

# Avian diversity adjacent Manimuthar Dam in the foothills of Kalakad-Mundanthurai Tiger Reserve, southern India

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## Introduction

Areas bordering forests are beginning to attract attention of conservationists as forest animals use these landscapes as support habitats and as stepping stones to move to suitable habitats (Daily *et al.* 2001; Buler *et al.* 2007). Still for some species, their habitats remain outside protected areas in human dominated/modified landscapes. These include bat roosting sites, heronries, irrigation tanks, agricultural fields etc. Hence there is an urgent need to develop a conservation plan for areas bordering the reserve for the protection of such species and to develop biodiversity friendly landscapes around forested areas (Chazdon *et al.* 2009).

Landscapes adjacent to the forest, where water is plenty are mostly cultivated and support a vibrant community of people and animals. This is very much true of the landscape bordering Kalakad-Mundanthurai Tiger Reserve (KMTR), on the eastern side. The area is dotted with paddy fields, orchards, plantations, rivers and irrigation tanks. The diversity of trees which adorn the rural landscape attracts a variety of fauna and acts as a support habitat for animals living in the forest. Presently, the landscape is getting modified due to urbanisation, lack of interest in agriculture and changing crop patterns. Hence there was an urgent need to document birdlife in this region and conservation plans devised for the protection of avifauna in this part of the landscape.

## Study Site

The area adjacent the Manimuthar Dam, in the central part of the reserve along the eastern boundary was chosen for the initial assessment of bird diversity. This area is a mix of rocky scrub, paddy fields, irrigation tanks, canals, plantations and small villages. The diversity of habitats supports a variety of birdlife. However prior to the construction of the dam in 1958, the landscape was mostly arid, predominated by scrubby vegetation (Steffan 2004). Currently the area under cultivation has increased due to canals and irrigation tanks which is a boon to water birds that are seen in plenty foraging in paddy fields and irrigation tanks. The once dominant scrub has been pushed to the periphery of the reserve. Over the last few decades Sugarcane *Saccharum sp.*, Banana *Musa sp.* and plantations of Coconut *Cocos nucifera* and Mango *Mangifera indica* has also cropped up.

Most of the information about avifauna in this region come from within the reserve (Johnsingh & Joshua 1989, 1994; Johnsingh 2001; Raman & Sukumar 2002). However there is plenty of birdlife that use areas adjacent the reserve (such as Manimuthar) which needs to be documented. These areas could be used by birds as stepping stones to move to the hills or could be the final destination for some bird species in their annual southern migration or could be support habitat for resident birds of the forest. This paper deals with the diversity of avifauna and their status in the area. Recommendations for conserving bird species and habitats are also given.

## Method

The data presented in this paper is a result of fortnightly census carried out in three trails close to the dam and from an irrigation pond 5km away from the dam at Vairavikulam. The census was carried out from September 2010-May 2011 during morning hours (06:15 hrs-08:00 hrs). Opportunistic records collected from May 2010 and from other sources is also included. Bird names and families follow Rasmussen and Anderton (2005).

## Description of trails

Trail 1 runs for 1.7 km parallel to the dam in a south-north direction. The initial part of the trail is dominated by Paddy, Coconut and Banana plantations in the eastern side and by an abandoned recreation park containing planted trees of *Peltophorum sp.*, Bottle Brush *Callistemon lanceolatus sp.*, Neem *Azadirachta indica*, Rain Tree *Samanea saman* and many species of ornamental plants. Uncut grass patches dominate the lower level. The middle part passes through the main river across a bridge. The latter part is a mix of mango orchards and rocky scrub.

Trail 2 runs in an east-west direction along the Manimuthar main canal for 1.5 km. This trail is dominated by scrub on both sides. Small settlements are located at the distal part of the trail. Here the hills gently slope down and merge with the plains. The vegetation is dominated by *Cassia auriculata*, *Prosopis sp.*, *Dichrostachys cinerea*, *Canthium parviflorum*, *Zizyphus oenoplia* etc (Saravanan personal communication). Trail 3 is further south-east of trail 2 and is 1km long. On the southern side, the scrub has been cleared for planting teak *Tectona grandis* and on the northern side plantations of Gooseberry *Ribes sp.* (early stage), mango and tall grass reeds predominate.

## Results and Discussion

*Manimuthar: A valuable support habitat for birds*

In total, 136 bird species of 54 families were recorded in this area during the study period. Thirty species were wetland birds and the remaining 106 species were terrestrial (Table 1,2). The highest number of species is from family Accipitridae (9), followed by Ardeidae (7) and Cuculidae, Cisticolidae (6). The high diversity of birds in this area is due to the varied habitats such as scrub, irrigation tanks, canals, villages, settlements and tree lined avenues. The proximity of the area to the Kalakad-Mundanthurai Tiger reserve and the location of the trails close to the reserve also add to the reasons for high number of bird species recorded. For instance the Jerdon's Leaf Bird *Chloropsis jerdoni* was sighted on three occasions. On one occasion three birds were observed feeding on flowers of *Polyalthia longifolia* along the dam trail and on other two occasions it was sighted shunting between a flowering *Helicteris isora* shrub inside the reserve and the Manimuthar settlement adjacent to it along the canal trail.

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Similarly several other resident species such as Indian Peafowl *Pavo cristatus*, Red-vented Bulbul *Pycnonotus cafer*, Rufous Treepie *Dendrocitta vagabunda*, Rose-ringed Parakeet *Psittacula krameri*, Purple-rumped Sunbird *Leptocoma zeylonica* and the Brown-headed Barbet *Megalaima zeylanica* use both the forest and the adjacent rural habitat for foraging. For species such as the Grey Wagtail *Motacilla cinerea* and Forest Wagtail *Dendronanthus indicus* it could be a resting habitat on their forward and return migration from the hills. The Grey Wagtail was recorded once each in October and February along the canal trail and in April along the dam trail. The Forest Wagtail was sighted twice in the mango orchard along the Dam trail in March. All these observations indicate that Manimuthar area could be good support habitat for birds and could be stepping stone for some species that move further south or up and down the hill.

Currently, most of the scrub habitat is being converted to Paddy fields, housing colonies and farms, threatening scrub birds such as the Blue-faced Malkoha *Phaenicophaeus viridirostris* Indian Black Robin *Saxicoloides fulicatus* and Laughing Dove *Streptopelia senegalensis* which are mostly confined to the forest boundary and are rarely seen close to villages. A proper management plan should be put in place so that habitat heterogeneity is maintained to ensure bird diversity.

#### Inter-trail differences

Seventy eight species were recorded in the dam trail (Trail1), 76 species in canal trail (Trail2), and 40 species in Trail3. Trail3 is not discussed further as data collection here started only in January 2011. Eight species were exclusive to the dam trail and ten species to the canal trail. Prominent among the birds exclusive to the dam trail are the Ashy Drongo *Dicrurus leucophaeus*, Black-headed Cuckoo shrike *Coracina melanoptera*, Asian Brown Flycatcher *Muscicapa dauurica* and the Indian Golden Oriole *Oriolus kundoo*. Ashy Wood Swallow *Artamus fuscus*, Grey-headed Starling *Sturnia malabarica*, Rosy Starling *Sturnus roseus*, Grey-bellied Cuckoo *Coccyzoides passerinus* and the Chestnut-headed Bee-eater *Merops leschenaulti* were recorded only from the canal trail. The dam trail is dotted with tall and widely branched tree species such as *Peltophorum* sp, *Eucalyptus* sp, *Polyalthia longifolia*, *Azadirachta indica* and other ornamental species while the canal trail is mostly open scrub, which explains the exclusivity of some species to these sites. Moreover the canal trail runs close the tiger reserve boundary.

The Yellow-throated Sparrow *Petronia xanthocollis*, though recorded from both the sites was more common along the dam trail. Another species which is more common in the dam trail is the Brahminy Kite *Haliastur indus*. The White-browed Bulbul *Pycnonotus luteolus* recorded from both the sites was more common in the canal trail.

#### Wetland Birds

The change in the landscape after the construction of the dam in 1958 has greatly benefitted wetland birds. Though there is no record of birdlife in this area before the construction of the dam. Interviews with farmers indicate that water birds were mostly confined to the main river course and the few agricultural lands that existed close to the river. Today, Paddy fields and irrigation tanks are

frequented by Eastern Cattle egret *Bubulcus coromandus*, Little egret *Egretta garzetta*, Indian Black Ibis *Pseudibis papillosa* and Black-headed Ibis *Threskiornis melanocephalus*.

Lotus flowers and roots are harvested by locals and hence in most of the ponds, lotus occupies a small percentage of the pond area. This has benefitted species such as the Bronze-winged Jacana *Metopidius indicus* and the Pheasant-tailed Jacana *Hydrophasianus chirurgus*. Pink Morning Glory *Ipomoea carnea* which has taken over most of the wetlands also provide refuge to waterbirds like the Purple Swampphen *Porphyrio (porphyrio) poliocephalus* and Eurasian Coot *Fulica atra*.

Though a season-wise estimate of abundance is not available, it is clear that the irrigation tanks are important foraging grounds for the Indian Spot-billed Duck *Anas poecilorhyncha*, Spot-billed Pelican *Pelicanus philippensis* and the Little Cormorant *Phalacrocorax niger* which can be seen in plenty in the Vairavikulam tank. The Vairavikulam and Singampatti tanks, since they are close the dam, generally don't dry up and hence are important for these birds during the summer when water dries up in other tanks.

#### Recommendations

Currently the area adjacent the Manimuthar Dam is witnessing rapid urbanization with more land being converted to housing plots. Sugarcane fields are replacing paddy in some areas to provide raw material to the recently established sugar factory near Idaikkal. Banana fields are also replacing paddy in many areas. These changes in land-use will severely affect scrubland birds. Hence, at least areas bordering the reserve upto a distance of 200m should be left untouched for scrub forest birds to survive. We also recommend that no high-rise building or apartment devoid of trees be allowed to come up within 5 kms from the reserve boundary. All houses and other commercial and non-commercial establishments must have good tree cover mostly of plant species that provide fruit and insect food for birds (after the findings of Buler *et al.* 2007), so that this area continues to be a good support habitat for forest birds and stepping stones for migrants.

Our interviews with farmers reveal that they are no longer interested in practicing agriculture. Most of the youth have migrated to cities in search of lucrative jobs. Therefore agricultural lands are being gradually taken over by residential apartments. Once this happens the irrigation ponds and canals will lose their value and will be encroached for some other purpose severely affecting water birds in the region. Hence we recommend that some of the existing irrigation tanks are retained (in spite of urbanization) and conservation plans drawn up to develop buffer zones around ponds, so that water birds continue to thrive in this area.

Another conservation issue concerning the wetlands is the spread of *Ipomoea carnea*. As the irrigation tanks are connected by canals they have colonized all the wetlands in the area. Some tanks have been completely taken over by this species. If left unchecked other tanks will also be affected. Locals also consider this weed to cause skin irritation and it is also of no economic value till now. Hence

efforts must be made to control the spread of this invasive weed, without allowing it to spread throughout the entire tank.

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**Table1: Checklist and status of terrestrial birds in the study site**

Common Name	Scientific Name	Status in the area
<b>Phasianidae</b>		
Grey Francolin	<i>Francolinus pondicerianus</i>	Common. Encountered on all three trails
Jungle Bush Quail	<i>Perdica asiatica</i>	Calls heard along canal trail
Painted Spurfowl	<i>Galloperdix lunulata</i>	Sighted only once in canal trail
Grey Junglefowl	<i>Gallus sonneratii</i>	Occasional calls heard from inside the reserve adjacent canal trail
Indian Peafowl	<i>Pavo cristatus</i>	Abundant. Sighted regularly on all three trails
<b>Picidae</b>		
Common Flameback	<i>Dinopium javanense</i>	Regularly seen in dam trail and in coconut groves
Black-rumped Flameback	<i>Dinopium benghalense</i>	Sighted only once along dam trail
<b>Capitonidae</b>		
Brown-headed Barbet	<i>Megalaima zeylanica</i>	Call heard regularly from inside the reserve on the canal trail and from Police campus
Coppersmith Barbet	<i>Megalaima haemacephala</i>	Common. Regularly seen along the dam trail
<b>Upupidae</b>		
Common Hoopoe	<i>Upupa epops</i>	Common. Regularly encountered on the canal trail
<b>Coraciidae</b>		
Indian Roller	<i>Coracias benghalensis</i>	Common. Regularly encountered on dam trail
<b>Alcedinidae</b>		
Common Kingfisher	<i>Alcedo atthis</i>	Occasional. Infrequent sightings along canal trail
Stork-billed Kingfisher	<i>Pelargopsis capensis</i>	Only one sighting along dam trail
White-throated Kingfisher	<i>Halcyon smyrnensis</i>	Common. Regularly sighted in canal and dam trail
Lesser Pied Kingfisher	<i>Ceryle rudis</i>	Regularly seen on dam trail from the bridge across the river
<b>Meropidae</b>		
Little Green Bee-eater	<i>Merops orientalis</i>	Common. Encountered regularly on all three trails
Blue-tailed Bee-eater	<i>Merops philippinus</i>	Migrant. Can be seen along the canal and dam trail
Chestnut-headed Bee-eater	<i>Merops leschenaulti</i>	A flock of 14 birds have been regularly sighted since December 2010 along the canal trail
<b>Cuculidae</b>		
Jacobin Cuckoo	<i>Clamator jacobinus</i>	Occasional. Can be seen on dam and canal trail
Small Cuckoo	<i>Cuculus poliocephalus</i>	One sighting along the canal trail
Grey-bellied Cuckoo	<i>Cocomantis passerinus</i>	Can be sighted regularly in monsoon and post monsoon season along the canal trail
Asian Koel	<i>Eudynamis scolopaceus</i>	Abundant. Frequently encountered in canal and dam trail and near human habitations
Blue-faced Malkoha	<i>Phaenicophaeus viridirostris</i>	Common. Regularly sighted along canal trail
Sirkeer Malkoha	<i>Taccocua leschenaultii</i>	Seen once along the dam trail
Greater Coucal	<i>Centropus sinensis</i>	Common. Regularly sighted/ heard in canal and dam trail and close to human habitations

Common Name	Scientific Name	Status in the area
<b>Psittacidae</b>		
Rose-ringed Parakeet	<i>Psittacula krameri</i>	Common. Encountered frequently in dam and canal trail and near human habitations
Plum-headed Parakeet	<i>Psittacula cyanocephala</i>	Sighted once each in canal and dam trail
<b>Apodidae</b>		
Asian Palm-Swift	<i>Cypsiurus balasiensis</i>	Common. Encountered frequently on all three trails
Little Swift	<i>Apus affinis</i>	A flock of around 50 birds sighted inside the dam
<b>Campephagidae</b>		
Common Woodshrike	<i>Tephrodornis pondicerianus</i>	A single bird was sighted once along plantation trail
Black-headed Cuckoo Shrike	<i>Coracina melanoptera</i>	Occasional. Sighted a couple of times along dam trail
<b>Tytonidae and Strigidae</b>		
Common Barn-Owl	<i>Tyto alba</i>	Recorded in villages
Eurasian Eagle-Owl	<i>Bubo bubo</i>	Calls heard in steep rocky cliffs bordering the reserve
Brown Fish-Owl	<i>Ketupa zeylonensis</i>	Status not known
Mottled Wood-Owl	<i>Strix ocellata</i>	Occasional. Call heard once from coconut plantation
Spotted Owlet	<i>Athene brama</i>	Common throughout the area
<b>Caprimulgidae</b>		
Indian Little Nightjar	<i>Caprimulgus asiaticus</i>	Call heard regularly in open scrub area
Savanna Nightjar	<i>Caprimulgus affinis</i>	Heard and sighted once near the plantation trail at dusk
<b>Columbidae</b>		
Rock Pigeon	<i>Columba livia</i>	Common. Frequently sighted in the area
Laughing Dove	<i>Streptopelia senegalensis</i>	Common. Encountered frequently along canal and dam trail
Spotted Dove	<i>Streptopelia chinensis</i>	Common. Encountered frequently on all three trails
Eurasian Collared Dove	<i>Streptopelia decaocto</i>	Occasional. Encountered once in plantation and dam trail
<b>Charadriidae</b>		
Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	Occasional. Open dry scrub
Red-wattled Lapwing	<i>Vanellus indicus</i>	Common in open scrubs and dried irrigation tanks
<b>Accipitridae and Falconidae</b>		
Oriental Honey Buzzard	<i>Pernis ptilorhyncus</i>	Common
Black-winged Kite	<i>Elanus caeruleus</i>	Sighted once in dam trail and ATREE field station
Black Kite	<i>Milvus migrans</i>	Not known
Brahminy Kite	<i>Haliastur Indus</i>	Common. Regularly seen along dam trail
Grey-headed Fish-Eagle	<i>Ichthyophaga ichthyaetus</i>	Seen once in dam trail
Short-toed Eagle	<i>Circaetus gallicus</i>	Not known
Crested Serpent-Eagle	<i>Spilornis cheela</i>	Occasional. Sighted thrice along the canal trail and also near ATREE field station
Shikra	<i>Accipiter badius</i>	Common. Sighted throughout the area
Black Eagle	<i>Ictinaetus malayensis</i>	Sighted only once near ATREE field station
Kestrel sp		A single bird was seen sitting on top of a boulder
Laggar falcon	<i>Falco jugger</i>	Sighted only once close to a cliff along canal trail
<b>Pittidae</b>		
Indian Pitta	<i>Pitta brachyura</i>	Only heard once
<b>Chloropseidae</b>		
Blue-winged Leaf Bird	<i>Chloropsis cochinchinensis</i>	Sighted twice in canal trail and twice in dam trail
<b>Laniidae</b>		
Brown Shrike	<i>Lanius cristatus</i>	Migrant. Seen regularly in canal trail
<b>Corvidae</b>		
Rufous Treepie	<i>Dendrocitta vagabunda</i>	Common. Mainly in tree covered areas near habitations
House Crow	<i>Corvus splendens</i>	Common and abundant
Indian Jungle Crow	<i>Corvus culminatus</i>	Common and abundant
<b>Artamidae</b>		
Ashy Wood Swallow	<i>Artamus fuscus</i>	Common. Regularly sighted along canal trail
<b>Oriolidae</b>		
Indian Golden Oriole	<i>Oriolus kundoo</i>	Occasional. Sighted twice in the area
<b>Dicruridae</b>		
Black Drongo	<i>Dicrurus macrocercus</i>	Common. Encountered regularly along dam trail and open areas
Ashy Drongo	<i>Dicrurus leucophaeus</i>	Sighted once on dam trail in the mango orchard
<b>Monarchidae</b>		
Asian Paradise Flycatcher	<i>Terpsiphone paradisi</i>	Occasional. Mostly seen along canal trail and near habitations
<b>Aegithinidae</b>		
Common Iora	<i>Aegithina tiphia</i>	Occasional. Calls heard in the distal end of the canal trail
<b>Muscicapidae</b>		
Asian Brown Flycatcher	<i>Muscicapa dauurica</i>	Sighted only once near ATREE field station
Oriental Magpie-Robin	<i>Copsychus saularis</i>	Sighted twice. Once each in dam and canal trail
Indian Black Robin	<i>Saxicoloides fulicata</i>	Abundant. Regularly seen on all three trails

Common Name	Scientific Name	Status in the area
<b>Sturnidae</b>		
Grey-headed Starling	<i>Sturnia malabarica</i>	Sighted only once along canal trail
Brahminy Starling	<i>Temenuchus pagodarum</i>	Occasional. Has been sighted along dam and canal trail
Rosy Starling	<i>Sturnus roseus</i>	A flock of five birds was sighted once along canal trail
Common Myna	<i>Acridotheres tristis</i>	Common on all three trails
<b>Hirundinidae</b>		
Barn Swallow	<i>Hirundo rustica</i>	Migrant. Sighted along canal and dam trail
Red-rumped Swallow	<i>Hirundo daurica</i>	Occasional. Sighted along canal and dam trail
<b>Pycnonotidae</b>		
Red-vented Bulbul	<i>Pycnonotus cafer</i>	Abundant on all three trails
White-browed Bulbul	<i>Pycnonotus luteolus</i>	Common. Can be sighted chiefly in scrub forest close to the reserve bordering the canal trail
<b>Cisticolidae</b>		
Zitting Cisticola	<i>Cisticola juncidis</i>	Seen once in the bund of Vairavikulam irrigation tank
Grey-breasted Prinia	<i>Prinia hodgsonii</i>	Sighted once inside ATREE field station
Jungle Prinia	<i>Prinia sylvatica</i>	Common. Seen regularly along canal trail
Ashy Prinia	<i>Prinia socialis</i>	Sighted regularly in plantation trail
Plain Prinia	<i>Prinia inornata</i>	Common. Sighted along all three trails
Common Tailor Bird	<i>Orthotomus sutorius</i>	Common. Frequently sighted along dam and canal trail
<b>Sylviidae</b>		
Blyth's Reed-warbler	<i>Acrocephalus dumetorum</i>	Migrant. Mainly encountered along canal trail
Tickell's Leaf Warbler	<i>Phylloscopus affinis</i>	Sighted only once along dam trail
<b>Timallidae</b>		
Yellow-billed Babbler	<i>Turdoides affinis</i>	Abundant. Seen frequently along all three trails
Tawny-bellied Babbler	<i>Dumetia hyperythra</i>	Seen only once inside the reserve bordering canal trail
<b>Alaudidae</b>		
Singing BushLark	<i>Mirafra cantillans</i>	Sighted only once along plantation trail
Indian BushLark	<i>Mirafra erythroptera</i>	Sighted only once along dam trail
Bengal BushLark	<i>Mirafra assamica</i>	Common. Seen frequently along canal and plantation trail
Ashy-crowned Finch-Lark	<i>Eremopterix griseus</i>	Sighted only twice in the area
Rufous-tailed Lark	<i>Ammomanes phoenicura</i>	Sighted only once along canal trail
<b>Dicaeidae</b>		
Pale-billed Flowerpecker	<i>Dicaeum erythrorhynchos</i>	Occasional. Sighted in the distal part of the dam trail close to the forest
<b>Nectariniidae</b>		
Purple-rumped Sunbird	<i>Leptocoma zeylonica</i>	Common. Sighted regularly along all three trails
Purple Sunbird	<i>Cinnyris asiaticus</i>	Common. Sighted regularly along all three trails
Loten's Sunbird	<i>Cinnyris lotenius</i>	Has been sighted only on six occasions
<b>Passeridae</b>		
House Sparrow	<i>Passer domesticus</i>	Rare on all three trails. Frequently seen near human habitations
Yellow-throated Sparrow	<i>Petronia xanthocollis</i>	Sighted regularly along dam trail
<b>Motacillidae</b>		
Forest Wagtail	<i>Dendronanthus indicus</i>	Rare. Sighted twice along dam trail inside the mango grove
White-browed Wagtail	<i>Motacilla maderaspatensis</i>	Occasional. Can be sighted along dam trail from the bridge across the river and also along canal trail
Grey Wagtail	<i>Motacilla cinerea</i>	Seen during winter and post monsoon along canal trail
<b>Ploceidae</b>		
Baya Weaver	<i>Ploceus philippinus</i>	Rare
<b>Estrildidae</b>		
Indian Silverbill	<i>Euodice malabarica</i>	Rare. Two birds sighted along canal trail
White-rumped Munia	<i>Lonchura striata</i>	Common. Can be seen along dam and canal trail
Scaly-breasted Munia	<i>Lonchura punctulata</i>	Rare. A flock of six birds were sighted once along plantation trail
Tricoloured Munia	<i>Lonchura malacca</i>	Common. Seen regularly along dam trail and reed beds of irrigation ponds

**Table 2: Checklist of wetland birds in the area**

Common Name	Scientific Name	Status in the area
<b>Anatidae</b>		
Lesser Whistling-Duck	<i>Dendrocygna javanica</i>	A Single bird was sighted near Vairavikulam tank
Comb Duck	<i>Sarkidiornis melanotos</i>	Occasional visitors in low numbers to Vairavikulam tank
Indian Spot-billed Duck	<i>Anas poecilorhyncha</i>	Regularly seen in Vairavikulam tank in numbers of 20-30
<b>Rallidae</b>		
White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	Common. Regularly seen in paddy fields and fringes of irrigation tanks
Purple Swampphen	<i>Porphyrio (porphyrio) poliocephalus</i>	Common and abundant in irrigation tanks
Common Moorhen	<i>Gallinula chloropus</i>	Rare. 3 birds were sighted once in <i>Ipomoea</i> infested tank close to Vairavikulam tank
Eurasian coot	<i>Fulica atra</i>	Common in irrigation tanks
<b>Scolopacidae</b>		
Wood Sandpiper	<i>Tringa glareola</i>	Seen during post-monsoon in Vairavikulam tank
Common Sandpiper	<i>Actitis hypoleucos</i>	Common in irrigation ponds and water puddles
<b>Jacanidae</b>		
Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	Local migrant. Irregularly seen in Vairavikulam Lotus pads
Bronze-winged Jacana	<i>Metopidius indicus</i>	Regularly seen in Vairavikulam and Singampatti Lotus pads
<b>Charadriidae</b>		
Black-winged Stilt	<i>Himantopus himantopus</i>	Occasionally seen in Vairavikulam tank
<b>Recurvirostridae</b>		
Little-ringed Plover	<i>Charadrius dubius</i>	Rare. Winter migrant
<b>Podicipedidae</b>		
Little Grebe	<i>Tachybaptus ruficollis</i>	Rare
<b>Anhingidae</b>		
Oriental Darter	<i>Anhinga melanogaster</i>	Regularly seen, especially during summer
<b>Phalacrocoracidae</b>		
Little Cormorant	<i>Phalacrocorax niger</i>	Seen in large numbers during summer
Indian Shag	<i>Phalacrocorax fuscicollis</i>	Rare
<b>Ardeidae</b>		
Little Egret	<i>Egretta garzetta</i>	Common. Sighted throughout the year
Grey Heron	<i>Ardea cinerea</i>	Rare. Occasionally sighted in Vairavikulam tank
Purple Heron	<i>Ardea purpurea</i>	Rare. Occasionally sighted in Vairavikulam tank
Great Egret	<i>Egretta alba</i>	Can be seen in Manimuthar river close to the bridge
Intermediate Egret	<i>Egretta intermedia</i>	Common. Seen in paddy fields and Vairavikulam tank
Eastern Cattle Egret	<i>Bubulcus coramandus</i>	Common. Regularly seen in paddy fields and open areas
Indian Pond Heron	<i>Ardeola grayii</i>	Common. Seen in paddy fields, irrigation tanks and river banks
<b>Threskiornithidae</b>		
Glossy Ibis	<i>Plegadis falcinellus</i>	Status not known
Black-headed Ibis	<i>Threskiornis melanocephalus</i>	Common. Seen foraging in paddy fields and irrigation tanks
Indian Black Ibis	<i>Pseudibis papillosa</i>	Common. Regularly seen foraging in paddy fields and open areas
<b>Pelecanidae</b>		
Spot-billed Pelican	<i>Pelicanus philippensis</i>	Occasional. Can be seen in Vairavikulam tank during summer
<b>Ciconiidae</b>		
Painted Stork	<i>Mycteria leucocephala</i>	Occasional. Can be seen in Vairavikulam and adjacent tanks during summer
Asian Openbill	<i>Anastomus oscitans</i>	Common. Seen in paddy fields

