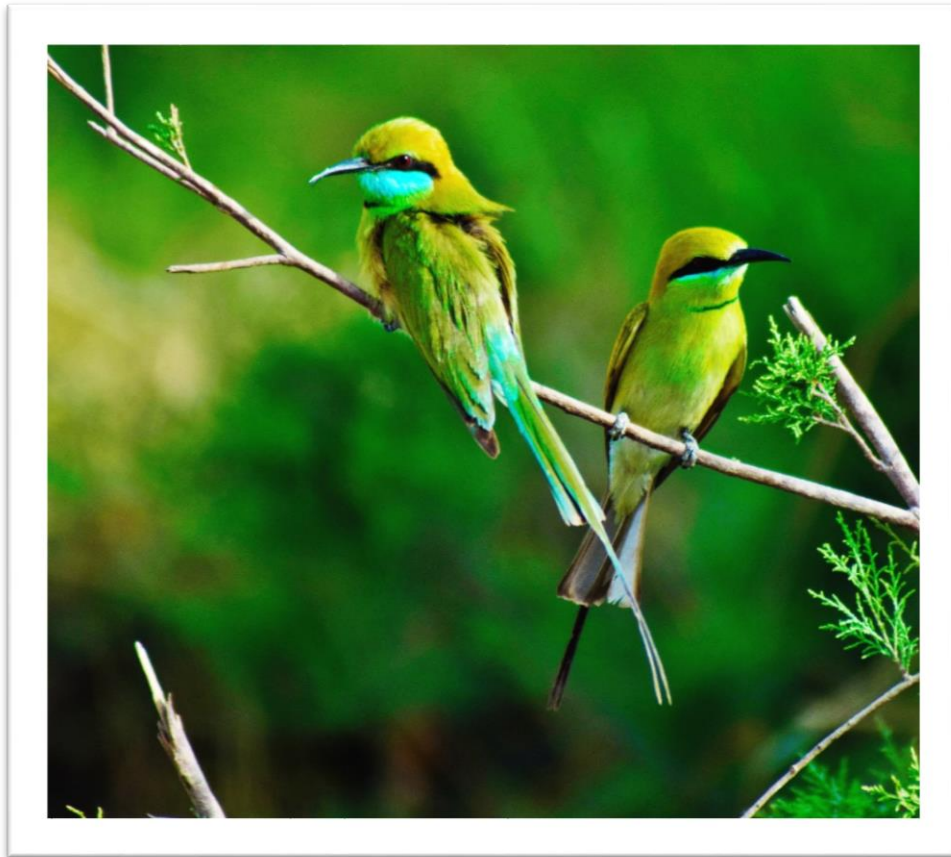


**Report on Baseline study of Avian Fauna of Sukkur Riverine  
Forests, Sindh, Pakistan**



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

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## Project Brief

<b>Project Title:</b>	Sustainable forest management to secure multiple benefits in Pakistan's high conservation value forestss
<b>Duration:</b>	Five years (January 2017 to December 2021)
<b>Project Areas:</b>	<ul style="list-style-type: none"> <li>i). Khyber Pakhtunkhwa (Temperate forest)</li> <li>ii). Sind (Riverine forest)</li> <li>iii). Punjab (Scrub forest and Riverine forest)</li> </ul>
<b>Project objective:</b>	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.
<b>Project outcomes:</b>	<p>Outcome 1: Embedded sustainable forest management into landscape spatial planning;</p> <p>Component/Outcome 2: Biodiversity conservation strengthened in and around High Value Conservation Forests; and</p> <p>Component/Outcome 3: Enhanced carbon sequestration in and around HCVF in target forested landscapes</p>
<b>Description</b>	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

	<p>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.</p> <p>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.</p> <p>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.</p> <p>The project is funded by GEF and UNDP and implemented by jointly by UNDP Pakistan and Ministry of Climate Change in Khyber Pakhtunkhwa, Sind, and Punjab.</p>
<p><b>Project Outputs</b></p>	<p>1.1 Forest resources and ecosystem services inventory and mapping informs forest management planning, implementation and monitoring at the landscape level</p> <p>1.2 Updated guidelines, planning tools and regulations facilitate harmonization and mainstreaming ecosystem,</p>

	<p>climate risk mitigation and biodiversity considerations into forest management planning</p> <p>Output 1.3. Landscape level forest plans integrates considerations of biodiversity, ecosystem services, climate mitigation and community resource use</p> <p>Output 1.4 Stakeholders' benefits of current unsustainable and sustainable forest practices and status of forest resources assessed</p> <p>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</p> <p>Output 1.6 Forest resource use conflict management and resolution processes established in multiple use zones</p> <p>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.</p> <p>1.8 Recommendations for facilitating adoption (institutionalising), scaling up and replication of sustainable forest management practices promoted</p> <p>Output 2.1 Avoided deforestation of High Conservation Value Forests with forest use regime change from</p>
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	<p>unsustainable use to biodiversity conservation and non-exhaustive community forest management instituted</p> <p>Output 2.2 Community-Managed Conservation Area model of community governance and management system operational</p> <p>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</p> <p>Output 3.1 Restoration of degraded Temperate Conifer forests and Sub-tropical Broadleaved Evergreen Thorny forests with indigenous species, realizing carbon benefits</p> <p>Output 3.2 Reforestation of degraded Riverine forests with indigenous species, realizing carbon benefits and biodiversity conservation</p> <p>Output 3.3 Best practice silvicultural approaches to forest restoration and reforestation documented, and capacities enhanced through training and local language guidelines.</p> <p>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.</p>
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## Summary:

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Birds are known as important indicators of ecological condition and are also known to respond to any kind of changes to their ambient ecosystem. The present study generates the baseline data of avifauna in selected sites of Sukkur Riverine Forests, located in Sukkur, Sindh. A significant diversity and abundance of birds were recorded during the study period. This preceding area is characterized by diversified habitats, such as riverine forest, desert, wetlands, cultivated fields and waste lands. The area was divided into different sub study sites based on habitat to record the species of birds. A total of 251 bird species belonging to 56 families were recorded from the study area. Overall non-passerines birds dominated the diversity of species. At order level, passerine birds dominated the diversity with 105 species as compared to other orders of the birds. The families Accipitridae (8.37%) comprised maximum number of species recorded from the study area followed by Scolopacidae (6.37%) and both families Ardeidae and Muscicapidae (5.98%) contributed equally. The study area, which previously had only thin patches of riverine forest, is now replaced by land conversion activities at faster rate and on the other hand grazing pressure, forest cutting, and water pollution were evident. These factors pose serious threat to the breeding grounds of winter migrants and are destroying the feeding and roosting places of birds. It leaves destructive impact on population of the species. The current study results can be extended if periodic/seasonal surveys for longer duration are arranged and avifauna of every season is explored.

## Introduction:

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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, altitudinal 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 several 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 key 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 to maintain the various carnivorous and omnivorous populations of the world and are reared worldwide for not only this purpose but 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 that's why 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:

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The present study was carried out in selected sites of the study area. The whole study area was divided into sub sites representing all habitats of study area (Fig 1). It is assumed that the conducted survey represents nearly all of 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, Hence recording of birds were done either in early morning or late evening hours (Thakur et al., 2002) but here we continued the complete day survey to record the bird's species. At some locations, 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 to note the movements and calls of the birds, which were noticed easily to draw data more accurately. All birds 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).

### Sukkur Riverine Forests Landscape:

The proposed landscape is comprised of two blocks of three contiguous reserved forests each in Sukkur District, (1) Bindi Dheraja, Kadirapura and Ketu Shah covering an area of 11,145 ha; and Ketu Abad II, Ketu Shahu and S.K Shahu covering an area of 11, 413 ha; the total area of the forests in the landscape is 22,558 ha. Total area of Sukkur landscape is 30,000 ha. This landscape is best placed in terms of inundation of forests due to storage of water at Sukkur Barrage and back flows into the forests.

The highest population of Indus dolphin is found in this section of the river. However, there are issues of encroachment of forest lands and non-compliant agro-forestry leases in this landscape, as elsewhere in the riverine forests of Sindh. This is one of the three riverine landscapes out of four, leaving out the Southern Punjab Riverine Forests landscape that has comparatively better carbon stock. The terrestrial and aquatic biodiversity is also high. The number of households and human population in and around forests in Sukkur riverine forest landscape is around 12,000 and 72,000, respectively.

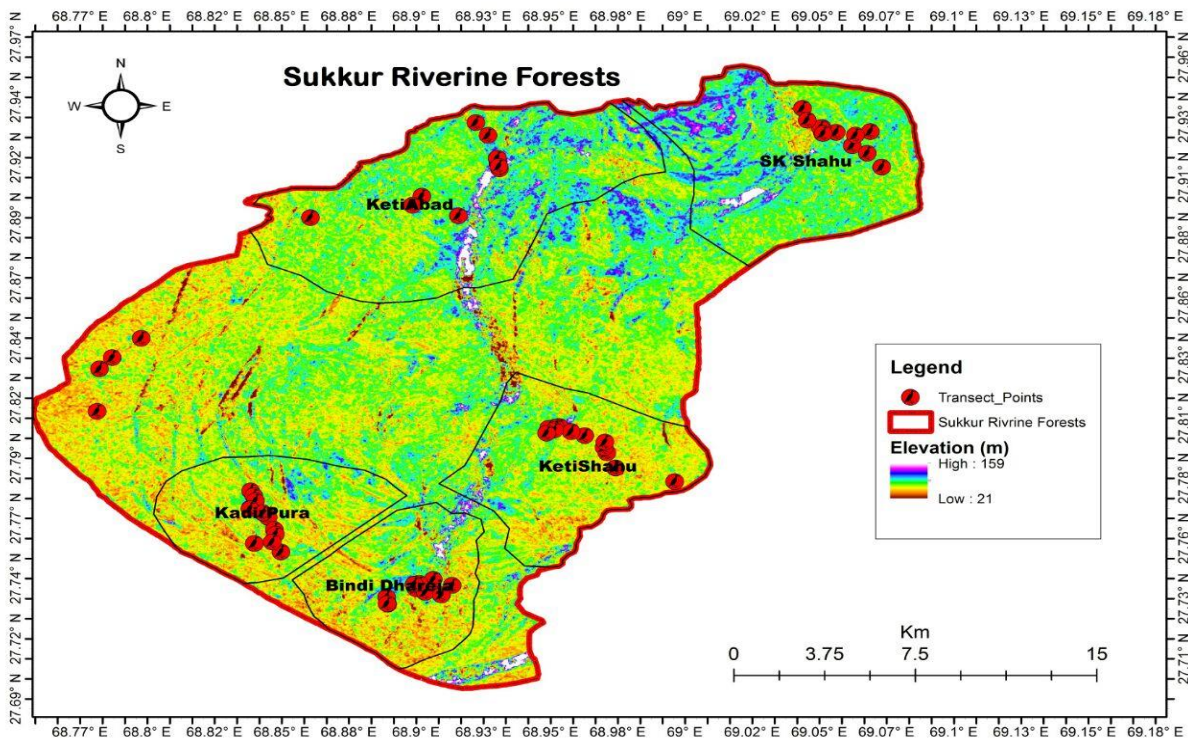


Fig. 1- Study sites

## RESULTS AND DISCUSSION:

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Birds are one of the most popular life form and their diversity leads to a richness of life and beauty on the earth planet. They have always fascinated mankind with their intrinsically colorful plumage, melodious songs, and artistic behavior. A total of 251 species belonging to 56 families were recorded from the study area (Table 1). According to Roberts (1992), there are 660 species of birds in Pakistan. The number of species of birds has now risen to 670 (Grimmett et al., 2008). The non-passerine birds dominated the diversity with 146 species as compared to non-passerines which were 105 in number. The families Accipitridae (8.37%) contributed highest number of species followed by Scolopacidae (6.37%) and both families Ardeidae and Muscicapidae (5.98%) contributed equally (Fig. 3).

These areas are known as residential areas for winter migrants. The study area has a plenty of wetlands which provide breeding grounds and roosting places for winter migrants from higher altitude as well as for water dwellers. Thus, the high number of water bird's species could be attributed to wetlands. Although the agricultural fields provide suitable habitat to francolins' species but during floods and high-water level of Indus river these species have no protection and available habitats. The transitional habitats between cultivated land and riverine forest contributed in the diversity of birds such as Egret, Lapwing, Cormorant.

As the key habitat described as suitable place for aquatic/water birds. There were large flocks of egret that were present in stagnant water as well as in canal which drained the agriculture land. Pond heron were observed frequently wherever small water body was seen. The terrestrial habitats support the highest number of green bee-eater, jungle babbler, drongo and dove species. The species which were closely associated to crops fields were

francolins, pipits, and jungle crow. Local people and staff reported stark decrease in number of migratory birds in recent years. There is no check and balance on control and issuing of hunting license. They also reported that individuals of some species increased while others extirpated from the area. People also reported about short migration season of birds and they would move back earlier.

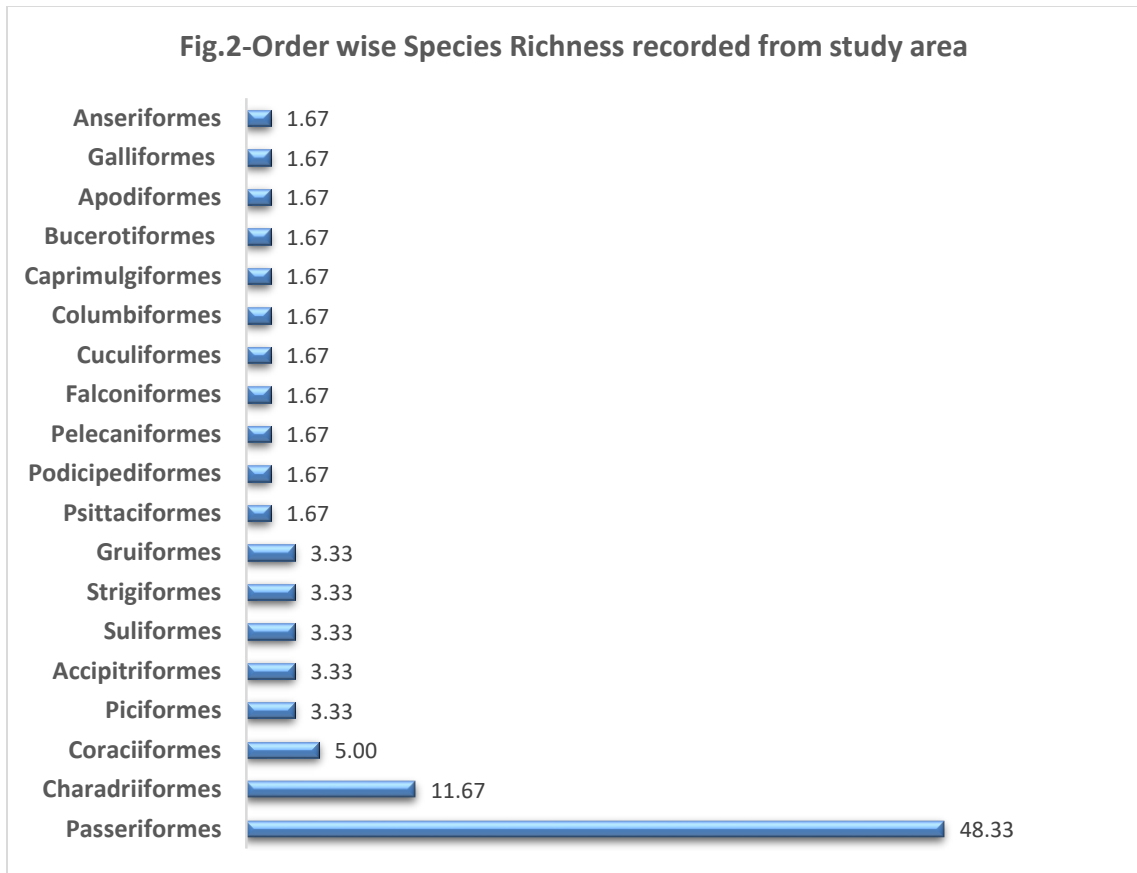
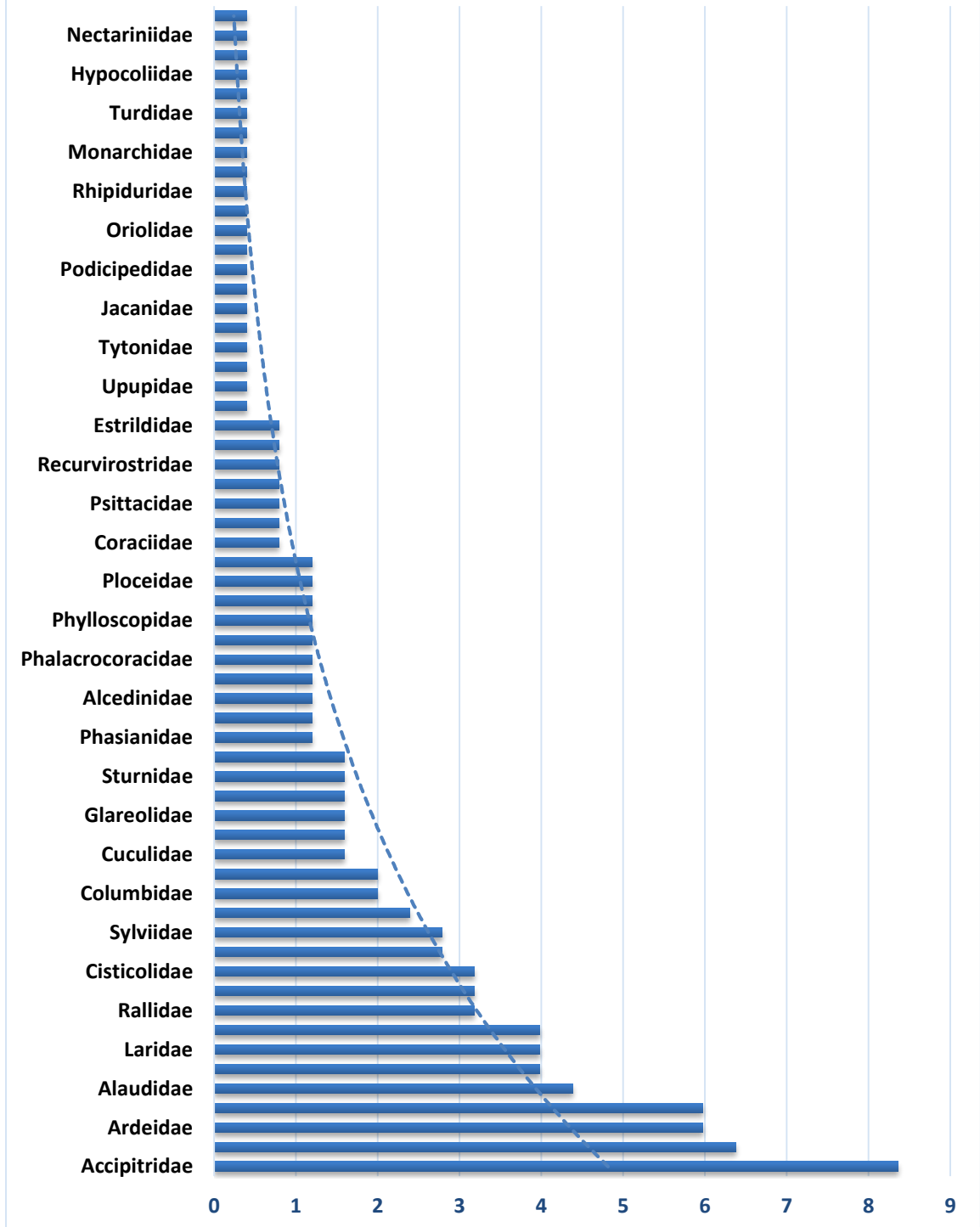


Fig. 3-Faimlywise Specie richness



## THREATS

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- 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.
- Interaction with staff made us realize the lack of man power and field expertise and incentives for working people.
- There is no baseline data available, people have no maps, sans checklist and field guides that hinders the interest of staff to work efficiently.
- Fuel, food collection and large herds even in the core zone of forest were major threat to the natural habitat of riverine forest.
- Water pollution and scarcity were reported from the area and many wetlands became dry.
- Lack of government interest towards the conservation of biodiversity of the area.

## RECOMMENDATIONS

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- 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.
- Government must put stakes in conservation and protection of these forests in order to secure wild life.

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## Checklist of Avian Fauna of Sukkur Riverine Forests, Sindh, Pakistan

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
1.	Galliformes	Phasianidae	Common quail	<i>Coturnix coturnix</i>	LC	No
2.	-	-	Grey francolin	<i>Perdix perdix</i>	LC	Yes
3.	-	-	Black francolin	<i>Melanoperdix niger</i>	VU	Yes
4.	Anseriformes	Anatidae	Ruddy shelduck	<i>Tadorna ferruginea</i>	LC	No
5.	-	-	Gadwall	<i>Mareca strepera</i>	LC	No
6.	-	-	Eurasian wigeon	<i>Mareca penelope</i>	LC	No
7.	-	-	Mallard	<i>Anas platyrhynchos</i>	Lc	No
8.	-	-	Spotted-billed duck	<i>Anas poecilorhyncha</i>	LC	No
9.	-	-	Common teal	<i>Anas crecca</i>	LC	Yes
10.	-	-	Northern pintail	<i>Anas acuta</i>	LC	No
11.	-	-	Northern shoveler	<i>Spatula clypeata</i>	LC	No
12.	-	-	Marbled duck	<i>Marmaronetta angustirostris</i>	LC	No
13.	-	-	Common merganser	<i>Mergus merganser</i>	LC	No
14.	Piciformes	Picidae	Eurasian wryneck	<i>Jynx torquilla</i>	LC	No
15.	-	-	Yellow-crowned woodpecker	<i>Leiopicus mahrattensis</i>	LC	No
16.	-	-	Sind woodpecker	<i>Dendrocopos assimilis</i>	LC	Yes
17.	-	Megalaimidae	Coppersmith barbet	<i>Psilopogon haemacephalus</i>	LC	No
18.	Bucerotiformes	Upupidae	Common Hoopoe	<i>Upupa epops</i>	LC	Yes
19.	Coraciiformes	Coraciidae	European roller	<i>Coracias garrulus</i>	LC	No
20.	-	-	Indian roller	<i>Coracias benghalensis</i>	LC	Yes
21.	-	Alcedinidae	Common kingfisher	<i>Alcedo atthis</i>	LC	Yes
22.	-	-	White throated kingfisher	<i>Halcyon smyrnensis</i>	LC	Yes
23.	-	-	Pied kingfisher	<i>Ceryle rudis</i>	LC	Yes
24.	-	Meropidae	Green bee-eater	<i>Merops orientalis</i>	LC	Yes
25.	-	-	Blue-checked bee-eater	<i>Merops persicus</i>	LC	No
26.	Cuculiformes	Cuculidae	Pied cuckoo	<i>Clamator jacobinus</i>	LC	Yes
27.	-	-	Asian koel	<i>Eudynamis scolopaceus</i>	LC	Yes
28.	-	-	Sirkeer malkoha	<i>Phaenicophaeus leschenaultii</i>	LC	No
29.	-	-	Greater coucal	<i>Centropus sinensis</i>	LC	Yes
30.	Psittaciformes	Psittacidae	Alexandrine parakeet	<i>Psittacula eupatria</i>	NT	No
31.	-	-	Rose -ringed parakeet	<i>Psittacula krameri</i>	LC	Yes
32.	Apodiformes	Apodidae	House swift	<i>Apus affinis</i>	LC	No

## Checklist of Avian Fauna of Sukkur Riverine Forests, Sindh, Pakistan

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
33.	Strigiformes	Strigidae	Eurassian scop owl	<i>Otus scops</i>	LC	No
34.	-	-	Eurassian eagle owl	<i>Bubo bubo</i>	LC	No
35.	-	-	Long eared owl	<i>Asio otus</i>	LC	Yes
36.	-	-	Short eared owl	<i>Asio flammeus</i>	LC	No
37.	-	Tytonidae	Barn owl	<i>Tyto alba</i>	LC	No
38.	Caprimulgiformes	Caprimulgidae	Eurassian nightjar	<i>Caprimulgus europaeus</i>	LC	No
39.	-	-	Sykes's nightjar	<i>Caprimulgus mahrattensis</i>	LC	No
40.	-	-	Indian nightjar	<i>Caprimulgus asiaticus</i>	LC	Yes
41.	Columbiformes	Columbidae	Rock pigeon	<i>Columba livia</i>	LC	Yes
42.	-	-	Yellow footed green pigeon	<i>Treron phoenicoptera</i>	LC	No
43.	-	-	Laughing dove	<i>Spilopelia senegalensis</i>	LC	Yes
44.	-	-	Eurassian collared dove	<i>Streptopelia decaocto</i>	LC	Yes
45.	-	-	Red collared dove	<i>Streptopelia tranquebarica</i>	LC	Yes
46.	Gruiformes	Gruidae	Common crane	<i>Grus grus</i>	LC	No
47.	-	Rallidae	Purple swamphen	<i>Porphyrio porphyrio</i>	NR	No
48.	-	-	Water rail	<i>Rallus aquaticus</i>	LC	No
49.	-	-	White breasted waterhen	<i>Amaurornis phoenicurus</i>	LC	Yes
50.	-	-	Little crane	<i>Porzana parva</i> )	LC	No
51.	-	-	Bailons crane	<i>Porzana pusilla</i>	LC	No
52.	-	-	Spotted crane	<i>Porzana porzana</i>	LC	No
53.	-	-	Common moorhen	<i>Gallinula chloropus</i> )	LC	Yes
54.	-	-	Common coot	<i>Fulica atra</i>	LC	Yes
55.	Charadriiformes	Scolopacidae	Pintail snipe	<i>Gallinago stenura</i>	LC	No
56.	-	-	Common snipe	<i>Gallinago gallinago</i>	LC	Yes
57.	-	-	Greater painted snipe	<i>Rostratula benghalensis</i>	LC	No
58.	-	-	Eurassian curlew	<i>Numenius arquata</i>	NT	No
59.	-	-	Spotted redshank	<i>Tringa erythropus</i>	LC	No
60.	-	-	Common redshank	<i>Tringa totanus</i>	LC	Yes
61.	-	-	Marsh sandpiper	<i>Tringa stagnatilis</i>	LC	Yes
62.	-	-	Common greenshank	<i>Tringa nebularia</i>	LC	Yes
63.	-	-	Green sandpiper	<i>Tringa ochropus</i>	LC	Yes
64.	-	-	Wood sandpiper	<i>Tringa glareola</i>	LC	Yes

## Checklist of Avian Fauna of Sukkur Riverine Forests, Sindh, Pakistan

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
65.	-	-	Common sandpiper	<i>Actitis hypoleucos</i>	LC	Yes
66.	-	-	Little stint	<i>Calidris minuta</i>	LC	Yes
67.	-	-	Temminck's stint	<i>Calidris temminckii</i>	LC	Yes
68.	-	-	Dunlin	<i>Calidris alpina</i>	LC	Yes
69.	-	-	Curlew sandpiper	<i>Calidris ferruginea</i>	NT	Yes
70.	-	-	Ruff	<i>Calidris pugnax</i>	LC	No
71.	-	Jacanidae	Pheasant tailed jacana	<i>Hydrophasianus chirurgus</i>	LC	No
72.	-	Burhinidae	Eurassian thick-knee	<i>Burhinus oedicnemus</i>	LC	No
73.	-	-	Greater thick-knee	<i>Esacus recurvirostris</i>	LC	No
74.	-	Recurvirostridae	Black winged stilt	<i>Himantopus himantopus</i>	LC	Yes
75.	-	-	Pied avocet	<i>Recurvirostra avosetta</i>	LC	No
76.	-	Charadriidae	Grey plover	<i>Pluvialis squatarola</i>	LC	Yes
77.	-	-	Little ringed plover	<i>Charadrius dubius</i>	LC	Yes
78.	-	-	Kentish plover	<i>Charadrius alexandrinus</i>	LC	No
79.	-	-	Northern lapwing	<i>Vanellus vanellus</i>	LC	Yes
80.	-	-	Yellow-wattled lapwing	<i>Vanellus malabaricus</i>	LC	No
81.	-	-	Red-wattled lapwing	<i>Vanellus indicus</i>	LC	Yes
82.	-	-	Socialable lapwing	<i>Vanellus gregarius</i>	CR	No
83.	-	-	White-tailed lapwing	<i>Vanellus leucurus</i>	LC	Yes
84.	-	Glareolidae	Cream-coloured courser	<i>Cursorius cursor</i>	LC	No
85.	-	-	Indian couser	<i>Cursorius coromandelicus</i>	LC	No
86.	-	-	Collared pratincole	<i>Glareola pratincola</i>	LC	No
87.	-	-	Small pratincole	<i>Glareola lactea</i>	LC	Yes
88.	-	Laridae	Indian skimmer	<i>Rynchops albicollis</i>	VU	No
89.	-	-	Caspian gull	<i>Larus cachinnans</i>	LC	Yes
90.	-	-	Pallas's gull	<i>Ichthyaetus ichthyaetus</i>	LC	No
91.	-	-	Brown headed gull	<i>Chroicocephalus brunnicephalus</i>	LC	Yes
92.	-	-	Black headed gull	<i>Chroicocephalus ridibundus</i>	LC	Yes
93.	-	-	Gull-billed tern	<i>Gelochelidon nilotica</i>	LC	No
94.	-	-	Caspian tern	<i>Hydroprogne caspia</i>	LC	No
95.	-	-	River tern	<i>Sterna aurantia</i>	LC	Yes

## Checklist of Avian Fauna of Sukkur Riverine Forests, Sindh, Pakistan

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
96.	-	-	Little tern	<i>Sternula albifrons</i>	LC	Yes
97.	-	-	Whiskered tern	<i>Chlidonias hybrida</i>	LC	No
98.	Accipitriformes	Pandionidae	Osprey	<i>Pandion haliaetus</i>	LC	No
99.	-	Accipitridae	Black shouldered kite	<i>Elanus axillaris</i>	LC	Yes
100.	-	-	Black kite	<i>Milvus migrans</i>	LC	No
101.	-	-	Brahminy kite	<i>Haliastur indus</i>	LC	No
102.	-	-	Pallas fish eagle	<i>Haliaeetus leucoryphus</i>	EN	Yes
103.	-	-	Egyptian vulture	<i>Neophron percnopterus</i>	EN	No
104.	-	-	Short-toed snake eagle	<i>Circaetus gallicus</i>	LC	No
105.	-	-	Eurassian marsh harrier	<i>Circus aeruginosus</i>	LC	No
106.	-	-	Pallid harrier	<i>Circus macrourus</i>	NT	No
107.	-	-	Shikra	<i>Accipiter badius</i>	LC	Yes
108.	-	-	Eurassian sparrowhawk	<i>Accipiter nisus</i>	LC	Yes
109.	-	-	Northern goshawk	<i>Accipiter gentilis</i>	LC	No
110.	-	-	Oriental honey buzzard	<i>Pernis ptilorhynchus</i>	LC	No
111.	-	-	White eyed buzzard	<i>Butastur teesa</i>	LC	No
112.	-	-	Common buzzard	<i>Buteo buteo</i>	LC	Yes
113.	-	-	Long-legged buzzard	<i>Buteo rufinus</i>	LC	Yes
114.	-	-	Greater spotted eagle	<i>Clanga clanga</i>	VU	Yes
115.	-	-	Tawny eagle	<i>Aquila rapax</i>	LC	Yes
116.	-	-	Steppe eagle	<i>Aquila nipalensis</i>	EN	No
117.	-	-	Bonellis's eagle	<i>Aquila fasciata</i>	LC	No
118.	-	-	Imperial eagle	<i>Aquila heliaca</i>	VU	No
119.	-	-	Booted eagle	<i>Hieraaetus pennatus</i>	LC	No
120.	Falconiformes	Falconidae	Common kestrel	<i>Falco tinnunculus</i>	LC	Yes
121.	-	-	Red-necked falcon	<i>Falco chicquera</i>	NT	No
122.	-	-	Merlin	<i>Falco columbarius</i>	LC	No
123.	-	-	Eurassian hobby	<i>Falco subbuteo</i>	LC	Yes
124.	-	-	Laggar falcon	<i>Falco jugger</i>	NT	No
125.	-	-	Saker falcon	<i>Falco cherrug</i>	EN	No
126.	-	-	Peregrine falcon	<i>Falco peregrinus</i>	LC	No
127.	Podicipediformes	Podicipedidae	Little grebe	<i>Tachybaptus ruficollis</i>	LC	No

## Checklist of Avian Fauna of Sukkur Riverine Forests, Sindh, Pakistan

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
128.	Suliformes	Anhingidae	Darter	<i>Anhinga melanogaster</i>	NT	No
129.	-	Phalacrocoracidae	Indian cormorant	<i>Phalacrocorax fuscicollis</i>	LC	Yes
130.	-	-	Great cormorant	<i>Phalacrocorax carbo</i>	LC	Yes
131.	-	-	Little cormorant	<i>Microcarbo niger</i>	LC	yes
132.	Pelecaniformes	Ardeidae	Little egret	<i>Egretta garzetta</i>	LC	Yes
133.	-	-	Western reef egret	<i>Egretta gularis</i>	LC	No
134.	-	-	Grey heron	<i>Ardea cinerea</i>	LC	Yes
135.	-	-	Purple heron	<i>Ardea purpurea</i>	LC	No
136.	-	-	Great egret	<i>Ardea alba</i>	LC	Yes
137.	-	-	Intermediate egret	<i>Ardea intermedia</i>	LC	Yes
138.	-	-	Cattle egret	<i>Bubulcus ibis</i>	LC	No
139.	-	-	Indian pond heron	<i>Ardeola grayii</i>	LC	Yes
140.	-	-	Little heron	<i>Butorides striata</i>	LC	Yes
141.	-	-	Black crowned night heron	<i>Nycticorax nycticorax</i>	LC	No
142.	-	-	Little bittern	<i>Ixobrychus minutus</i>	LC	No
143.	-	-	Yellow bittern	<i>Ixobrychus sinensis</i>	LC	No
144.	-	-	Cinnamon bittern	<i>Ixobrychus cinnamomeus</i>	LC	No
145.	-	-	Black bittern	<i>Ixobrychus flavicollis</i>	LC	No
146.	-	-	Great bittern	<i>Botaurus stellaris</i>	LC	Yes
147.	Passeriformes	Laniidae	Rufous-tailed shrike	<i>Lanius isabellinus</i>	LC	Yes
148.	-	-	Bay-backed shrike	<i>Lanius vittatus</i>	LC	No
149.	-	-	Long tailed shrike	<i>Lanius schach</i>	LC	Yes
150.	-	-	Southern grey shrike	<i>Lanius meridionalis</i>	NR	No
151.	-	Corvidae	Rufous treepie	<i>Dendrocitta vagabunda</i>	LC	Yes
152.	-	-	House crow	<i>Corvus splendens</i>	LC	Yes
153.	-	-	Common raven	<i>Corvus corax</i>	LC	No
154.	-	Oriolidae	Eurassian golden oriole	<i>Oriolus oriolus</i>	LC	No
155.	-	Campephagidae	Small minivet	<i>Pericrocotus cinnamomeus</i>	LC	No
156.	-	Rhipiduridae	White-browed fantail	<i>Rhipidura aureola</i>	LC	Yes
157.	-	Dicruridae	Black drongo	<i>Dicrurus macrocercus</i>	LC	Yes
158.	-	Monarchidae	Asian paradise flycatcher	<i>Terpsiphone paradisi</i>	LC	No
159.	-	Tephrodornithidae	Common woodshrike	<i>Tephrodornis pondicerianus</i>	LC	No

## Checklist of Avian Fauna of Sukkur Riverine Forests, Sindh, Pakistan

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
160.	-	Turdidae	Dark throated thrush	<i>Turdus atrogularis</i>	LC	No
161.	-	Muscicapidae	Spotted flycatcher	<i>Muscicapa striata</i>	LC	No
162.	-	-	Blue rock thrush	<i>Monticola solitarius</i>	LC	No
163.	-	-	Red throated flycatcher	<i>Ficedula parva</i>	LC	No
164.	-	-	Bluethroat	<i>Luscinia svecica</i>	LC	yes
165.	-	-	Rufous -tailed scrub robin	<i>Cercotrichas galactotes</i>	LC	No
166.	-	-	Indian robin	<i>Copsychus fulicatus</i>	LC	Yes
167.	-	-	Black redstart	<i>Phoenicurus ochruros</i>	LC	Yes
168.	-	-	Common stonechat	<i>Saxicola torquatus</i>	LC	Yes
169.	-	-	White tailed stonechat	<i>Saxicola leucurus</i>	LC	Yes
170.	-	-	Pied bushchat	<i>Saxicola caprata</i>	LC	Yes
171.	-	-	Hume's wheatear	<i>Oenanthe albonigra</i>	LC	No
172.	-	-	Variable wheatear	<i>Oenanthe picata</i>	LC	Yes
173.	-	-	Rufous-tailed wheatear	<i>Oenanthe chrysopygia</i>	LC	No
174.	-	-	Desert wheatear	<i>Oenanthe deserti</i>	LC	No
175.	-	-	Isabelline wheatear	<i>Oenanthe isabellina</i>	LC	No
176.	-	Sturnidae	Rosy starling	<i>Pastor roseus</i>	LC	No
177.	-	-	Common starling	<i>Sturnus vulgaris</i>	LC	Yes
178.	-	-	Common myna	<i>Acridotheres tristis</i>	LC	yes
179.	-	-	Bank myna	<i>Acridotheres ginginianus</i>	LC	Yes
180.	-	Remizidae	White crowned penduline tit	<i>Remiz coronatus</i>	LC	No
181.	-	Hirundinidae	Pale martin	<i>Riparia diluta</i>	LC	No
182.	-	-	Plain martin	<i>Riparia paludicola</i>	LC	No
183.	-	-	Rock martin	<i>Ptyonoprogne fuligula</i>	LC	No
184.	-	-	Barn swallow	<i>Hirundo rustica</i>	LC	Yes
185.	-	-	Wire tailed swallow	<i>Hirundo smithii</i>	LC	No
186.	-	-	Streak-throated swallow	<i>Petrochelidon fluvicola</i>	LC	No
187.	-	Pycnonotidae	White eared bulbul	<i>Pycnonotus leucotis</i>	LC	Yes
188.	-	-	Red vented bulbul	<i>Pycnonotus cafer</i>	LC	Yes
189.	-	Hypocoliidae	Grey Hypocolius	<i>Hypocolius ampelinus</i>	LC	No
190.	-	Pellorneidae	Rufous-vented prinia	<i>Prinia burnesii</i>	NT	Yes
191.	-	Cisticolidae	Striated prinia	<i>Prinia crinigera</i>	LC	Yes

## Checklist of Avian Fauna of Sukkur Riverine Forests, Sindh, Pakistan

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
192.	-	-	Rufous fronted prinia	<i>Prinia buchanani</i>	LC	No
193.	-	-	yellow-bellied prinia	<i>Prinia flaviventris</i>	LC	Yes
194.	-	-	Ashy prinia	<i>Prinia socialis</i>	LC	Yes
195.	-	-	Plain prinia	<i>Prinia inornata</i>	LC	Yes
196.	-	-	Graceful prinia	<i>Prinia gracilis</i>	LC	Yes
197.	-	-	Zitting cistola	<i>Cisticola juncidis</i>	LC	No
198.	-	-	Common tailorbird	<i>Orthotomus sutorius</i>	LC	Yes
199.	-	Sylviidae	Greater whitethroat	<i>Sylvia communis</i>	LC	No
200.	-	-	Jerdons babbler	<i>Chrysomma altirostre</i>	VU	No
201.	-	-	Lesser whitethroat	<i>Sylvia curruca</i>	LC	No
202.	-	-	Desert warbler	<i>Sylvia nana</i>	LC	No
203.	-	-	Yellow eyed wabbler	<i>Chrysomma sinense</i>	LC	No
204.	-	-	Orphean warbler	<i>Sylvia hortensis</i>	LC	No
205.	-	-	Cetti's bush warbler	<i>Cettia cetti</i>	LC	No
206.	-	Acrocephalidae	Moustached warbler	<i>Acrocephalus melanopogon</i>	LC	No
207.	-	-	Paddyfield warbler	<i>Acrocephalus agricola</i>	LC	No
208.	-	-	Blyth's reed warbler	<i>Acrocephalus dumetorum</i>	LC	Yes
209.	-	-	Clamorous reed warbler	<i>Acrocephalus stentoreus</i>	LC	No
210.	-	-	Booted warbler	<i>Iduna caligata</i>	LC	Yes
211.	-	Phylloscopidae	Common chifchaff	<i>Phylloscopus collybita</i>	LC	Yes
212.	-	-	Plain leaf warbler	<i>Phylloscopus neglectus</i>	LC	No
213.	-	-	Greenish warbler	<i>Phylloscopus trochiloides</i>	LC	Yes
214.	-	Leiothrichidae	Common babbler	<i>Turdoides caudata</i>	LC	Yes
215.	-	-	Striated babbler	<i>Turdoides earlei</i>	LC	Yes
216.	-	-	Jungle babbler	<i>turdoides striata</i>	LC	Yes
217.	-	Alaudidae	Black crowned sparrow lark	<i>Eremopterix nigriceps</i>	LC	No
218.	-	-	Ashy crowned sparrow lark	<i>Eremopterix griseus</i>	LC	Yes
219.	-	-	Deser lark	<i>Ammomanes deserti</i>	LC	Yes
220.	-	-	Greater hoopoe lark	<i>Alaemon alaudipes</i>	LC	No
221.	-	-	Bimaculatted lark	<i>Melanocorypha bimaculata</i>	LC	No
222.	-	-	Greater short-toed lark	<i>Calandrella brachydactyla</i>	LC	No
223.	-	-	Lesser short-toed lark	<i>Alaudala rufescens</i>	LC	No



## Checklist of Avian Fauna of Sukkur Riverine Forests, Sindh, Pakistan

S. No.	Order	Family	Common Name	Scientific Name	IUCN	Sighting
224.	-	-	Sand lark	<i>Audala raytal</i>	LC	No
225.	-	-	Crested lark	<i>Galerida cristata</i>	LC	Yes
226.	-	-	Eurassian skylark	<i>Alauda arvensis</i>	LC	No
227.	-	-	Oriental skylark	<i>Alauda gulgula</i>	LC	No
228.	-	Nectariniidae	Purple sunbird	<i>Cinnyris asiaticus</i>	LC	Yes
229.	-	Passeridae	House sparrow	<i>Passer domesticus</i>	LC	Yes
230.	-	-	Spanish sparrow	<i>Passer hispaniolensis</i>	LC	No
231.	-	-	Sind sparrow	<i>Passer pyrrhonotus</i>	LC	Yes
232.	-	-	Chestnut shouldered petronia	<i>Petronia xanthocollis</i>	LC	No
233.	-	Motacillidae	White wagtail	<i>Motacilla alba</i>	LC	Yes
234.	-	-	Citrine wagtail	<i>Motacilla citreola</i>	LC	Yes
235.	-	-	Yellow wagtail	<i>Motacilla flava</i>	LC	Yes
236.	-	-	Grey wagtail	<i>Motacilla cinerea</i>	LC	No
237.	-	-	Paddyfield pipit	<i>Anthus rufulus</i>	LC	Yes
238.	-	-	Tawny pipit	<i>Anthus campestris</i>	LC	No
239.	-	-	Long-billed pipit	<i>Anthus similis</i>	LC	No
240.	-	-	Tree pipit	<i>Anthus trivialis</i>	LC	Yes
241.	-	-	Water pipit	<i>Anthus spinoletta</i>	LC	No
242.	-	-	Buff-bellied pipit	<i>Anthus rubescens</i>	LC	No
243.	-	Ploceidae	Black-breasted weaver	<i>Ploceus benghalensis</i>	LC	No
244.	-	-	Streaked weaver	<i>Ploceus manyar</i>	LC	No
245.	-	-	Baya weaver	<i>Ploceus philippinus</i>	LC	No
246.	-	Estrildidae	Red avadavat	<i>Amandava amandava</i>	LC	No
247.	-	-	Indian silverbill	<i>Euodice malabarica</i>	LC	No
248.	-	-	Trumpeter finch	<i>Bucanetes githagineus</i>	LC	No
249.	-	Emberizidae	Grey-necked bunting	<i>Emberiza buchanani</i>	LC	No
250.	-	-	House bunting	<i>Emberiza sahar</i>	LC	No
251.	-	-	Black headed bunting	<i>Emberiza melanocephala</i>	LC	No

**Key:** LC= Least Concern; NT= Near Threatened;

End= Endangered: CE= critically endangered: V= Vulnerable: DD= Data deficient