae | Eurasian sparrow- hawk | <i>Accipiter nisus</i> | R | LC |
| 9 | Accipitriformes | Accipitridae | Black kite | <i>Milvus migrans</i> | R/PM | LC |
| 10 | Gruiformes | Charadriidae | Red wattled lapwing | <i>Vanellus indicus</i> | R | LC |
| 11 | Columbiformes | Columbidae | Rock pigeon | <i>Columba livia</i> | R | LC |
| 12 | Columbiformes | Columbidae | Eurasian collared-Dove | <i>Streptopelia decaocta</i> | R/SM | LC |
| 13 | Columbiformes | Columbidae | Oriental turtle dove | <i>Streptopelia orientalis</i> | R | LC |
| 14 | Cuculiformes | Cuculidae | Eurasian cuckoo | <i>Cuculus canorus</i> | SM | LC |
| 15 | Cuculiformes | Cuculidae | Asian koel | <i>Eudynamys scolopaceus</i> | SM | LC |
| 16 | Cuculiformes | Cuculidae | Greater coucal | <i>Centropus sinensis</i> | R | LC |
| 17 | Caprimulgiformes | Apodidae | Himalayan swiftlet | <i>Aerodramus brevirostris</i> | R | LC |
| 18 | Coraciiformes | Bucerotidae | Oriental pied hornbill | <i>Anthracoceros albirostris</i> | R | LC |
| 19 | Piciformes | Magalaimidae | Great barbet | <i>Megalaima virens</i> | R | LC |
| 20 | Piciformes | Picidae | Himalayan woodpecker | <i>Dendrocopus himalayensis</i> | R | LC |
| 21 | Piciformes | Picidae | Brown fronted woodpecker | <i>Dendrocopus auriceps</i> | R | LC |
| 22 | Piciformes | Picidae | Scaly bellied woodpecker | <i>Picus squamatus</i> | R | LC |
| 23 | Psittaciformes | Psittacidae | Slaty headed parakeet | <i>Psitacula himalayana</i> | R | LC |
| 24 | Psittaciformes | Psittacidae | Plum headed parakeet | <i>Psitacula cyanocephalus</i> | R | LC |
| 25 | Passeriformes | Campephagidae | Long tailed minivet | <i>Pericrocotus ethologus</i> | R/SM | LC |

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| | | | | | | | |
|----|---------------|----------------|---------------------------|---------|----------------------------------|------|----|
| 26 | Passeriformes | Corvidae | Red billed blue magpie | | <i>Urocissa flavirostris</i> | R | LC |
| 27 | Passeriformes | Corvidae | Yellow billed blue magpie | | <i>Urocissa flavirostris</i> | R | LC |
| 28 | Passeriformes | Corvidae | Rufous treepie | | <i>Dendocitta vagabanda</i> | R | LC |
| 29 | Passeriformes | Corvidae | Spotted nutcracker | | <i>Nucifraga caryocatactes</i> | R | LC |
| 30 | Passeriformes | Corvidae | Red billed cough | | <i>Pyrrhocorax pyrrhocorax</i> | R | LC |
| 31 | Passeriformes | Corvidae | Large billed crow | | <i>Corvus macrorhynchos</i> | R | LC |
| 32 | Passeriformes | Stenostiridae | Grey-headed Flycatcher | Canary- | <i>Culicicapa ceylonensis</i> | SM | LC |
| 33 | Passeriformes | Paridae | Spot winged tit | | <i>Parus melanolophus</i> | R | LC |
| 34 | Passeriformes | Paridae | Rufous-vented tit | | <i>Periparus rubidiventris</i> | R | LC |
| 35 | Passeriformes | Paridae | Grey crested tit | | <i>Lophophanus dichrous</i> | R | LC |
| 36 | Passeriformes | Paridae | Green backed tit | | <i>Parus monticolus</i> | R | LC |
| 37 | Passeriformes | Paridae | Black throated Tit | | <i>Aegithalos concinnus</i> | R | LC |
| 38 | Passeriformes | Sittidae | White tailed nuthatch | | <i>Sitta himalayansis</i> | R | LC |
| 39 | Passeriformes | Certhiidae | Hodgsons treecreeper | | <i>Certhia hodgsoni</i> | R | LC |
| 40 | Passeriformes | Certhiidae | Bar tailed tree creeper | | <i>Certhia himalayana</i> | R | LC |
| 41 | Passeriformes | Troglodytidae | Eurasian wren | | <i>Troglodytes troglodytes</i> | R | LC |
| 42 | Passeriformes | Pycnonotidae | Himalayan bulbul | | <i>Pycnonotus leucogenys</i> | R | LC |
| 43 | Passeriformes | Pycnonotidae | Himalayan black bulbul | | <i>Hypsipetes leucocephalus</i> | R | LC |
| 44 | Passeriformes | Phylloscopidae | Ashy throated warbler | | <i>Phylloscopus maculipennis</i> | R | LC |
| 45 | Passeriformes | Phylloscopidae | Sulphur bellied warbler | | <i>Phylloscopus griseolus</i> | SM | LC |
| 46 | Passeriformes | Phylloscopidae | Buff-barred Warbler | | <i>Phylloscopus pulcher</i> | SM | LC |
| 47 | Passeriformes | Phylloscopidae | Lemon-rumped warbler | | <i>Phylloscopus chloronotus</i> | SM | LC |
| 48 | Passeriformes | Phylloscopidae | Hume's leaf warbler | | <i>Phylloscopus humei</i> | SM | LC |
| 49 | Passeriformes | Phylloscopidae | Blyth's leaf warbler | | <i>Phylloscopus reguloides</i> | SM | LC |
| 50 | Passeriformes | Phylloscopidae | Whistler's warbler | | <i>Seicercus whistleri</i> | SM | LC |
| 51 | Passeriformes | Cisticolidae | Ashy prinia | | <i>Prinia socialis</i> | R | LC |
| 52 | Passeriformes | Cisticolidae | Plain prinia | | <i>Prinia inornata</i> | R | LC |
| 53 | Passeriformes | Zosteropidae | Oriental white-eye | | <i>Zosterops palpebrosus</i> | R | LC |
| 54 | Passeriformes | Leiothrichidae | Common babbler | | <i>Turdoides caudata</i> | R | LC |
| 55 | Passeriformes | Leiothrichidae | Jungle babbler | | <i>Turdoides striata</i> | R | LC |
| 56 | Passeriformes | Leiothrichidae | Streaked laughingthrush | | <i>Trochalopteron lineatum</i> | R | LC |
| 57 | Passeriformes | Muscicapidae | Rufous-bellied Niltava | | <i>Niltava sundara</i> | SM | LC |
| 58 | Passeriformes | Muscicapidae | Verditer Flycatcher | | <i>Eumyias thalassinus</i> | SM | LC |
| 59 | Passeriformes | Muscicapidae | Indian robin | | <i>Copsychus fulicatus</i> | R | LC |
| 60 | Passeriformes | Muscicapidae | Blue whistling thrush | | <i>Myophonus caeruleus</i> | R | LC |
| 61 | Passeriformes | Muscicapidae | Spotted Forktail | | <i>Enicurus maculatus</i> | R | LC |
| 62 | Passeriformes | Muscicapidae | Little Pied Flycatcher | | <i>Ficedula westermanni</i> | SM | LC |
| 63 | Passeriformes | Muscicapidae | Ultramine flycatcher | | <i>Ficedula superciliaris</i> | SM | LC |
| 64 | Passeriformes | Muscicapidae | Blue Fronted Redstart | | <i>Phoenicurus erythronotus</i> | SM | LC |
| 65 | Passeriformes | Muscicapidae | Plumbeous redstart | | <i>Phoenicurus fusliginos</i> | R | LC |
| 66 | Passeriformes | Muscicapidae | White capped redstart | | <i>Phoenicurus leucocephalus</i> | R/SM | LC |
| 67 | Passeriformes | Muscicapidae | Indian chat | | <i>Cercomela fusca</i> | R | LC |
| 68 | Passeriformes | Muscicapidae | Grey bushchat | | <i>Saxicola ferreus</i> | R | LC |
| 69 | Passeriformes | Turdidae | White-Collared Blackbird | | <i>Turdus albocinctus</i> | R | LC |
| 70 | Passeriformes | Turdidae | Grey-winged Blackbird | | <i>Turdus boulboul</i> | R | LC |
| 71 | Passeriformes | Prunellidae | Brown accentor | | <i>Prunella fulvescens</i> | R | LC |
| 72 | Passeriformes | Motacillidae | Grey wagtail | | <i>Motacilla cinerea</i> | SM | LC |
| 73 | Passeriformes | Emberizidae | Rock bunting | | <i>Emberiza cia</i> | R/SM | LC |
| 74 | Passeriformes | Fringillidae | Common chiffchaff | | <i>Fringilla coelebs</i> | WM | LC |
| 75 | Passeriformes | Fringillidae | Black and yellow Grosbeak | | <i>Mycerobas icteroides</i> | R | LC |
| 76 | Passeriformes | Fringillidae | Collared Grosbeak | | <i>Mycerobas affinis</i> | R | LC |
| 77 | Passeriformes | Passeridae | Russet Sparrow | | <i>Passer rutilans</i> | R | LC |
| 78 | Passeriformes | Passeridae | House sparrow | | <i>Passer domesticus</i> | R | LC |

Analysis of data on residential status shows that of the 78 bird species 71.79% species of birds are resident, 2.56% are either residents or partial migrants, 1.28% showed winter migration, 5.12% are either residents or summer migrants and rest 19.28% are summer visitors to this area. Moreover the analysis of data also reveals that among all the bird species recorded, most of the birds are listed under the category of Least concern, except Egyptian vulture (*Nephron percnopterus*) under the category endangered & Himalayan griffon (*Gyps himalayensis*) under category

near threatened according to IUCN status (as given in Table 2). Review of literature reveals that present studies shows similar results and fall in the same line as with the earlier works of Gaston *et al.* (1993), Mahabal (2000), Thakur *et al.* (2002, 2003, 2006, 2010), Mattu & Thakur (2004, 2006, 2011) Singh and Banyal (2013) and Kumar (2015) who also reported the presence of different categories of birds like resident, summer visitors, winter visitors etc from different biogeographical regions of Himachal Pradesh.

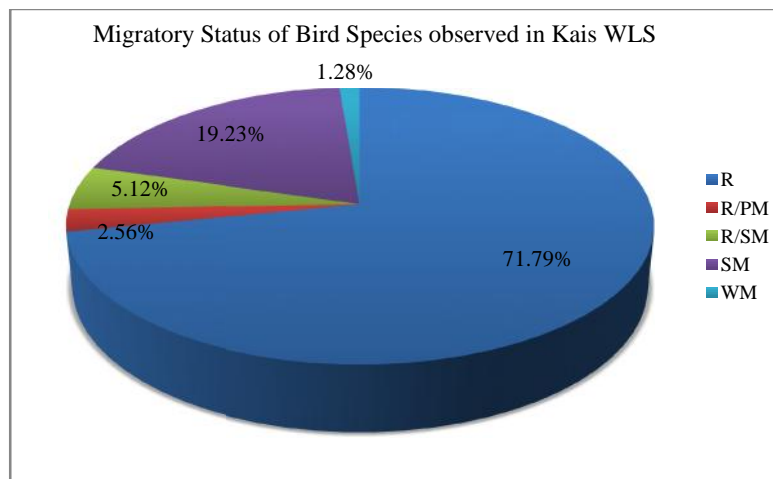


FIGURE 1: Migratory status of birds observed in Kais Wildlife Sanctuary

Abbreviations

R =Resident, R/PM=Resident with Partial movements, R/SM=Resident with summer influx, SM=Summer Migrant, LC=Least Concern; NT-Near Threatened; EN-Endangered

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