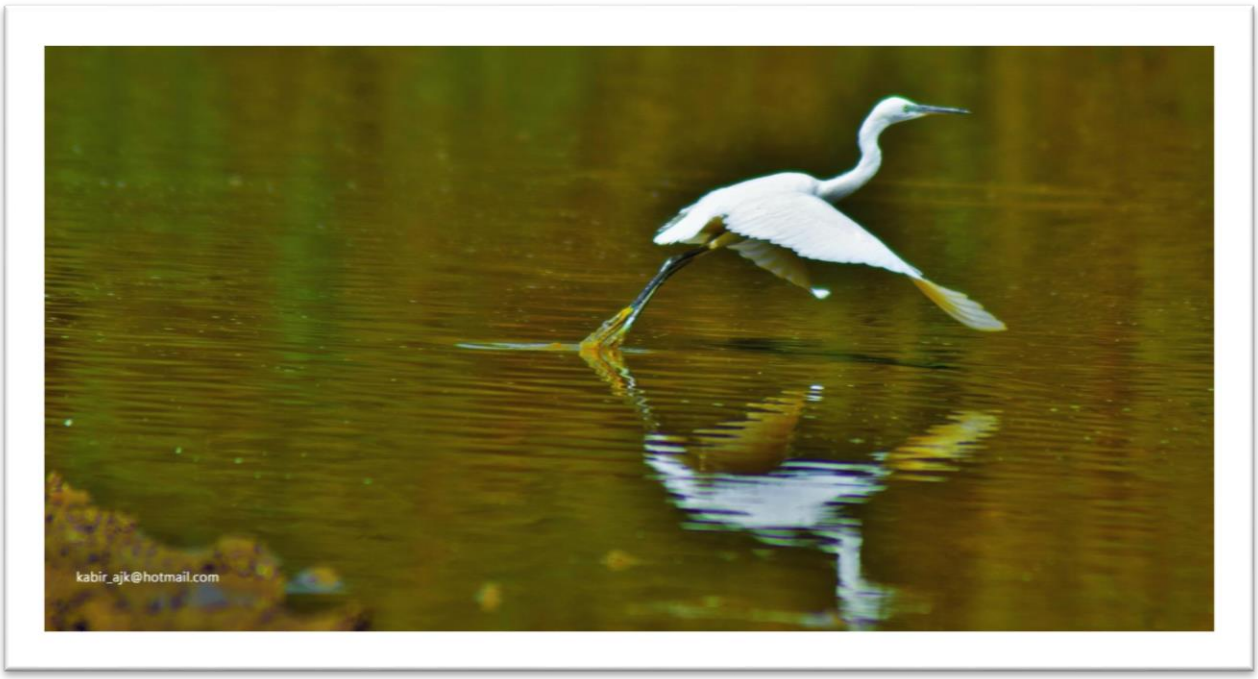
Report on Baseline study of Avian Fauna of Dhingano-Lakhat Riverine Forests, Sindh, Pakistan



Project title:
Sustainable forest management to secure multiple benefits in Pakistan's high conservation value forests

By
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Project Brief

Project Title:	Sustainable forest management to secure multiple benefits in Pakistan's high conservation value forestss
Duration:	Five years (January 2017 to December 2021)
Project Areas:	i). Khyber Pakhtunkhwa (Temperate forest) ii).Sind (Riverine forest) iii. Punjab (Scrub forest and Riverine forest)
Project objective:	The objective of the proposed project is to promote sustainable forest management in Pakistan's Western Himalayan Temperate coniferous, Sub-tropical broadleaved evergreen thorn (Scrub) and Riverine forests for biodiversity conservation, mitigation of climate change and securing of forest ecosystem services. In particular, it aims at implementation of three inter-related and mutually complementary components that are focussed at addressing the barriers of inadequate planning, regulatory and institutional frameworks to integrated forest resource management, and enhancing the limited experience among key government and civil society stakeholders in developing and implementing SFM practices on the ground.
Project outcomes:	Outcome 1: Embedded sustainable forest management into landscape spatial planning; Component/Outcome 2: Biodiversity conservation strengthened in and around High Value Conservation Forests; and Component/Outcome 3: Enhanced carbon sequestration in and around HCVF in target forested landscapes

Description	The objective of the proposed project is to promote sustainable forest management in Pakistan's Western Himalayan Temperate Coniferous, Sub-tropical broadleaved evergreen thorn (Scrub) and Riverine forests for biodiversity conservation, mitigation of climate change and securing of forest ecosystem services. In particular, it aims at implementation of three inter-related and mutually complementary components that are focussed at addressing the barriers of inadequate planning, regulatory and institutional frameworks to integrated forest resource management, and the limited experience among key government and civil society stakeholders in developing and implementing SFM practices on the ground. Component 1 will support the incorporation of sustainable forest management objectives and safeguards in forest management planning, forestland allocation and compliance of monitoring systems at the local level. Component 2 will identify, demarcate and implement on-the-ground approaches to improving management of high conservation value forests within seven landscapes covering an area of 67,861 ha with the aim of meeting the life requisites of the target species, and habitats such as breeding areas, feeding areas, water sources, dispersal and connectivity corridors, etc. Component 3 will develop practical approaches to enhancing carbon sequestration through restoring degraded and former forested areas (LULUCF activities) by a combination of restoration and reforestation of 10,005 ha of degraded conifer forests; 3,400 ha of degraded scrub forests, and reforestation of 13,099 ha of Riverine forests with native species. The project is funded by GEF and UNDP and implemented by jointly by UNDP Pakistan and Minstry of Climate Change in Khyber Pakhtunkhwa,

	Sind, and Punjab.
Project Outputs	1.1 Forest resources and ecosystem services inventory and mapping informs forest management planning, implementation and monitoring at the landscape level 1.2 Updated guidelines, planning tools and regulations facilitate harmonization and mainstreaming ecosystem, climate risk mitigation and biodiversity considerations into forest management planning Output 1.3. Landscape level forest plans integrates considerations of biodiversity, ecosystem services, climate mitigation and community resource use Output 1.4 Stakeholders' benefits of current unsustainable and sustainable forest practices and status of forest resources assessed Output 1.5 System for effective monitoring and enforcement of forest management plans, including clear delineation of roles and responsibilities of key partners and management of participatory processes informs forest management and development Output 1.6 Forest resource use conflict management and resolution processes established in multiple use zones Output 1.7 Capacity building for provincial and district level forest agencies, local communities and other stakeholders, including (i) training workshops and courses (ii) vocational training modules (iii) on-the-ground demonstration and training and (iv) patrolling skills and forest fire controlling training enhances capacity for sustainable land and forest management within key agencies and communities. 1.8 Recommendations for facilitating adoption (institutionalising),

	scaling up and replication of sustainable forest management practices promoted Output 2.1 Avoided deforestation of High Conservation Value Forests with forest use regime change from unsustainable use to biodiversity conservation and non-exhaustive community forest management instituted Output 2.2 Community-Managed Conservation Area model of community governance and management system operational Output 2.3 Biodiversity conservation and capacities in and around high conservation value forests reinforced through training, enhanced enforcement, guidelines and strengthening with community managed conservation forests and involvement of communities in state managed forests Output 3.1 Restoration of degraded Temperate Conifer forests and Sub-tropical Broadleaved Evergreen Thorny forests with indigenous species, realizing carbon benefits Output 3.2 Reforestation of degraded Riverine forests with indigenous species, realizing carbon benefits and biodiversity conservation Output 3.3 Best practice silvicultural approaches to forest restoration and reforestation documented, and capacities enhanced through training and local language guidelines. Output 3.4 On-the-ground application of Nationally-tailored methodology for measuring carbon stocks (to be developed under a parallel REDD Readiness Preparation Project) applied, demonstrated and validated for the target areas.

Summary:

The species diversity and distribution of birds were studied in selected sites of Dhingano-Lakhat Riverine Forests, Sindh, Pakistan. Based on field observation and literature review, the results of the baseline study on avian fauna revealed that the area is permanent or seasonal home for about 223 species of birds belonging to 19 orders. Both passerine and non-passerines birds equally contributed to the avian diversity of the study area. At order level passeriformes dominated the diversity with species with largest species number recorded from different location of the study area. In non-passeriformes, charadriiforms were the highest with species occurrence (10.7%), followed by Coraciiformes (5.4%). Among orders, the families Accipitridae (8.5%) contributed highest number of species followed by Scolopacidae and Muscicapidae (6.7%), followed by Ardeidae and Alaudidae (4.9%) and after then, Laridae (4.5%). The family Estrildidae and twenty others had minimum number of species (0.4%). Frequent sightings of egret, pied kingfisher, pond heron, moorhen, lapwing and etc. were observed near water bodies while Eurasian collared dove, bee-eater, pied bush chat dominated the terrestrial habitat of Dhingano-Lakhat Riverine Forests. The major threats were habitat loss due to forest cutting, land conversion and poor law enforcement. There is dire need to establish baseline data based on periodic studies and scientific methodologies which will help explore the diversity of bird's species and identification of management priorities in the study area.

Introduction:

Comprising about 13% of the world avian diversity, Indian subcontinent has approximately 1300 species of birds (Grimmett et al., 1998). The assessment and evaluation of bird communities has been considered as valuable tool in biodiversity conservation efforts (Shafiq et al., 1997). In understanding biodiversity, attitudinal gradients for the bird distribution give exceedingly useful clues (McCain, 2009). Bird distributions are particularly important as because they are commonly used as indicators of ecological conditions (Schrag et al., 2009). Birds are considered as important health indicators of the ecological conditions and productivity of an ecosystem (Li & Mundkur, 2007). While addressing the environmental problems of an area, birds can be used as very appropriate bio-indicators suggesting the status of biodiversity in general (Bhatt & Joshi, 2011).

Biodiversity at present is better understood for birds in many aspects than any other major group of organisms because they probably inspire more extreme interest in humans, often spectacular, relatively easily observed and not too cryptic to identify (Bruford, 2002). The bird assemblages are affected by various factors like food availability, size of the wetland and abiotic changes in the wetlands (Lagos et al., 2008). Unfortunately global diversity of birds is decreasing incessantly primarily due to anthropogenic disturbances and climate change (Sekercioglu et al., 2012). No surprise that IUCN Red List of endangered birds has already recognized 1226 bird species as threatened globally; and India, with 88 threatened bird species, is ranked at seventh position (Birdlife International, 2010).

Birds occupy almost all habitat types and diversity of birds often serves as a good indication of overall diversity of a given area (Furness & Greenwood, 1993). Birds are also known to respond to any kind of changes to their ambient conditions hence can be used as bio-indicator (Padoa–Schioppa et al., 2006). Biodiversity estimation applying short span studies are becoming more popular and in this regard preparation of checklists of birds on a wider scale has been given much importance (Roy et al., 2011). Birds are playing a major role as pollinators, consumers, dispersers of plant seeds and predators of insects. Each species has its own unique ecological niche. Birds not only help in pollination, but also help to biologically control the pest populations. These birds help maintain the various carnivorous and omnivorous populations of the world and are reared worldwide for not only this purpose but also for getting products such as downs feathers (Simeone et al., 2002).

Of the total Pakistan's bird species, 30% visit the country for a significant period of the year as long-distance migrants, 43% are either Palearctic species visiting Pakistan only for breeding and 28% are regular winter visitors, which breed mainly in trans-Himalayan northern regions (Roberts, 1992). The information about avian distribution across different habitats and Himalayan elevation zones across the region is scarce, fragmented and preliminary (Ali

& Ripley, 1998). Sindh riverine forest is unexplored area in terms of avifauna henceforth the data of species diversity and distribution range is quite insufficient. The present study was conducted to prepare the checklist of avifauna in selected site of study area. Although the study consists of a very short time span, but it will set baseline information to further strengthen the documented checklist of avian fauna of birds.

METHODOLOGY:

The present study was carried out in selected sites of Dhingano-Lakhat Riverine Forests. The whole study area was divided into sub sites representing all habitats of study area (Fig. 1). It is assumed that the survey transects that were conducted represent nearly all the study area. At each selected site of the study area in each habitat, 500m transects were used. Transects were rightfully separated (about 400m) to avoid the double counting of birds. The other most important aspect kept in consideration while surveying for the birds was the activity period of birds. The peak activity of birds lasts for 1 or 2 hours after sunrise or before sunset, so recording of birds were done either in early morning or late evening hours (Thakur et al., 2002) but here we continued the survey whole to record the bird's species. At some location we also used fixed point/point count method and flush count method depending upon the topography and suspected presence of the various bird's species. It helped note the movements and calls of the birds, which were noticed easily to draw data more accurately. All birds were seen while walking along transects, including those flying, were also recorded. All observations were made by using binocular and photographic documentation was done by using digital camera. In the field, the birds were identified using the authentic field guide (Grimmett, et al., 2008).

Dhingano-Lakhat Riverine Forests Landscape:

The proposed site is situated along the Indus River, downstream of Sukkur Barrage on the left bank in the Nawab Shah District. The landscape is comprised of Dhingano Reserve Forest (1,538 ha) and Lakhat Reserve Forest (1,462 ha) in Nawab Shah District. Both forests are also separately designated as wildlife sanctuaries under the Sindh Wildlife law in addition to their designation as Reserved Forest under the Forest Act. The total area of the Dhingano-Lakhat Riverine landscape is 3,300 ha. One of the reasons of inclusion of this landscape in this project is that most of the forests downstream of Sukkur Barrage do not get inundation except in high or super floods whereas this landscape, situated between Sukkur and Kotri barrages that is in Central Sindh still receives substantial annual inundation.

Abad Reserve Forest is located adjacent to this landscape. There is an opportunity of developing a corridor from the riverine landscape to Abad Reserve Forest. River meandering in this section of the river is common with the result that the processes of erosion and accretion are also common. Thus, there is an opportunity for recreating new riverine forest with traditional regeneration techniques that is broadcasting of treated seed of native species including Populus euphratica during the last receding flood. There are two villages and hamlets situated in and around these forests which consist of 1,670 households and 10,000 forest dependent local persons. One of the two dependent local communities are actively involved in protection and conservation of forests.

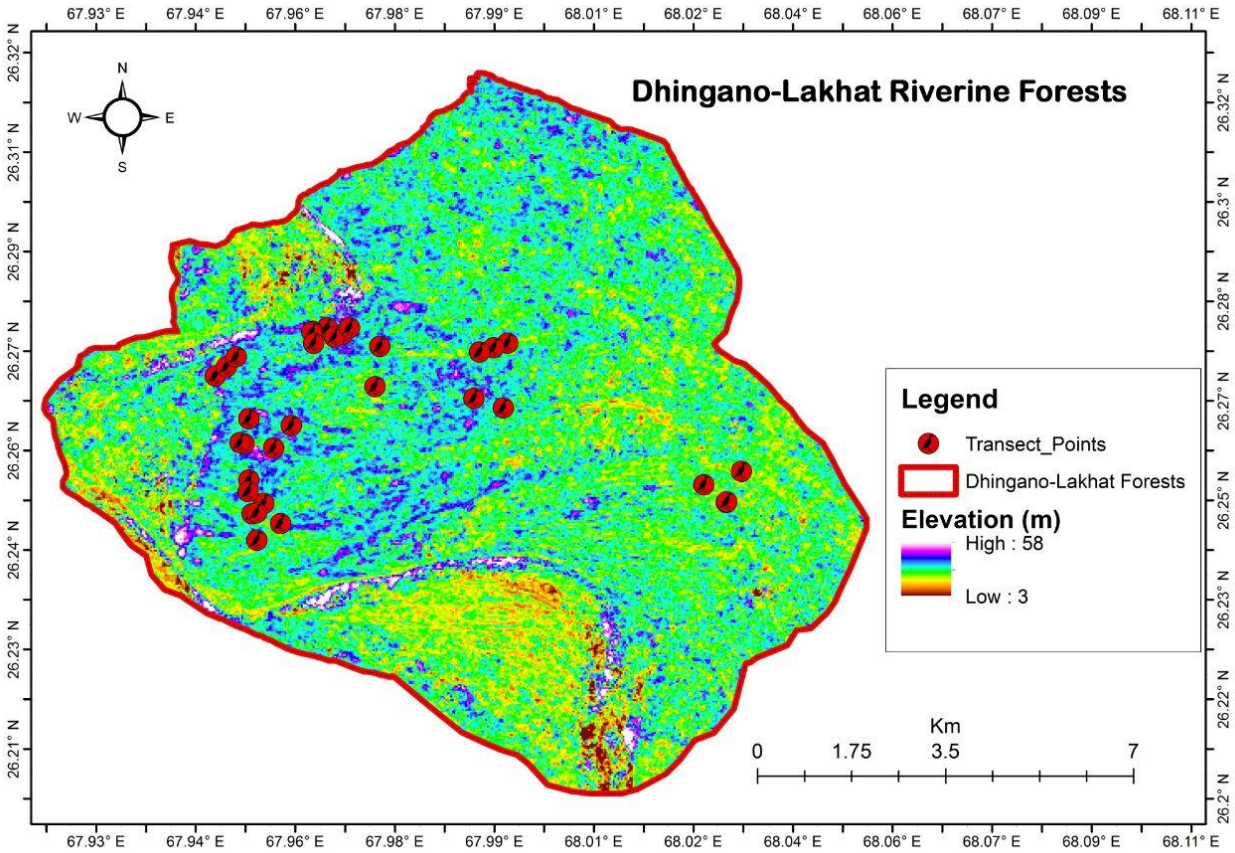

Fig. 1. Map of Study Area

RESULTS AND DISCUSSION:

The present study was conducted in selected sites of Dhingano-Lakhat Riverine Forests and we attempted to enlist the avian fauna of study area. It is assumed that the survey transects that were conducted represent nearly all the study areas. Based on field observation and literature review, the results of the baseline study on avian fauna revealed that the area is permanent or seasonal home for about 223 species of birds belonging to 19 orders (Table 1). The passerine birds dominated the diversity with species richness (50.0%) as compared to non-passerines which were (50.3%) in richness. In non-passeriformes, charadriiforms were the highest with species richness (10.7%), followed by Coraciiformes having (5.4%) species richness (Fig 2). Among orders, the families Accipitridae (8.5%) contributed highest number of species followed by Scolopacidae and Muscicapidae (6.7%) followed by Ardeidae and Alaudidae (4.9%) and after then, Laridae (4.5%). The family Estrildidae and twenty others mentioned in graph had minimum number of species (0.4%) (Fig 3).

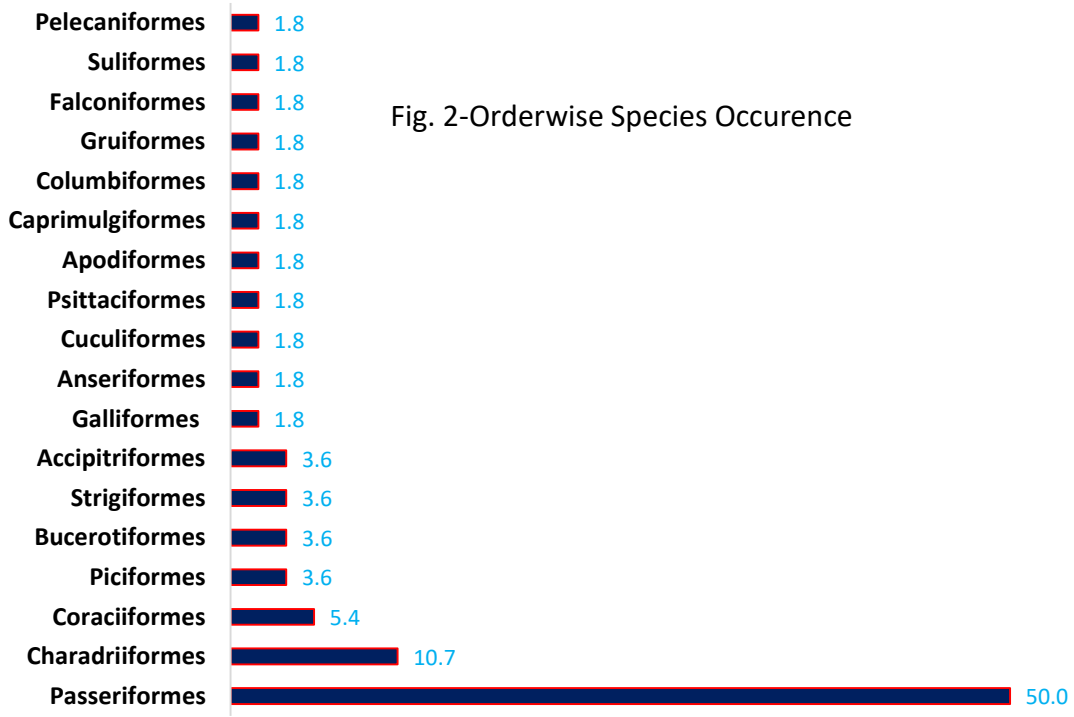

Fig. 2-Orderwise Species Occurence

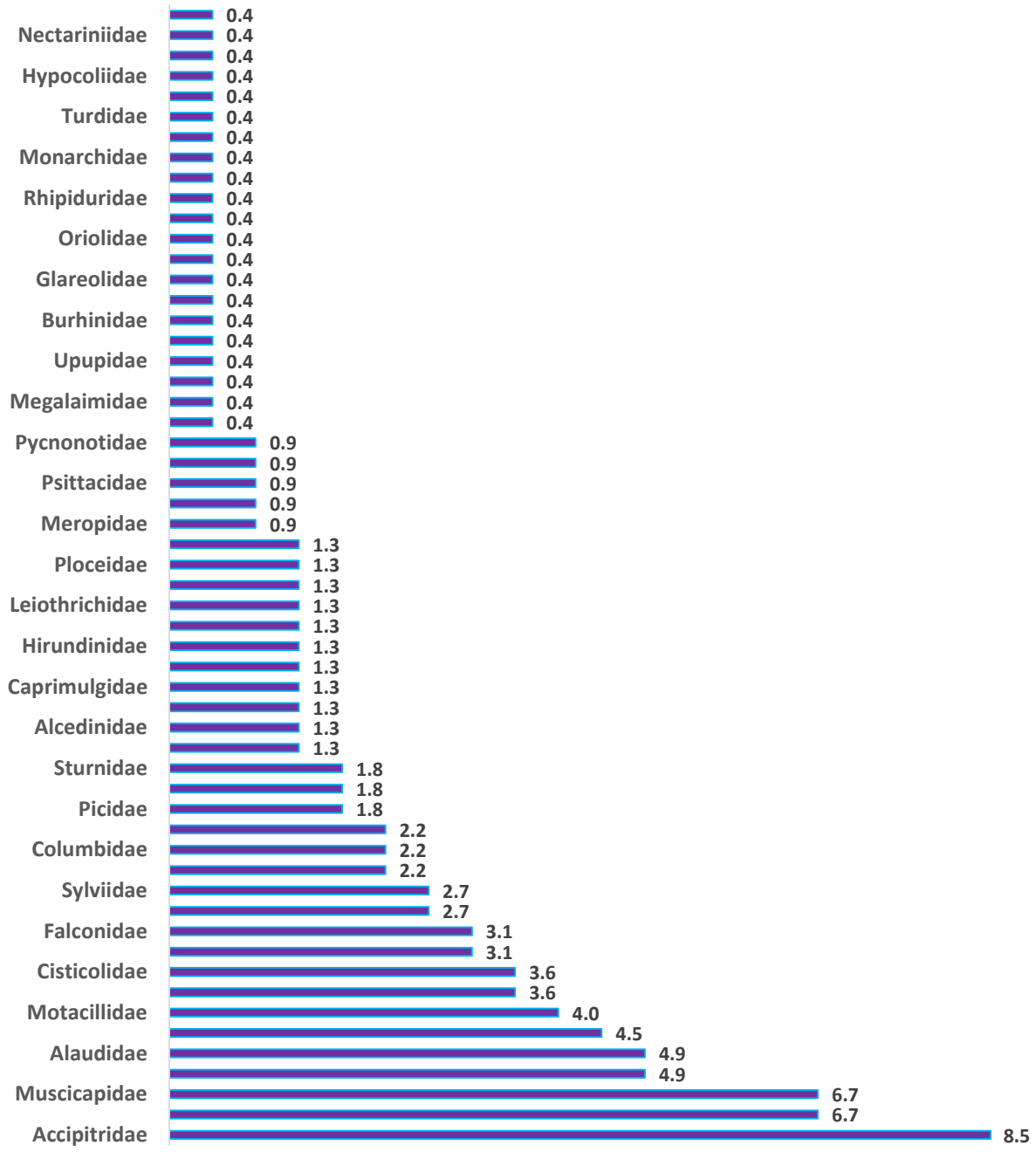

Fig. 3-Faimlywise Specie Occurence

During field visits highest diversity of birds were recorded in the area where two habitats overlapped. In Dhingano Riverine Forests, interestingly we observed more than 1000 individuals of Eurasian collard dove over a small area, we also observed about 53 active nest of dove species that were made on acacia tree. About 90% nest were observed on same tree which have thorny branches and stem that provide safety against snakes and monitor lizard that were reported to feed on their eggs. This interesting phenomenon will be discussed in separate article.

THREATS

- Land cover, it was observed that people continued cutting tree and replacing with agricultural land, as already there are fragile forests in the area. Across the study area, we did not observe the reforestation and appropriate forest protection efforts.
- Human interference such as intensive and regular grazing pressure and fodder collection were also observed. These threats are severely damaging the breeding abode of the bird species.
- Water pollution and scarcity were reported from the area and many wetlands became dry.
- There is no baseline data available, people have no maps, sans checklist and field guides that hinders the interest of staff to work efficiently.
- Interaction with staff made us realize the lack of man power and field expertise and incentives for working people.
- Lack of government interest towards the conservation of biodiversity of the area.

RECOMMENDATIONS

- There should be vigilant wild life officers who could have an eye over cutting tree mafia and punish the culprits.
- In order to encourage reforestation, initiatives should be taken to improve man power and capacity building for working people.
- Baseline data, maps, checklists and field guides should be made available to staff in order to increase their working efficiency.
- Solid waste pollution should be managed properly.
- Steps must be laid to curb water pollution in nearby forest areas so to make those areas environment friendly for avifauna.
- Based field experience we strongly recommend the study of migratory birds during migration season, as global warming badly affected the migratory rout, time and composition of various migratory birds species.
- Government must put stakes in conservation and protection of these forests in order to secure wild life.

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S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
1.	Galliformes	Phasianidae	Common quail	*Coturnix coturnix*	LC	No
2.	Galliformes	Phasianidae	Grey francolin	*Perdix perdix*	LC	Yes
3.	Galliformes	Phasianidae	Black francolin	*Melanoperdix niger*	VU	Yes
4.	Anseriformes	Anatidae	Mallard	*Anas platyrhynchos*	Lc	No
5.	Anseriformes	Anatidae	Common teal	*Anas crecca*	LC	Yes
6.	Anseriformes	Anatidae	Northern pintail	*Anas acuta*	LC	No
7.	Anseriformes	Anatidae	Northern shoveler	*Spatula clypeata*	LC	No
8.	Anseriformes	Anatidae	Marbled duck	*Marmaronetta angustirostris*	LC	No
9.	Anseriformes	Anatidae	Common merganser	*Mergus merganser*	LC	No
10.	Piciformes	Picidae	Eurasian wryneck	*Jynx torquilla*	LC	No
11.	Piciformes	Picidae	Yellow-crowned woodpecker	*Leiopicus mahrattensis*	LC	No
12.	Piciformes	Picidae	Sind woodpecker	*Dendrocopos assimilis*	LC	Yes
13.	Piciformes	Picidae	Black-rumped flameback	*Dinopium benghalense*	LC	No
14.	Piciformes	Megalaimidae	Coppersmith barbet	*Psilopogon haemacephalus*	LC	No
15.	Bucerotiformes	Bucerotidae	Indian grey hornbill	*Ocyceros birostris*	LC	No
16.	Bucerotiformes	Upupidae	Common Hoopoe	*Upupa epops*	LC	Yes
17.	Coraciiformes	Coraciidae	European roller	*Coracias garrulus*	LC	No
18.	Coraciiformes	Coraciidae	Indian roller	*Coracias benghalensis*	LC	Yes
19.	Coraciiformes	Alcedinidae	Common kingfisher	*Alcedo atthis*	LC	Yes
20.	Coraciiformes	Alcedinidae	White throated kingfisher	*Halcyon smyrnensis*	LC	Yes
21.	Coraciiformes	Alcedinidae	Pied kingfisher	*Ceryle rudis*	LC	Yes
22.	Coraciiformes	Meropidae	Green bee-eater	*Merops orientalis*	LC	Yes
23.	Coraciiformes	Meropidae	Blue-checked bee-eater	*Merops persicus*	LC	Yes
24.	Cuculiformes	Cuculidae	Pied cuckoo	*Clamator jacobinus*	LC	No
25.	Cuculiformes	Cuculidae	Asian koel	*Eudynamys scolopaceus*	LC	No
26.	Cuculiformes	Cuculidae	Greater coucal/ crow pheasant	*Centropus sinensis*	LC	No
27.	Psittaciformes	Psittacidae	Alexandrine parakeet	*Psittacula eupatria*	NT	No
28.	Psittaciformes	Psittacidae	Rose -ringed parakeet	*Psittacula krameri*	LC	Yes
29.	Apodiformes	Apodidae	House swift	*Apus affinis*	LC	Yes
30.	Strigiformes	Strigidae	Eurassian scop owl	*Otus scops*	LC	No
31.	Strigiformes	Strigidae	Collared scops owl	*Otus lettia*	LC	No
32.	Strigiformes	Strigidae	Spotted owlet	*Athene brama*	LC	Yes
33.	Strigiformes	Strigidae	Long eared owl	*Asio otus*	LC	No
34.	Strigiformes	Strigidae	Short eared owl	*Asio flammeus*	LC	No
35.	Strigiformes	Tytonidae	Barn owl	*Tyto alba*	LC	No
36.	Caprimulgiformes	Caprimulgidae	Eurassian nightjar	*Caprimulgus europaeus*	LC	No

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
37.	Caprimulgiformes	Caprimulgidae	Sykes's nightjar	*Caprimulgus mahrattensis*	LC	No
38.	Caprimulgiformes	Caprimulgidae	Indian nightjar	*Caprimulgus asiaticus*	LC	Yes
39.	Columbiformes	Columbidae	Rock pigeon	*Columba livia*	LC	Yes
40.	Columbiformes	Columbidae	Yellow footed green pigeon	*Treron phoenicoptera*	LC	No
41.	Columbiformes	Columbidae	Laughing dove	*Spilopelia senegalensis*	LC	Yes
42.	Columbiformes	Columbidae	Eurassian collared dove	*Streptopelia decaocto*	LC	Yes
43.	Columbiformes	Columbidae	Red collared dove	*Streptopelia tranquebarica*	LC	Yes
44.	Gruiformes	Rallidae	Water rail	*Rallus aquaticus*	LC	No
45.	Gruiformes	Rallidae	White breasted waterhen	*Amaurornis phoenicurus*	LC	No
46.	Gruiformes	Rallidae	Little crake	*Porzana parva)*	LC	No
47.	Gruiformes	Rallidae	Bailons crake	*Porzana pusilla*	LC	No
48.	Gruiformes	Rallidae	Spotted crake	*Porzana porzana*	LC	No
49.	Gruiformes	Rallidae	Common moorhen	*Gallinula chloropus)*	LC	Yes
50.	Gruiformes	Rallidae	Common coot	*Fulica atra*	LC	Yes
51.	Charadriiformes	Scolopacidae	Pintail snipe	*Gallinago stenura*	LC	No
52.	Charadriiformes	Scolopacidae	Common snipe	*Gallinago gallinago*	LC	Yes
53.	Charadriiformes	Scolopacidae	Greater painted snipe	*Rostratula benghalensis*	LC	No
54.	Charadriiformes	Scolopacidae	Eurassian curlew	*Numenius arquata*	NT	No
55.	Charadriiformes	Scolopacidae	Spotted redshank	*Tringa erythropus*	LC	No
56.	Charadriiformes	Scolopacidae	Common redshank	*Tringa totanus*	LC	No
57.	Charadriiformes	Scolopacidae	Marsh sandpiper	*Tringa stagnatilis*	LC	Yes
58.	Charadriiformes	Scolopacidae	Common greenshank	*Tringa nebularia*	LC	No
59.	Charadriiformes	Scolopacidae	Green sandpiper	*Tringa ochropus*	LC	Yes
60.	Charadriiformes	Scolopacidae	Wood sandpiper	*Tringa glareola*	LC	No
61.	Charadriiformes	Scolopacidae	Common sandpiper	*Actitis hypoleucos*	LC	Yes
62.	Charadriiformes	Scolopacidae	Little stint	*Calidris minuta*	LC	Yes
63.	Charadriiformes	Scolopacidae	Temminck's stint	*Calidris temminckii*	LC	No
64.	Charadriiformes	Scolopacidae	Dunlin	*Calidris alpina*	LC	Yes
65.	Charadriiformes	Scolopacidae	Curlew sandpiper	*Calidris ferruginea*	NT	Yes
66.	Charadriiformes	Burhinidae	Eurassian thick-knee	*Burhinus oedicnemus*	LC	No
67.	Charadriiformes	Recurvirostridae	Black winged stilt	*Himantopus himantopus*	LC	Yes
68.	Charadriiformes	Charadriidae	Grey plover	*Pluvialis squatarola*	LC	Yes
69.	Charadriiformes	Charadriidae	Little ringed plover	*Charadrius dubius*	LC	Yes
70.	Charadriiformes	Charadriidae	Kentish plover	*Charadrius alexandrinus*	LC	No
71.	Charadriiformes	Charadriidae	Northern lapwing	*Vanellus vanellus*	LC	Yes

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
72.	Charadriiformes	Charadriidae	Yellow-wattled lapwing	*Vanellus malabaricus*	LC	No
73.	Charadriiformes	Charadriidae	Red -watled lapwing	*Vanellus indicus*	LC	Yes
74.	Charadriiformes	Charadriidae	Socialable lapwing	*Vanellus gregarius*	CR	No
75.	Charadriiformes	Charadriidae	White-tailed lapwing	*Vanellus leucurus*	LC	Yes
76.	Charadriiformes	Glareolidae	Small pratincole	*Glareola lactea*	LC	No
77.	Charadriiformes	Laridae	Indian skimmer	*Rynchops albicollis*	VU	No
78.	Charadriiformes	Laridae	Caspian gull	*Larus cachinnans*	LC	Yes
79.	Charadriiformes	Laridae	Pallas's gull	*Ichthyaetus ichthyaetus*	LC	No
80.	Charadriiformes	Laridae	Brown headed gull	*C. brunnicephalus*	LC	No
81.	Charadriiformes	Laridae	Black headed gull	*Chroicocephalus ridibundus*	LC	Yes
82.	Charadriiformes	Laridae	Gull-billed tern	*Gelochelidon nilotica*	LC	No
83.	Charadriiformes	Laridae	Caspian tern	*Hydroprogne caspia*	LC	No
84.	Charadriiformes	Laridae	River tern	*Sterna aurantia*	LC	Yes
85.	Charadriiformes	Laridae	Little tern	*Sternula albifrons*	LC	No
86.	Charadriiformes	Laridae	Whiskered tern	*Chlidonias hybrida*	LC	No
87.	Accipitriformes	Pandionidae	Osprey	*Pandion haliaetus*	LC	No
88.	Accipitriformes	Accipitridae	Black shouldered kite	*Elanus axillaris*	LC	Yes
89.	Accipitriformes	Accipitridae	Black kite	*Milvus migrans*	LC	Yes
90.	Accipitriformes	Accipitridae	Brahminy kite	*Haliastur indus*	LC	No
91.	Accipitriformes	Accipitridae	Pallas fish eagle	*Haliaeetus leucoryphus*	EN	Yes
92.	Accipitriformes	Accipitridae	Egyptian vulture	*Neophron percnopterus*	EN	No
93.	Accipitriformes	Accipitridae	Short-toed snake eagle	*Circaetus gallicus*	LC	No
94.	Accipitriformes	Accipitridae	Eurassian marsh harrier	*Circus aeruginosus*	LC	No
95.	Accipitriformes	Accipitridae	Pallid harrier	*Circus macrourus*	NT	No
96.	Accipitriformes	Accipitridae	Montagu's harrier	*Circus pygargus*	LC	No
97.	Accipitriformes	Accipitridae	Shikra	*Accipiter badius*	LC	Yes
98.	Accipitriformes	Accipitridae	Eurassian sparrowhawk	*Accipiter nisus*	LC	Yes
99.	Accipitriformes	Accipitridae	Northern goshawk	*Accipiter gentilis*	LC	No
100.	Accipitriformes	Accipitridae	Oriental honey buzzard	*Pernis ptilorhynchus*	LC	No
101.	Accipitriformes	Accipitridae	White eyed buzzard	*Butastur teesa*	LC	No
102.	Accipitriformes	Accipitridae	Common buzzard	*Buteo buteo*	LC	Yes
103.	Accipitriformes	Accipitridae	Long-legged buzzard	*Buteo rufinus*	LC	Yes
104.	Accipitriformes	Accipitridae	Bonellis's eagle	*Aquila fasciata*	LC	No
105.	Accipitriformes	Accipitridae	Imperial eagle	*Aquila heliaca*	VU	No
106.	Accipitriformes	Accipitridae	Booted eagle	*Hieraaetus pennatus*	LC	No

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
107.	Falconiformes	Falconidae	Common kestrel	*Falco tinnunculus*	LC	Yes
108.	Falconiformes	Falconidae	Red-necked falcon	*Falco chicquera*	NT	No
109.	Falconiformes	Falconidae	Merlin	*Falco columbarius*	LC	No
110.	Falconiformes	Falconidae	Eurassian hobby	*Falco subbuteo*	LC	Yes
111.	Falconiformes	Falconidae	Laggar falcon	*Falco jugger*	NT	No
112.	Falconiformes	Falconidae	Saker falcon	*Falco cherrug*	EN	No
113.	Falconiformes	Falconidae	Peregrine falcon	*Falco peregrinus*	LC	No
114.	Suliformes	Phalacrocoracidae	Indian cormorant	*Phalacrocorax fuscicollis*	LC	No
115.	Suliformes	Phalacrocoracidae	Great cormorant	*Phalacrocorax carbo*	LC	No
116.	Suliformes	Phalacrocoracidae	Little cormorant	*Microcarbo niger*	LC	yes
117.	Pelecaniformes	Ardeidae	Little egret	*Egretta garzetta*	LC	Yes
118.	Pelecaniformes	Ardeidae	Grey heron	*Ardea cinerea*	LC	Yes
119.	Pelecaniformes	Ardeidae	Purple heron	*Ardea purpurea*	LC	No
120.	Pelecaniformes	Ardeidae	Great egret	*Ardea alba*	LC	Yes
121.	Pelecaniformes	Ardeidae	Intermediate egret	*Ardea intermedia*	LC	Yes
122.	Pelecaniformes	Ardeidae	Cattle egret	*Bubulcus ibis*	LC	No
123.	Pelecaniformes	Ardeidae	Indian pond heron	*Ardeola grayii*	LC	Yes
124.	Pelecaniformes	Ardeidae	Little heron	*Butorides striata*	LC	Yes
125.	Pelecaniformes	Ardeidae	Black crowned night heron	*Nycticorax nycticorax*	LC	No
126.	Pelecaniformes	Ardeidae	Little bittern	*Ixobrychus minutus*	LC	No
127.	Pelecaniformes	Ardeidae	Yellow bittern	*Ixobrychus sinensis*	LC	No
128.	Passeriformes	Laniidae	Rufous-tailed shrike	*Lanius isabellinus*	LC	Yes
129.	Passeriformes	Laniidae	Bay-backed shrike	*Lanius vittatus*	LC	No
130.	Passeriformes	Laniidae	Long tailed shrike	*Lanius schach*	LC	No
131.	Passeriformes	Laniidae	Southern grey shrike	*Lanius meridionalis*	NR	No
132.	Passeriformes	Corvidae	Rufous treepie	*Dendrocitta vagabunda*	LC	Yes
133.	Passeriformes	Corvidae	House crow	*Corvus splendens*	LC	Yes
134.	Passeriformes	Oriolidae	Eurassian golden oriole	*Oriolus oriolus*	LC	No
135.	Passeriformes	Campephagidae	Small minivet	*Pericrocotus cinnamomeus*	LC	No
136.	Passeriformes	Rhipiduridae	White-browed fantail	*Rhipidura aureola*	LC	No
137.	Passeriformes	Dicruridae	Black drongo	*Dicrurus macrocercus*	LC	Yes
138.	Passeriformes	Monarchidae	Asian paradise flycatcher	*Terpsiphone paradisi*	LC	No
139.	Passeriformes	Tephrodornithidae	Common woodshrike	*Tephrodornis pondicerianus*	LC	No
140.	Passeriformes	Turdidae	Dark throated thrush	*Turdus atrogularis*	LC	No
141.	Passeriformes	Muscicapidae	Spotted flycatcher	*Muscicapa striata*	LC	No
142.	Passeriformes	Muscicapidae	Blue rock thrush	*Monticola solitarius*	LC	No

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143.	Passeriformes	Muscicapidae	Red throated flycatcher	*Ficedula parva*	LC	No
144.	Passeriformes	Muscicapidae	Bluethroat	*Luscinia svecica*	LC	yes
145.	Passeriformes	Muscicapidae	Rufous -tailed scrub robin	*Cercotrichas galactotes*	LC	No
146.	Passeriformes	Muscicapidae	Indian robin	*Copsychus fulicatus*	LC	Yes
147.	Passeriformes	Muscicapidae	Black redstart	*Phoenicurus ochruros*	LC	Yes
148.	Passeriformes	Muscicapidae	Common stonechat	*Saxicola torquatus*	LC	Yes
149.	Passeriformes	Muscicapidae	White tailed stonechat	*Saxicola leucurus*	LC	No
150.	Passeriformes	Muscicapidae	Pied bushchat	*Saxicola caprata*	LC	Yes
151.	Passeriformes	Muscicapidae	Hume's wheatear	*Oenanthe albonigra*	LC	No
152.	Passeriformes	Muscicapidae	Variable wheatear	*Oenanthe picata*	LC	Yes
153.	Passeriformes	Muscicapidae	Rufous-tailed wheatear	*Oenanthe chrysopygia*	LC	No
154.	Passeriformes	Muscicapidae	Desert wheatear	*Oenanthe deserti*	LC	No
155.	Passeriformes	Muscicapidae	Isabelline wheatear	*Oenanthe isabellina*	LC	No
156.	Passeriformes	Sturnidae	Rosy starling	*Pastor roseus*	LC	No
157.	Passeriformes	Sturnidae	Common starling	*Sturnus vulgaris*	LC	No
158.	Passeriformes	Sturnidae	Common myna	*Acridotheres tristis*	LC	yes
159.	Passeriformes	Sturnidae	Bank myna	*Acridotheres ginginianus*	LC	Yes
160.	Passeriformes	Remizidae	White crowned penduline tit	*Remiz coronatus*	LC	No
161.	Passeriformes	Hirundinidae	Barn swallow	*Hirundo rustica*	LC	Yes
162.	Passeriformes	Hirundinidae	Wire tailed swallow	*Hirundo smithii*	LC	No
163.	Passeriformes	Hirundinidae	Streak-throated swallow	*Petrochelidon fluvicola*	LC	No
164.	Passeriformes	Pycnonotidae	White eared bulbul	*Pycnonotus leucotis*	LC	Yes
165.	Passeriformes	Pycnonotidae	Red vented bulbul	*Pycnonotus cafer*	LC	Yes
166.	Passeriformes	Hypocoliidae	Grey Hypocolius	*Hypocolius ampelinus*	LC	No
167.	Passeriformes	Pellorneidae	Rufous-vented prinia	*Prinia burnesii*	NT	No
168.	Passeriformes	Cisticolidae	Striated prinia	*Prinia crinigera*	LC	Yes
169.	Passeriformes	Cisticolidae	Rufous fronted prinia	*Prinia buchanani*	LC	No
170.	Passeriformes	Cisticolidae	yellow-bellied prinia	*Prinia flaviventris*	LC	No
171.	Passeriformes	Cisticolidae	Ashy prinia	*Prinia socialis*	LC	Yes
172.	Passeriformes	Cisticolidae	Plain prinia	*Prinia inornata*	LC	Yes
173.	Passeriformes	Cisticolidae	Graceful prinia	*Prinia gracilis*	LC	No
174.	Passeriformes	Cisticolidae	Zitting cistola	*Cisticola juncidis*	LC	No
175.	Passeriformes	Cisticolidae	Common tailorbird	*Orthotomus sutorius*	LC	No
176.	Passeriformes	Sylviidae	Greater whitethroat	*Sylvia communis*	LC	No
177.	Passeriformes	Sylviidae	Lesser whitethroat	*Sylvia curruca*	LC	No
178.	Passeriformes	Sylviidae	Desert warbler	*Sylvia nana*	LC	No

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179.	Passeriformes	Sylviidae	Yellow eyed wabbler	*Chrysomma sinense*	LC	No
180.	Passeriformes	Sylviidae	Orphean warbler	*Sylvia hortensis*	LC	No
181.	Passeriformes	Sylviidae	Cetti's bush warbler	*Cettia cetti*	LC	No
182.	Passeriformes	Acrocephalidae	Moustached warbler	*Acrocephalus melanopogon*	LC	No
183.	Passeriformes	Acrocephalidae	Paddyfield warbler	*Acrocephalus agricola*	LC	No
184.	Passeriformes	Acrocephalidae	Blyth's reed warbler	*Acrocephalus dumetorum*	LC	Yes
185.	Passeriformes	Acrocephalidae	Clamorous reed warbler	*Acrocephalus stentoreus*	LC	No
186.	Passeriformes	Acrocephalidae	Booted warbler	*Iduna caligata*	LC	No
187.	Passeriformes	Phylloscopidae	Common chifchaff	*Phylloscopus collybita*	LC	Yes
188.	Passeriformes	Phylloscopidae	Plain leaf warbler	*Phylloscopus neglectus*	LC	No
189.	Passeriformes	Phylloscopidae	Greenish warbler	*Phylloscopus trochiloides*	LC	Yes
190.	Passeriformes	Leiothrichidae	Common babbler	*Turdoides caudata*	LC	Yes
191.	Passeriformes	Leiothrichidae	Striated babbler	*Turdoides earlei*	LC	Yes
192.	Passeriformes	Leiothrichidae	Jungle babbler	*urdoides striata*	LC	Yes
193.	Passeriformes	Alaudidae	Black crowned sparrow lark	*Eremopterix nigriceps*	LC	No
194.	Passeriformes	Alaudidae	Ashy crowned sparrow lark	*Eremopterix griseus*	LC	No
195.	Passeriformes	Alaudidae	Desert lark	*Ammomanes deserti*	LC	No
196.	Passeriformes	Alaudidae	Greater hoopoe lark	*Alaemon alaudipes*	LC	No
197.	Passeriformes	Alaudidae	Bimaculatted lark	*Melanocorypha bimaculata*	LC	No
198.	Passeriformes	Alaudidae	Greater short-toed lark	*Calandrella brachydactyla*	LC	No
199.	Passeriformes	Alaudidae	Lesser short-toed lark	*Alaudala rufescens*	LC	No
200.	Passeriformes	Alaudidae	Sand lark	*Alaudala raytal*	LC	No
201.	Passeriformes	Alaudidae	Crested lark	*Galerida cristata*	LC	Yes
202.	Passeriformes	Alaudidae	Eurassian skylark	*Alauda arvensis*	LC	No
203.	Passeriformes	Alaudidae	Oriental skylark	*Alauda gulgula*	LC	No
204.	Passeriformes	Nectariniidae	Purple sunbird	*Cinnyris asiaticus*	lC	Yes
205.	Passeriformes	Passeridae	House sparrow	*Passer domesticus*	LC	Yes
206.	Passeriformes	Passeridae	Sind sparrow	*Passer pyrrhonotus*	LC	Yes
207.	Passeriformes	Passeridae	Chestunt shouldered petrnia	*Petronia xanthocollis*	LC	No
208.	Passeriformes	Motacillidae	White wagtail	*Motacilla alba*	LC	Yes
209.	Passeriformes	Motacillidae	Citrine wagtail	*Motacilla citreola*	LC	Yes
210.	Passeriformes	Motacillidae	Yellow wagtail	*Motacilla flava*	LC	Yes
211.	Passeriformes	Motacillidae	Grey wagtail	*Motacilla cinerea*	LC	No
212.	Passeriformes	Motacillidae	Paddyfield pipit	*Anthus rufulus*	LC	Yes
213.	Passeriformes	Motacillidae	Tawny pipit	*Anthus campestris*	LC	No
214.	Passeriformes	Motacillidae	Long-billed pipit	*Anthus similis*	LC	No

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215.	Passeriformes	Motacillidae	Tree pipit	*Anthus trivialis*	LC	Yes
216.	Passeriformes	Motacillidae	Water pipit	*Anthus spinoletta*	LC	No
217.	Passeriformes	Ploceidae	Black-breasted weaver	*Ploceus benghalensis*	LC	No
218.	Passeriformes	Ploceidae	Streaked weaver	*Ploceus manyar*	LC	No
219.	Passeriformes	Ploceidae	Baya weaver	*Ploceus philippinus*	LC	No
220.	Passeriformes	Estrildidae	Indian silverbill	*Euodice malabarica*	LC	No
221.	Passeriformes	Emberizidae	Grey-necked bunting	*Emberiza buchanani*	LC	No
222.	Passeriformes	Emberizidae	House bunting	*Emberiza sahar*	LC	No
223.	Passeriformes	Emberizidae	Black headed bunting	*Emberiza melanocephala*	LC	No

Key: LC= Least Concern; NT= Near Threatened;
End= Endangered: CE= critically endangered: V= Vulnerable: DD= Data deficient