

TAMIL NADU



Photo: M. Zafar-ul-Islam

A mosaic of forest (*sholas*) and grassland characterises the upper reaches of the Western Ghats in Tamil Nadu.

Tamil Nadu (8° 04' - 13° 34' North and 76° 14' - 80° 21' East) is situated on the southeastern side of the Indian peninsula. It has a geographical area of 1,30,058 sq. km which constitutes about 4% of the land area of the country. The State is divided into 30 administrative districts.

Tamil Nadu can be divided into three physiographic regions namely, the eastern coastal region, the western hilly region and the plains. The northern and western parts of the state are mainly hilly areas of the Western Ghats with an average elevation of 1220 m, and going up to 2440 m, which is the highest point. The major rivers flowing through the State are the Palar, Cheyyar, Ponnaiyar, Cauvery, Moyar, Bhavani, Amaravati, Vaigai, Chittar, and Tamaraparni. The Cauvery is the eighth largest river of the Indian subcontinent and is 760 km long. There are about 37 small rivers and rivulets in the State (Sadasivan *et al.* 2000).

Tamil Nadu is basically an agricultural state with good fertile land. It is a major producer of rice, sugarcane, cotton, tea and coffee. The total population is 62.11 million (6 % of the country's population) of which 56.14 % is rural. The human population density is 478 persons per sq. km (Ministry of Environment and Forests 1999).

Tamil Nadu has many important protected areas such as Anamalai, Kalakadu-Mundanthurai, Mudumalai, Point Calimere and Vedanthangal. All of them are identified as IBAs.

The temperature ranges from as low as 0 °C in the higher reaches of the Western Ghats to as high as 42 °C in the hot plains. There are three seasons: pre-monsoon (July-September), the monsoon (October-December) and post-monsoon (January-June).

Most parts of Tamil Nadu fall in the Indo-Malayan Tropical Dry Zone (Biome-11) and some parts in the Indian Peninsula Tropical Moist Forest (Biome-10). The Western Ghats and the Southern Eastern Ghats form the major forested areas of the State. In the Western Ghats, the Nilgiri Biosphere Reserve (NBR) was the first to be set up in India under the Indian National Man and Biosphere Programme in 1986. The NBR includes forested areas of Kerala, Karnataka and Tamil Nadu and forms a total area of 5520 sq. km. The area is divided into a core zone (1240 sq. km) and a buffer zone (4280 sq. km) (Ministry of Environment and Forests 1989). The core zone is distributed in Kerala, Karnataka and Tamil Nadu. The total area of the NBR in Tamil Nadu forms 2537 sq. km, with a core area of 274 sq. km (Ministry of Environment and Forests 1989).

The NBR is biogeographically a part of the Indo-Malayan Realm and representative of the topographic and climatic complexity of the Western Ghats, a biodiversity 'hot-spot' in India. The NBR is also representative of some of the oldest hills in India which arose somewhere around 40 million years ago. As a result of this topographic complexity and spreads, the NBR encompasses a wide range of

rainfall zones. The annual rainfall ranges between 500-7,000 mm. The wet season is June to September. April and May are the hottest months. The temperature falls 0 °C during December-January in the higher hills of the Nilgiris. The varied climate pattern coupled with a complex and a wide variety of vegetation types, namely scrubs in the eastern plains, dry and moist deciduous forests in Mudumalai, montane forest (*Shola*) and grassland on the Nilgiri Plateau.

The Nilgiri Biosphere Reserve is known for its rich biodiversity. About 156 species of vertebrates are endemic to the NBR (Daniels 1992). It supports all the 16 species of Western Ghats endemic birds, of which one is Endangered, four are Vulnerable and five are Near Threatened (BirdLife International 2001).

Of the 427 Indian plants listed under various descriptions, e.g. extinct, possibly extinct, endangered, vulnerable or rare, as many as 123 species occur or are known to have occurred in Tamil Nadu. It is also relevant that of the 123 species relating to Tamil Nadu as many as 62 species are described as endemic to the limits of Tamil Nadu (Red Data Book of Indian Plants 1987).

The Eastern and Western Ghats meet along the Moyar Gorge with the Biligirirangan Hills along the northeast and the Nilgiris on the southwest. This results in a series of forest gaps in the Ghats, which are actually valleys that break the continuity of the mountain ranges, such as the Palghat Gap, the Moyar Gap or Gorge and the Chenkotta Gap. These gaps have prevented the spread of certain species and hence facilitated local speciation and endemism.

Tamil Nadu has a total of 25 protected areas, of which five are national parks and 20 are wildlife sanctuaries. The total protected area spreads over 0.29 million ha, which constitutes 2.24% of the geographical area (Rodgers *et al.* 2000). The Kalakadu-Mundanthurai is the only Tiger Reserve in Tamil Nadu established in 1988-89. It supports a population of about 28 tigers according to 1997 tiger census (Jain 2001). The Ramsar Convention has designated 19 wetlands of International Importance in India. Point Calimere Wildlife and Bird Sanctuary is one among them, designated in November 2002 (Ministry of Environment and Forest 2002). This is an important and famous IBA site.

Important mammal species are Tiger *Panthera tigris*, Leopard *Panthera pardus*, Asian Elephant *Elephas maximus*, Nilgiri Thar *Hemitragus hylocrius*, Nilgiri Langur *Trachypithecus johnii*, Brown-palm Civet *Paradoxurus jerdoni* and Wild Dog *Cuon alpinus*.

#### Vegetation

The principal forest types in Tamil Nadu are the Tropical Rain Forests, Dry Deciduous Forests, Dry Thorn Forests, Montane *Shola*, Grassland and Mangroves. According to the 2001 report of the Forest Survey of India, the forest area is 2.26 million ha which constitutes 17.40% of the land area of the State. The flora and fauna of the Western Ghats in particular are of great interest from the scientific point of view because they illustrate the phenomenon of discontinuous parallel distribution. Out of about 35,000 species of flowering plants in the whole of India, about 3,000 species are found in Tamil Nadu.

The flora of the Nilgiris show a relationship with that of the Eastern Himalaya and the forest in this region is evergreen composed of tropical and subtropical vegetation (Lakshminarayana *et al.* 2002). Of 2100 species of flowering plants endemic to peninsular India, 818 are found in the Nilgiris and adjoining areas (Mohanan and Balakrishnan 1991).

Tamil Nadu has a long coastline of about 999 km (Ramakrishna and Venkataraman 2001); of this 574 km form a sandy coast, 31 km form a rocky coast, and 394 km form a muddy coast. This occurs mostly on the east coast and constitutes 18.9% of the coastline of India. Apart from the extensive fishery - inshore and offshore regions of Tamil Nadu - the coastal habitat is of great importance for its many special features, particularly the estuaries and wetlands with their complex and dynamic ecosystems. The following major estuaries are found in the State: Edayar, Ennore, Cooum, Adayar, Uppanar, Vellar, Kollidam, Cauvery (= Kavery), Agniyar and Kallar. Tamil Nadu has only a very small representation of mangroves, a mere 2640 ha (0.46% of the total mangrove area in India). The main mangrove formations in the State are at Pichavaram at the northern extremity of the Cauvery delta in the Cuddalore district and in the areas of Chatram, Adhirampattinam, Point Calimere and Muthupet of Nagapattinam district and in the Thanjavore (Tanjore) district. These are considered ecologically sensitive areas of the east coast of Tamil Nadu.

The Gulf of Mannar Marine Biosphere Reserve (famous IBA site) of Tamil Nadu, is the first marine biosphere of this kind to be established in India on the east coast, during 1989. The seabed has a rich vegetation of seaweed and sea grasses, and also has small patches of mangrove vegetation. The Gulf of Mannar Marine National Park harbours a good population of the endangered marine mammal *Dugong dugon*.

#### AVIFAUNA

An annotated checklist of the birds of Tamil Nadu is not available but more than 450 species are likely to occur. Among the Critically Endangered species, the Oriental White-backed Vulture *Gyps bengalensis*, and the Long-billed Vulture *Gyps indicus* are present in the State. BirdLife International (2001) has listed 10 Endangered species, of which, the Nilgiri Laughingthrush *Garrulax cachinnans* has definitely been recorded in 10 IBAs, and the Spotted Greenshank *Tringa guttifer* has been recorded in one IBA. The Lesser Adjutant *Leptoptilos javanicus*, Wood Snipe *Gallinago nemoricola* and the Lesser Kestrel *Falco naumanni* are occasionally seen. Fifteen out of 57 Vulnerable species listed for India by BirdLife International (2001) are found in Tamil Nadu.

The Western Ghats region occurring in Tamil Nadu contains high diversity and a great number of endemic rainforest plants and animal taxa (Nair and Daniel 1986, Vasudevan *et al.* 2001). Some of the key species of this region are the Nilgiri Wood-Pigeon *Columba elphinstoni*, Blue-winged Parakeet *Psittacula columboides*, Malabar Grey-Hornbill *Ocyrceros griseus*, Nilgiri Pipit *Anthus nilghiriensis*, Grey-headed Bulbul *Pycnonotus priocephalus*, Black-and-Orange Flycatcher *Ficedula nigrorufa*, Broad-tailed Grass-Warbler or Grassbird *Schoenicola platyura*, Small Sunbird *Nectarinia minima*, Grey-breasted Laughingthrush *Garrulax jerdoni*, Nilgiri Flycatcher *Eumyias albicaudata*, Indian Rufous Babbler *Turdoides subrufus*, Nilgiri Laughingthrush *Garrulax cachinnans*, White-bellied Blue Flycatcher *Cyornis pallipes*, White-bellied Shortwing *Brachypteryx major*, White-bellied Treepie *Dendrocitta leucogastra*, and Wynaad Laughingthrush *Garrulax delesserti*. In this group, four threatened species are mainly confined to Tamil Nadu, as well as the Western Ghats (Stattersfield *et al.* 1998). Besides the endemic species, the Vulnerable Spot-billed Pelican *Pelecanus philippensis* is found in the State in significant numbers (Manakadan and Kannan 2003).

## Important Bird Areas in India – Tamil Nadu



BirdLife International (2001) has listed 52 Near Threatened bird species of India. Fifteen occur in Tamil Nadu. For 13 such species, the IBAs and protected areas of Tamil Nadu are highly important for survival. Earlier, Nagulu and Rao (1983) and recently Manakadan and Kannan (2003), have shown that the wetlands of Tamil Nadu are the major strongholds of the Spot-billed Pelican. It is found in 16 of the 34 IBAs of Tamil Nadu.

### Number of IBAs and IBA criteria

A1= Threatened species; A2 = Restricted Range species; A3= Biome species; A4=Congregatory species

#### IBAs of Tamil Nadu

IBA site codes	IBA site names	IBA criteria
IN-TN-01	Avalanche (Nilgiri)	A1, A2, A3
IN-TN-02	Berijam (Kodaikonal)	A1, A2
IN-TN-03	Big Tank and Sakkarakotai Kanmai	A1, A4iii
IN-TN-04	Bison Swamp (Nilgiri)	A1, A2
IN-TN-05	Cairn hill Reserve Forest (Nilgiri)	A1, A2
IN-TN-06	Chitragudi and Kanjirankulam Wildlife Sanctuaries	A1, A4i
IN-TN-07	Governor's Shola	A1, A2
IN-TN-08	Grass Hills	A1, A2
IN-TN-09	Gulf of Mannar Marine National Park	A1, A4iii
IN-TN-10	Indira Gandhi WLS	A1, A2, A3
IN-TN-11	Kalakkad-Mundanthurai Tiger Reserve	A1, A2
IN-TN-12	Kaliveli Tank and Yeduyanthittu Estuary	A1, A4i, A4iii
IN-TN-13	Karaivetti Bird Sanctuary	A1, A4i, A4iii
IN-TN-14	Kunthangulam Bird Sanctuary	A1, A4i
IN-TN-15	Longwood Shola-Kothagiri	A1, A2
IN-TN-16	Kullur Sandai Reservoir	A1
IN-TN-17	Mudumalai National Park	A1, A2, A3
IN-TN-18	Mukurthi National Park	A2, A2
IN-TN-19	Naduvattam	A1, A2
IN-TN-20	Point Calimere Wildlife Sanctuary	A1, A4i, A4iii
IN-TN-21	Poomparai and Kukkal	A1, A2
IN-TN-22	Sholas around Kodaikanal	A1, A2
IN-TN-23	Shrivilliputhur Wildlife Sanctuary	A1, A2
IN-TN-24	Suchindram Therur	A1, A4i
IN-TN-25	Thaishola	A1, A2, A3
IN-TN-26	Tirunelveli Reserve Forest	A1, A2, A3
IN-TN-27	Vandivoor and Kunnathur Tanks	A1
IN-TN-28	Vaduvloor Bird Sanctaury	A1
IN-TN-29	Vedanthangal and Karikili Bird Sanctuary	A1, A4iii
IN-TN-30	Veeranam Lake	A1, A4i, A4iii
IN-TN-31	Vettangudi Bird Sanctuary	A1, A4i
IN-TN-32	Watrap Periakulam and Virakasamuthrakulam	A1, A4i, A4iii
IN-TN-33	Wellington Reservoir	A1, A4iii
IN-TN-34	Muthukuzhi	A1, A2

List of threatened birds with IBA site codes

Critically Endangered		
Oriental White-backed Vulture	<i>Gyps bengalensis</i>	IN-TN-17, 23
Long-billed Vulture	<i>Gyps indicus</i>	IN-TN-17, 23
Endangered		
Spotted Greenshank	<i>Tringa guttifer</i>	IN-TN-20
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>	IN-TN-01, 04, 05, 07, 15, 18, 19, 25, 34
Vulnerable		
Spot-billed Pelican	<i>Pelecanus philippensis</i>	IN-TN-03, 06, 09, 12, 13, 14, 16, 20, 24, 27, 28, 29, 30, 31, 32, 33
Lesser Adjutant	<i>Leptoptilos javanicus</i>	IN-TN-17
Greater Spotted Eagle	<i>Aquila clanga</i>	IN-TN-08, 12, 29
Lesser Kestrel	<i>Falco naumanni</i>	IN-TN-08
Spoon-billed Sandpiper	<i>Calidris Pygmeus</i>	IN-TN-20
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>	IN-TN-01, 02, 04, 05, 07, 08, 10, 11, 15, 17, 18, 19, 21, 22, 23, 25, 26, 34
Yellow-throated Bulbul	<i>Pycnonotus xantholaemus</i>	IN-TN-17
White-bellied Shortwing	<i>Brachypteryx major</i>	IN-TN-01, 02, 04, 05, 07, 08, 10, 11, 15, 18, 19, 21, 22, 23, 25, 26, 34
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>	IN-TN-08, 10, 17, 20, 23, 26, 34
Kashmir Flycatcher	<i>Ficedula subrubra</i>	IN-TN-19, 21
Pied Tit	<i>Parus nuchalis</i>	IN-TN-17
Near Threatened		
Darter	<i>Anhinga melanogaster</i>	IN-TN-03, 10, 11, 13, 14, 20, 24, 27, 28, 29, 30, 31, 32, 33
Painted Stork	<i>Mycteria leucocephala</i>	IN-TN-03, 06, 11, 12, 13, 14, 20, 24, 27, 28, 29, 30, 31, 32, 33
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>	IN-TN-03, 12, 20
Oriental White Ibis	<i>Threskiornis melanocephalus</i>	IN-TN-03, 06, 13, 14, 20, 24, 27, 28, 29, 30, 31, 32, 33
Lesser Flamingo	<i>Phoenicopterus minor</i>	IN-TN-12, 20
White-tailed Sea-Eagle	<i>Haliaeetus albicilla</i>	IN-TN-12
Greater Grey-headed Fish-Eagle	<i>Ichthyophaga ichthyaetus</i>	IN-TN-11
Red-headed Vulture	<i>Sarcogyps calvus</i>	IN-TN-11
Pallid Harrier	<i>Circus macrourus</i>	IN-TN-10, 12, 20
Black-bellied Tern	<i>Sterna acuticauda</i>	IN-TN-29
Great Pied Hornbill	<i>Buceros bicornis</i>	IN-TN-10, 11
Nilgiri Pipit	<i>Anthus nilghiriensis</i>	IN-TN-01, 02, 04, 08, 10, 11, 18, 19, 21, 22, 23, 25, 34
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>	IN-TN-02, 08, 21, 22
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>	IN-TN-01, 02, 04, 05, 08, 10, 11, 15, 17, 18, 19, 21, 22, 23, 25, 34
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>	IN-TN-01, 02, 04, 05, 10, 11, 15, 18, 19, 21, 22, 23, 25, 34

Biomes

Tamil Nadu has two biomes, Biome-11: Indo-Malayan Tropical Dry Zone and Biome-10: Indian Peninsula Tropical Moist Forest. Biome-11 contains 59 species, three of which are globally threatened (BirdLife International, undated). They are the Spot-billed Pelican *Pelecanus philippensis*, Oriental White-backed Vulture *Gyps bengalensis* and Long-billed Vulture *Gyps indicus*. Biome-10 contains 15 species of which the Bristled Grass-Warbler or Grassbird *Chaetoruis striatus*, Broad-tailed Grass-Warbler or Grassbird *Schoenicola platyura*, Kashmir Flycatcher *Ficedula subrubra*, Pied Tit *Parus nuchalis*, Nilgiri Wood-Pigeon *Columba elphinstonii*, Yellowthroated Bulbul *Pycnonotus xantholaemus*, and White-bellied Shortwing *Brachypteryx major* are Vulnerable. All these species are found in Tamil Nadu and for some species, this State is extremely important for their long-term survival.

THREATENED BIRDS FOR WHICH TAMIL NADU IS IMPORTANT

**Spot-billed Pelican** *Pelecanus philippensis* **Vulnerable**

Tamil Nadu is one of the states which harbours this species in considerable numbers (Manakadan and Kannan 2003, Kannan 2004). The species is under threat due to disturbance, persecution, degradation of wetlands by pollution, entanglement in fishing equipment, and decline in food supplies (Crivelli and Schreiber 1984). The species is regularly seen all along the bigger inland wetlands of Tamil



Nadu such as Vedanthangal and the Karikili Bird Sanctuary, the Gulf of Mannar, Suchindarm, the Therur Wetland Complex, Point Calimere, Koonthangulam, Karivetti, Kaliveli and Edyanthittu. Most of the wetland IBAs are selected due to the presence of this globally threatened species.

**Lesser Adjutant** *Leptoptilos javanicus* **Vulnerable**

The Lesser Adjutant is mainly resident in central and northeastern India (Ali and Ripely 1987). Jerdon (1862-1864) states that the species occurred in small numbers throughout India. In Tamil Nadu the species has been recorded at the Mudumalai Wildlife Sanctuary, the Anaimalai hills (Kuriarkutti and in 1988 at Karian *Shola* (BirdLife International 2001). The species has experienced a rapid decline recently and has become rare.

**Greater Spotted Eagle** *Aquila clanga* **Vulnerable**

The species winters in India and records of the species are found over a wide area, especially in the northern states but straggling down to the Palk straits adjacent to Sri Lanka. The species' breeding status in the country remains somewhat unclear except for the one in Rajasthan (Prakash 1988). In Tamil Nadu the species has been reported from Vedanthangal (Santharam 1999, Chandrasekhar 1996), Kaliveli tank (Perennou 1989, Santharam 1999), Rameswaram island (Gulf of Mannar) (Biddulph 1938), Mudumalai Wildlife Sanctuary (Gupta 1997) and Pulicat Lake. Published information states that the population of the species is declining and therefore BirdLife International (2001) lists the species as Vulnerable.

**Lesser Kestrel** *Falco naumanni* **Vulnerable**

The Lesser Kestrel is a rare bird and only a visitor to India. The species is mainly confined to Europe and Africa, and underwent a rapid decline in the second half of the 20<sup>th</sup> century. In India there is a lack of information on this species, except a few sightings. The bird has been reported from Himachal Pradesh, Haryana, Rajasthan, Uttar Pradesh, Madhya Pradesh, Maharashtra, Karnataka, Kerala, Tamil Nadu, Bihar, Orissa, Arunachal Pradesh, Assam and Sikkim (BirdLife International 2001). In Tamil Nadu, it was reported from Conoor (Ali and Ripley 1987) and recently near Avalanche and elsewhere in the Nilgiris (Ashfaq Ahmed Zarri *pers. comm.* 2003). The cause of the decline is claimed to be massive use of pesticides, habitat loss, nesting sites demolition and overgrazing (del Hoyo *et al.* 1994)

**Wood Snipe** *Gallinago nemoricola* **Vulnerable**

The species was not uncommon during the nineteenth and early twentieth centuries. It is relatively widespread but generally scarce (BirdLife International 2001). The determination of the status of this species is difficult, as the bird generally skulks and is relatively difficult to identify. The cause behind the decline of the species is reported to be habitat loss and localized hunting in wintering grounds. In Tamil Nadu there are records of the species from the Shevaroy hills (Hume and Marshall 1879-1881), the Nilgiris (Phythian-Adams 1948, Stoney 1938), Kotagiri (Khan 1980), the Anamalai hills (Williams 1937), and the Palni Hills.

**Spotted Greenshank** *Tringa guttifer* **Endangered**

The Spotted or Nordman's Greenshank breeds on the coast of eastern Russia (Dement'ev and Gladkov 1951-1954), and winters in Asian countries. In India, the species winters mainly in the northeastern states (Ali and Ripley 1987) but there are unconfirmed reports of the species from western India (Grimmett *et al.* 1998). In Tamil Nadu, one bird was sighted in Point Calimere in 2000 (Balachandran *pers. comm.* 2003). The species has a very small population, which is declining due to the development of coastal wetlands throughout its range. BirdLife International (2001) designates the species as Endangered.

**Spoon-billed Sandpiper** *Calidris pygmaea* **Vulnerable**

The Spoon-billed Sandpiper inhabits a very specific breeding habitat, mainly seacoasts (Tomkovich 1991). The distribution of this species is typical, and follows the "keyboard" pattern of the west Pacific shoreline geology and hence the species' range is naturally fragmented (BirdLife International 2001). In wintering grounds it occurs on sandy beaches, estuaries and mudflats. In Tamil Nadu the species occurs in Point Calimere (Sugathan 1983, 1985). Its small population is declining due to habitat loss in its breeding and wintering grounds, with associated disturbance and hunting; Therefore, the species is designated as Vulnerable.

**Nilgiri Wood-Pigeon** *Columba elphinstonii* **Vulnerable**

This is one of the four threatened members of the group of 16 bird species that are entirely restricted to the Western Ghats Endemic Bird Area (Stattersfield *et al.* 1998). According to Ali and Ripley (1987) the birds move from higher hills to lower regions in cold weather. Vast areas of the Anamalai hills have been denuded or selectively logged since the forest area began to be cleared for tea plantation and timber cultivation in the 1800s (Kannan 1998). Due to these reasons the species has a declining population. In Tamil Nadu it has been reported from Avalanche, the Grass Hills (Anamalais), Mudumalai Wildlife Sanctuary, Siruvani Foothills, Kalakadu Wildlife Sanctuary, Coonoor, Cairnhill Reserve Forest, Bison Swamp, Longwood *Shola* (Kothagiri) and Muthukuzhi.

**Yellow-throated Bulbul** *Pycnonotus xantholaemus* **Vulnerable**

This bulbul inhabits sparse thorn scrub, interspersed with some large trees among broken stony hillocks (Ali and Whistler 1942-1943). It is endemic to southern peninsular India, where it is patchily distributed (Abdulali 1949, Ali and Ripley 1987, Subramanya *et al.* 1995). This species is Vulnerable because of its fragmented population and because of the degradation of its scrub and forest habitats. In Tamil Nadu the species has been recorded from the Shevaroy Hills (Karthikeyan 1995), Mudumalai, Anamalai (Kannan 1992, 1998) and the Lower Palni Hills (Nichols 1943-1945).



The population of Spoon-billed Sandpiper has declined due to habitat loss.

Photo: Shimpel Watanabe/BirdLife International



**White-bellied Shortwing** *Brachypteryx major* **Vulnerable**

The White-bellied Shortwing is endemic to the southern portion of the Western Ghats, mostly inhabiting the Nilgiri Hills, the Brahmagiri Hills, Coonoor and other ranges (Davison 1883, Baker 1922-1930). In particular, the species occurs in Naduvattam (BirdLife International 2001), Longwood *Shola* (Kothagiri), Udagamandalam (Ooty near the Avalanche road (BirdLife International 2001), Cairnhill Reserve Forest (BirdLife International 2001), Upper Bhavani (Vijayan *et al.* 1999), Anamalai Hills, Kukkal, Palni Hills (Blanford, 1867, Fairbank 1877, Balachandran 1998), and Mudumalai (Robertson and Jackson 1992). The species is one of the four threatened members of the suite of 16 bird species that are entirely restricted to the Western Ghats Endemic Bird Area. The decline of the species is claimed to be due to fragmentation of habitat, and destruction of its evergreen and semi-evergreen forest habitat.

**Nilgiri Laughingthrush** *Garrulax cachinnans* **Endangered**

The Nilgiri Laughingthrush is one of 16 bird species endemic to the Western Ghats (Stattersfield *et al.* 1998). The species is truly endemic to the Nilgiris, where its range is 'curiously restricted' to montane forests (Ali and Ripley 1987). In Tamil Nadu particularly, the species has been reported from Naduvattam (BirdLife International 2001), Kotagiri (Davison 1883, Hume and Oates 1889-1890), Longwood *Shola* and Kil Kothagiri (Gokula and Vijayan 1996), Udagamandalam (Ooty), Cairnhill Reserve Forest (BirdLife International 2001), Mukurthi National Park (Islam 1985; Robertson and Jackson 1992; Vijayan *et al.* 1999), Avalanche and Upper Bhavani (Vijayan *et al.* 1999), and Governor's *Shola* (Islam 1985). In the 19th century, the species was judged "exceedingly numerous" (Davison 1883) and in the early 20<sup>th</sup> century it continued to be called "extremely common" (Baker 1922-1930). The species underwent rapid decline due to large-scale conversion of habitats into plantations, reservoirs, and crops. Human habitation poses the major threat to the species (Gaston and Zacharias 1996, Vijayan *et al.* 1999).

**Broad-tailed Grass-Warbler or Grassbird** *Schoenicola platyura* **Vulnerable**

This species is a grassland specialist. The principal population is mainly confined to the Western Ghats of South India. In Tamil Nadu the species occurs in Mudumalai (Gokula and Vijayan 1996), the Grass Hills (Kannan 1998), Point Calimere (Hussian 1976); Anamalai hills (BirdLife International 2001), Palni hills (BirdLife International 2001, Nichols 1937, Santharam 1996), Kalakadu-Mundanthurai (Shankar Raman 1998), and Agastiamalai (Zacharias and Gaston 1999). This is one of the four threatened members of the suite of 16 bird species that are entirely restricted to the Western Ghats Endemic Area and their threats and conservation measures are profiled (Stattersfield *et al.* (1998). The species has a small, severely fragmented range and population due to modification and clearance of grasslands, its population is on decline. Presently, it is classified as Vulnerable (BirdLife International 2001).

**Kashmir Flycatcher** *Ficedula subrubra* **Vulnerable**

The Kashmir Flycatcher is a migratory species. The species has a very restricted distribution in northern India and a small number in Pakistan. Recent information about the species is that it winters in the Nilgiri Hills of south India (Harrap and Redman 1990, Karthikeyan and Athreya 1993). Due to fragmentation and a small population and breeding range, the species is classified as Vulnerable (BirdLife International, 2001).

**Pied Tit** *Parus rufalis* **Vulnerable**

The Pied Tit is endemic to India, and restricted to two populations; one in northwestern India and the other in southern India. Fragmentation and degradation of its tropical thorn scrub habitat, has caused its designation as Vulnerable. Also, the species has a fragmented population (BirdLife International, 2001). In Tamil Nadu the species is particularly found in Mudumalai, towards the east and also occurs in Sathyamangalam (Ali and Whistler 1942-1943).

Endemic Bird Area 123: Western Ghats		
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>	IN-TN-01, 02, 04, 05, 07, 08, 10, 11, 15, 17, 18, 19, 21, 22, 23, 25, 26, 34
Blue-winged Parakeet	<i>Psittacula columboides</i>	IN-TN-10, 11, 23, 26
Malabar Grey Hornbill	<i>Ocyrceros griseus</i>	IN-TN-10, 11, 15, 23, 26
Nilgiri Pipit	<i>Anthus nilghiriensis</i>	IN-TN-01, 02, 04, 08, 10, 11, 18, 19, 21, 22, 23, 25, 26, 34
Grey-headed Bulbul	<i>Pycnonotus priocephalus</i>	IN-TN-01, 10, 11, 15, 19, 23, 26, 34
White-bellied Shortwing	<i>Brachypteryx major</i>	IN-TN-01, 02, 04, 05, 07, 08, 10, 11, 15, 18, 19, 21, 22, 23, 25, 26, 34
Wynaad Laughingthrush	<i>Garrulax delesserti</i>	IN-TN-08, 10, 11, 23, 26, 34
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>	IN-TN-01, 04, 05, 07, 15, 18, 19, 23, 25, 34
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>	IN-TN-02, 08, 10, 11, 21, 22, 26, 34
Indian Rufous Babbler	<i>Turdoides subrufus</i>	IN-TN-10, 11, 17, 21, 23, 26, 34
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>	IN-TN-08, 10, 11, 17, 23, 26, 34
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>	IN-TN-01, 02, 04, 05, 07, 08, 10, 11, 15, 17, 18, 19, 21, 22, 23, 25, 26, 34
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>	IN-TN-01, 02, 04, 08, 10, 11, 15, 18, 19, 21, 22, 23, 25, 26, 34
White-bellied Blue Flycatcher	<i>Cyornis pallipes</i>	IN-TN-10, 11, 15, 17, 23, 26, 34
Small Sunbird	<i>Nectarinia minima</i>	IN-TN-01, 02, 04, 05, 07, 08, 10, 11, 15, 17, 18, 19, 21, 22, 23, 25, 26, 34
White-bellied Treepie	<i>Dendrocitta leucogastra</i>	IN-TN-10, 11, 17, 23, 26, 34



**THREATS AND CONSERVATION ISSUES**

Tamil Nadu state also suffers from the plethora of conservation issues that besot other neighbouring states such as encroachment on forest lands, cutting of timber and other forest produce, habitat alteration by growing plantation crops, construction of dams, poaching, shifting cultivation and grazing. In Tamil Nadu 34 IBAs have been identified, some more are likely to be found in future. Twenty out of 34 IBAs suffers from agriculture intensification and expansion, while in 17 we found habitat destruction due to industrialization and urbanization. In at least three IBAs, dams are planned. Firewood collection and unsustainable exploitation is the cause of threats to 23 IBAs. Disturbance to birds in the form of hunting, and trapping was seen in 15 IBAs but it is much more widespread, especially in non-protected areas.

**Threats to IBAs**

A=Agriculture intensification/expansion; B=Dams/Dykes; C=Disturbance to Birds; D=Firewood Collection;  
E=Industrialisation/Urbanisation; F=Unsustainable exploitation; G=Others; H=Natural Events

The majority of the people in Tamil Nadu are agriculturalists and therefore, need water for irrigation. Almost everywhere, the wetlands in Tamil Nadu have come under extreme pressure from human activities. Vast areas have been drained for agriculture and urban development or have been converted into paddy fields, aquaculture ponds, water storage reservoirs or salt pans. In recent years, the coastal ecosystem has been greatly disturbed by siltation, erosion, flooding, damage to aquifers, pollution and conversion to various industrial and agricultural uses and for construction. Wetlands of all types have been polluted with domestic sewage, herbicides, pesticides, fertilizers, industrial effluents and other waste products. Fish stocks are being over-exploited or decimated by excessive fishing. The wetlands in Tamil Nadu are silting up. The most serious threats have been drainage or reclamation for agriculture, aquaculture, industry and urban development. The total inland wetland area of Tamil Nadu comprises 49,877 ha (Alfred and Nandi 2001). The rate of degradation and the loss of wetlands is increasing. A management plan to conserve the wetlands is required to minimize anthropogenic pressures.

In recent days, the anthropogenic activities around the coastal and estuarine environment have increased the degradation of this fragile ecosystem, which is vital for several shore birds and their associated fauna. Some of the issues pertaining to this ecosystem are large-scale reclamation of land near estuaries, swamps, marshes and mangroves for aquaculture, agriculture and dredging for navigation and establishment of industries. All these activities together reduce natural river discharges

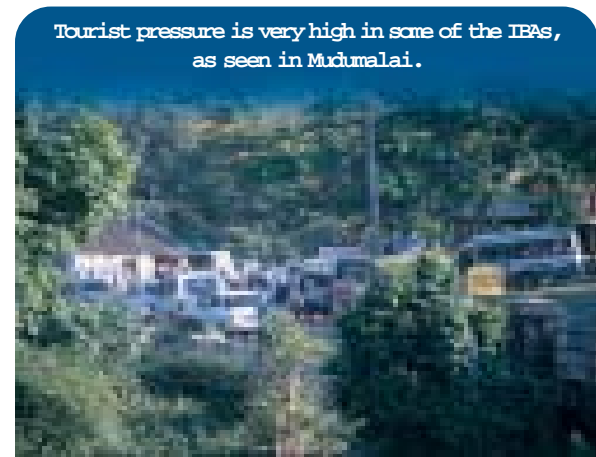


Photo: Asad R. Rahmani



Photo: Ashfaq Ahmed Zarri

and lead to increase of untreated sewage and effluent wastes in the ecosystem. An urgent survey of the Tamil Nadu coastal ecosystem should be carried out to pinpoint the areas of possible danger from various types of intrusion and to suggest remedial measures.

Sacred groves and heritage trees of Tamil Nadu are venerated by the people. Hence, the groves of mixed vegetation, especially near temples and other holy places, have over the centuries received protection from villagers. The IBA programme also identifies some of these places based on IBA criteria. Unfortunately, over the last few decades, vandals have not spared even some of these important groves. One case in point is the grand old Banyan tree covering an area of approximately 12,000 sq. mt. in the village of Jakkeri, 20 km southeast of Hosur in Dharmapuri district which suffered extensive damage because of chopping for firewood. In addition, there is no information on its present status. An extensive survey is needed to identify such heritage sites and necessary action must be undertaken for their care and protection.



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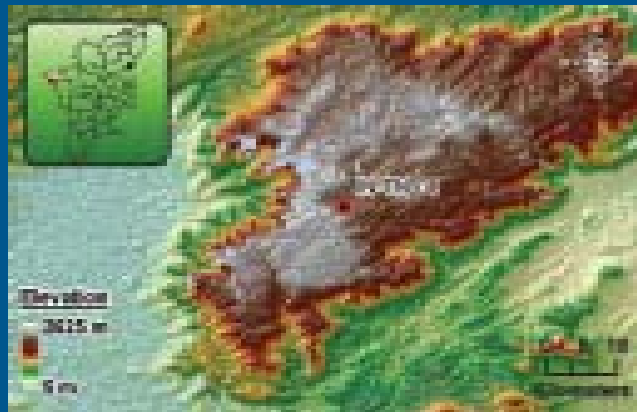
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## AVALANCHE (NILGIRI)



<b>IBA Site Code</b>	: IN-TN-01
<b>State</b>	: Tamil Nadu
<b>District</b>	: Nilgiris (South Forest Division)
<b>Coordinates</b>	: 11° 17' 56" N, 76° 35' 30" E
<b>Ownership</b>	: State
<b>Area</b>	: 7,846 ha
<b>Altitude</b>	: 2,200 m
<b>Rainfall</b>	: 1,400 mm
<b>Temperature</b>	: 7 °C to 18 °C
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Montane Grassy Slopes, Tropical Secondary Scrub, Tropical Grassland

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats), A3 (Biome 10: Indian Tropical Moist Peninsula Forest)  
**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Avalanche, a part of the Nilgiri Hills, lies in the extreme northwest of Tamil Nadu, on the interstate boundaries with Karnataka and Kerala. Avalanche Reserve Forest encompasses an area of 7,846 ha. The terrain is undulating with a few remnant patches of grassland and *sholas*, the latter confined to the folds of hills and depressions.

There are numerous streams draining into the reservoirs of the Canada and Emerald Dams that have submerged a considerable area. The climate is generally cool throughout the year, with frost formation mainly during November and December.

This site forms one of the key areas for the conservation of many endemics and threatened bird species of the Western Ghats, such as the Rufous-breasted or Nilgiri Laughingthrush *Garrulax cachinnans*. Increasing anthropogenic pressure from the nearby settlements is a cause of concern for this IBA.

The vegetation cover mainly constitutes monoculture plantations of exotics Wattle *Acacia mearnsii*, Blue Gum *Eucalyptus globulus* and Pine *Pinus patula*.

The vegetation can be classified into three major types namely, Southern Montane Wet Temperate Forest (*Shola*), grasslands and exotic plantations. Details of the flora are included in the authoritative works of Gamble (1915-25) and Fyson (1915-20).

Southern Montane Wet Forests classified by Champion and Seth (1968), generally found above 1,800 m, are common in Avalanche and consist of medium sized evergreen trees upto 20 m. Such forest patches usually occur as a rule at the heads of streams in the folds of converging slopes and include species of both tropical and temperate regions. Several genera of distinctly Himalayan origin, such as *Rhododendron*, *Hypericum*, *Rubus*, *Lonicera*, *Gaultheria* and *Pittosporum* are common. Over the past hundred years, *sholas* have been converted to monoculture plantations or tea estates and this continued up to the late 1970s. Now, fortunately this has been stopped and the remnant *sholas* have been protected.

Grasslands in Avalanche Reserve Forest were the worst affected by plantations, as a result of which hardly any undisturbed grassland remains. Fragments of grassland are seen between the mosaic of plantations and *shola* patches. During monsoon, the natural grasslands harbour many species of Balsam and Orchids, some rare and endemic.

Systematic plantation of exotic species began in 1953, covering about 70% of this IBA; largely Wattle, Eucalyptus, Pine and Tea were planted. Plantation is proportionally the largest vegetation type in Avalanche. Thickets of Wattle and stands of Pine are seen everywhere. Tea plantations are mainly found in the area from Murlimunth towards Emerald village.

### AVIFAUNA

This is one of the most important bird areas in the Nilgiris. The *shola* in this IBA harbours several endemic and habitat-specialist bird species such as the Nilgiri Laughingthrush, White-bellied Shortwing *Brachypteryx major* and Nilgiri Wood-Pigeon *Columba elphinstonii*. Grassland species of conservation interest include the Nilgiri Pipit *Anthus nilghiriensis*, which is a common species in suitable habitats in the IBA. The remnant grasslands also provide foraging ground to many raptors such as the Common Buzzard *Buteo buteo*, White-eyed Buzzard *Butastur teesa*, Common Kestrel *Falco tinnunculus*, and Black-shouldered Kite *Elanus caeruleus*, to name a few. The Common Kestrel breeds in this IBA.

The plantations in this IBA are the least important habitat type, and support mainly generalist species such as the Grey Tit *Parus major*, White-eye *Zosterops palpebrosus* and warblers in winter (Zarri *et al.* 2002). The wattle plantation in Avalanche also supports a small wintering population of the Kashmir Flycatcher *Ficedula subrubra*. During a recent survey of this species in the Nilgiris Upper Plateau, 12 of the 16 individuals birds sighted altogether were recorded from this IBA (Zarri and Rahmani, in press). The Woodcock *Scolopax rusticola*, which was once a prized game bird, has severely declined over the last few decades in most parts of its range in India. It is still found in Avalanche, but is an extremely rare winter visitor.

The water reservoir in this IBA is devoid of vegetation, and supports no significant bird species except a few Common Sandpipers *Actitis hypoleucos* and Large Cormorants *Phalacrocorax carbo*. Fish fauna is limited to two species, one of them the highly prized game fish, Rainbow Trout *Salmo gairdneri*, which was successfully introduced here in 1911 to the detriment of many endemic species.

The site lies in the Western Ghats Endemic Bird Area (EBA), where Stattersfield *et al.* (1998) have listed 16 restricted range species. Eight of them are found in this IBA. All the five restricted range

species associated with Wet Temperate *sholas* and Subtropical Broadleaf Hill Forest (Stattersfield *et al.* 1998) are found, which proves that some *shola* habitat is still available despite extensive plantation in the past. The occurrence of such species also necessitates further protection of the site.

Avalanche is located in Biome-10 (Indian Peninsula Tropical Moist Forests). Fifteen species represent this biome. Only two species, the White-cheeked Barbet *Pomatorhinus horsfieldii* and Indian Scimitar Babbler *Pomatorhinus horsfieldii* have been recorded to date. The Indian Scimitar Babbler is much widely distributed, so it may not be the best example of this biome.

The site is an important wintering area for many birds that are listed in other biomes such as Tickell's Leaf Warbler *Phylloscopus affinis*, Large-billed Leaf Warbler *Phylloscopus magnirostris*, Brown-breasted Flycatcher *Muscicapa muttui*, Blue-headed Rock-thrush *Monticola cinclorhynchus* and Indian Blue Robin *Luscinia brunnea*.

Endangered	
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Vulnerable	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Kashmir Flycatcher	<i>Ficedula subrubra</i>
Near Threatened	
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Endemic Bird Area 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-headed Bulbul	<i>Pycnonotus priocephalus</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Small Sunbird	<i>Nectarinia minima</i>
Biome 10: Indian Tropical Moist Peninsula	
White-cheeked Barbet	<i>Megalaima viridis</i>
Indian Scimitar Babbler	<i>Pomatorhinus horsfieldii</i>

**OTHER KEY FAUNA**

Troops of Nilgiri Langur *Trachypithecus johni* are frequently seen all through this IBA, while Bonnet Macaque *Macaca radiata* is occasionally present near the settlements. Among the large cats, Tiger *Panthera tigris* and Leopard *P. pardus* are sighted, the leopard being more frequent. Several other small mammals, such as Jungle Cat *Felis chaus*, Brown Palm Civet *Paradoxurus jerdoni*, Striped-necked Mongoose *Herpestes vitticollis*, and Common Mongoose *Herpestes edwardsii* have also been recorded. Packs of Wild Dog *Cuon alpinus*, and Golden Jackal *Canis aureus* are also to be seen. Nilgiri Marten *Martes gwatkinsi* is rarely seen, perhaps because of its elusive behaviour. Among the herbivores, Sambar *Cervus unicolor* and Barking Deer *Muntiacus muntjak* are fairly common, while Nilgiri Tahr *Hemitragus hylocrius* can also be sighted near cliffs.

**LAND USE**

- q Forestry
- q Plantation

**THREATS AND CONSERVATION ISSUES**

- q Invasive species
- q Construction Dam/Dykes/Barrage

Ecologically this IBA is most affected by large-scale plantations, like the rest of Upper Nilgiris Hills. Wattle regenerates through seeds, forming impenetrable thickets, which interfere with wildlife movement. Another serious but little recognized problem in this site is the rapid invasion of grasslands by Scotch Broom *Cytisus scoparius*. Given the alarming rate of its spread, the already scarce grassland habitat and its specialist avifauna are under threat. Growing tourism, tree felling and firewood collection are other problems. The construction of dams in the mid 1960s had a severe negative impact on the ecology by submerging important wildlife habitats in the valleys, and indirectly by blocking wildlife movement paths. Pressure has mounted on the remaining forests from the new settlements that are associated with the dams.

**KEY CONTRIBUTOR**

Ashfaq Ahmed Zarri

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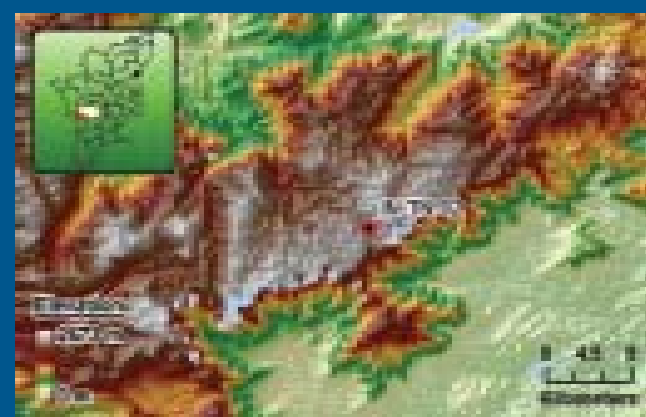
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## BERIJAM (KODAIKANAL)



<b>IBA Site Code</b>	: IN-TN-02
<b>State</b>	: Tamil Nadu
<b>District</b>	: Dindigul
<b>Coordinates</b>	: 10° 10' 60" N, 77° 24' 00" E
<b>Ownership</b>	: State
<b>Area</b>	: 62,000 ha
<b>Altitude</b>	: 1,500 – 2,654 m
<b>Rainfall</b>	: 1,200 – 1,700 mm
<b>Temperature</b>	: 5 °C to 23 °C
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Tropical Dry Evergreen Forest, Tropical Semi Evergreen Forest, Tropical Secondary Scrub

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Berijam, situated 23 km west of Kodaikanal, holds the largest area of *shola* and evergreen forests of the Palni Hills. There is a semi-natural lake in the middle of Berijam forest (Balachandran, *in litt.* 2003). Both, Berijam and Vandaravu forest ranges have two reserve forests each of which extend to an area of about 6,200 ha. The important Mathikettan (271 ha) and Marian *sholas* are situated here. Vandaravu Peak (2,654 m) which is situated on the border of Tamil Nadu and Kerala States is the highest peak of the area. The Kodaikanal-Munnar road passes through Berijam and Vandaravu.

This undulating plateau bears grasslands interspersed with wooded *sholas*. The grasslands have been extensively planted by Wattle, Blue gum, Pine and Alnus. Due to provision from nurseries of the Forest Department for indigenous high altitude trees of the Palni Hills, young *Shola* trees thrive on the campuses of several enlightened Kodaikanal institutions and in private gardens. The Forest Department is replacing old plantations with native *shola* species such as *Elaeocarpus glandulosus*, *Syzygium densiflorum*, *Neolitsea scrobiculata*, *Michelia nilagirica* and others. There is a proposal to declare a wildlife sanctuary in the Upper Palnis, which will also include this IBA.

### AVIFAUNA

The Bombay Natural History Society has been conducting bird ringing in the Upper Palni Hills including Berijam since 1970, and 94 species of birds have been identified. Almost all the high

altitude endemics of the Western Ghats have been seen and/or ringed here. Interestingly, the Nilgiri Wood-Pigeon *Columba elphinstonii*, which was uncommon till the mid 1980s, has now become quite regular. It has also been found to breed in the Upper Palnis (Balachandran *et al.* 2003). The increase in other endemic species such as White-bellied Shortwing *Brachypteryx major*, Black-and-Orange Flycatcher *Ficedula nigrorufa*, and Nilgiri Flycatcher *Eumyias albicaudata* were discovered during bird banding studies carried out at the neighbouring Poomparai, another IBA, from 1970 to 2003 (Balachandran *et al.* 2003). However, the Nilgiri Pipit *Anthus nilghiriensis* has decreased in number, mainly due to the plantation of exotic trees in the grasslands.

Out of the 16 restricted range species of the Western Ghats (Stattersfield *et al.* 1998), seven have been reported from this IBA site. But of the 15 Biome-10 species identified by BirdLife International (undated), only four are found here: White-cheeked Barbet *Megalaima viridis*, Malabar Whistling Thrush *Myiophonus horsfieldii*, Indian Scimitar Babbler *Pomatorhinus horsfieldii* and Black-throated Munia *Lonchura kelaarti* (Balachandran *et al.* 2003).

This site has been selected on the basis of the presence of globally threatened species, a significant percentage of restricted range species, and some biome-restricted species.



Photo: Clement Francis M. R., V. Jayakumar Thondaman

The Vulnerable White-bellied Shortwing *Brachypteryx major* is seen in Kodaikanal.

#### Vulnerable

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>

#### Near Threatened

Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>

#### Endemic Bird Area 123: Western Ghats

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Small Sunbird	<i>Nectarinia minima</i>

#### OTHER KEY FAUNA

The major predator is Leopard *Panthera pardus*. There have been some unconfirmed records of Tiger *Panthera tigris* also. The ungulates include Gaur *Bos frontalis*, Sambar *Cervus unicolor*, Barking Deer *Muntiacus muntjak* and Wild Boar *Sus scrofa*. The Gaur population is quite healthy and increasing (S. Balachandran *pers. comm.* 2003). The Wild Dog *Cuon alpinus* has also increased due to good protection. The Indian Giant Squirrel *Ratufa indica* is found in all suitable forest patches.

#### LAND USE

- ☐ Forestry

#### THREATS AND CONSERVATION ISSUES

- ☐ Invasive species
- ☐ Plantation
- ☐ Developmental activities

This IBA site is relatively well protected, as grazing and firewood collection pressure is low. The natural forests are now surrounded by forest plantations and entry is restricted. Villagers get their fuel requirements from the Wattle plantations.

The only real threat is the spread of the invasive Scotch Broom *Cystisus scoparius* in most of the remaining grasslands. The area of Reserve Forest in the Kodaikanal Division is dwindling gradually, due to handing over of forested land to various

departments, both State as well as Central Governments, for other purposes such as establishing apple orchard, Bee Research Station, Sheep Breeding Research Station, and for the various irrigation projects. The Sheep Breeding Research Station (Manavanur) has taken over 801 ha.

Land was allotted to construct the Lord Murugan Temple at Berijam. In addition, the public has been given right of way, access to a temple, right to take water, build streams and to construct roads and channels.

#### KEY CONTRIBUTOR

S. Balachandran

#### KEY REFERENCES

- Balachandran, S., Rahmani, A. R. and Ezhilarsi, N. (2003) *Revaluation of Bird Community Structure of Palni Hills, with Special Reference to Threatened and Endemic Species*. Annual Report 2002-2003. Pp. 26. Bombay Natural History Society, Mumbai.
- BirdLife International (undated) *Important Bird Areas (IBAs) in Asia: Project briefing book*. BirdLife International, Cambridge, U.K., Unpublished.
- Stattersfield, A. J., Crosby, M. J., Long, A. J. and Wege, D. C. (1998) *Endemic Bird Areas of the World: Priorities for Biodiversity Conservation*. BirdLife Conservation Series No. 7. BirdLife International, Cambridge, U.K.



## BIG TANK (PERIA KANMAI) AND SAKKARAKOTAI KANMAI



IBA Site Code	: IN-TN-03
State	: Tamil Nadu
District	: Ramanathapuram
Coordinates	: 09° 22' 00" N, 78° 52' 00" E
Ownership	: State (Irrigation Department)
Area	: 2,541 ha
Altitude	: Not available
Rainfall	: Not available
Temperature	: 22 °C to 37 °C
Biogeographic Zone	: Coasts
Habitats	: Freshwater Reservoir

IBA CRITERIA: A1 (Threatened Species), A4iii ( $\geq 20,000$  waterbirds)  
 PROTECTION STATUS: National Park, established in September 1986

### GENERAL DESCRIPTION

Big Tank or Peria Kanmai (System Tank) (891 ha) and Sakkarakottai Kanmai (Non-system Tank) (1,650 ha) are twin wetlands of great importance for bird conservation, although they were initially built to provide irrigation and drinking water. Peria Kanmai is fed by the River Vaigai and Sakkarakottai Kanmai is rainfed. These wetlands are located 5 km north of the district headquarters at Ramanathapuram.

The wetlands are rich in aquatic flora, especially *Scirpus*, *Cyperus pygmaeus*, *Cyperus difformis* and *Cynodon dactylon*. *Ipomea carnea* can be seen in dense stands on the periphery.

### AVIFAUNA

This site has been selected as an IBA based on the large numbers of congregatory waterfowl, and especially as a nesting site for the globally threatened Spot-billed Pelican *Pelecanus philippensis*. The wetlands have attracted waterfowl immediately after the completion of the dams. Many birds started nesting on the numerous *Acacia nilotica* trees found inside the tank. Significant numbers of heronry species such as the Grey Heron *Ardea cinerea*, Purple Heron *Ardea purpurea*, cormorants *Phalacrocorax* spp., Cattle Egret *Bubulcus ibis*, Little Egret *Egretta garzetta* and Large or Great Egret *Casmerodius albus* nest there. Coot *Fulica atra* is also found breeding on these wetlands. Recently small numbers (35-40) of Spot-billed Pelican were found breeding. Balachandran (*pers. comm.* 2003) has found that the pelicans shift their nesting site between these two wetlands, depending upon availability of water.

The Big Tank (Peria Kanmai) is close to the Gulf of Mannar, from where Greater Flamingos *Phoenicopterus ruber* frequent this lake in thousands when the water level is low (S. Balachandran, *pers. comm.* 2002). During the Annual Waterfowl Count in 2002, nearly 1,600 were sighted. A very large congregation of ducks is also seen. At a time, there may not be as much as 20,000 birds (A4iii criteria), but in a year more than 20,000 birds use these wetlands.

These tanks also attract many species listed as Near Threatened. On 25 April, 2002, 1,800 White Ibis *Threskiornis melanocephalus*, 250 Black Ibis *Pseudibis papillosa*, 1,300 Glossy Ibis *Plegadis falcinellus*, 1,500 Painted Stork *Mycteria leucocephala* and 2000 Little Egret *Egretta garzetta* were seen, along with other waterbirds (S. Balachandran *pers. comm.* 2003). The numbers were much more than the 1% mentioned by Wetlands International (2002).

### Vulnerable

Spot-billed Pelican *Pelecanus philippensis*

### Near Threatened

Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Oriental White Ibis	<i>Threskiornis melanocephala</i>

### OTHER KEY FAUNA

As these wetlands are surrounded by human habitation, there is not much large terrestrial fauna.

### LAND USE

- ☐ Cultivation of vegetables on the banks
- ☐ Fishing

### THREATS AND CONSERVATION ISSUES

- ☐ Illegal snail collection
- ☐ Poaching and collection of eggs and chicks
- ☐ Illegal tree cutting

These wetlands are under the control of the Irrigation Department, but the Forest Department has control on the wildlife. Illegal collection of bird eggs and chicks still occurs, though not to the same extent as before. Effluence from a hospital pollutes the water of Sakkarakotai Kanmai. This needs to be stopped at once. Attempts should be made to involve villagers and students in the conservation of birds. Environmental awareness programmes to highlight the role of guano-rich water in increasing the fertility of the crop fields should be taken up.

If the villagers agree, these tanks should be considered as Community Conservation Areas, under the modified Indian Wildlife (Protection) Act.

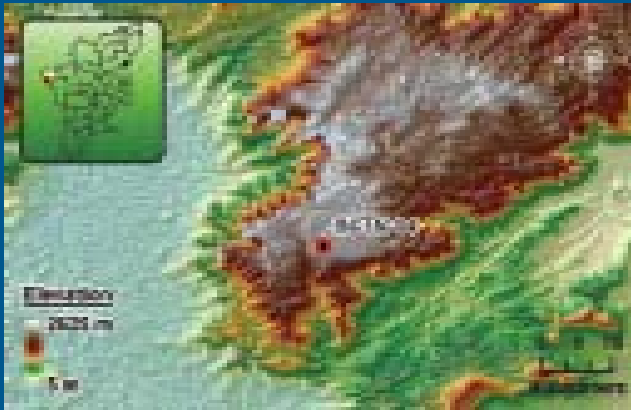
### KEY CONTRIBUTORS

S. Balachandran, S. S. Ramchandran Raja and V. Kannan

### KEY REFERENCE

Wetlands International (2002) *Waterbirds Population Estimates: Third Edition*. Wetlands International Global Series No. 12. Wageningen, the Netherlands.

## BISON SWAMP (NILGIRIS)



<b>IBA Site Code</b>	: IN-TN-04
<b>State</b>	: Tamil Nadu
<b>District</b>	: Nilgiris (South Forest Division)
<b>Coordinates</b>	: 11° 12' 52" N, 76° 31' 41" E
<b>Ownership</b>	: State
<b>Area</b>	: 12 ha
<b>Altitude</b>	: 2,300 m
<b>Rainfall</b>	: 1,400 mm
<b>Temperature</b>	: 9 °C to 22 °C
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Montane Wet Temperate Forest, Tropical Grassland, Tropical Secondary Scrub

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats)  
**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Bison Swamp is located at the southwest end of Nilgiris district, Tamil Nadu, very close to the Kerala border. It is a part of the Korakundah Range of the Nilgiris South Forest Division. Francis (1908) in the Nilgiri Gazetteer describes the origin of its name, from the congregation of Indian Bison or Gaur *Bos frontalis*, which the early settlers often hunted. During the last century, Bison Swamp experienced extensive habitat changes affecting its flora and fauna. It was extensively planted with exotics such as *Eucalyptus globulus* and Wattle *Acacia mearnsii*. A very small proportion of natural *shola* and grassland remains. Despite habitat loss and degradation, this IBA is still important for the conservation of endemic and threatened birds such as the Nilgiri Laughingthrush *Garrulax cachinnans*.

Natural vegetation of this site can be classified into two major types namely, Southern Montane Wet Temperate Forest (*shola*), and grasslands. Both have been converted to plantations. Patches of grasslands, between plantation and *shola* patches, remain in Bison Swamp. Plantations of Wattle and Eucalyptus now occupy a major portion of Bison Swamp. Wattle forms impenetrable thickets, severely affecting the movement of larger mammals. It regenerates and spreads quickly, and may be termed invasive.

### AVIFAUNA

Bison Swamp was once home to a wintering population of Wood Snipe *Gallinago nemoricola* and Eurasian Woodcock *Scolopax rusticola*, but these species have become rare owing to severe hunting pressure as game birds during the early decades of the 20<sup>th</sup> century, followed by habitat degradation. The *Shola* around the swamp harbours a number of Western Ghats endemics and habitat specialists such as the Nilgiri Laughingthrush, Nilgiri Wood-Pigeon *Columba elphinstonii*, Nilgiri Flycatcher *Eumyias albicaudata*, Nilgiri Pipit *Anthus nilghiriensis*, Black-and-Orange Flycatcher *Ficedula nigrorufa* and Small Sunbird *Nectarinia minima*, among others. The details of birds seen around this site are given by Zari *et al.* (2002).

The site lies in Biome-10 (Indian Peninsula Tropical Moist Forest), but many species of other biomes are also found in winter. The biome species recorded in this IBA are: Tickell's Leaf Warbler *Phylloscopus affinis* (Biome-5: Eurasian High Montane); Large-billed Leaf Warbler *Phylloscopus magnirostris* and Indian Blue

Robin *Luscinia brunnea* (Biome-7: Sino-Himalayan Temperate Forest); Black Bulbul *Hypsipetes leucocephalus* (Biome-8: Sino-Himalayan Subtropical Forest); White-cheeked Barbet *Megalaima viridis* and Indian Scimitar Babbler *Pomatorhinus horsfieldii* (Biome-10) and Common Indian Nightjar *Caprimulgus asiaticus*, White-eye Buzzard *Butastur teesa*, Painted Bush Quail *Percidula erythrorhyncha*, White-browed Fantail-Flycatcher *Rhipidura aureola*, Lesser Golden-backed Woodpecker *Dinopium benghalense* and Ashy Prinia *Prinia socialis* (Biome-11: Indo-Malayan Tropical Dry Zone).

Endangered	
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Vulnerable	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Near Threatened	
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Endemic Bird Area 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Small Sunbird	<i>Nectarinia minima</i>

### OTHER KEY FAUNA

Ironically enough, the Bison or Gaur has become uncommon in Bison Swamp! Only a few are seen, during the monsoon. Both Tiger *Panthera tigris* and Leopard *P. pardus* are frequently seen in this IBA, their prey Sambar *Cervus unicolor* and Barking Deer *Muntiacus muntjak* being fairly common. Asian Elephants *Elephas maximus* cross through this area, like many other IBA of the Nilgiris, during their annual migration from Silent Valley to the Wynaad Plains. Other mammals include Jungle Cat *Felis chaus*,

TN-04

White-eyed Buzard *Butastur teesa* of Biome-10 is seen easily in this IPA.



Photo: Raja Purdhit

Brown Palm Civet *Paradoxurus jerdoni*, Striped-necked Mongoose *Herpestes vitticollis* Common Mongoose *Herpestes edwardsi*, Wild Dog *Cuon alpinus*, Golden Jackal *Canis aureus*, Nilgiri Langur *Trachypithecus johni*, and Wild Boar *Sus scrofa*. Nilgiri Marten *Martes gwatkinsi* may also be present, but there is no recent record.

#### LAND USE

- Plantation
- Forestry Operations

#### THREATS AND CONSERVATION ISSUES

- Invasive species
- Grazing
- Firewood collection
- Poaching

The key conservation problem that has changed the ecological landscape of this area is conversion of natural vegetation into exotic plantations. Commercial timber harvesting is another major problem. Remnant grassland patches are vulnerable to burning during summer.

As Bison Swamp is on the border of Tamil Nadu with Kerala State, there is lot of illegal cultivation of *Cannabis sativa* (Ganja). Animal poachers also take advantage of its remoteness, tough terrain and inaccessibility. Inclusion of this site in the proposed expansion of Mukurthi National Park may save it from further exploitation. There is urgent need to stop degradation of natural habitats around Bison Swamp.

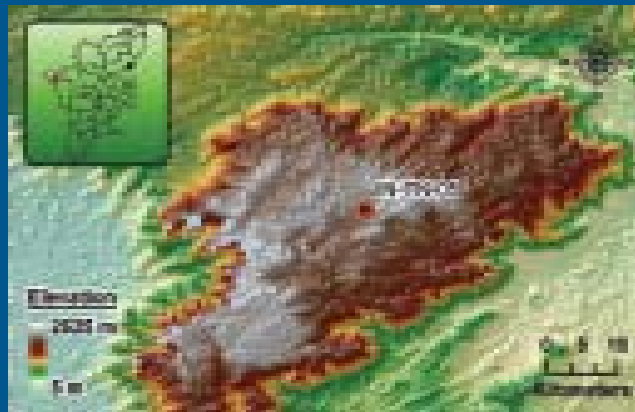
#### KEY CONTRIBUTOR

Ashfaq Ahmed Zarri

#### KEY REFERENCE

Zarri, A. A., Rahmani, A. R., and Senthilmurugan, S. (2002) Ecology of *Shola* and Alpine Grasslands. Annual report. 2 Part 1. Bombay Natural History Society, Mumbai.

### CAIRNHILL RESERVE FOREST (NILGIRIS)



IBA Site Code	: IN-TN-05
State	: Tamil Nadu
District	: Nilgiris (South Forest Division)
Coordinates	: 11° 23' 38" N, 76° 41' 13" E
Ownership	: State
Area	: 243 ha
Altitude	: 2,200 m
Rainfall	: 1,200 mm
Temperature	: 11 °C to 18 °C
Biogeographic Zone	: Western Ghats
Habitats	: Montane Wet Temperate Forest, Tropical Secondary Scrub

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats)  
**PROTECTION STATUS:** Not officially protected

#### GENERAL DESCRIPTION

Cairnhill is located in the Nilgiris district of Tamil Nadu in the Western Ghats. It is a part of the South Range of Nilgiris South Forest Division, located 4-5 km from Ooty town. The site is surrounded by agricultural fields and settlements. It is one of the oldest converted forests in the Upper Nilgiris Plateau. A few small patches of *sholas* still thrive amid the old plantations of *Pinus* sp., *Cyperus* sp. and Wattle *Acacia mearnsii*. Despite its small size, it is a promising area for the conservation of endangered and Western Ghats endemic bird species.

A very small patch of *shola* is left in Cairnhill that supports bird species of conservation interest. Plantations, mainly Wattle and *Cyperus* form the principal habitat type in Cairnhill, replacing a significantly higher proportion of the indigenous vegetation. Over a hundred years old, the *Cyperus* plantation stands tall, surrounded on all sides by Wattle, at the top of the hill. Owing to the creation of bare patches in the forest, shrub vegetation characteristic of forest edges now dominates this IBA.

*Rhododendron nilagiricum*, endemic to the Nilgiris, is very common. The grassland in and around this site has disappeared during the 20th century.

#### AVIFAUNA

Cairnhill provides a home to a number of Western Ghats endemics such as the Nilgiri Laughingthrush *Garrulax cachinnans*, Nilgiri Flycatcher *Eumyias albicaudata*, White-bellied Shortwing *Brachypteryx major*, Nilgiri Wood-Pigeon *Columba elphinstonii* and Small Sunbird *Nectarinia minima*. Besides, a number of restricted range and biome related species are recorded from this site. The checklist of bird species recorded in Upper Nilgiris Plateau is given in Zarri *et al.* (2002).

This IBA lies in Biome-10 (Indian Peninsula Tropical Moist Forest) in which 15 species are listed. Although only two species of this biome are found till now (more species are likely to occur), many species of other biomes are found here in winter. The species recorded in different biomes are:- Tickell's Leaf Warbler *Phylloscopus affinis* (Biome-5: Eurasian High Montage- Alpine and Tibetan); Indian Blue Robin *Luscinia brunnea* and Large-billed Leaf Warbler *Phylloscopus magnirostris* (Biome-7: Sino-Himalayan Temperate Forest); Black Bulbul *Hypsipetes*

*leucocephalus* (Biome-8: Sino-Himalayan Subtropical Forest); White-cheeked Barbet *Megalaima viridis* and Indian Scimitar Babbler *Pomatorhinus horsfieldii* (Biome-10); Painted Bush Quail *Perdica erythrorhyncha*, Indian Peafowl *Pavo cristatus*, Common Indian Nightjar *Caprimulgus asiaticus*, Lesser Golden-backed Woodpecker *Dinopium benghalense*, Indian Robin *Saxicolides fulicata*, Jungle Babbler *Turdoides striatus*, Ashy Prinia *Prinia socialis* and White-browed Fantail Flycatcher *Rhipidura aureola* (Biome-11: Indo-Malayan Tropical Dry Zone).

The site lies in the Western Ghats Endemic Bird Area (EBA), where Stattersfield *et al.* (1998) have listed 16 restricted range species. All the five restricted range species associated with Wet Temperate *sholas* and Subtropical Broadleaf Hill Forest (Stattersfield *et al.* 1998) are found here despite the fact that *shola* have seen tremendous modification during the last 100 years.

There are not many biome species. This site is, therefore, selected on the basis of globally threatened species and Restricted Range species of the Western Ghats (Endemic Bird Areas 123).

Endangered	
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Vulnerable	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Near Threatened	
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Endemic Bird Area 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Small Sunbird	<i>Nectarinia minima</i>

#### OTHER KEY FAUNA

Tiger *Panthera tigris* and Leopard *P. pardus* are apparently very rare, probably because of disturbance and lack of continuity with the neighbouring forests. Sambar *Cervus unicolor* and Barking

Black-and-Orange Flycatcher *Ficedula nigrorufa* is one of the endemic birds of the Western Ghats.

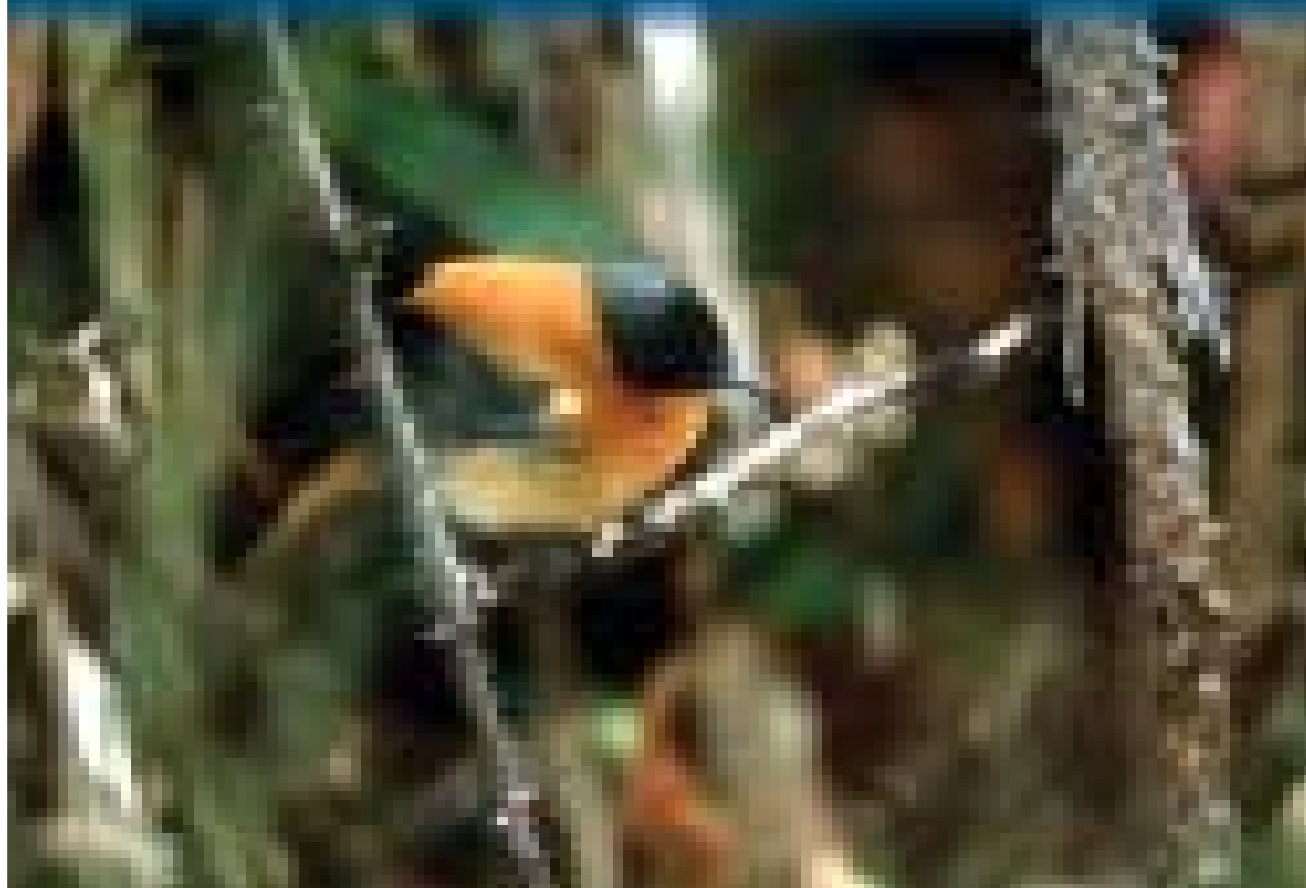


Photo: R. Vijaykumar Thondavan

Deer *Muntiacus muntjak* are still common. Troops of Bonnet Macaque *Macaca radiata* and Nilgiri Langur *Trachypithecus johni* can easily be seen. Other mammals include Wild Boar *Sus scrofa*, Golden Jackal *Canis aureus*, Jungle Cat *Felis chaus*, and Brown Palm Civet *Paradoxurus jerdoni*.

#### LAND USE

- q Forestry
- q Plantation

#### THREATS AND CONSERVATION ISSUES

- q Fuel wood collection
- q Unrestricted tourism
- q Infestation by alien species
- q Extensive use of inorganic pesticides

The site has experienced significant habitat degradation and loss for the past few decades because of mounting anthropogenic pressure from the surrounding cultivation. Major threats to the biodiversity values of this site are uncontrolled human interference and illegal wood cutting and lopping. Invasion by alien species such as the Scotch Broom *Cytisus scoparius* and the *Eupatorium* sp. would further degrade the ecology of this site.

Extensive use of inorganic pesticides in the tea and vegetable cultivation surrounding this IBA can also affect the long-term survival of the endemic and threatened bird species. Removal of undergrowth, tree lopping and firewood collection is impacting the microhabitats of several species, including the Nilgiri Laughingthrush and the White-bellied Shortwing.

Because of its proximity to Ooty, this IBA site can be used to promote bird watching related eco-tourism, so long as the biodiversity is protected.

#### KEY CONTRIBUTOR

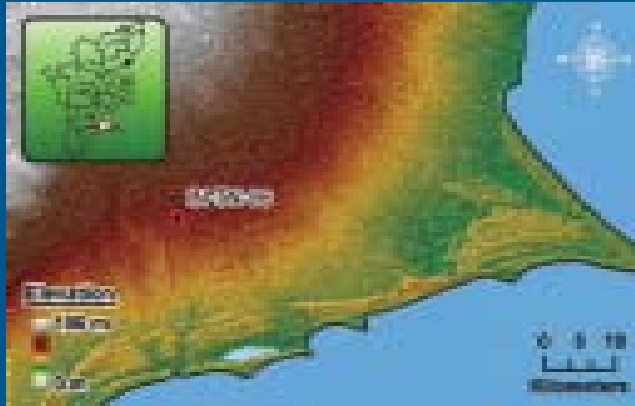
Ashfaq Ahmed Zarri

#### KEY REFERENCES

- Stattersfield, A. J., Crosby, M. J., Long, A. J. and Wege, D. C. (1998) *Endemic Bird Areas of the World: Priorities for Biodiversity Conservation*. BirdLife Conservation Series No. 7. BirdLife International, Cambridge, U.K.
- Zarri, A. A., Rahmani, A. R., and Senthilmurugan, S. (2002) Ecology of *Shola* and Alpine Grasslands. Annual report. 2 Part 1. Bombay Natural History Society, Mumbai.



## CHITRANGUDI AND KANJIRANKULAM WILDLIFE SANCTUARIES



<b>IBA Site Code</b>	: IN-TN-06
<b>State</b>	: Tamil Nadu
<b>District</b>	: Ramanathapuram
<b>Coordinates</b>	: 9° 19' 48" N, 78° 28' 60" E
<b>Ownership</b>	: State
<b>Area</b>	: 152 ha
<b>Altitude</b>	: 15 m
<b>Rainfall</b>	: 790 mm
<b>Temperature</b>	: 21 °C to 36 °C
<b>Biogeographic Zone</b>	: Deccan Peninsula
<b>Habitats</b>	: Fresh Water Reservoir

**IBA CRITERIA:** A1 (Threatened Species), A4i (>1% biogeographic population)  
**PROTECTION STATUS:** Wildlife Sanctuaries, established in September 1989

### GENERAL DESCRIPTION

Chitrangudi (48 ha) and Kanjirankulam (104 ha) Bird Sanctuaries are situated in the Ramanathapuram district of Tamil Nadu, in the villages of the same names. The Sanctuaries are c. 5 km from Mudukulathur and c. 25 km from Paramakudi, in a drought prone area. The floral diversity is very poor and the area seems to be scrub jungle type. The area has been planted with *Prosopis chilensis* and *Acacia nilotica* in the villages and around the tanks; the two species were introduced and planted by the Forest Department on a massive scale to sustain firewood collection. Tamarind *Tamarindus indicus* is the only common tree, seen sporadically on the roads and the tank bunds. Due to the nature of the soil and scanty rainfall, the natural vegetation is sparse.

### AVIFAUNA

The site qualifies as an IBA as the threatened Spot-billed Pelican *Pelecanus philippensis* breeds here. A maximum of 100 birds reportedly breed, i.e 2.5% of the species biogeographic population at the 1% level of 40 birds (Wetlands International 2002). Chitrangudi and Kanjirankulam Bird Sanctuary are two of the oldest known pelicanries in the state. Since time immemorial, the locals have protected both the pelicanries. In January 1988, in Chitrangudi Sanctuary, 934 Pelicans and 100 nests were found (BirdLife International 2001). Johnson *et al.* (1993) have seen 700 pelicans in January 1989, and 286 in 1991 in the same tank.

Besides the Spot-billed Pelican, the Asian Openbill *Anastomus oscitans*, Little Egret *Egretta garzetta*, Large Egret *Casmerodius albus*, Grey Heron *Ardea cinerea*, Purple Heron *Ardea purpurea*, and Indian Pond Heron *Ardeola grayii* are known to breed in both villages.

Vulnerable	
Spot-billed Pelican	<i>Pelecanus philippensis</i>
Near Threatened	
Painted Stork	<i>Mycteria leucocephala</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>

In Kanjirankulam, Abraham (1973) found Painted Stork *Mycteria leucocephala* breeding on the same trees as pelicans nests were found. During his visit, the nesting colony was on 60 trees, mainly *Ficus religiosa*, *Thespesia populnea* and *Acacia arabica*. He also found nesting colonies of Oriental White Ibis *Threskiornis*

*melanocephalus* and Black Ibis *Pseudibis papillosa*, about 1.6 km away from Kanjirankulam.

### OTHER KEY FAUNA

Due to the presence of scrub jungle and surrounding agricultural fields, the vegetation cover does not permit the presence of large or medium sized mammals.

### LAND USE

- ☐ Water Management
- ☐ Agriculture
- ☐ Grazing

### THREATS AND CONSERVATION ISSUES

- ☐ Poaching
- ☐ Encroachment

While poaching at the nesting site is not a major problem, many adult birds are killed by tribals for food. Traditional nesting trees are dying due to drought and poor rainfall. The tanks need reconstruction of their bunds to collect and store adequate water during the monsoon season to safeguard the nesting trees of the pelican. Forest Department should take remedial measures or alternate ways to protect the trees. Conservation education is needed to inform and motivate the locals in order to restrict the anthropogenic pressure on the avifauna.

### KEY CONTRIBUTOR

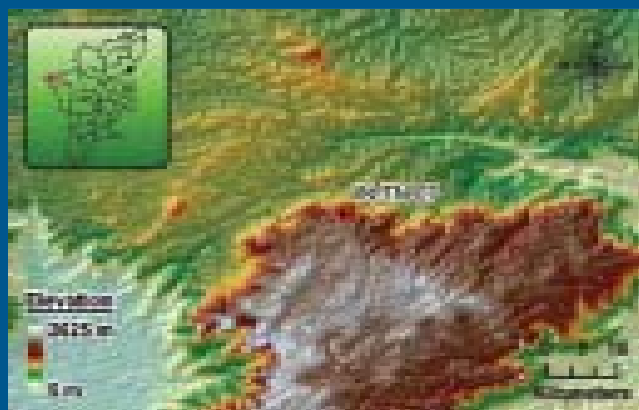
V. Kannan

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## GOVERNOR'S SHOLA (NILGIRI)



<b>IBA Site Code</b>	: IN-TN-07
<b>State</b>	: Tamil Nadu
<b>District</b>	: Nilgiris (South Forest Division)
<b>Coordinates</b>	: 11° 31' 01" N, 76° 37' 07" E
<b>Ownership</b>	: State
<b>Area</b>	: Not available
<b>Altitude</b>	: 2,200 m
<b>Rainfall</b>	: 1,200 mm
<b>Temperature</b>	: 11 °C to 18 °C
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Montane Wet Temperate Forest, Tropical Secondary Scrub

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Governor's Shola is located in the northwestern corner of Tamil Nadu, on the interstate boundaries with Karnataka and Kerala. It lies c. 8 km from Ooty town along the Ooty-Porthimunth road. It is a part of the Wenlock Down's Range in the Nilgiris South Forest Division. This site was known for its excellent natural forest and grassland till the first half of the 20th century. Today, much of what existed in the mid 20<sup>th</sup> century is converted into exotic plantations, as in many other sites in the Nilgiris.

This site also experienced significant habitat loss over the years because of anthropogenic pressures from the surrounding villages and conversion of land to agricultural use. Nevertheless, this small forest area still harbours a number of bird species of conservation interest.

Governor's Shola is a medium size patch of *shola* amid a sea of plantations and cultivation. Species comprising such *shola* include *Actinodaphne bourneae*, *Ilex denticulata*, *Litsea wightiana*, *Michelia nilagirica*, *Microtropis ramiflora*, *Pithecolobium subcoriaceum*, *Symplocos pendula* and *Syzygium arnotanum*, *Eurya nitida*, *Photina notoniana*, *Ternstroemia japonica*, *Berberis tinctoria*, *Heydotis stylosa*, *Leucas suffruticosa* and *Smithia blanda*. Besides, several genera of Himalayan elements such as *Rhododendron*, *Hypericum*, *Rubus*, *Lonicera*, *Gaultheria* and *Pittosporum* are also common.

### AVIFAUNA

Governor's Shola holds a bird community with small populations of some of the globally threatened and restricted range species, besides many common birds also. A checklist of birds recorded in the area around this site is given in Zarri *et al.* (2002).

Governor's Shola is located in the Western Ghats Endemic Bird Areas (EBA), where Stattersfield *et al.* (1998) have listed 16 restricted range species. We could record only five such species from this site; most of them are associated with Wet Temperate *sholas* and Subtropical Broadleaf Hill Forest, which proves that some natural vegetation is still surviving.

This site is selected as an IBA based on the presence of globally threatened and restricted range species, A1 and A2 criteria respectively, of BirdLife International (2001).

#### Endangered

Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
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#### Vulnerable

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>

#### Endemic Bird Areas 123: Western Ghats

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Small Sunbird	<i>Nectarinia minima</i>

### OTHER KEY FAUNA

Most of the mammals found in the *sholas* of the Nilgiris are also found here. Noteworthy species are Nilgiri Langur *Trachypithecus johni*, Tiger *Panthera tigris*, Leopard *P. pardus*, Wild Dog *Cuon alpinus*, Sambar *Cervus unicolor* and Barking Deer *Muntiacus muntjak*.

### LAND USE

- ☐ Forestry
- ☐ Plantation

Clear felling for cultivation in the Upper Nilgiris.

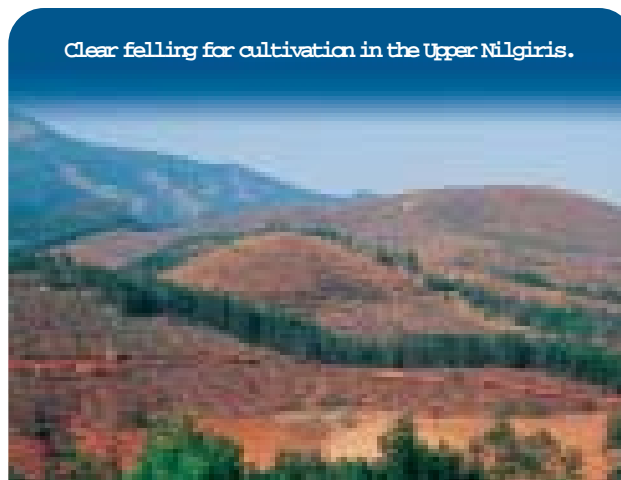


Photo: Ashfaq Ahmed Zarri



Photo: Ashfaq Ahmed Zarri

#### THREATS AND CONSERVATION ISSUES

- ❑ Consequences of monoculture plantation and invasive species
- ❑ Overgrazing
- ❑ Conversion of forests into cultivation
- ❑ Extensive use of inorganic pesticides

This *shola* has been subjected to a succession of large-scale monoculture plantations of Wattle *Acacia mearnsii*, Eucalyptus or Blue gum *Eucalyptus globulus* and Pine *Pinus patula*. Now, invasive weeds such as Scotch Broom *Cytisus scoparius* and *Ulex europeus* have invaded this site, putting further pressure on the natural ecosystem.

Settlements around the site have grown mainly because of immigration of people from the plains encouraged by several development projects. This has resulted in habitat degradation through firewood collection, illegal tree felling and overgrazing.

Depletion of the *shola* undergrowth has affected the population of important bird species such as the White-bellied Shortwing and the Nilgiri Laughingthrush.

There is an urgent need to protect this area with the active involvement of the inhabitants of the surrounding settlements, if long term conservation of the biodiversity in general and bird community in particular, is to be ensured.

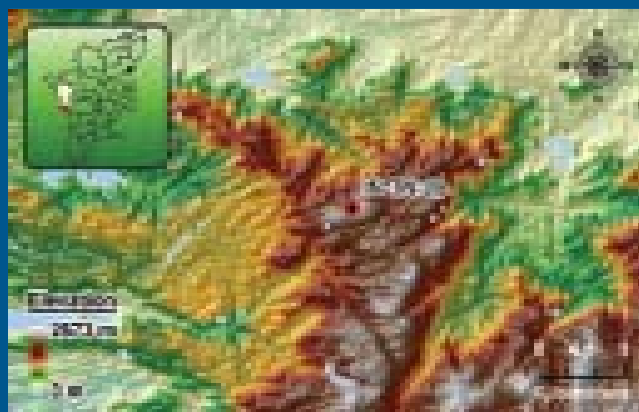
#### KEY CONTRIBUTOR

Ashfaq Ahmed Zarri

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## GRASS HILLS



<b>IBA Site Code</b>	: IN-TN-08
<b>State</b>	: Tamil Nadu
<b>District</b>	: Coimbatore
<b>Coordinates</b>	: 10° 20' 59" N, 77° 3' 35" E.
<b>Ownership</b>	: State
<b>Area</b>	: 65,700 ha
<b>Altitude</b>	: 1,800 m
<b>Rainfall</b>	: Not available
<b>Temperature</b>	: Not available
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Grassland and Evergreen Montane Forest ( <i>Shola</i> )

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

The Grass Hills plateau in the southeastern part of the Indira Gandhi (Anamalai) Wildlife Sanctuary extends c. 65 sq. km. On the southern and southeastern sides, the plateau is continuous with Eravikulam National Park in Kerala. On the north and northwest, it is bounded by forest and tea plantations, and on the northeast, west and southwest sides, by forest. A township with tea estates, Akka Malai, lies on the plateau. Akka Malai can be approached from the townships of Valparai or Iyerpadi through the Peria Karamalai group of estates (Mishra and Johnsingh 1994). There are several ridges and peaks with extensive cliffs.

A mosaic of grassland-*shola* is present all along the crests of the Western Ghats. Besides being the major habitat of the Nilgiri Tahr *Hemitragus hylocrius*, it is used by a diverse array of fauna. Several large mammals, many of them protected under the Indian Wildlife Protection Act (1972), use the grassland areas. Unfortunately, these grasslands, which represent a unique ecosystem, have been traditionally viewed as wastelands by the Forest Department. There have been repeated attempts of converting the grasslands into commercially valuable exotic plantations. In the last 100 years, vast areas of grassland and Evergreen Montane Forest have been converted into such plantations (Mishra and Johnsingh 1994).

This IBA has extensive short grassland, little shrub cover and several perennial sources of water. Only the valleys have tall grasses. Grass species recorded from the area include *Eulalia phaeothrix*, *Themeda quadrivalvis*, *Arundinella purpurea*, *Chrysopogon zeylanicus*, *H. contortus*, and *Tripogon ananthaswamianus*.

### AVIFAUNA

Thanks to its remoteness, Grass Hills is perhaps one of the finest habitats in the Western Ghats for endemic and restricted range species. Although no detailed work on avifauna has been done, 8 of the 16 restricted range species have been identified. Along with Eravikulam National Park, this IBA is the main habitat of the Nilgiri Pipit *Anthus nilghiriensis*. Nilgiri Wood-Pigeon *Columba elphinstonii* and Broad-tailed Grass-Warbler or Grassbird *Schoenicola platyura* are other vulnerable and restricted range species found here.

As a detailed checklist of birds of Grass Hills is not available, it is not known how many biome species are found here. The site lies

in Biome-10 (Indian Peninsula Tropical Moist Forest.) Looking at the extent of intact *shola*, many biome-restricted species are likely to occur here, especially high altitude forest birds of the Western Ghats.

#### Vulnerable

Greater Spotted Eagle	<i>Aquila clanga</i>
Lesser Kestrel	<i>Falco naumanni</i>
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>

#### Near Threatened

Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>

#### Endemic Bird Area 123: Western Ghats

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Wynaad Laughingthrush	<i>Garrulax delesserti</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Indian Rufous Babbler	<i>Turdoides subrufus</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Small Sunbird	<i>Nectarinia minima</i>

### OTHER KEY FAUNA

Besides the Nilgiri Tahr, Grass Hills is famous for large herds of Gaur *Bos frontalis*. Other fauna include the Tiger *Panthera tigris*, Leopard *P. pardus*, Asian Elephant *Elephas maximus*, Sambar *Cervus unicolor* and Barking Deer or Indian Muntjak *Muntiacus muntjak*.

### LAND USE

- ☐ Nature conservation and research

### THREATS AND CONSERVATION ISSUES

- ☐ Poaching
- ☐ Invasive species

Grass Hills is one of the remotest areas in the Western Ghats. Despite plantations of exotic species by the Forest Department, natural habitat is still intact in many parts.

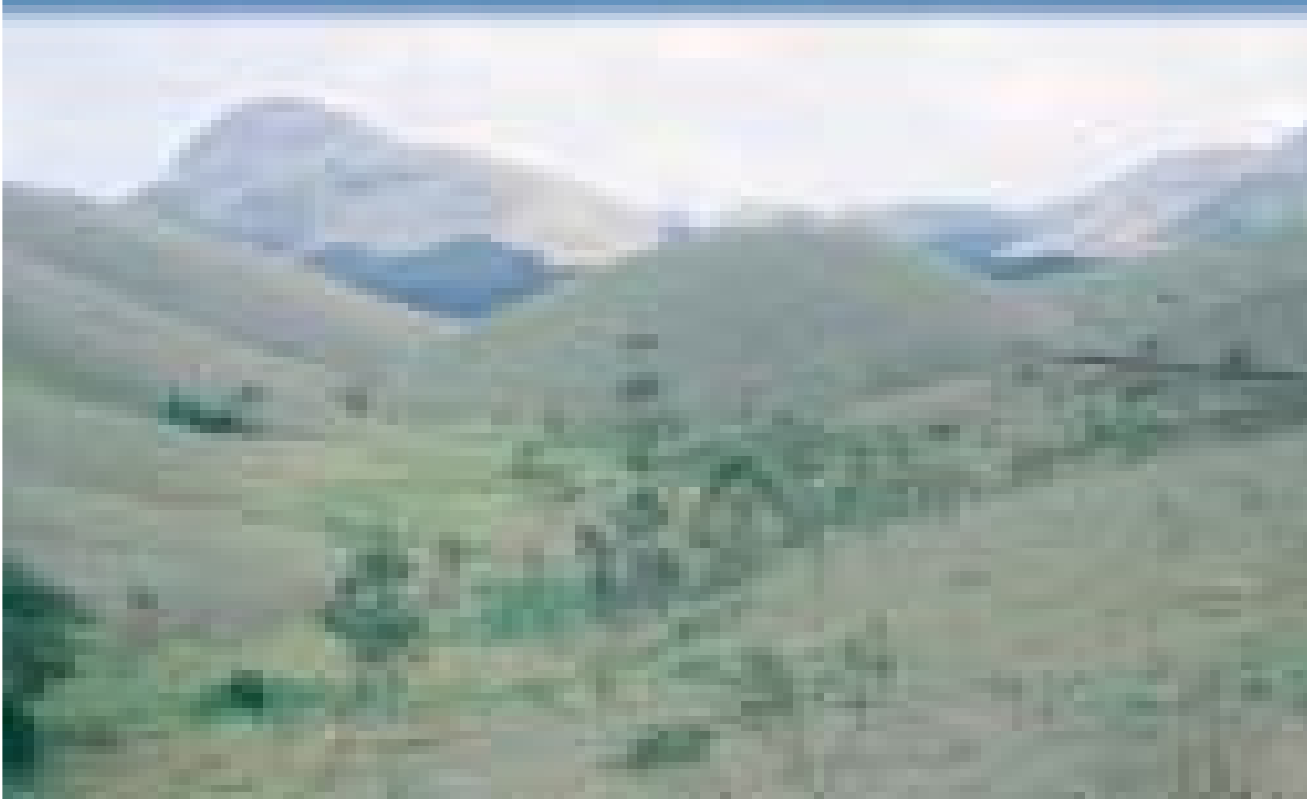


Photo: Asad R. Rahmani

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The site is well protected with no encroachment and there are no settlements, except a few in adjacent areas. Visitors have to seek permission from the Forest Department, and the site is not open to tourists. However, as the area is understaffed, poaching is rampant. Mishra and Johnsingh (1994) found at least three poachers with muzzle-loading guns during their survey. They also heard shots twice in one week.

The Forest Department made several attempts to establish Wattle plantations. Pine (*Pinus* sp.) and *Eucalyptus* plantations can be seen near Konalar bungalow (Mishra and Johnsingh 1994). Wattle has already taken over the grassland near Konalar and along the fringes of Eravikulam National Park. It is now colonising the National Park area, seriously threatening the Tahr habitat. The Forest Department has uprooted and destroyed wattle from a few hectares so far, and the same has to be done in the remaining areas. The existing pine and the earliest *Eucalyptus* plantations are being

used to meet the fuel wood and other requirements of the Konalar Bungalow. This is a desirable practice since it substitutes for fuel wood extraction from the *sholas*. Evidence of these species colonising more areas was not recorded, and the existing plantations should be maintained for fuelwood (Mishra and Johnsingh 1994).

The streams have been stocked with Rainbow Trout *Oncorhynchus mykiss* which has affected local hill stream fish fauna.

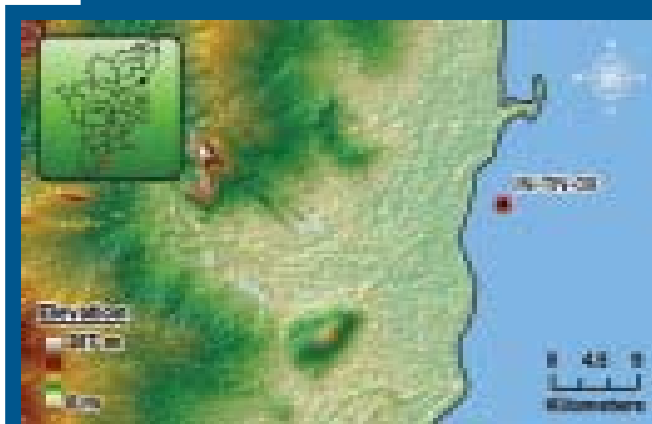
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## GULF OF MANNAR MARINE NATIONAL PARK



<b>IBA Site Code</b>	: IN-TN-09
<b>State</b>	: Tamil Nadu
<b>District</b>	: Ramanathapuram, Tuticorin
<b>Coordinates</b>	: 8° 40' 00" N, 78° 10' 00" E
<b>Ownership</b>	: State
<b>Area</b>	: 623 ha
<b>Altitude</b>	: 0 - 6 m
<b>Rainfall</b>	: 900 mm
<b>Temperature</b>	: 25 °C to 31°C
<b>Biogeographic Zone</b>	: Coasts
<b>Habitats</b>	: Littoral Forest, Tropical Secondary Scrub

**IBA CRITERIA:** A1 (Threatened Species), A4iii (≥ 20,000 waterbirds)  
**PROTECTION STATUS:** National Park, established in September 1986

### GENERAL DESCRIPTION

The Gulf of Mannar, the first marine Biosphere Reserve of India, off the southern extremity of India, includes a group of 21 islands, located 0.2 to 8 km off the coast. Most of the islands are small, from a few hectares to less than 4 sq. km., running roughly parallel to the coast. The islands are mainly of coral origin.

The Gulf of Mannar is the first Marine Biosphere Reserve not only in India, but also in south and southeast Asia. It is about 60 km from Ramanathapuram. The Gulf of Mannar has a coastal length of about 141 km. The International Union for Conservation of Nature and Natural Resources (IUCN) commission on National Parks, and the World Wildlife Fund (WWF), identified the Reserve as being an area of "Particular concern" given its biodiversity and special 'multiple use' management status.

Mandapam lies on a narrow peninsula projecting from the southeast coast of India, with the Gulf of Mannar to the south and Palk Bay to the north. At the end of the peninsular extension is Pamban Island, which is connected to the mainland by a railway bridge. The inshore region of the Palk Bay is largely muddy, while in the Gulf of Mannar, it is rocky and interspersed with small areas of sand and mud (Balachandran 1995). The mixing of waters of Palk Bay and the Gulf takes place through the Pamban Pass and also through Adam's Bridge between Dhanushkodi and the west coast of Sri Lanka (Jayaraman 1954).



Flamingos congregate in large numbers in this IBA.

Photo: M. Zafar-ul-Islam

The Gulf of Mannar Marine NP consists of 6.23 sq. km, but the Biosphere Reserve stretches 180 km along the coast and is c. 10 km wide. Forty villages lie within the Biosphere Reserve.

There are four or five main islands and lagoons: Manali Island, Hare island, Dhanushkodi lagoon, Kundugal inter-tidal area, Pallaimadam lagoon and Dhanushkodi lagoon.

### AVIFAUNA

About 187 species of aquatic and terrestrial birds have been identified from this IBA (Balachandran 1990, 1995), which is famous for waders and seabirds. Sometimes >50,000 water birds are found here. Pelagic birds are also recorded (Balachandran 1990). Its proximity to Sri Lanka makes this IBA an important flyway for migratory birds. Among the waders, the Lesser Sand Plover *Charadrius mongolus*, Curlew Sandpiper *Calidris ferruginea* and Little Stint *Calidris minuta* are the most abundant. Red Knot *Calidris canutus* is a regular winter visitor in small numbers, and the species is not a vagrant as reported previously. The rare Eastern Knot *C. tenuirostris* has also been recorded from this area. The occurrence of Crab Plovers *Dromas ardeola* in hundreds indicates that the two islands (Manali and Hare) in the Gulf of Mannar are important habitats for the species, next only to Pirotan Islands in Kutch (coastal northwest India, another IBA) (where two to three thousand individuals were reported to winter regularly).

The Bar-tailed Godwit *Limosa lapponica*, reportedly a straggler in south India, has been recorded in hundreds. The status of Sanderling *Calidris alba* was confirmed as a regular common winter migrant, after being first recorded by Biddulph (1938) earlier.

The marine terns, such as the Lesser Crested *Sterna bengalensis* and the Sandwich *S. sandvicensis* commonly occur, and the former was found breeding. The other breeding species at Mandapam are: Little Tern *Sterna albifrons*, Kentish Plover *Charadrius alexandrinus*, Stone Plover *Esacus magnirostris* and Stone Curlew *Burhinus oedicephalus*. Since Greater flamingos *Phoenicopterus ruber* frequent this area in several thousands, this IBA ranks third as an important wintering ground for flamingos along the east coast, after Pulicat Lake (IBA) and Great Vedaranyam Swamp. Rare waders in this area are the Broad-billed Sandpiper *Limicola falcinellus*, Dunlin *Calidris alpina*, Long-toed Stint *Calidris subminuta* and Red-necked Phalaropus *Phalaropus lobatus*.



The Gulf of Mannar lies within the passage of many migrants such as Black-tailed Godwit *Limosa limosa* and Broad-billed Sandpiper. Also, 15 species of migratory waders and 8 species of migratory terns were found to summer here especially on the two islands.

Along with Chilika Lake in Orissa (an IBA) and Point Calimere in Tamil Nadu (an IBA), the Gulf of Mannar forms an extremely important link for migrant and resident waders. On the Sri Lanka side, about 10 km away, in Jaffna district, there are 4 IBAs (Anatidal-Thondamannar, Araly South-Punale, Kaithady and Kayts Island-Mandativu (Anon. 2003).

**Vulnerable**

Spot-billed Pelican *Pelecanus philippensis*

**OTHER KEY FAUNA**

This IBA is very important for the Dugong *Dugong dugon*, one of the most endangered species of marine mammals on the east coast of India. Several species of cetaceans also occur in the Park. Marine turtles breed in small numbers, and there is a rich marine fauna associated with the reefs and seagrass. Green Tiger Prawn *Penaeus semisulcatus* is extensively harvested for export.

The Gulf of Mannar NP has 3,600 species of plants and animals. The Gulf of Mannar and Palk Bay contain some of the most extensive beds of sea-grasses (Hydrocharitaceae and Potamogetonaceae) on the east coast of India. Six of the world's 12 seagrass genera and 11 of the world's 50 species, occur in the Gulf. Krusadai Island exemplifies the biological significance of this area. The island harbours three species of seagrass endemic to the Gulf of Mannar, and also a unique Balanoglossus (protochordate) *Ptychdera fluva*, a taxonomically unique living fossil which links vertebrates with invertebrates. The seagrass beds are extremely important for the Dugong. They also provide food and habitat to five species of marine turtles: Green *Chelonia mydas*, Olive Ridley *Lepidochelys olivacea*, Hawksbill *Eretmochelys imbricata*, Leatherly *Dermochelys coriacea*, and Loggerhead *Caretta caretta* which is very rare.

About 120 species of coral have been identified from the Gulf of Mannar NP. Mangroves are also very common. 17 species have been identified so far, including *Pemphis acidula*, which is endemic to the Gulf of Mannar.

**LAND USE**

- ☐ Nature conservation and research
- ☐ Fisheries

**THREATS AND CONSERVATION ISSUES**

- ☐ Tourism
- ☐ Illegal trading of sea animals
- ☐ Fishing
- ☐ Development projects

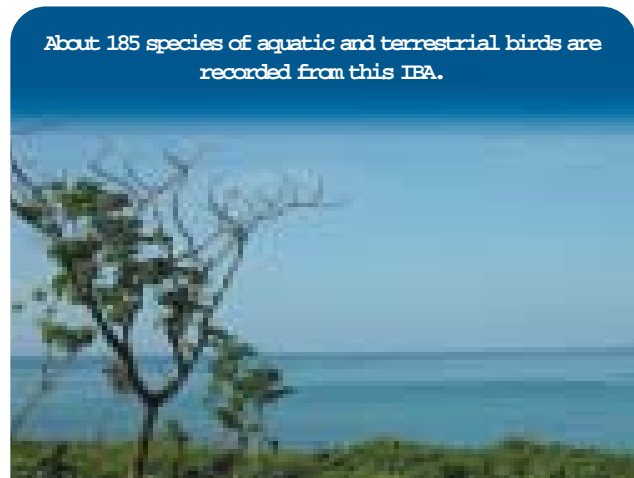


Photo: M. Zafar-ul-Islam

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Indiscriminate destruction of the marine fauna and flora continues, despite the preventive efforts of the Fisheries Department. The population of sea turtles and dugong is declining as a result of direct persecution and destruction of the seagrass beds. The alien species *Prosopis chilensis* has become dominant on some of the islands nearer the coast at the expense of native vegetation, and there have been proposals to plant other exotic tree species on some of the islands. The quarrying of coral for industrial use has now been banned, but several areas of the reef have already been destroyed.

The biggest long-term danger to the Gulf of Mannar Marine NP is from the proposed multi-million dollar Sethusamudram Project initiated by the Ministry of Surface Transport. The project involves deepening of the Pamban channel to facilitate movement of coastal ships upto 3,000 tonnes. The BNHS and others have opposed this project as it would destroy the rich marine biodiversity of this biosphere reserve. The Sri Lankan government has communicated its opposition to the project on the same grounds.

**KEY CONTRIBUTORS**

S. Balachandran and V. Kannan

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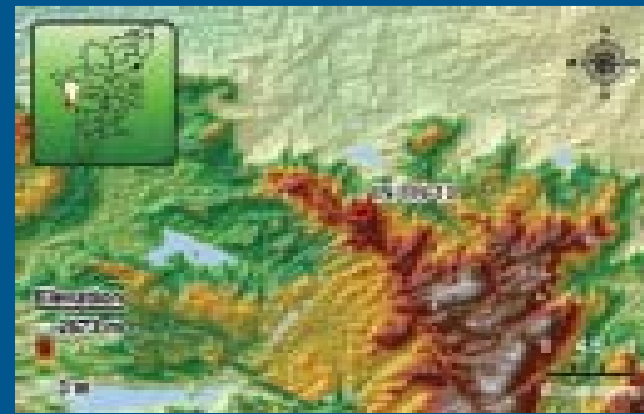
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## INDIRA GANDHI WILDLIFE SANCTUARY AND NATIONAL PARK



IBA Site Code	: IN-TN-10
State	: Tamil Nadu
District	: Coimbatore
Coordinates	: 10° 25' 11" N, 76° 58' 11" E
Ownership	: State
Area	: 98,700 ha
Altitude	: 350 - 2,500 m
Rainfall	: 500 - 5,000 mm
Temperature	: 17 °C to 36 °C
Biogeographic Zone	: Western Ghats
Habitats	: Tropical Dry Evergreen Forest, Tropical Moist Scrub, Tropical Grassland, Tropical Secondary Scrub

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats), A3 (Biome-10: Indian Peninsula Tropical Moist Forest)

**PROTECTION STATUS:** Wildlife Sanctuary established in October 1976 and National Park established in 1989

### GENERAL DESCRIPTION

Anamalai Wildlife Sanctuary, also called Indira Gandhi Wildlife Sanctuary is spread over an area of 98,700 ha. On its western side lies the Parambikulam Wildlife Sanctuary (an IBA) of Kerala which covers 28,500 ha. The inter-state boundary between Tamil Nadu and Kerala separates the two protected areas administratively, but ecologically there is no barrier. The terrain is largely hilly with altitude varying from 350 m to 2,500 m.

The Anamalai Hills cover an area of about 2,00,000 ha in the Western Ghats. Between the Anamalai Hills in the south and the Nilgiri Plateau in the north, is a 25 km wide stretch of flat land called the Palghat Gap, which has been an important biogeographic barrier for certain birds and other taxa. This isolation from the northern ranges has resulted in speciation in many plant and animal groups in the Anamalai Hills (Rodgers and Panwar 1988). The altitudinal range (<150 m to >2500 m) has led to a variety of habitats. Due to these factors, Anamalai Hills have assumed special conservation importance. Protected areas cover three-quarters of the total area of Anamalai Hills, of which Anamalai and Parambikulam Sanctuaries form more than 80%.

The vegetation can be divided into five broad categories: Tropical Evergreen Rainforest, Tropical Montane Forest, Grassland and Moist Dry Deciduous Forest. Important plant species include *Michelia nilagirica*, *Rhododendron arboreum*, *Cymbopogon* sp.,

*Terminalia-Anogeissus-Tectona grandis* series, pure stands of *Bambusa arundinacea* and *Dendrocalamus strictus*. Monocultures include plantations of tea *Thea sinensis*, coffee *Coffea arabica*, *Cinchona cinchona* sp., rubber *Ficus* sp. and teak *Tectona grandis* which surround this IBA.

### AVIFAUNA

From 1991 to 1993, in a bird survey in Indira Gandhi Wildlife Sanctuary and National Park, a total of 218 bird species were recorded. Of these, 12 were endemic and 75 were typical rainforest species (Kannan 1998, Raman 2001). In a recent study that was confined to two ranges (Ulandy and Pollachi) of this IBA, 139 species were recorded, of which 10 are restricted range and three are Vulnerable (Sivakumaran and Rahmani 2002)

The Vulnerable Nilgiri Wood-Pigeon *Columba elphinstonii*, and Near Threatened Great Pied Hornbill *Buceros bicornis* are breeding residents in the Sanctuary, mainly in Kariyan-Shola, Anaikunthy-Shola, Varagalaiyar, and Vanathiar-Shola of Ulandy Range, and the other ranges such as Valparai and Manjam Patty. Ceylon Frogmouth *Batrachostomus moniliger*, an uncommon species, breeds in Kariyan-Shola, and probably in other *sholas* also (Sivakumaran and Rahmani, 2002).

Stattersfield *et al.* (1998) have listed 16 restricted range species in the Western Ghats Endemic Bird Area. In this IBA site, 15 have been recorded till now (Raman 2001, Sivakumaran and Rahmani 2002). Except for the Nilgiri Laughingthrush *Garrulax cachinnans*, which is in any case not found south of the Palghat Gap (Ali and Ripley 1987, Grimmett *et al.* 1998), all the endemic birds of the Western Ghats were seen. This is one of the IBAs in the Western Ghats where every expected endemic has been found. Besides threatened species, this site also has five Near Threatened species.

This IBA lies in the Biome-10 (Indian Peninsula Tropical Moist Forest), according to the classification by BirdLife International (undated). Fifteen species have been listed in this biome, of which ten are found at this site.

Yellow-browed Bulbul *Iole indica* is one of the Biome-10 species found in this IBA.



Photo: Clement Francis M.

### Vulnerable

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>

Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Pallid Harrier	<i>Circus macrourus</i>
Great Pied Hornbill	<i>Buceros bicornis</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>

Endemic Bird Areas 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Blue-winged Parakeet	<i>Psittacula columboides</i>
Malabar Grey-Hornbill	<i>Ocyrceros griseus</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-headed Bulbul	<i>Pycnonotus priocephalus</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Wynaad Laughingthrush	<i>Garrulax delesserti</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Indian Rufous Babbler	<i>Turdoides subrufus</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
White-bellied Blue-Flycatcher	<i>Cyornis pallipes</i>
Small Sunbird	<i>Nectarinia minima</i>
White-bellied Treepie	<i>Dendrocitta leucogastra</i>

Biome-10: Indian Peninsula Tropical Moist Forest	
Small Green-billed Malkoha	<i>Phaenicophaeus viridirostris</i>
Ceylon Frogmouth	<i>Batrachostomus moniliger</i>
Indian Edible-nest Swiftlet	<i>Collocalia unicolor</i>
Malabar Trogon	<i>Harpactes fasciatus</i>
White-cheeked Barbet	<i>Megalaima viridis</i>
Crimson-throated Barbet	<i>Megalaima rubricapilla</i>
Yellow-browed Bulbul	<i>Iole indica</i>
Malabar Whistling-Thrush	<i>Myiophonus horsfieldii</i>
Indian Scimitar-Babbler	<i>Pomatorhinus horsfieldii</i>
Loten's Sunbird	<i>Nectarinia lotenia</i>

#### OTHER KEY FAUNA

The Anamalai Wildlife Sanctuary, the Parambikulam Wildlife Sanctuary and the Eravikulam National Park (both in Kerala), in conjunction with the adjacent forests form a vital conservation unit for many endangered large mammals including the Asian Elephant *Elephas maximus* and the Nilgiri Tahr *Hemitragus hylocrius* (Rodgers and Panwar 1988). Mishra and Johnsingh (1994) estimate between 560 and 680 Tahrs in Anamalai and Parambikulam Sanctuaries, and between 1,360 and 1,480 if we include Eravikulam also – this conservation unit contains approximately half of the existing population of Nilgiri Tahr in the wild. Tiger *Panthera tigris*, Leopard *Panthera pardus* and Dhole or Wild Dog *Cuon alpinus* are the major predators of Tahr in the area. This area has a viable population of Gaur *Bos frontalis*. Mammals endemic to the Western Ghats, besides the Nilgiri Tahr, include the Lion-tailed Macaque *Macaca silenus*, the Nilgiri Langur *Trachypithecus johni*, the Dusky-striped Squirrel *Funambulus sublineatus*, and the Travancore Flying Squirrel *Petinomys fuscocapillus* (Prater 1980; Ashraf *et al.* 1993).

#### LAND USE

- q Nature Conservation and Research
- q Forestry

#### THREATS AND CONSERVATION ISSUES

- q Encroachments in the foothills
- q Poaching
- q Excessive tourism

The Anamalai Hills were opened to planters in 1864 when the Government agreed to auction some of the rainforest areas, termed as ‘waste’ in official records, for tea and coffee plantations. Thus began the establishment of the British in the Anamalai, and a century of deforestation and habitat conversion. Vast areas were cleared for coffee, tea, and teak plantations (Kumar 1987). Most of the remaining forests were also selectively logged. These plantations also caused large-scale resettlement of a huge workforce (Kumar 1987). The area abounded in wildlife and attracted hunters, although notes of hunters and planter-naturalists from the early 20th century indicate that hunting was not on a major scale. At present, tea estates occupy about 18,000 ha and *Cinchona* plantations 4,000 ha within the Anamalai Sanctuary (Sundararaju 1987).

The Anamalai is home to nearly 5,000 tribals of six groups: Malasar, Malai Malasar, Kadar, Muduvar, Ervallars and Pulayars. They grow traditional crops, without the use of chemicals. It is possible that due to onslaught of civilization, some of these crops varieties are going extinct, particularly in the plains. There is an urgent need to document the traditional knowledge and wisdom of these tribals.

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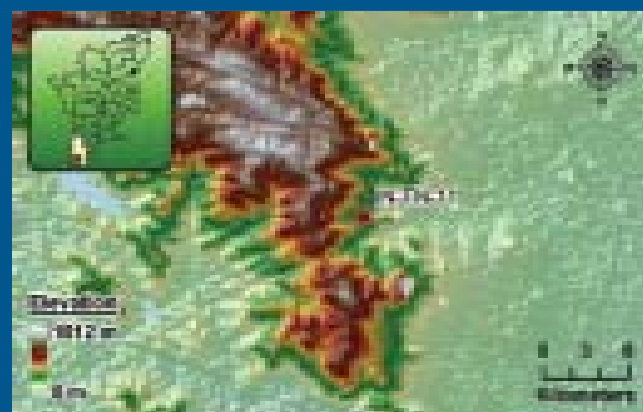
Sajeev Kumar, Ajith Kumar and N. Sivakumaran

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TN-11

## KALAKAD-MUNDANTHURAI TIGER RESERVE



<b>IBA Site Code</b>	: IN-TN-11
<b>State</b>	: Tamil Nadu
<b>District</b>	: Tirunelveli
<b>Coordinates</b>	: 8° 25' 56" N, 77° 30' 01" E
<b>Ownership</b>	: State
<b>Area</b>	: 81,800 ha
<b>Altitude</b>	: 60 - 1,775 m
<b>Rainfall</b>	: 750 mm
<b>Temperature</b>	: Not available
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Tropical Wet Evergreen Forest, Tropical Semi Evergreen Forest, Tropical Grassland, Riverine Vegetation

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Areas 123: Western Ghats)

**PROTECTION STATUS:** Tiger Reserve, established in 1988-89

### GENERAL DESCRIPTION

Kalakad-Mundanthurai Tiger Reserve (KMTR), created in 1988-89, is situated in the southern end of the Western Ghats in the Ashambu Hills of Agasthyamalai region of Tamil Nadu. The present boundaries of the Reserve are surrounded on all sides by villages. Agasthyamalai (1,681 m), which falls within the core zone of the Tiger Reserve, is the third highest peak in south India. A section of the hills in the core of the Reserve is considered one of the five major centres of plant diversity and endemism in India.

The IBA site receives rain for 8 months in a year. The forests of the Reserve form the catchment area of 14 rivers and streams, which form the irrigation network and provide drinking water for the people of Tirunelveli, Tuticorin and part of Kanyakumari district. Seven major dams - Karayar, Lower Dam, Servalar, Manimuthar, Ramanadi, Kadnanadi and Kodaiyar exist on these rivers. Kalakad Mundanthurai comprises of 66,500 ha reserved forest. Because of the occurrence of numerous streams and rivers, the Reserve is called a 'River Sanctuary' (Johnsingh 2001). The Reserve is the southernmost home to some of the charismatic and endangered mammals such as the Nilgiri Tahr *Hermitragus hylocrius* and the Tiger *Panthera tigris*.

The KMTR, sprawling across diverse terrain, is ecologically rich. It has vegetation types ranging from Thorn Scrub to Montane (Wet) Evergreen Forests, all within an altitudinal range from sea level to 1,866 m above sea level (Johnsingh 2001).

Nilgiri Flycatcher *Eumyias albicaudata* is one of the endemic birds of the Western Ghats.



Photo: Clement Francis M.

### AVIFAUNA

Kalakad-Mundanthurai is one of the most important sites for the Western Ghats endemics, due to good forest cover in most parts of this Tiger Reserve. Nearly 160 birds, representing 93 genera and 40 families, have been listed. Of these, 77 are residents, 41 winter visitors, 30 altitudinal migrants and two summer visitors (Joshua and Johnsingh 1988). However, Johnsingh (2001) has mentioned that Katti *et al.* (unpublished) identified 273 species of birds in and around KMTR. The globally threatened White-bellied Shortwing *Brachypteryx major* is found in high elevation rainforests, particularly in Neterikal area. The Oriental Bay Owl *Phodilus badius*, an uncommon species has been recorded from Sengaltheri (Johnsingh 2001). Kodayar area could support a good population of Broad-tailed Grass-Warbler or Grassbird *Schoenicola platyura*.

The site lies in the Western Ghats Endemic Bird Area (EBA), where Stattersfield *et al.* (1998) have listed 16 restricted range species. Except for the Nilgiri Laughingthrush *Garrulax cachinnans*, which is confined to the Nilgiris (Ali and Ripley 1987, Grimmett *et al.* 1998), all the remaining 15 restricted range species of this EBA are found here. This is one of the few sites in the Western Ghats where so many restricted range species are found. This also reflects the diversity and quality of habitats available in this IBA.

This site also has eight Near Threatened species. Given the extensive habitats, the population of Great Pied Hornbill *Buceros bicornis* and Greater Grey-headed Fish-eagle *Ichthyophaga ichthyaeus* could be significant, although both were considered rare by Joshua and Johnsingh (1988).

#### Vulnerable

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>

#### Near Threatened

Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Greater Grey-headed Fish-Eagle	<i>Ichthyophaga ichthyaeus</i>
Red-headed Vulture	<i>Sarcogyps calvus</i>
Great Pied Hornbill	<i>Buceros bicornis</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>

**Endemic Bird Areas 123: Western Ghats**

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Blue-winged Parakeet	<i>Psittacula columboides</i>
Malabar Grey Hornbill	<i>Ocyrceros griseus</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-headed Bulbul	<i>Pycnonotus priocephalus</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Wynaad Laughingthrush	<i>Garrulax delesserti</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Indian Rufous Babbler	<i>Turdoides subrufus</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
White-bellied Blue-Flycatcher	<i>Cyornis pallipes</i>
Small Sunbird	<i>Nectarinia minima</i>
White-bellied Treepie	<i>Dendrocitta leucogastra</i>

**OTHER KEY FAUNA**

Kalakad-Mundanthurai is one of the best tiger reserves of India (Jain, 2001). Besides Tiger *Panthera tigris*, it has Leopard *P. pardus* as the major predator, and ungulates such as Sambar *Cervus unicolor*, Spotted deer *Axis axis*, Barking Deer *Muntiacus muntjak* and Mouse Deer *Moschiola meminna*. Asian Elephant *Elephas maximus*, Gaur *Bos frontalis*, Nilgiri Langur *Trachypithecus johni*, Bonnet Macaque *Macaca radiata*, Lion-tailed Macaque *M. silenus*, Slender Loris *Loris tardigradus*, Sloth Bear *Melursus ursinus*, Indian Giant Squirrel *Ratufa indica*, are also reported from this IBA. Rusty-spotted Cat *Prionailurus rubiginosus* and Nilgiri Martin *Martes gwatkinsi* are two uncommon species reported from this area (Jain, 2001). Among the reptiles, King Cobra *Ophiophagus hannah*, Indian Rock Python *Python molurus*, Monitor Lizard *Varanus bengalensis* and Draco or Gliding Lizard *Draco dussumieri* are some of the interesting species found in this IBA.

The Western Ghats EBA has about 120 species of amphibians, of which 90 are restricted to rainforests (Johnsingh 2001). Thirty-two species have been recorded from this site, of which 25 are endemic of the Western Ghats. The Black Narrow-mouth Frog *Melanobatrachus indicus* was rediscovered after 100 years in Kakachi (Vasudevan 1997). *Dasia halianus*, an arboreal skink, reported earlier only from Sri Lanka, was discovered by Johnsingh and Joshua (1989) from the threatened gallery forest of River Tambiraparani.



Photo: M. Zaheer-ul-Islam

This site has rich reptilian diversity, and a total of 81 species has been identified. Some species of biological and ecological importance include *Calotes andamanensis*, Cochin Forest Cane Turtle *Geoemyda silvatica*, Anaimalai Gecko *Hemidactylus anamallensis* and Indian Kangaroo Lizard *Otocryptis beddomii* (Johnsingh, 2001).

KMTR is also famous for many rare and endemic hill stream fish of the Western Ghats. Recently, Arunachalam and Johnson (2002) have described a new species of *Puntius* from the streams of River Tambiraparani, named *Puntius kannikattiensis*.

**LAND USE**

- ☐ Nature conservation and research
- ☐ Forestry
- ☐ Tourism and Recreation

**THREATS AND CONSERVATION ISSUES**

- ☐ Livestock Grazing
- ☐ Disturbance to birds (poaching)
- ☐ Firewood collection

Grazing remains a problem in parts of Kadayam, Papanasam and Mundanthurai. Cattle enter the Tiger Reserve through Lower Dam and Manimuthar Dam areas. The Reserve has an area of about 56 km on the western side adjoining Kerala, from where the entry is relatively easy due to the existence of private estates nearby. Many times, people from across the state border enter the Reserve to carry out illegal activities. Since the area is extremely remote from the Tamil Nadu side, frequent patrolling becomes difficult. There are about 50,000 cattle in the fringe villages within a 5 km zone from the eastern boundary of the Reserve. Some cattle are owned by the residents of the State Electricity Board colonies and the Tea Estate workers within the Reserve.

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TN-11



## KALIVELI TANK AND YEDAYANTHITTU ESTUARY



<b>IBA Site Code</b>	: IN-TN-12
<b>State</b>	: Tamil Nadu
<b>District</b>	: Cuddalore
<b>Coordinates</b>	: 12° 10' 00" N, 79° 49' 60" E
<b>Ownership</b>	: State (adjacent land is partially private)
<b>Area</b>	: 7,500 ha (13,160ha)
<b>Altitude</b>	: 0 - 1 m
<b>Rainfall</b>	: 1,200 mm
<b>Temperature</b>	: 28 °C to 39 °C
<b>Biogeographic Zone</b>	: Deccan Peninsula
<b>Habitats</b>	: Freshwater Reservoir, Seasonal Lagoon

**IBA CRITERIA:** A1 (Threatened Species), A4i (≥1% biogeographic population), A4iii (≥ 20,000 waterbirds)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Kaliveli Tank is a semi-permanent, fresh to brackish water lagoon, which empties into the sea through a narrow channel connecting the tank with the Yedayanthittu Estuary to the northeast. The water level in the tank fluctuates according to precipitation; the tank reaches its maximum extent at the end of the Northeast Monsoon, and in years of low rainfall, dries out completely for a few months during the summer. At such times, the encroachment of paddy fields reduces the size of the tank by as much as one third. The average depth of water at the end of the monsoon is about 1 m, and the maximum after heavy rainfall, about 2 m. By the end of the monsoon, the lagoon is normally full of fresh water, from the run-off from neighbouring farmland. Subsequently, as the inflow of fresh water diminishes, there is some inflow of seawater from the estuary, and the lagoon becomes brackish, particularly at its northern end. The lagoon is occasionally flooded by seawater during cyclonic disturbances (Scott 1989).

Yedayanthittu estuary lies about 3 km to the northeast of the tank. This estuary has large areas of inter-tidal mudflats, but only tiny relicts of the once extensive mangrove forests now remain. There are some 500 ha of saltpans alongside the estuary immediately to the north of the Marakkanam road bridge across the channel from Kaliveli Tank.

Until about 25 years ago, the entire region was heavily forested, but almost all the forest has been cleared, and the tank and estuary are now surrounded by cultivation and scrubby thorn woodland. There are some low sand dunes by the channel linking the tank to the estuary. The Kaliveli watershed extends from Auroville Plateau south for about 30 km and has an area of approximately 25,000 ha (Scott 1989).

These sites have a wide variety of sedges and grasses, interspersed with barren sandy areas and muddy margins. As the lake fills with fresh water in November, numerous aquatic plants germinate. Amongst the many species of algae in the brackish areas, *Enteromorpha intestinalis* is particularly common. There are extensive reed beds and sedges in the less saline areas. A few straggly mangrove bushes are all that remain of what must once have been a large mangrove forest (Pieter 1987). The wetlands are situated amidst agricultural land and arid thorn scrub.

### AVIFAUNA

The Tank and the estuary are extremely important staging and wintering areas for a wide variety of migratory waterfowl (Pieter 1987, Scott 1989). Pieter (1987) has recorded 105 species of water and land birds, while Perennou (1987) noted 78 species of shorefowl, including 13 species of Anatidae and 30 species of shorebirds. The area regularly holds over 30,000 ducks in winter; and 20,000-40,000 shorebirds and 20,000-50,000 terns during the migration period. Pieter (1987) noted about 40,000 birds in the Tank, and another 20,000 in the estuary. Although the number of species is consistent during this period, the species populations do fluctuate. It is assumed that there is a continuous movement of various species between Point Calimere, Vedanthangal (both IBAs) and the Kaliveli Tank (Pieter 1987).

In March and April, as the water level recedes, the lagoon attracts large congregations of pelicans, herons, egrets, storks and ibises. Spot-billed Pelican *Pelecanus philippensis* is a regular visitor in flocks of 30-200 individuals, and Greater Flamingo *Phoenicopterus ruber* sometimes occurs in very large numbers. The first flock of Greater Flamingo usually arrives in late November or early December, and numbers build up to a peak of 6,000-7,000 in March and April. In 1987-88, 200 Spot-billed Pelican (1% threshold is 40: Wetlands International 2002), 50,000 shorebirds, 30 Ruddy Shelduck *Tadorna ferruginea*, 1,000 Asian Openbill *Anastomus oscitans*, 3,500 Red-crested Pochard *Netta rufina*, and some shorebirds like Little Stint *Calidris minuta* (4,000-5,000; 1% threshold is 2,000: Wetlands International, 2002), Curlew Sandpiper *Calidris ferruginea* (350), Lesser Sand Plover *Charadrius mongolus*: (280) were reported by Scott (1989).

Perennou (1989) found three Greater Spotted Eagle *Aquila clanga* spending the whole winter in 1986-87 in Kaliveli. Their present status is not known.

This site easily qualifies A4i (1% of biogeographic population) and A4iii (≥ 20,000 waterbirds) criteria. By the presence of globally threatened and many Near Threatened species, it also qualifies A1 (Threatened Species) criteria.



Near Threatened Oriental White Ibis *Threskiornis melanocephalus* is seen in this IBA.



Photo: V. I. Thayil/IBNS Library

**Vulnerable**

Spot-billed Pelican	<i>Pelecanus philippensis</i>
Greater Spotted Eagle	<i>Aquila clanga</i>

**Near Threatened**

Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Lesser Flamingo	<i>Phoenicopterus minor</i>
White-tailed Sea-Eagle	<i>Haliaeetus albicilla</i>
Pallid Harrier	<i>Circus macrourus</i>

**OTHER KEY FAUNA**

The area was formerly heavily forested but now only fragments remain. An 18<sup>th</sup> century stone inscription found close to the tank showed a king hunting elephants in the surrounding forests! Now, only a few Golden Jackal *Canis aureus* and Black-naped Hare *Lepus nigricollis* remain.

**LAND USE**

- ☐ Nature conservation and research
- ☐ Water management
- ☐ Fisheries

**THREATS AND CONSERVATION ISSUES**

- ☐ Disturbance to birds
- ☐ Fisheries

The area is getting less water due to several years of low rainfall. Overgrazing, intensification of agriculture and the increased use of pesticides in the vicinity of the lagoon are rapidly becoming serious threats. A caustic soda plant releases its effluents into a tributary and this might soon affect the entire area.

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M. Krishnan, Craig Robson and C. Perennou

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## KARAIVETTI WILDLIFE SANCTUARY



<b>IBA Site Code</b>	: IN-TN-13
<b>State</b>	: Tamil Nadu
<b>District</b>	: Tiruchchirappalli
<b>Coordinates</b>	: 10° 58' 01" N, 79° 11' 07" E
<b>Ownership</b>	: State
<b>Area</b>	: 454 ha
<b>Altitude</b>	: Not available
<b>Rainfall</b>	: 600 mm
<b>Temperature</b>	: 24 °C to 41°C
<b>Biogeographic Zone</b>	: Deccan Peninsula
<b>Habitats</b>	: Freshwater Reservoir

**IBA CRITERIA:** A1 (Threatened Species), A4i (≥1% biogeographic population), A4iii (≥ 20,000 waterbirds)

**PROTECTION STATUS:** Wildlife Sanctuary, established in April 1989

### GENERAL DESCRIPTION

Tiruchirappalli district of Tamil Nadu has a large number of irrigation reservoirs, fed by the River Kaveri and by rainwater. Karaivetti is one such lake, about 50 km northeast of Tiruchchirappalli town. This freshwater lake is fed by Pullambadi, Kattalal canal. It is the biggest waterbody in the district and attracts hundreds of thousands of birds every year. Considering its importance as a bird habitat, the Government of Tamil Nadu declared it as a bird sanctuary in 1999. When full, the lake can hold water to an average depth of 3 m (Anon. 1993). From April to August, the water level is low.

In the northern dry part of the lake, cotton, castor, maize, gram and coriander are cultivated annually, while in the wetter southern part, paddy and sugarcane are cultivated. The natural and planted vegetation consist of *Acacia nilotica*, *Prosopis chilensis*, *Azadirachta indica* and *Tamarindus indica*. The *Acacia nilotica* plantation is the major nesting site for birds. In the wetland, *Typha angustata* and *Fimbristylis* sp. are present. *Ipomea aquatica* grows as a weed in many parts of the reservoir. Floating and partly submerged plants include *Elodea*, *Hydrilla*, *Salvinia* and *Spirodella* sp.

### AVIFAUNA

A total of 188 species of birds, including 101 migrants, has been identified from Karaivetti lake (Anon. undated; Relton 1998). Thirteen species of ducks have been identified from this IBA site, the majority consisting of Garganey *Anas querquedula*, Northern Pintail *Anas acuta*, Northern Shoveller *Anas clypeata* and Spot-billed Duck *Anas platyrhynchos*. Up to 1,000 Bar-headed Geese *Anser indicus* are found in some years; the 1% population threshold for this species is 560 (Wetlands International 2002).

The Spot-billed Pelican *Pelecanus philippensis*, a globally threatened species, congregates in Karaivetti lake in large numbers—a flock of 475 was seen in June 2002 (Anon., undated). The 1% threshold is only 40. A small number of White Stork *Ciconia ciconia* (7 recorded in October 2000) is also found, but the number is much less than its 1% threshold of 45.

Ten species of waterbirds breed here. Among them are the globally threatened Spot-billed Pelican and Near Threatened Oriental White Ibis *Threskiornis melanocephalus*, Painted Stork *Mycteria leucocephala* and Darter *Anhinga melanogaster*. Eurasian Spoonbill *Platalea leucorodia* also breeds in this site.

During winter, the total number of birds recorded is between 20,000 to 60,000, mostly Anatidae. Therefore, this site qualifies A4iii criteria also, besides qualifying A1 (Threatened Species) and A4i (≥1% biogeographic population).

Vulnerable	
Spot-billed Pelican	<i>Pelecanus philippensis</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>

### OTHER KEY FAUNA

As this is a lake system, not much terrestrial fauna is present, except for some Golden Jackal *Canis aureus* and Black-naped Hare *Lepus nigricollis* in the scrub patch and plantation. However, the lake supports 15 species of fish.

### LAND USE

- ☐ Agriculture
- ☐ Watershed Management

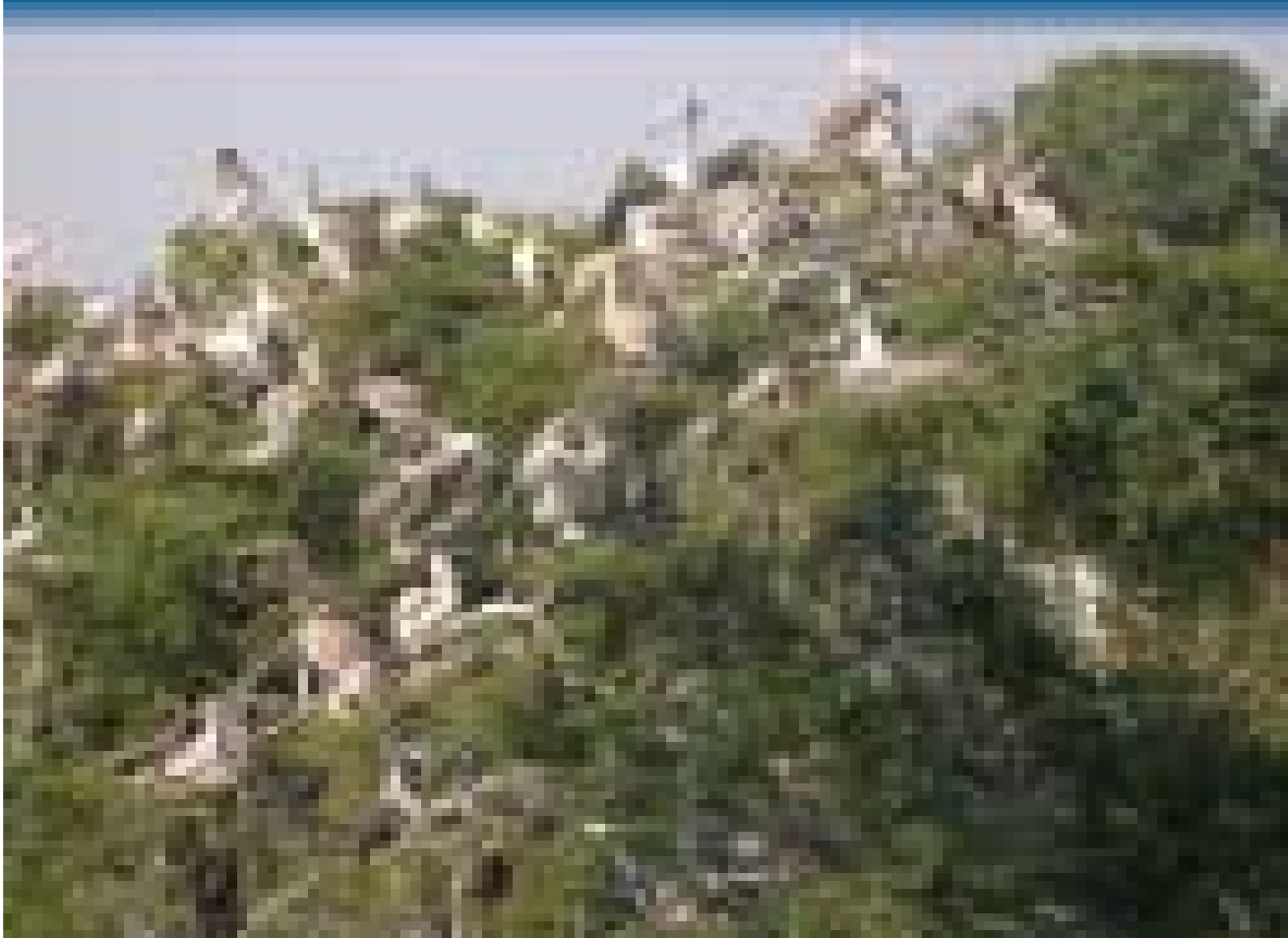
### THREATS AND CONSERVATION ISSUES

- ☐ Grazing
- ☐ Disturbance to birds

The Forest Department permits local people to fish in April and May, with a strict ban on fishing in the daytime, and no fish less than 250 gm to be caught. However, this regulation is not being enforced effectively, as a result fishing occurs throughout the day and all sizes of fish are caught with impunity. During summer, when the water level is low and a large part of the lake dries up, cattle graze in the area. This activity is not harmful *per se* but the number of cattle should be regulated, to avoid overgrazing.

With its enormous and varied populations of birds, Karaivetti Bird Sanctuary has great potential to attract birdwatchers and tourists. There is a need to establish a nature interpretation centre to show the importance of the wetland and waterfowl to the general public.

Spot-billed Pelican *Pelecanus philippensis* is one of the important breeding birds in Karavetti.



TN-13

Photo: V. Kannan

**KEY CONTRIBUTOR**

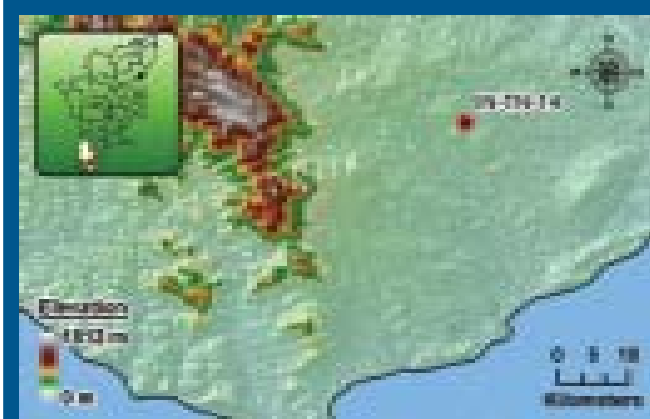
A. Relton

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## KOONTHANGULAM BIRD SANCTUARY



<b>IBA Site Code</b>	: IN-TN-14
<b>State</b>	: Tamil Nadu
<b>District</b>	: Tirunelveli
<b>Coordinates</b>	: 8° 28' 12" N, 77° 43' 48" E
<b>Ownership</b>	: Protected/ Sanctuary
<b>Area</b>	: 129.33 ha
<b>Altitude</b>	: Not available
<b>Rainfall</b>	: 750 mm
<b>Temperature</b>	: 31 °C to 34 °C
<b>Biogeographic Zone</b>	: Deccan Peninsula
<b>Habitats</b>	: Freshwater Swamp, Aquatic

**IBA CRITERIA:** A1 (Threatened Species), A4i (≥1% biogeographic population)  
**PROTECTION STATUS:** Wildlife Sanctuary, established in November 1994

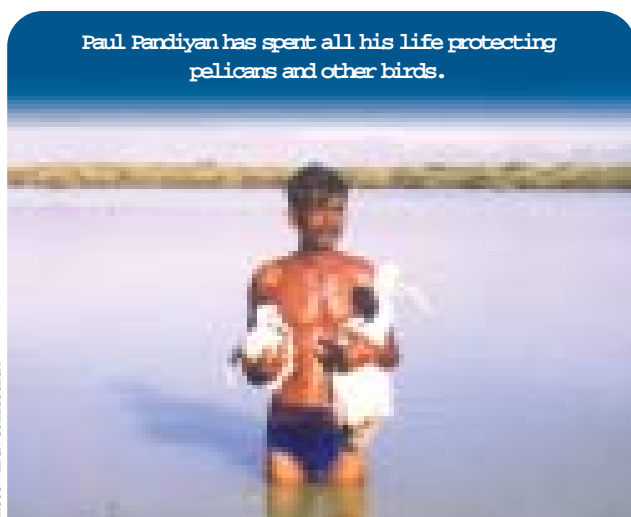
### GENERAL DESCRIPTION

The Koonthangulam Bird Sanctuary is located in Nagureri Taluka of Tirunelveli district between Moolakaraipatti and Kariandi. It is about 20 km from Tirunelveli town. It is a rain and river-fed freshwater tank, and receives water from the Manimuthar river. The globally threatened Spot-billed Pelican *Pelecanus philippensis* breeds here, along with other birds. It is one of the oldest known pelicanries in India, having existed for 200 years or more. Rhenius first reported this pelicanry in 1906 (Rhenius 1907).

The villagers believe that the birds that come to Koonthangulam are harbingers of good luck and their yearly arrival ensures good rainfall. They also benefit from the rich guano deposited in the breeding colonies. This is used to fertilize the fields. Guano-rich tank water is used for irrigation.

Koonthangulam (also transcribed as Koondakulam) has a large tank within the village precincts, and several smaller tanks scattered in the vicinity. These waterbodies and the fields are the main foraging grounds for birds.

Koonthangulam is basically an agricultural area, so there is no forest as such. *Acacia nilotica* has been planted in about 35.5 ha. This is where most of the birds nest.



Paul Pandiyan has spent all his life protecting pelicans and other birds.

Photo: IBIN Collection

### AVIFAUNA

The pelicanry at Koonthangulam is quite famous and commented upon by various naturalists (e.g. Rhenius 1907, Webb-Peploe 1945, Wilkinson 1961, Nagulu and Rao 1983, Kumar 1993 and Thomas *et al.* 2000). In the early 1990s, about 1000 Spot-billed Pelicans were recorded (Anon. 1993). This constitutes more than 8% of the biogeographic population. During a pelican survey in January 2003, only about 452 Spot-billed Pelicans were recorded breeding. BirdLife International (2001) has listed records of pelicans from 1906 up till 1993 from this site.

Besides the Spot-billed Pelican, Painted Stork *Mycteria leucocephala* breeds in the village in large numbers, sometimes on the trees inside private property. In some years, Greater Flamingo *Phoenicopterus ruber* also built nest mounds, though breeding has not been confirmed. Asian Openbill *Anastomus oscitans*, Oriental White or Black-headed Ibis *Threskiornis melanocephalus*, Black Ibis *Pseudibis papillosa*, Glossy Ibis *Plegadis falcinellus*, Eurasian Spoonbill *Platalea leucorodia*, Little Cormorant *Phalacrocorax niger*, Pond Heron *Ardeola grayii*, Grey Heron *Ardea cinerea*, Black-crowned Night Heron *Nycticorax nycticorax*, Darter *Anhinga melanogaster*, Little Egret *Egretta garzetta*, Cattle Egret *Bubulcus ibis*, Bar-headed Goose *Anser indicus*, Northern Pintail *Anas acuta*, Northern Shoveller *Anas clypeata*, Little Grebe *Tachybaptus ruficollis*, Common Coot *Fulica atra*, White-breasted Waterhen *Amaurornis phoenicurus*, Indian Moorhen *Gallinula chloropus*, Purple Moorhen *Porphyrio porphyrio* and various species of waders are also seen here, many in numbers greater than their 1% biogeographic population threshold.

This IBA site is also famous for its vast flocks of Glossy Ibis *Plegadis falcinellus* sometimes up to 1,000 are seen together, foraging in the inundated crop fields or flying from one foraging area to another.

Vulnerable	
Spot-billed Pelican	<i>Pelecanus philippensis</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>

A part of the large nesting colony in Koonthagulam. This site is protected by villagers.



TN-14

Photo: M. Zafar-ul-Islam

#### OTHER KEY FAUNA

Most of the smaller mammals of rural areas are seen in this site, such as Golden Jackal *Canis aureus*, Common Palm Civet *Paradoxurus hermaphroditus*, and Jungle cat *Felis chaus*.

#### LAND USE

- q Irrigation
- q Water management

#### THREATS AND CONSERVATION ISSUES

Koonthagulam is about 65 km from Kanyakumari, a major tourist area where millions of people, especially school groups come every year. Koonthagulam also receives about 15,000 Indian tourists and about 100 foreigners. It can become a major centre for environmental education for students and public. However, as the villagers are very sensitive to the protection of 'their' birds, crass tourism should be avoided. Regulated guided tours, watching birds from selected points and an interpretation centre would help in conveying the message of environmental education. A system should be developed so that at least half of the revenue from tourism should go to village *panchayat* (council) for the development of social infrastructure. Local youth could be trained as guides.

As the birds forage in agricultural fields, it is absolutely necessary to monitor the pesticide use in the area. Regular scientific monitoring of birds, both breeding and wintering species, is also required.

It is also recommended that this IBA site should be kept natural, and no attempt should be made to 'beautify' the place. Nothing is more beautiful than a hungry pelican chick being fed by its parent, or a flock of 500 Glossy Ibis going to roost!

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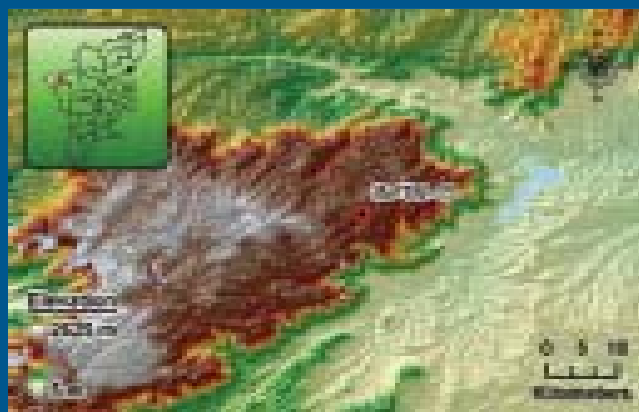
V. Kannan, Robert Grubh and Asad R. Rahmani

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## KOTHAGIRI - LONGWOOD SHOLA



IBA Site Code	: IN-TN-15
State	: Tamil Nadu
District	: Nilgiris (North Forest Division)
Coordinates	: 11° 25' 00" N, 76° 52' 00" E
Ownership	: State
Area	: 116 ha
Altitude	: 1,900m
Rainfall	: 1,200 mm
Temperature	: 12 °C to 23 °C
Biogeographic Zone	: Western Ghats
Habitats	: Montane Wet Temperate Forest, Tropical Grassland, Tropical Secondary Scrub

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Longwood is located in the Nilgiris district, at the extreme northwest end of Tamil Nadu on the interstate boundaries with Karnataka and Kerala. In this site, the only major pocket of natural *Shola* remaining is in the immediate vicinity of Kothagiri village. Though relatively small, it is highly important to the whole Kothagiri region as it harbours a variety of endemic flora and fauna. It is also one of the key areas for the conservation of the Rufous-breasted or Nilgiri Laughingthrush *Garrulax cachinnans*, White-bellied Shortwing *Brachypteryx major* and the Nilgiri Wood-Pigeon *Columba elphinstonii*, listed as Endangered or Vulnerable by BirdLife International (2001).

Though it has a history of encroachments and habitat loss, this IBA has ultimately been given much needed protection, with the active involvement of an enlightened group of local residents, named Longwood Shola Watchdog Committee.

Like the other *sholas* of the Nilgiris, Longwood is also classified as Southern Montane Wet Temperate Forest by Champion and Seth (1968). Tall trees of up to 20 m are still seen in this *shola*. Species comprising such *sholas* are evergreen and include *Actinodaphne bourneae*, *Ilex denticulata*, *Litsea wightiana*, *Michelia nilagirica*, *Microtropis ramiflora*, *Pithecellobium subcoriaceum*, *Symplocos pendula* and *Syzygium arnottianum*, *Eurya nitida*, *Photina notoniana*, *Temstroemia japonica*, *Berberis tinctoria*, *Heydotis stylosa*, *Leucas suffruticosa* and *Smithia blanda*. Many species of Himalayan affinity are found here, like in the whole of the Nilgiris. Tea plantations surround this site.

### AVIFAUNA

Longwood Shola is home to several important bird species such as the Nilgiri Wood Pigeon, Nilgiri Laughingthrush and the White-bellied Shortwing. Of the 16 Western Ghats endemics, 10 have been recorded in this area. The site is adjacent to the eastern slopes of the Nilgiris and consequently harbours some species of lower elevations including Yellow-browed Bulbul *Iole indica*, Common Iora *Aegithina tiphia*, White-bellied Blue Flycatcher *Cyornis pallipes* and Verditer Flycatcher *Eumyias thalassina*. These species are not recorded from the Upper Plateau except as vagrants (Zarri *et al.* 2002).

This site lies in Biome-10 (Indian Peninsula Tropical Moist Forest) where BirdLife International (undated) has identified 15 species which can be considered as representative of bird assemblages of this biome. Most of them are lower elevation (<1,500 m) birds. Two of these biome species, White-cheeked Barbet *Megalaima viridis* and Indian Scimitar Babbler *Pomatorhinus horsfieldii*, have been recorded here.

Like other *sholas* of the Western Ghats, this site is also an important wintering habitat for many migrants from the Himalayas, such as the Tickell's Leaf Warbler *Phylloscopus affinis*, Large-billed Leaf Warbler *Phylloscopus magnirostris*, Brown-breasted Flycatcher *Muscicapa muttui*, Blue-headed Rock-thrush *Monticola cinclorhynchus* and Indian Blue Robin *Luscinia brunnea*. These birds are found in Biome-7 (Sino-Himalayan Temperate Forest) and Biome-8 (Sino-Himalayan Subtropical Forest).

Despite its small size (116 ha), Longwood Shola qualifies two criteria of the IBA selection process – A1 (Threatened Species) and A2 (Endemic Bird Area 123: Western Ghats).

Endangered	
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Vulnerable	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Near Threatened	
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Endemic Bird Area 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Malabar Grey Hornbill	<i>Ocyrceros griseus</i>
Grey-headed Bulbul	<i>Pycnonotus priocephalus</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
White-bellied Blue-Flycatcher	<i>Cyornis pallipes</i>
Small Sunbird	<i>Nectarinia minima</i>

A large part of the forest has been cleared for tea plantation.

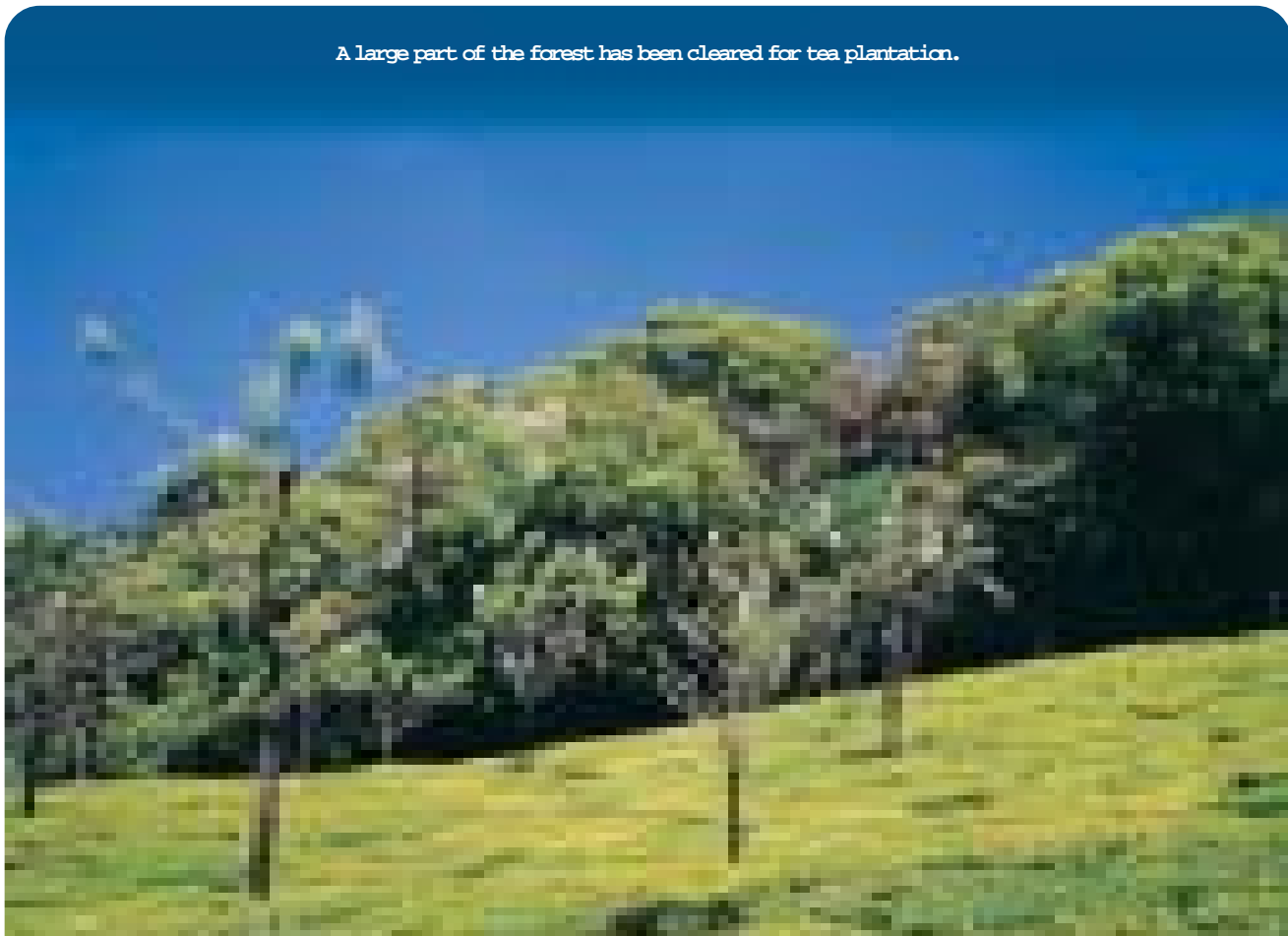


Photo: Ashfaq Ahmed Zarri

#### OTHER KEY FAUNA

The small size of Longwood Shola and its isolation from the neighbouring *sholas* limits the population of most of the large animals. Leopard *Panthera pardus* and Tiger *P. tigris* are rarely seen even though their prey Sambar *Cervus unicolor* and Barking Deer *Muntiacus muntjak* are relatively common. Other mammal species include Gaur *Bos frontalis*, Mouse Deer *Moschiola meminna*, Wild Boar *Sus scrofa*, Porcupine *Hystrix indica*, Bonnet Macaque *Macaca radiata*, Indian Giant Squirrel *Ratufa indica*, and Black-naped Hare *Lepus nigricollis*.

#### LAND USE

- q Forestry
- q Conservation
- q Water catchment

#### THREATS AND CONSERVATION ISSUES

- q Anthropogenic pressure
  - q Infestation by alien plant species
  - q Extensive use of pesticides in the tea gardens
  - q Disproportionate increase in the population of House Crow
- There is tremendous increase in anthropogenic pressure on this IBA from the settlements surrounding it. Apparently, its small size and isolation from other *shola* habitats is a problem for the long-term conservation of several bird species with weak flight, such as the Nilgiri Laughingthrush and the White-bellied Shortwing because they may not be able to move to other suitable habitat if this *shola* is degraded.

Invasion by alien species such as *Cestrum auranticum* has reportedly affected considerable areas of the natural habitat of this site. There has also been a large increase in the population of House Crow *Corvus splendens* in recent years. They are greatly impacting the population of many small passerines. This population growth is mainly due to the increase in human settlements and the concomitant garbage which provides regular food for crows and other scavengers.

Extensive use of inorganic fertilizers and pesticides in the surrounding tea plantations might affect the avian as well as other biodiversity.

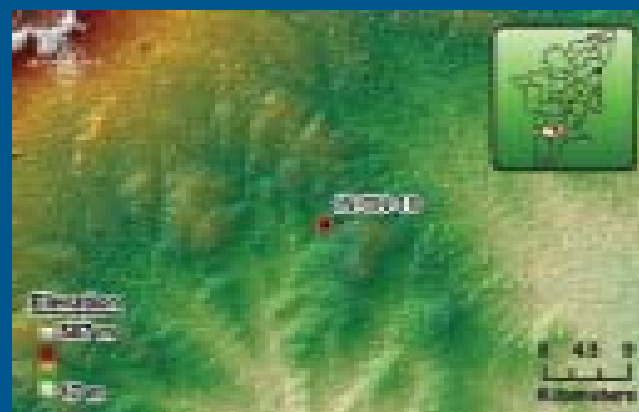
#### KEY CONTRIBUTOR

The IBA Team

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## KULLUR SANDAI RESERVOIR



IBA Site Code	: IN-TN-16
State	: Tamil Nadu
District	: Virudunagar
Coordinates	: 9° 33' 30" N, 78° 00' 34" E
Ownership	: Public Works Department
Area	: 1361.51 ha
Altitude	: 80 m
Rainfall	: 812 mm
Temperature	: 20 °C to 37 °C
Biogeographic Zone	: Deccan Peninsula
Habitats	: Freshwater Reservoir

IBA CRITERIA: A1 (Threatened Species)  
PROTECTION STATUS: Not officially protected

## GENERAL DESCRIPTION

The Kullur Sandai Reservoir is located in Aruppukottai Taluka of Virudunagar district, about 8 km along the Palavanatham road. It is about 80 km southwest of Madurai. The climate of this region is semi-arid tropical monsoon type, with high temperature and low humidity. It receives scanty rainfall, with an annual average of just 800 mm. The reservoir receives most of the rainfall during the northeast monsoon from October to December. It also receives inflows from the Khowsika river, which originates in the Western Ghats. The Vallikulam stream also flows into the Reservoir during the monsoon.

Kullur Sandai Reservoir has a waterspread of 1,361 ha. The Public Works and the Fisheries Departments protect the dam and undertake measures for storing water and also for fish culture. Apart from the Kullur Sandai Reservoir, there are other irrigation reservoirs in the area (Anaikootam, Vembakottai and Golwarpatti). Pelicans and other birds move between these various waterbodies according to the availability of water.

The dam and its environs are rich in aquatic vegetation, with tall and medium *Borassus flabellifer* trees along the banks. The fringes have been invaded by *Ipomoea carnea*. The reservoir is fortunately free of water hyacinth.

## AVIFAUNA

Kullur Sandai Reservoir qualifies IBA criteria A1, as it holds a significant number of globally threatened Spot-billed Pelicans *Pelecanus philippensis*. During the Asian Waterfowl Census in January 1987, at least 32 Spot-billed Pelicans were recorded (Johnson *et al.* 1993). In recent years, the number of Pelicans appears to have increased, as 1,670 were recorded during the pelican survey in September 2002 (Manakadan and Kannan 2003). The 1% biogeographic population threshold of this species is 40 (Wetlands International 2002).

This IBA also harbours several other species during winter, such as the Little Grebe *Tachybaptus ruficollis*, Common Coot *Fulica atra*, Northern Shoveller *Anas clypeata*, Gadwall *Anas strepera*, Spot-billed Duck *Anas poecilorhyncha*, Little Cormorant *Phalacrocorax niger*, Indian Shag *Phalacrocorax fuscicollis*, Painted Stork *Mycteria leucocephala*, Little Egret *Egretta garzetta*, and Greater Flamingo *Phoenicopterus ruber*. The total population of waterbirds sometimes exceeds 10,000.

## Vulnerable

Spot-billed Pelican *Pelecanus philippensis*

## OTHER KEY FAUNA

The Fisheries Department has almost eliminated the native fish community by the introduction of commercial species of carps such as *Catla catla*, *Labeo rohita*, *Cerrhina mrigala*, *Channa* spp. as well as catfish. The water of the dam is rich in phytoplankton, zooplankton, and submerged vegetation. Because of the rich growth of plankton and heavy stock of fish, pelicans and other waterfowl congregate. This brings them in direct conflict with the Fisheries Department.

## LAND USE

- ☐ Water Management
- ☐ Pisciculture
- ☐ Irrigation
- ☐ Agriculture
- ☐ Grazing
- ☐ Domestic use

## THREATS AND CONSERVATION ISSUES

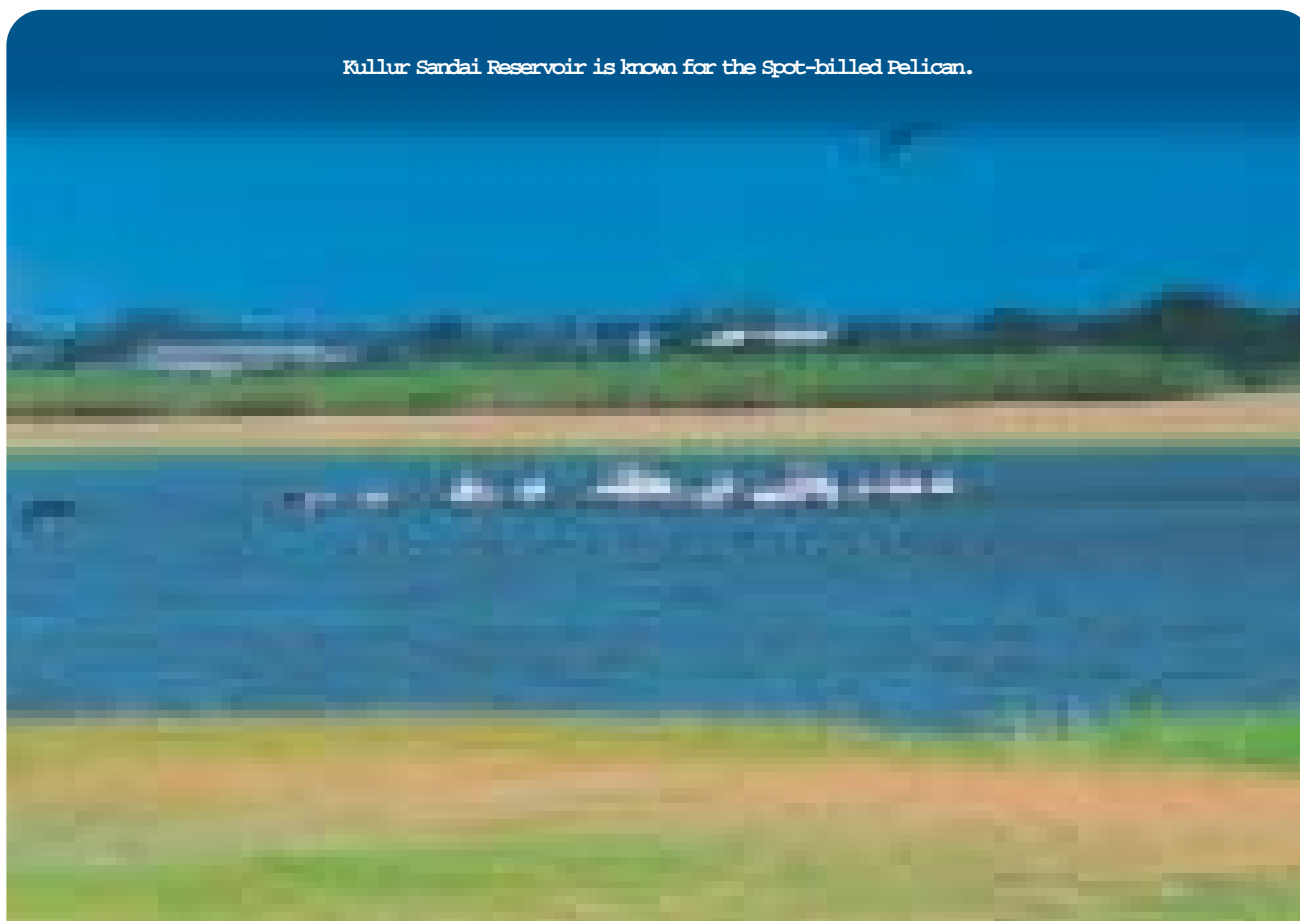
- ☐ Land accreditation
- ☐ Influx of heavily polluted drainage water
- ☐ Poaching pressure
- ☐ Discharge from Cement Industry

This IBA site is under great pressure from commercial fishery. According to the Fisheries Department, fish-eating birds such as Cormorants and Spot-billed Pelicans inflict heavy loss on the commercial fish culture. Their staff regularly chase away the birds, especially Cormorants.

In many places, the bund has been broken due to neglect. It is in urgent need of repair and strengthening, to enable storage of more water. The weed *Ipomoea carnea* is spreading fast and if left uncontrolled it poses a threat to the ecology of the area.

In order to encourage nesting of Pelicans, we suggest that *Barringtonia* sp. and *Acacia nilotica* trees should be planted on small artificial islands. These trees would also serve as roosting sites for other birds.

Kullur Sandai Reservoir is known for the Spot-billed Pelican.



TN-16

Photo: V. Kannan

One of the biggest problems is that the Virudunagar Municipal Corporation drains polluted water and city sewage into Kullur Sandai Dam. This not only results in eutrophication, but also brings in weeds such as *Ipomoea* and Water Hyacinth. Steps should be taken to minimise or divert the drainage elsewhere. In addition, appointment of forest personnel is essential to provide adequate protection to the birds.

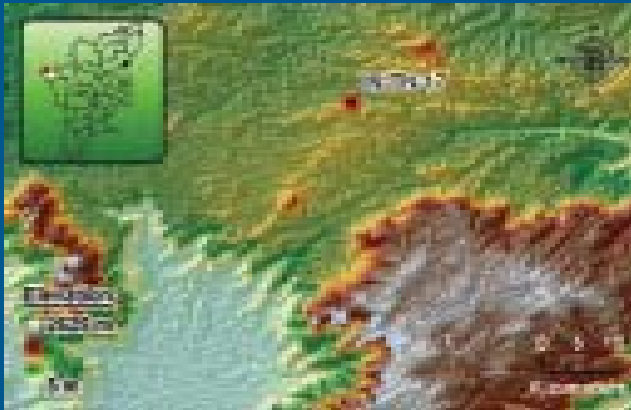
**KEY CONTRIBUTOR**

V. Kannan

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## MUDUMALAI NATIONAL PARK



IBA Site Code	: IN-TN-17
State	: Tamil Nadu
District	: Nilgiris (Wildlife Division)
Coordinates	: 11° 38' 57" N, 76° 29' 08" E
Ownership	: State
Area	: 32,100 ha
Altitude	: 690 - 1,400 m
Rainfall	: 600 - 2,000 mm
Temperature	: 15 °C to 35 °C
Biogeographic Zone	: Western Ghats
Habitats	: Tropical Moist Deciduous, Tropical Dry Deciduous and Southern Tropical Thorn Forest

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats), A3 (Biome-10: Indian Peninsular Tropical Moist Forest; Biome-11: Indo-Malayan Tropical Dry Zone)

**PROTECTION STATUS:** National Park, established in January 1990

### GENERAL DESCRIPTION

Mudumalai National Park is located in the Nilgiri district of Tamil Nadu, in the Western Ghats. It is mainly known for its larger mammals but also harbours a rich avian diversity. The Sanctuary forms 14% of the Nilgiri Biosphere Reserve, which is the first biosphere reserve of India. It is contiguous with Bandipur National Park (87,400 ha), Wynaad Sanctuary (34,400 ha) and Sigur and Singara Reserve Forests (Rodgers and Panwar 1988).

The terrain of this IBA is extremely varied, with hills, valleys, ravines, floodplains, watercourses and swamps. Many streams drain into the area, the principal one being Moyar, the most important source of water for the Sanctuary, since most other streams dry up in early June.

Most of the serious research efforts in this IBA have so far been focused on larger mammals, their predator-prey dynamics, and elephant studies. However, birds as a group have been largely ignored except by Gokula (1998).

Mudumalai is endowed with a diversity of habitats, which support a rich variety of flora and fauna. There are three main types of forest: Tropical Moist Deciduous, Tropical Dry Deciduous and Southern Tropical Thorn. In certain places, mixed vegetation types are also present. Tropical Moist Deciduous Forest occurs in the western Benne Block, where rainfall is higher than in the other blocks. Tropical Dry Deciduous Forest is confined to the eastern side, but merges into Thorn Forest, where rainfall is lowest. Southern Tropical Thorn forest, also known as scrub jungle, occurs in parts of Avarihalla, Moyar and Bokkapuram blocks, and comprises xerophytic species (Jain and Sastry 1983). There are Teak plantations *Tectona grandis* largely in Benne Block, and a Blue gum plantation *Eucalyptus globulus* in the Masinagudi area. Bamboo *Bambusa* sp. have been planted mainly for supply to rayon mills in Kerala.

### AVIFAUNA

A total of 266 bird species has been recorded (Gokula 1998). Of the total, 213 are residents, 49 migrants, three local migrants, and one with unknown status. Most of the species are common and found in many other areas also, but endemics such as the Malabar Trogon *Harpactes fasciatus* and Malabar Grey Hornbill *Ocyrceros griseus* are present. Gokula and Vijayan (1996) have listed the globally threatened Broad-tailed Grass-Warbler *Schoenicola platyura* as resident, without giving more details. Another threatened species is

the Nilgiri Wood-Pigeon *Columba elphinstonii*, recorded as rare in Bennae area, between May 1994 and August 1995.

In the drier parts of this site, two globally Vulnerable species have been recorded: Yellow-throated Bulbul *Pycnonotus xantholaemus* and Pied Tit *Parus nuchalis*. The former was seen in Mavinahalla in 1996 (BirdLife International 2001), while the later was reported first by Ali and Whistler (1942-43) from Sathyamangala area, close to Mudumalai, and then by K. D. Bishop (BirdLife International 2001) from the northeastern edge of Masinagudi in March 1997.

Owing to its altitudinal, precipitation and habitat variations, Mudumalai has two biomes: Biome-10 (Indian Peninsula Tropical Moist Forest) and Biome-11 (Indo-Malayan Tropical Dry Zone). BirdLife International (undated) has listed 15 species in Biome-10, of which 11 have been recorded in this IBA. Similarly, 59 species are representative of Biome-11, and in Mudumalai, 27 are recorded. There are not many IBAs where such a high percentage of biome bird species are found. The presence of so many biome species proves that the habitat is still relatively pristine, at least as far as the bird are concerned.

Critically Endangered	
Oriental White-backed Vulture	<i>Gyps bengalensis</i>
Long-billed Vulture	<i>Gyps indicus</i>
Vulnerable	
Lesser Adjutant	<i>Leptoptilos javanicus</i>
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Yellow-throated Bulbul	<i>Pycnonotus xantholaemus</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>
Pied Tit	<i>Parus nuchalis</i>
Near Threatened	
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Endemic Bird Area 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Indian Rufous Babbler	<i>Turdoides subrufus</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
White-bellied Blue-Flycatcher	<i>Cyornis pallipes</i>
Small Sunbird	<i>Nectarinia minima</i>
White-bellied Treepie	<i>Dendrocitta leucogaster</i>



**Bicome-10: Indian Peninsular Tropical Moist Forest**

Small Green-billed Malkoha	<i>Phaenicophaeus viridirostris</i>
Indian Edible-nest Swiftlet	<i>Collocalia unicolor</i>
Malabar Trogon	<i>Harpactes fasciatus</i>
Malabar Pied Hornbill	<i>Anthracoceros coronatus</i>
White-cheeked Barbet	<i>Megalaima viridis</i>
Crimson-throated Barbet	<i>Megalaima rubricapilla</i>
Yellow-browed Bulbul	<i>Iole indica</i>
Malabar Whistling-Thrush	<i>Myiophonus horsfieldii</i>
Black-headed Babbler	<i>Rhopocichla atriceps</i>
Loten's Sunbird	<i>Nectarinia lotenia</i>
Black-throated Munia	<i>Lonchura kelaarti</i>

**Bicome-11: Indo-Malayan Tropical Dry Zone**

White-eyed Buzzard	<i>Butastur teesa</i>
Jungle Bush-Quail	<i>Pedicularia asiatica</i>
Painted Bush-Quail	<i>Pedicularia erythrorhyncha</i>
Indian Peafowl	<i>Pavo cristatus</i>
Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>
Plum-headed Parakeet	<i>Psittacula cyanocephala</i>
Common Indian Nightjar	<i>Caprimulgus asiaticus</i>
Indian Grey Hornbill	<i>Ocyrceros birostris</i>
Yellow-fronted Pied Woodpecker	<i>Dendrocopos maharattensis</i>
Lesser Golden-backed Woodpecker	<i>Dinopium benghalense</i>
White-bellied Minivet	<i>Pericrocotus erythropygus</i>
Black-shouldered Woodpecker	<i>Chrysocolaptes festivus</i>
Red-winged Bush-Lark	<i>Mirafra erythroptera</i>
Ashy-crowned Sparrow-Lark	<i>Eremopterix grisea</i>
Small Minivet	<i>Pericrocotus cinnamomeus</i>
Common Woodshrike	<i>Tephrodornis pondicerianus</i>
Indian Robin	<i>Saxicoloides fulicata</i>
Indian Scimitar Babbler	<i>Pomatorhinus horsfieldii</i>
Large Grey Babbler	<i>Turdoides malcolmi</i>
Jungle Babbler	<i>Turdoides striatus</i>
White-headed Babbler	<i>Turdoides affinis</i>
Jungle Prinia	<i>Prinia sylvatica</i>
Ashy Prinia	<i>Prinia socialis</i>
White-browed Fantail-Flycatcher	<i>Rhipidura aureola</i>
Grey-headed Starling	<i>Sturnus malabaricus</i>
Brahminy Starling	<i>Sturnus pagodarum</i>
White-bellied Drongo	<i>Dicrurus caerulescens</i>

**OTHER KEY FAUNA**

Mudumalai is famous for its large herds of Asian Elephant *Elephas maximus*, Gaur *Bos frontalis* and Chital *Axis axis*. Tiger *Panthera tigris* is widespread, whereas Leopard *P. pardus* is most often seen in the Kargudi area. Other carnivores include Wild Dog *Cuon alpinus*, commonly seen in Masinagudi and Theppakkadu Blocks, Striped Hyena *Hyaena hyaena*, Golden Jackal *Canis aureus* and Sloth Bear *Melursus ursinus*. The Asian Elephant population varies 300-400 (Ali *et al.* 1985). Most of the ungulates, primates and small carnivores of the regions are seen in this site.

**LAND USE**

- q Tourism and conservation

**THREATS AND CONSERVATION ISSUES**

- q Plantations
- q Hydro-electric Projects
- q Grazing pressure
- q Forest fires
- q Poaching

The Nilgiris have undergone drastic changes in landscape, with the replacement of forests and grasslands by monoculture plantations and agriculture. Other developmental processes such as construction of dams, reservoirs, canals and tunnels for hydroelectric projects, have impacted the ecology of this area (Prabhakar and Gadgil 1994). Human settlements, with migrants brought in to support the above-mentioned activities, have built up pressure on the forest to meet their livelihood needs. The impact, either direct or indirect, of anthropogenic pressure on the biota, especially birds, has not been assessed in this region.

In 1985, there were 12 villages within the Sanctuary, occupying a total of 260 ha of *patta* land, and surrounded by Moist Deciduous and Semi-evergreen Forest (Ali *et al.* 1985). Much of the Sanctuary is exploited for forest produce. There are 10,000-20,000 cattle in Masinagudi and Moyar areas (Ali *et al.* 1985).

Some areas, especially Masinagudi and Moyar, are highly degraded by human impacts. Cattle also disturb elephants, compete with wildlife for pasture, and introduce diseases such as rinderpest which reduced the Gaur population in 1968 (Nair *et al.* 1978; Ali *et al.* 1985). Timber extraction includes both selective and clear felling, and the latter damages the forest. Steps need to be taken to reduce overgrazing and the number of cattle in the Sanctuary, and to voluntarily resettle residents.

Fires in the Dry Deciduous Forest also considerably threaten the avifauna every year. Accumulation of dead leaves in Teak plantations makes the fire sweep through large tracts, affecting many understorey birds.

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V. Gokula, Lalitha Vijayan and Ashfaq Ahmed Zarri

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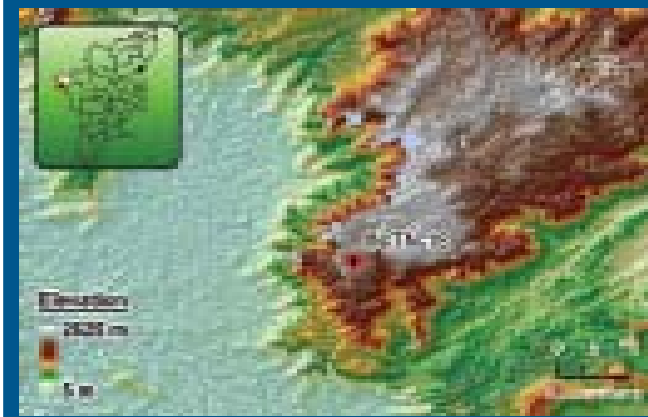
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## MUKURTHI NATIONAL PARK (NILGIRIS)



<b>IBA Site Code</b>	: IN-TN-18
<b>State</b>	: Tamil Nadu
<b>District</b>	: Nilgiri (Wildlife Division)
<b>Coordinates</b>	: 11° 12' 00" N, 76° 28' 11" E.
<b>Ownership</b>	: State
<b>Area</b>	: 7,846 ha
<b>Altitude</b>	: 2,400 m
<b>Rainfall</b>	: 2,500 mm
<b>Temperature</b>	: 11 °C to 22 °C
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Tropical Grassland, Montane Wet Temperate Forest

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats)  
**PROTECTION STATUS:** National Park, established in October 1990

### GENERAL DESCRIPTION

Mukurthi National Park lies at the southwestern end of the Nilgiri Hills, Tamil Nadu. It encompasses an area of 7,846 ha. This IBA was declared as a Wildlife Sanctuary in 1980, and later a National Park in 1990, mainly for the protection of the endangered Nilgiri Tahr *Hemitragus hylocrius*. Mukurthi is perhaps the only area of the Nilgiris that has not been badly affected by conversion to exotic monoculture plantations. It is part of the Nilgiri Biosphere Reserve, which was the first to be declared among the 18 biosphere reserves present in India. Today it forms a key area for the conservation of grassland habitat in the Nilgiris Hills.

The terrain is generally undulating, mostly grassland, and has patches of Montane Evergreen Forest (*shola*), confined to the folds and depressions of the Western Ghats. There are several streams, many of which drain in to the Bhavani River. There are numerous peaks inside the National Park, the highest being Kolaribetta (2,630m), together with Mukurthi Peak (2,556m) and Nilgiri Peak (2,477m. Toward the southwest of Mukurthi lies the famous Silent Valley, and to its west the land falls steeply to nearly 2,000 m to the Amarabalam Forests. Unlike the rest of the Nilgiris district, the area under monoculture plantations in Mukurthi is comparatively less, and comprises mainly of *Acacia mearnsii*, *Eucalyptus globulus* and *Pinus patula*.

Out of 16 Restricted Range species in the Western Ghats, seven are reported from Mukurthi.



Photo: Ashfaq Ahmed Zarri

The vegetation of this site can be classified into three major types, namely Southern Montane Wet Temperate Forest (*shola*) as classified by Champion and Seth (1968), Grassland and Plantation. Pristine patches of *shola* can be seen all throughout Mukurthi National Park, generally at the heads of streams in the folds of converging slopes. These forests support an amazing variety of flora and fauna. This IBA site is among the richest regions of plant biodiversity, with many endemic orchids and other plant groups. Grasslands in Mukurthi are common and form a mosaic with *shola*. They are a mixture of *Chrysopogon*, *Ischaemum*, *Dicanthium*, *Andropogon*, *Eragrostis* and *Panicum* species. The ecological status of these grasslands has been a subject of debate.

### AVIFAUNA

Mukurthi is an important area for the conservation of regional biodiversity of this region, including many avian species of special conservation interest notably the Endangered Nilgiri Laughingthrush *Garrulax cachinnans*. It also supports many Vulnerable and Restricted Range species.

Around 120 bird species have been recorded from Mukurthi National Park and adjoining forests (Zarri *et al.* 2002). Of these, the Nilgiri Laughingthrush, Nilgiri Wood-Pigeon *Columba elphinstonii* and White-bellied Shortwing *Brachypteryx major* are globally threatened. The grasslands in Mukurthi are vital for the conservation of restricted range species such as the Nilgiri Pipit *Anthus nilghiriensis* and wintering raptors such as Oriental Honey-Buzzard *Pernis ptilorhynchus*, White-eyed Buzzard *Butastur teesa*, Long-legged Buzzard *Buteo rufinus*, Common Buzzard *Buteo buteo*, Crested Serpent-Eagle *Spilornis cheela* and Short-toed Snake Eagle *Circaetus gallicus*.

Mukurthi NP lies in the Western Ghats Endemic Bird Area (EBA), where Stattersfield *et al.* (1998) have listed 16 restricted range species. Seven of them are found in this IBA. All the five restricted range species associated with Wet Temperate *sholas* and Subtropical Broadleaf Hill Forest (Stattersfield *et al.* 1998) are found, which proves that some *shola* habitat is still intact despite earlier plantation of exotic species.

This IBA is located in Biome-10 (Indian Peninsula Tropical Moist Forests: BirdLife International, undated). Fifteen species represent this biome. Only three species, White-cheeked Barbet *Pomatorhinus horsfieldii*, Indian Scimitar Babbler *Pomatorhinus*

*horsfieldii* and Malabar Whistling-Thrush *Myiophonus horsfieldii* have been located from this site. The Indian Scimitar Babbler is much widely distributed so it may not be the best example of this biome.

The forests and grasslands of Mukurthi are important wintering areas for many birds that are listed in other biomes such as Tickell's Leaf Warbler *Phylloscopus affinis*, Large-billed Leaf-Warbler *Phylloscopus magnirostris*, Brown-breasted Flycatcher *Muscicapa muttui*, Blue-headed Rock-Thrush *Monticola cinclorhynchus* and Indian Blue Robin *Luscinia brunnea*. Interestingly, six species listed in Biome-11 (Indo-Malayan Tropical Dry Zone) by BirdLife International (undated) have been found here. All the six are common and widely distributed and thus of not much conservation concern.

This excellent National Park fits three IBA criteria: A1-it has the globally threatened and highly endemic Nilgiri Laughingthrush; A2- it has seven restricted range species and falls in the Western Ghats Endemic Bird Area 123; and, A3 – it has biome-restricted species.

Endangered	
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Vulnerable	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Near Threatened	
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Endemic Bird Area 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Small Sunbird	<i>Nectarinia minima</i>

#### OTHER KEY FAUNA

Beside birds, the grassland habitat in this IBA is home to a wide variety of orchids, balsam and other associated herbs. Also reported are endangered and endemic species of tree frogs, pit vipers and mammals such as the Nilgiri Marten *Martes gwatkinsi*.

The flagship mammal species of this Park is the Nilgiri Tahr that once inhabited the slopes and cliffs in huge herds. Today, this species is rarely seen, except for one or two herds in the Western Catchment Area.

Other fauna of the site include Nilgiri Langur *Trachypithecus johni*, often seen in large troops or heard hooting. Sightings of Tiger *Panthera tigris* and Leopard *P. pardus* are frequent. These large predators have adapted very well to hunting across vast stretches of grassy hills. Packs of Wild Dog *Cuon alpinus*, sometimes up to 25, are commonly seen. Sighting of Nilgiri Marten *Martes gwatkinsi* is rare, perhaps because of its elusive nature. Sambar *Cervus unicolor* and Barking Deer *Muntiacus muntjak* are quite common, and form the main prey for large cats. The Asian Elephant *Elephas maximus* can be seen crossing the Park in small herds during the monsoon on their annual migration to the northern plains.

A host of smaller mammals including Jungle Cat *Felis chaus*, Small Indian Civet *Viverricula indica*, Brown Palm Civet *Paradoxurus jerdoni*, Stripe-necked Mongoose *Herpestes vitticollis*, Common

Mongoose *Herpestes edwardsi*, Golden Jackal *Canis aureus*, and Indian Wild Boar *Sus scrofa* are reported (Zarri *et al.* 2002)

#### LAND USE

☐ Nature conservation

#### THREATS AND CONSERVATION ISSUES

☐ Burning of Grassland

☐ Grassland invasion by *Cytisus scoparius* and *Ulex europaea*

☐ Construction of dykes, dams and barrages.

Mukurthi has undergone relatively few habitat changes, but there has been some replacement of forests and grasslands by monoculture plantations and agriculture. Developmental processes, such as construction of dams, reservoirs and tunnels under a major hydroelectric project, have however affected the ecology of this IBA severely in the past.

Mukurthi National Park is free from anthropogenic pressure as experienced in other sites. However, in view of its growing popularity as a prominent tourist destination, unregulated tourism is likely to become a threat to the conservation of this wilderness area.

The spread of the alien invasive shrub, Scotch Broom *Cytisus scoparius*, has emerged as a major problem for the grassland of Mukurthi NP and surrounding areas. The shrub has invaded the grassland rapidly, and wherever established it has completely wiped out the indigenous grasses. This in turn affects the associated flora and fauna specific to these grasslands, such as the Nilgiri Pipit and other ground-dwelling birds.

The patches of wattle plantation are a problem for the site, owing to their natural capacity for regeneration through seeding.

Intentional burning of the grassland during the peak dry season by people on the Kerala side of the Park has emerged as a serious threat to the grassland dwelling species. The grasslands are burnt to lure Sambar for illegal hunting on the Park's southern and southwestern borders. Between January and June 2003, there were five major fires to the south of Bangitabal Valley, which affected 25-35% of the grassland in the Park. The first three major fires in Nadukani and nearby grasslands coincided with the breeding season of the Nilgiri Pipit.

Besides the direct impacts of grassland burning on birds, the opening created by fire provides suitable sites for the germination of Scotch Broom, which is a potential ecological disaster for this IBA.

#### KEY CONTRIBUTORS

Ashfaq Ahmed Zarri and Asad R. Rahmani

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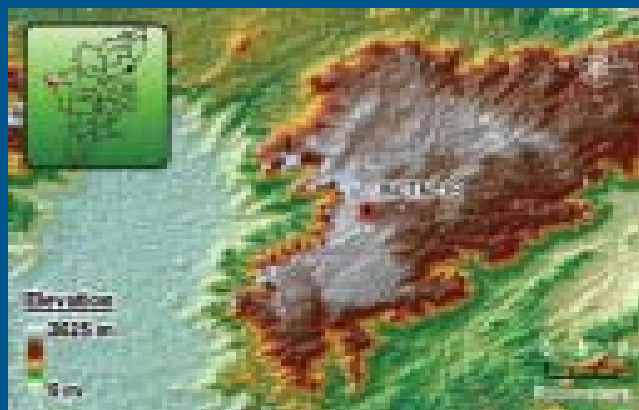
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## NADUVATTAM



IBA Site Code	: IN-TN-19
State	: Tamil Nadu
District	: Nilgiris
Coordinates	: 11° 19' 00" N, 76° 34' 00" E
Ownership	: State
Area	: c. 3,538 ha
Altitude	: 1,500 m
Rainfall	: Not available
Temperature	: Not available
Biogeographic Zone	: Western Ghats
Habitats	: Montane Wet Temperate Forest, Tropical Secondary Scrub

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats)  
**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Naduvattam is a forest range under the jurisdiction of the South Division of Nilgiris. It comprises of two areas, namely Mudimunth (1,346 ha) and Naduvattam beats (2,192 ha). It has several pockets of *Shola* and exotic plantation. This site is located between Mudumalai and Ooty.

### AVIFAUNA

Not much study has been done, but Loven Pereira (*pers. comm.* 2003) has seen more than 40 species, including some Western Ghats endemics. The site lies in the Western Ghats Endemic Bird Area 123, where Stattersfield *et al.* (1998) have listed 16 restricted range species. Eight of them are found in this IBA. All the five restricted range species associated with Wet Temperate *sholas* and Subtropical Broadleaf Hill Forest (Stattersfield *et al.* 1998) are found, which proves that some *shola* habitat is still available, despite extensive plantation of exotics in the past.

The Vulnerable Kashmir Flycatcher *Ficedula subrubra* is also recorded from this IBA.

Naduvattam is located in Biome-10 (Indian Peninsula Tropical Moist Forests: BirdLife International, undated). Fifteen species represent this biome. Only two species, White-cheeked Barbet *Pomatorhinus horsfieldii* and Indian Scimitar Babbler *Pomatorhinus horsfieldii*, have been located till now, but more are likely to be found once detailed studies are conducted.

Endangered	
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Vulnerable	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Kashmir Flycatcher	<i>Ficedula subrubra</i>
Near Threatened	
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>

### Endemic Bird Areas: 123: Western Ghats

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-headed Bulbul	<i>Pycnonotus priocephalus</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Small Sunbird	<i>Nectarinia minima</i>

### OTHER KEY FAUNA

Not much information is available.

### LAND USE

- Forestry
- Plantation

### THREATS AND CONSERVATION ISSUES

The IBA is quite well protected. No one is allowed without a permit. A Cinchona plantation has been converted into a tea plantation by the Government of Tamil Nadu. Commercialization of native vegetation types (mainly grassland) has, however, severely effected the ecology of this area.

### KEY CONTRIBUTORS

Loven Pereira and Ashfaq Ahmed Zarri

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## POINT CALIMERE WILDLIFE AND BIRD SANCTUARY



IBA Site Code	: IN-TN-20
State	: Tamil Nadu
District	: Nagapattinam
Coordinates	: 10° 18' 00" N, 79° 50' 60" E
Ownership	: State
Area	: 37,733 ha
Altitude	: 0 - 3 m
Rainfall	: 472 - 1,153 mm
Temperature	: 21 °C to 41 °C
Biogeographic Zone	: Coasts
Habitats	: Tropical Dry Evergreen Forest, Littoral Forest

**CRITERIA** A1 (Threatened Species), A4i ( $\geq 1\%$  biogeographic population), A4iii ( $\geq 20,000$  waterbirds)  
**PROTECTION STATUS:** Wildlife Sanctuary, established in June 1967

### GENERAL DESCRIPTION

Point Calimere Wildlife and Bird Sanctuary is situated on a low promontory on the Coromandel coast in Nagapattinam district. The Great Vedaranyam Swamp stretches for about 48 km from east to west, parallel to the Palk Strait and separated by a sand bank. Its dimensions are about 10 km from north to south, and it is broadest in the east, narrowing to about 8 km in the central part and 6 km at the western end. It is about 11 km from Vedaranyam town. There are only two villages, namely Kodikkarai and Kodikkadu. A motorable road connects the Sanctuary with the nearest town.

The control of the area passed from the Revenue Department to the Forest Department in 1907. The forest of Point Calimere Sanctuary has an area of 1,729 ha, comprising of the Kodikkadu

Reserve Forest and Kodikkadu Extension Reserve Forest. During 1988, it was proposed to declare Point Calimere Sanctuary as Point Calimere Wildlife Sanctuary and Bird Sanctuary with a total area of 37,733 ha, including the Great Vedaranyam Swamp and Talaignayar Reserve.

This IBA comprises of mangrove forest and lagoon in the Muthupet-Adirampattinam, and mudflats interspersed with numerous islets in the Siruthalaikkadu-Kodikkarai area. The IBA also encompasses Tropical Dry Evergreen Forest and low-lying coastal grazing lands. Five freshwater channels empty into the Swamp, most of which have running water only during the monsoon. The Korayar river confluences with the Mullippallam lagoon in the west. The Swamp is demarcated to the north by an artificial bund. There is a 30 m wide belt of mangrove vegetation. The area has variable rainfall regimes, and is not typical of tropical monsoon climate. The northeast monsoon is the main contributor to this area, though some rainfall occurs during the southwest monsoon. The winds are dry, but cause low-pressure depressions in the Bay of Bengal, resulting in cyclonic storms on the mainland (Daniel and Rao 1988-1991).

### AVIFAUNA

The IBA is an extremely important staging and wintering ground for migratory birds. Remarkable among them are flamingos, ducks, waders, gulls and terns. It is also a vital foraging ground for several species. It harbours a large number of migratory waders and flamingos (Ali 1963). A total of 110 species of waterbirds has been recorded from the swamp and salt pans. Of these, 34 are winter migrants from the Palearctic region (Sugathan 1982). According to a census in January 1987, 28,000 Flamingos *Phoenicopterus ruber* and 1,00,000 Garganey *Anas querquedula* were recorded. The threatened Spot-billed Pelican *Pelecanus philippensis* also occurs here. Manakadan (1992) had recorded 150-250 birds yearly in the late 1980s in the Great Vedaranyam Swamp during regular bird census. About 1,200 pelicans were recorded in the Great Vedaranyam Swamp during October 1999 (Balachandran *pers. comm.* 2002).

Hussain (1976) has recorded Broad-tailed Grass-Warbler or Grassbird *Schoenicola platyura*, a globally Vulnerable species.

Many species of ducks and waders occur in much above their 1% biogeographical number as determined by Wetlands International (2002).

The Spotted Greenshank *Tringa guttifer*, an endangered species, is sometimes seen in this IBA.



Photo: Ray Tipper/BirdLife International



Endangered	
Spotted Greenshank	<i>Tringa guttifer</i>
Vulnerable	
Spot-billed Pelican	<i>Pelecanus philippensis</i>
Spoon-billed Sandpiper	<i>Calidris pygmeus</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Black-necked Stork	<i>Ephippiorhynchus asiaticus</i>
Oriental White Ibis	<i>Threskiornis melanocephala</i>
Lesser Flamingo	<i>Phoenicopterus minor</i>
Pallid Harrier	<i>Circus macrourus</i>

**OTHER KEY FAUNA**

Major mammals include Blackbuck *Antelope cervicapra*, Spotted Deer or Chital *Axis axis*, Jackal *Canis aureus*, Wild Boar *Sus scrofa* and Black-naped Hare *Lepus nigricollis*. Large number of feral cattle and feral horses are seen in the Kodiakkadu forests.

**LAND USE**

- q Agriculture
- q Fishing
- q Medicinal plant collection

**CONSERVATION ISSUES**

- q Encroachment
- q Poaching
- q Cattle grazing
- q Collection of firewood
- q Industrialisation in Great Vedaranyam Swamp

The entire Swamp and the adjoining Muthupet mangrove area should be declared as a single National Park. No major industries

should be allowed within the prescribed limits as per the Wildlife (Protection) Act, 1972. Existing industries should treat their effluents and should have separate effluent storage tanks.

A permanent research station should be established to monitor the habitat status of the migratory as well as the resident birds.

Studies should be taken up on the autecology of the important medicinal plants occurring in the forest, so as to preserve this invaluable gene pool. Freshwater inflow should be allowed into the Swamp, this would help to provide a healthier habitat for migratory waterbirds. To reduce overgrazing of cattle in the Sanctuary, unregistered animals should be removed from the Sanctuary. Tilling, ploughing and plantation operations should be banned in the open grazing land, as they affect the Blackbuck population.

**KEY CONTRIBUTORS**

V. Kannan and Ranjit Manakadan

**KEY REFERENCES**

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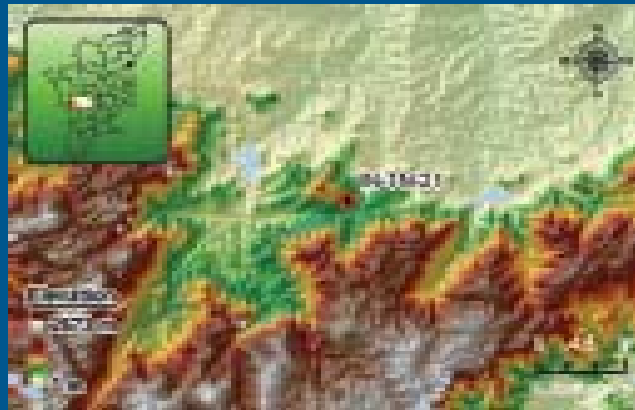
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The salt pans and mudflats of Point Calimere attract thousands of waders. Here, repair of a saltpan bund is going on.



Photo: S. Balachandran

## POOMPARAI AND KUKKAL



<b>IBA Site Code</b>	: IN-TN-21
<b>State</b>	: Tamil Nadu
<b>District</b>	: Dindigul (Palni Hills)
<b>Coordinates</b>	: 10 ° 22' 00" N, 77° 21' 11" E
<b>Ownership</b>	: Forest Department
<b>Area</b>	: 6,450 ha
<b>Altitude</b>	: 1,600 – 2,100 m
<b>Rainfall</b>	: 1,200 – 1,500 mm
<b>Temperature</b>	: 5 °C to 23 °C
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Southern Wet Temperate Forest, Tropical Evergreen, Tropical Semi evergreen forest and Plantations

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats)  
**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Of the two great valleys, Vilpatti and Poomparai, on the north of the Kodaikanal plateau, the Poomparai Valley is the most striking, with almost parallel sides cultivated and ascending through woodland, broken ground and precipitous crags. The Poomparai village is situated 20 km west of Kodaikanal. The forests around Poomparai are dominantly Evergreen Shrub, degraded *shola*, and old plantations of Wattle, Pine and Blue gum. Poomparai village is surrounded by cultivated land. Natural forest is restricted to isolated pockets (altitude 1,890 m) at Poomparai. Kukkal lies 6 km northwest from Poomparai and adjacent habitats are Semi-Evergreen, Evergreen Forests and *shola*-Grassland. The largest contiguous stretch of *shola* of the Upper Palnis is situated here. A check dam had been constructed along the stream to retain water for cultivation. The old mud road which deviated from the Poomparai-Mannavanur road to Kukkal was converted into a tar road and public transport service was introduced in the late 1990s. This undulating plateau bears grasslands interspersed with wooded *sholas*. The grasslands have been extensively planted with Wattle, Eucalyptus, Pine and Alnus. The common endemic plant species occurring around Poomparai are *Michelia nilagirica*, *Symplocos cochinchinensis*. The rare endemic plants of Kukkal *shola* are *Litsea floribunda*, *Habenaria pallideviridis*, *Viburnum erubescens* and a solitary population of *Cycas circinalis* (Mathew 1999).

### AVIFAUNA

The BNHS has conducted bird ringing here since 1970, and 94 species of birds have been identified from this IBA (Balachandran *et al.* 2003). Almost all the high altitude endemics of the Western Ghats have been recorded and/or ringed here. Interestingly, the Nilgiri Wood-Pigeon *Columba elphinstonii*, which was not recorded before 1982, is now seen regularly. It has also been found to breed in the *shola* patches around Poomparai and Kukkal (Balachandran *et al.* 2003). Other endemic species on the increase are White-bellied Shortwing *Brachypteryx major* and Nilgiri Flycatcher *Eumyias albicaudata*. One White-bellied Shortwing was recaptured after 13 years. However, the Nilgiri Pipit *Anthus nilghiriensis* has decreased, mainly due to the plantation of *shola* grasslands with exotic trees. Rufous Babbler *Turdoides subrufus*, the mid-altitude endemic, was reported for the first time from this site at an altitude of 1,900 m.

Of the 16 restricted range species of the Western Ghats, 8 have been reported from this IBA site (Balachandran *et al.* 2003).

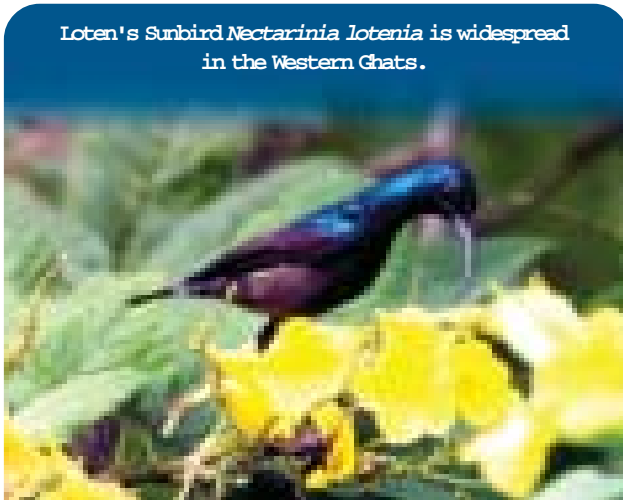
Vulnerable	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Kashmir Flycatcher	<i>Ficedula subrubra</i>
Near Threatened	
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Endemic Bird Areas 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Indian Rufous Babbler	<i>Turdoides subrufus</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Small Sunbird	<i>Nectarinia minima</i>

Tremendous changes in the bird community structure have been noticed in and around this site. The clearance of forest cover for cultivation around Poomparai and Kukkal, and the reduction in rainfall have had great impact on the climate, especially on the quasi-temperate climate experienced during the 1980s and 1990s. Due to the increase in temperature, the generalist bird species from the mid and lower elevations (e.g. Plum-headed Parakeet *Psittacula cyanocephala*, Brahminy kite *Haliastur indus*, Black Kite *Milvus migrans*, Tickell's Flycatcher *Cyornis tickelliae*, Chestnut-headed Bee-eater *Merops leschenaulti*, Red Spurfowl *Galloperdix spadicea*, Red-vented Bulbul *Pycnonotus cafer* and Common Hawk-cuckoo *Hierococcyx varius*) have moved to the higher altitude areas and are competing with the habitat specialist endemic birds.

TN-21

Loten's Sunbird *Nectarinia lotenia* is widespread in the Western Ghats.

Photo: Clement Francis M.



#### OTHER KEY FAUNA

The major predator is Leopard *Panthera pardus*. There have been some unconfirmed records of Tiger *Panthera tigris*. Barking Deer *Muntiacus muntjak* is the commonest ungulate. The Gaur *Bos frontalis* and Wild Boar *Sus scrofa* population is quite healthy and on the rise (S. Balachandran pers. comm. 2003). The populations of Wild Dog *Cuon alpinus* and Sambar *Cervus unicolor* have decreased. Indian Giant Squirrel *Ratufa indica* is found in all suitable forest patches.

#### LAND USE

- ☐ Forestry
- ☐ Grazing

#### THREATS AND CONSERVATION ISSUES

Villagers get their fuel requirements from the Wattle plantations. The Forest Department is replacing old plantations with native

*Shola* species such as *Elaeocarpus glandulosus*, *Syzygium densiflora*, *Neolitsea scrobiculata*, *Michelia nilagirica* and others. There is a proposal to declare a wildlife sanctuary in the Upper Palnis, which will also include a part of this IBA site.

One of the major problems of this site is the invasion of *Lantana* and *Eupatorium sp.* The fringe species have benefitted from forest clearance and are spreading fast (e.g. *Solanum spp.* *Rubus spp.*). The Asian Elephant *Elephas maximus* which was commonly reported from this area has disappeared. Wild Boar populations are increasing as they raid the carrot, potato and other crop for food. Due to the extension of agricultural activities, pesticide use has also increased, resulting in the loss of biodiversity. This decrease is visible in the larger insects like butterflies, cicadas, dragonflies and damselflies. The increase in human population has led to water scarcity in the hills. The pressure on the forests for firewood keeps on increasing, which has led to continuous forest degradation and loss of canopy cover.

The area under the Reserve Forest in Kodaikanal Division is dwindling gradually, due to handing over of forested land to State and Central Government departments for various purposes, such as establishing Apple orchard, Bee Research Station, Sheep Breeding Research Station, and for the various irrigation projects. For example, a 22 KV line runs through the reserve forest area from Kodaikanal to Poomparai village.

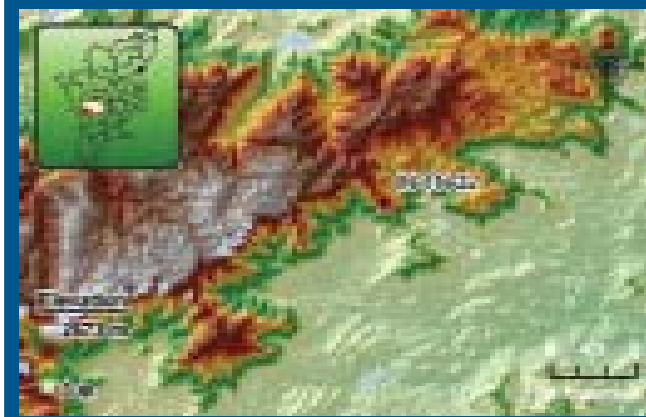
#### KEY CONTRIBUTOR

S. Balachandran

#### KEY REFERENCES

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## SHOLA AROUND KODAIKANAL



<b>IBA Site Code</b>	: IN-TN-22
<b>State</b>	: Tamil Nadu
<b>District</b>	: Dindigul
<b>Coordinates</b>	: 10° 13' 06" N, 77° 34' 29" E
<b>Ownership</b>	: State
<b>Area</b>	: c.1,600 ha
<b>Altitude</b>	: 1,500 – 2,700 m
<b>Rainfall</b>	: 160 – 180 mm
<b>Temperature</b>	: 4 °C to 23 °C
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Tropical Dry Evergreen Forest, Tropical Grassland

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

The Bear Shola, Tiger Shola, Pambar Shola, Vattakanal Shola, Peumalmalai Shola and Blackburn Shola of Palni Hills are located in and around Kodaikanal within a radius of 8 km. Bombay Shola is located on the edge of Kodaikanal, while Vattakanal is 6 km outside it. In Bombay Shola, the ground cover is meagre due to heavy exploitation. The montane quasi-temperate climate of Kodaikanal plateau is maintained due to the presence of these *sholas* and the century old Pine and Wattle plantations. Among these *sholas*, the Pambar and Vattakanal Sholas are probably the best preserved. Vattakanal Shola contains six extremely rare and endangered tree species and numerous terrestrial orchids. These *sholas* are home to many endemic species of plants, amphibians, butterflies and birds (S. Balachandran *pers. comm.* 2002). The plateau bears grasslands alternating with wooded *shola*.

Many endemic and endangered plant species were reported from Pambar and Vattakanal. About 75% of the plateaus originally bore grassland. The grasslands are famous for *Strobilanthes kunthianus*, which blossoms once in 12 years. The occurrence of the highly endangered *Bentinckia condopanna* at Pambar Shola is noteworthy. The Pambar Sholas, also has some very rare species such as *Sonerila pulneyensis*, *Hoya wightii palnensis*, *Plectranthus bourneae*, *Tichoglottis tenera* and *Phyllanthus chandrasei*.

### AVIFAUNA

Almost all the high altitude endemics of the Western Ghats have been seen in these *sholas*. Interestingly, the threatened and endemic Nilgiri Wood-Pigeon *Columba elphinstonii*, which was rare during the 1980s, has now become quite common, and found to breed in these *shola* patches. No decline has been observed in other endemic species, including White-bellied Shortwing *Brachypteryx major* and Nilgiri Flycatcher *Eumyias albicaudata*, which is evident from their common occurrence in the gardens and campuses of Kodaikanal town. From BNHS ringing data of the last 30 years, it was found that the Black-and-Orange Flycatcher *Ficedula nigrorufa* and White-bellied Shortwing from neighbouring forest patches (Poombarai) have shown a steady increase in the total bird catch since the 1970s (Balachandran *pers comm.* 2003). However, the Nilgiri Pipit *Anthus nilghiriensis* has decreased, mainly due to the plantation of exotic trees in *Shola* grasslands. (Balachandran *et al.* 2003)

Of the 16 restricted range species of the Western Ghats (Stattersfield *et al.* 1998), seven have been reported from this IBA (Balachandran *pers. comm.* 2002).

Vulnerable	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Near Threatened	
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Endemic Bird Area 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Small Sunbird	<i>Nectarinia minima</i>

### OTHER KEY FAUNA

The major predators are the Tiger *Panthera tigris* and Leopard *Panthera pardus* but the sightings of these two predators have become rare in these *sholas* due to human disturbance. Barking Deer *Muntiacus muntjak* is the commonest ungulate. The Gaur *Bos frontalis* and Wild Boar *Sus scrofa* population is increasing (S. Balachandran *pers. comm.* 2003). Wild Dog *Cuon alpinus* and Sambar Squirrel *Ratufa indica* have decreased. Indian Giant Squirrel *Ratufa indica* is found in all suitable forest patches. The Bonnet Macaque *Macaca radiata* has increased to pest proportion as tourists feed the animals.

### LAND USE

- ☐ Forestry
- ☐ Over-grazing
- ☐ Fuel wood collection

### THREATS AND CONSERVATION ISSUES

Though villagers get their fuel requirements from the Wattle plantations bordering the *sholas*, they also collect dead wood and trees fallen due to landslides and strong winds. Women carrying head loads of firewood is a frequent sight in the morning and the evening. Bombay Shola is the closest source of firewood for the Kodaikanal town and has suffered from its unfortunate location. At Vattakanal Shola, landslides regularly topple a large number of trees. The Forest Department is replacing old plantations with native *shola* species such as *Elaeocarpus glandulosus*, *Syzygium densiflorum*, *Neolitsea scrobiculata*, *Michelia nilagirica* and others. There is a proposal to declare a wildlife sanctuary in the Upper Palnis, which will also include a portion of this IBA site (S. Balachandran *pers. comm.* 2003).

Bombay Shola, which survives within Kodaikanal Municipal limits, though protected, is under threat from dumping of waste and minor tree felling. The emergence of Kodaikanal as a popular

hill station has had a disastrous effect on the region's ecology. Human settlements have spread over large areas around the town and forestland has been encroached upon. Many species of animals, such as the Bear, the Tiger and the Nilgiri Tahr, have disappeared. Names such as "Tiger Shola" certify that these species existed in the region. Even the Nilgiri Langur, a species that was once common, has disappeared from the forests around Kodaikanal.

The growing number of people living and visiting the hill station has resulted in mountains of half-burnt waste and garbage being dumped in nearby Blackburn Shola. Despite effective bans on plastic and the construction of a waste treatment plant, pollution remains a major concern (Ian Lockwood *pers. comm.* 2003).

Tremendous changes in the bird community structure have been noticed in and around this site. Urbanization around Kodaikanal has led to temperature increase, due to which generalist birds species from the mid and lower elevations (e.g. Brahminy Kite *Haliastur indus*, Black Kite *Milvus migrans*, Chestnut-headed Bee-eater *Merops leschenaulti*, House Crow *Corvus splendens*) are now seen at higher altitudes, where they compete with the habitat specialist endemic birds.

The invasion of weeds *Lantana* and *Eupatorium* is very common. The pressure on the forests for firewood keeps increasing, which leads to degradation and loss of forest cover.

The area under Reserve Forest in Kodaikanal Division is dwindling gradually due to handing over of forested land to State and Central Government departments for various purposes such as horticulture, Bee Research Station, Sheep Breeding Research Station, and for the various irrigation projects.

Some areas in the Reserve Forest have been given on lease to other departments of the State and Central Governments and to the public for right of way, access to the temple, access to water from the streams and for road building and channels. Land was given for the establishment of Bee Research Stations to the Industry and Commerce Department and to Gandhi Niketan Ashram at Tiger Shola. Licences have been issued by the Collector for diverting water from jungle streams to Adukkam village at Tiger Shola.

The sum total of the anthropogenic pressures can be seen in the general degradation and loss of biodiversity.

### KEY CONTRIBUTORS

S. Balachandran and Ian Lockwood

### KEY REFERENCES

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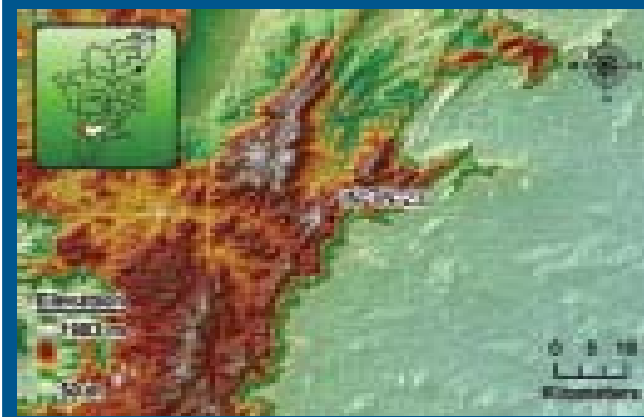


Blue-tailed Bee-eater is one of the common species of this IBA.

Photo: Clement Francis M.



## SRIVILLIPUTHUR WILDLIFE SANCTUARY



<b>IBA Site Code</b>	: IN-TN-23
<b>State</b>	: Tamil Nadu
<b>District</b>	: Virudunagar
<b>Coordinates</b>	: 9° 31' 16" N, 77° 25' 07" E
<b>Ownership</b>	: State
<b>Area</b>	: 48,520 ha
<b>Altitude</b>	: 200 - 1,200 m
<b>Rainfall</b>	: 1,000 -1,200 mm
<b>Temperature</b>	: Not available
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Tropical Dry Deciduous Forest, Tropical Moist Deciduous Forest, Tropical Semi Evergreen Forest, Tropical Wet Evergreen Forest

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 128: Western Ghats)

**PROTECTION STATUS:** Wildlife Sanctuary, established in December 1988

### GENERAL DESCRIPTION

Srivilliputtur Grizzled Giant Squirrel Wild Sanctuary is located about 40 km south of Madurai, north of Sivagiri Hills. Its southwestern boundary abuts Periyar Tiger Reserve in Kerala. The terrain is mostly undulating with high grassy and barren rocky peaks, while the slopes and deep valleys have very dense vegetation. Srivilliputtur receives the major part of its annual rainfall from the northeast monsoon from October to November. It also receives heavy rain from the southwest monsoon.

The vegetation of the Sanctuary consists of Tropical Dry Deciduous Forest, Tropical Moist Forest, and Tropical Thorn Forest. The Tropical Dry Deciduous Forest dominates in the eastern and lower altitude slopes. It is also an important habitat for the Grizzled Giant squirrel *Ratufa macrura dandolena*. The higher areas have Tropical Moist Deciduous Forest and Wet Evergreen Forests. The eastern lowlands have Tropical Thorn Forest.

### AVIFAUNA

About 220 bird species have been recorded in this area, which includes 14 of the 16 restricted range and endemic species found in the Western Ghats (J. Joshua *pers. comm.* 2003). There is a clear evidence of change in species composition according to change in altitude and habitat. The valleys with Moist Deciduous, Semi-evergreen and Evergreen forests on the slopes are home to the Small Sunbird *Nectarinia minima*, White-bellied Treepie *Dendrocitta leucogastra*, White-bellied Blue Flycatcher *Cyornis pallipes* and many endemic species, that still exist in good numbers. The Nilgiri Wood-Pigeon *Columba elphinstonii* is also frequently sighted in this area.

The raptors are well represented, with more than 14 species including the Critically Endangered Oriental White-bellied Vulture *Gyps bengalensis* and Long-billed Vulture *G. indicus*. Another raptor, the Rufousbellied Hawk Eagle *Hieraaetus kienerii*, also exists in this area. Three hornbill species, the Great Pied Hornbill *Buceros bicornis*, Malabar Pied-hornbill *Anthracoceros coronatus* and Malabar Grey Hornbill *Ocyrceros griseus* can be sighted frequently.

#### Critically Endangered

Oriental White-backed Vulture	<i>Gyps bengalensis</i>
Long-billed Vulture	<i>Gyps indicus</i>

#### Vulnerable

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>

#### Near Threatened

Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>

#### Endemic Bird Areas 123: Western Ghats

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Blue-winged Parakeet	<i>Psittacula columboides</i>
Malabar Grey Hornbill	<i>Ocyrceros griseus</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-headed Bulbul	<i>Pycnonotus priocephalus</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Wynaad Laughingthrush	<i>Garrulax delesserti</i>
Indian Rufous Babbler	<i>Turdoides subrufus</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
White-bellied Blue-Flycatcher	<i>Cyornis pallipes</i>
Small Sunbird	<i>Nectarinia minima</i>
White-bellied Treepie	<i>Dendrocitta leucogastra</i>

### OTHER KEY FAUNA

The Grizzled Giant Squirrel *Ratufa macroura dandolena* is the most famous mammal of Srivilliputtur Sanctuary. It is endemic to the southern Western Ghats and Sri Lanka (Prater 1990). This

Sanctuary has a viable breeding population of this rare animal. The other threatened mammals found here are Indian Giant Squirrel *Ratufa indica indica*, Slender Loris *Loris tardigradus*, Nilgiri Langur *Trachypithecus johni*, Lion-tailed Macaque *Macaca silenus*, Nilgiri Marten *Martes gwatkinsi*, Nilgiri Tahr *Hemitragus hylacrius*, Asiatic Elephant *Elephas maximus*, Gaur *Bos frontalis* and Indian Wild Dog *Cuon alpinus*.

Nineteen species of reptiles were recorded during a study conducted by the World Wide Fund for Nature-India (Bhupathy and Kannan 2002). The following three species are endemic to the Western Ghats: Draco or Gliding Lizard *Draco dussumieri*, Large-scaled Calotes *Calotes grandisquamis* and Southern Green Calotes *C. calotes* (Malhotra and Davis 1991).

**LAND USE**

- ☐ Nature Conservation

**THREATS AND CONSERVATION ISSUES**

- ☐ Poaching
- ☐ Illicit cutting of trees
- ☐ Over-grazing by livestock
- ☐ Seasonal fires
- ☐ Lopping for minor non-timber forest products

Habitat degradation is one of the major conservation issues in this Sanctuary. The last remaining population of the endangered Grizzled Giant Squirrel also faces heavy pressure, along with avifauna and larger mammals, because of habitat degradation mainly due to severe wood cutting for fuel and timber (Joshua and Johnsingh 1994). Forestry practices like monoculture,

plantation and weed infestation in the forest should be controlled immediately. Joshua (1992) has reported that the Grizzled Giant squirrel greatly prefers *Tamarindus indica* trees, for foraging and nesting. There are pressures from the locals adjoining the forest, and from other areas of the nearest towns Srivilliputtur and Rajapalayam. Srivilliputtur, which is famed for milk products, that has a large population of livestock that uses this forest intensively. Livestock grazing must be stopped entirely. Effective biodiversity need to be implemented to ensure protection of biodiversity.

**KEY CONTRIBUTOR**

Justus Joshua

**KEY REFERENCES**

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Nilgiri Pipit *Arthus nilghiriensis* is one of the Near Threatened birds seen in this IBA.

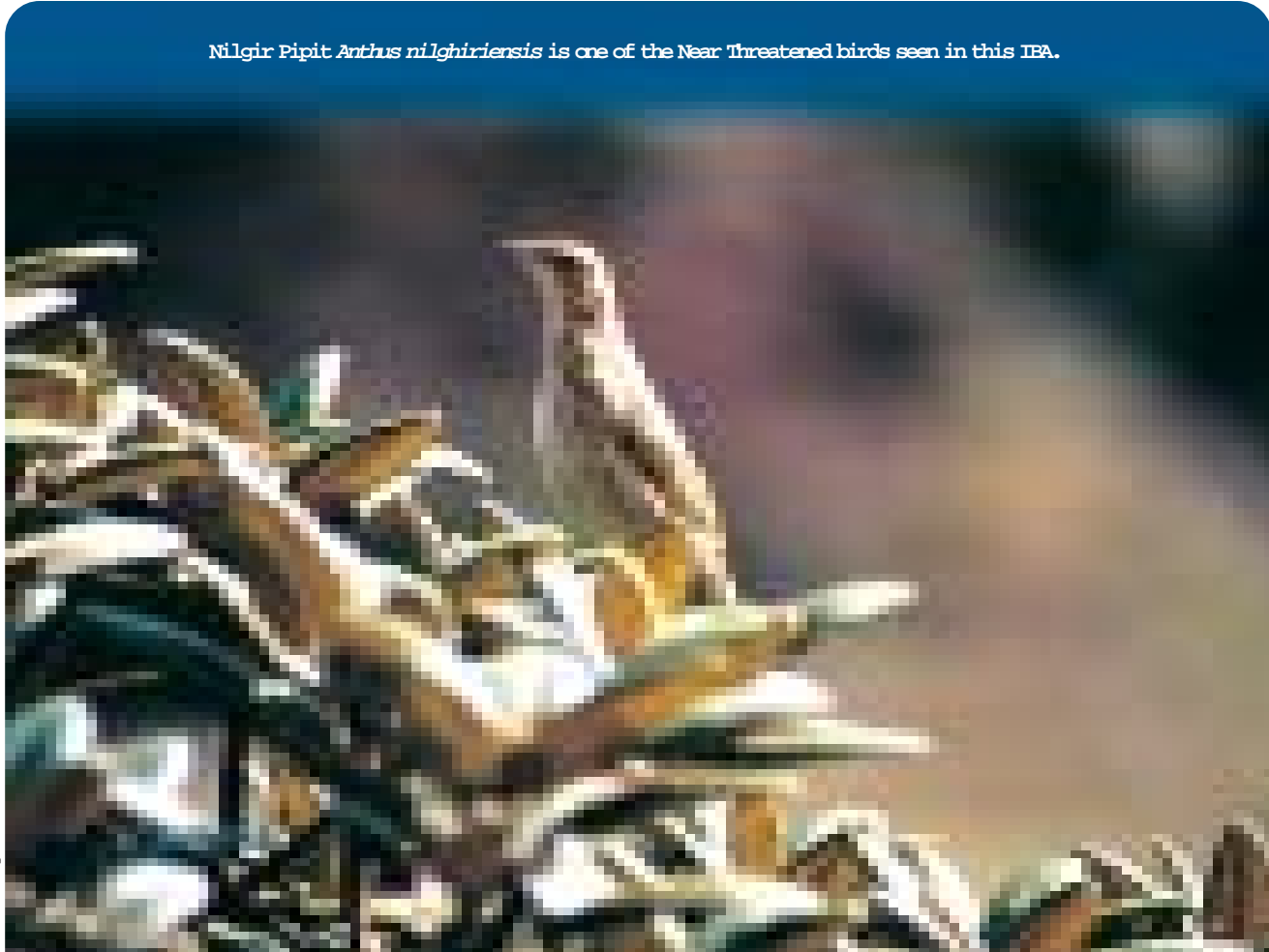


Photo: Ashfaq Ahmed Zarr1

## SUCHINDRAM, THEROOR, VEMBANOOR



IBA Site Code	: IN-TN-24
State	: Tamil Nadu
District	: Kanyakumari
Coordinates	: 8° 04' 60" N, 77° 30' 00" E
Ownership	: State
Area	: Not available
Altitude	: 5 - 200 m
Rainfall	: 900 - 1,500 mm
Temperature	: 10 °C to 38 °C
Biogeographic Zone	: Coasts
Habitats	: Freshwater Reservoirs

**IBA CRITERIA:** A1 (Threatened Species), A4i (≥1% biogeographic population)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Suchindram, Theroor and Vembanoor wetlands that form this IBA lie in the Kanyakumari district, at the southernmost tip of peninsular India. The history of these natural tanks is age old, but it is known that kings contributed a great deal to the irrigation facilities. Copper plate inscriptions from the 9<sup>th</sup> century mention Pasumkulam, Venchikulam, Nedumarthukulam, Perumkulam, Elemchikulam and Konadunkulam. The Pandyan king Veeranarayana was known to have had some of the tanks constructed. Veeranarayana Mangalam is named after King Veeranarayana, who built the Therrakal canal to take water from River Pazhayar to the tanks Thathiarkulam, Puthukiramamkulam and Theroorkulam.

The famous Suchindram tank was built about 1,000 years ago. It is fed from the Kumari Dam constructed across Pazhayar (also called Palayar) below Sabari Dam. The Sabari and Kumari Dams may be more than 1000 years old. The River Pazhayar collects the entire drainage of the valley and irrigates a substantial part of Nanchilwadu. The main Pazhayar stream passes through Bhuthapandi-kottar, Thazhakudi and Suchindram tanks and enters the Manakudi estuary.

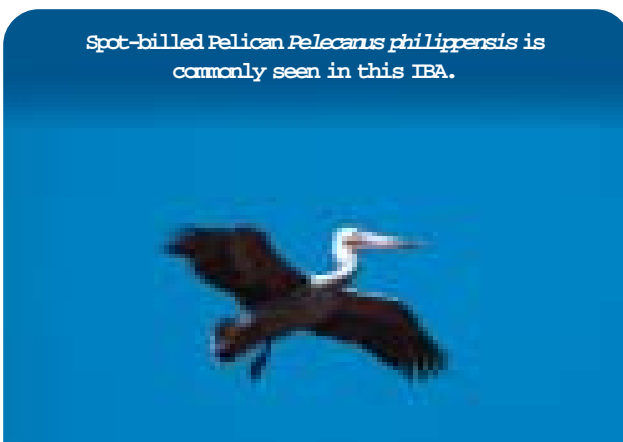
These tanks were located towards Tirunelveli district on the northeast of the Gulf of Mannar. On the south and southwest, the IBA is bounded by Indian Ocean and the Arabian Sea.

Kanyakumari district receives rainfall from both the southwest and the northeast monsoons. The southwest monsoon starts from June and ends in September, while the northeast monsoon extends from October to the middle of December.

### AVIFAUNA

About 250 species of birds have been recorded in the district, of which 53 species are migratory, twelve are endemic and four species threatened (Balachandran 1998). Birds such as Spot-billed Pelican *Pelecanus philippensis*, Darter *Anhinga melanogaster*, Northern Pintail *Anas acuta*, Common Teal *Anas crecca*, Spot-bill Duck *Anas platyrhynchos*, Garganey *Anas querquedula* and Common Coot *Fulica atra* congregate in these tanks, sometimes in thousands. R. B. Grubh (*pers. comm.* 2003) has counted huge flocks of Garganey, just before their return migration in March. One flock consisted of nearly 30,000 individuals. According to Wetlands International's (2002) recent estimates, the total non-breeding population of this species in South Asia is about 2,50,000. Hence, the 1% population threshold is 2,500. Therefore, these wetlands host about 12% of the total population. This site, therefore, qualifies A4i criteria.

The Spot-billed Pelicans are seen in the tanks during breeding season in the Koonthakulam Bird Sanctuary. These wetlands are one of the important foraging grounds for this threatened species (Manakadan and Kannan 2001-2002)



Vulnerable	
Spot-billed Pelican	<i>Pelecanus philippensis</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>

### OTHER KEY FAUNA

As these wetlands are surrounded by human habitations and agricultural fields, there are no wild large mammal. Various species of commercial fish are found. Tilapia has been introduced that has destroyed small native fish.

Huge flocks, sometimes 30,000 strong, of Garganey congregate at Suchindram and other wetlands before return migration.



Photo: M. Zafar-Ul-Islam

#### LAND USE

- q Agriculture
- q Fishing
- q Water management

#### THREATS AND CONSERVATION ISSUES

- q Changing land use pattern
- q Encroachment
- q Infestation of exotic weeds

Poaching is not a major problem but siltation and weed infestation are posing significant problems to these tanks. Local NGOs have submitted proposals to the Government to protect these wetlands (Grubh and Grubh 1989), not only for the birds but also as a source of water for irrigation and recharging of wells.

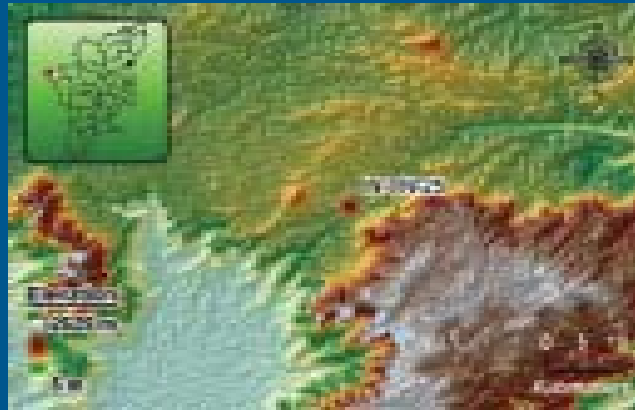
#### KEY CONTRIBUTORS

V. Kannan, Robert Grubh and Shailaja Grubh

#### KEY REFERENCES

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- Grubh, R. and Grubh, S. (1989) *Suchindram Kulam: A Waterbird Sanctuary for Kumari Distict*. Bombay Natural History Society, Mumbai.
- Wetlands International (2002) *Waterbirds Population Estimates: Third Edition*. Wetlands International Global Series No. 12. Wageningen, the Netherlands.

## THAISHOLA



<b>IBA Site code</b>	: IN-TN-25
<b>State</b>	: Tamil Nadu
<b>District</b>	: Nilgiri (South Forest Division)
<b>Coordinates</b>	: 11° 30' 45" N, 76° 28' 36" E
<b>Ownership</b>	: State
<b>Area</b>	: 603 ha
<b>Altitude</b>	: 2,200 m
<b>Rainfall</b>	: 1,240 mm
<b>Temperature</b>	: 9 °C to 21 °C
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Montane Wet Temperate Forest, Tropical Secondary Scrub

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats), A3 (Biome-7: Sino-Himalayan Temperate Forest)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Thaishola lies at the southwestern end of the Nilgiri Hills (Zarri *et al.* 2002). *Taia Shola* (= mother forest in Tamil) as the name suggests is a large, dense, undisturbed natural forest. A considerable area of the forest was reclaimed for tea plantation in the past, but now the remaining area is well protected. The forest, being undisturbed, harbours a host of resident and migratory bird species. There have been few botanical explorations in this area, while research on the bird community was almost nonexistent until the recent initiative by the BNHS.

The major vegetation type at this site is *Shola* (Southern Montane Wet Temperate Forest) as classified by Champion and Seth (1968). *Rhododendron nilagiricum*, *Rubus* spp., *Strobilanthes* spp., *Rhodomyrtes tomentosa*, *Solanum* spp. are among the species commonly seen at the forest edges. These forests also harbour in their dense undergrowth a variety of ground as well as epiphytic orchids.

The forest at this IBA is generally tall, up to 20 m. There is no grassland in the vicinity, but a few patches of plantation can be seen at the fringes. Thick *shola* stretches over the top of the hill, and is surrounded by the tea plantations of the Thaishola Tea Estate.

### AVIFAUNA

Thaishola is an important area for conservation of threatened birds in the Upper Nilgiris. Several species, including the Malabar Trogon *Harpactes fasciatus*, Grey-headed Bulbul *Pycnonotus priocephalus* and Yellow-browed Bulbul *Iole indica* have been recorded from this IBA. Threatened species such as the Nilgiri Laughingthrush *Garrulax cachinnans*, the Nilgiri Wood-Pigeon *Columba elphinstonii* and the White-bellied Shortwing *Brachypteryx major* are frequently sighted in this pristine *shola* habitat (Zarri *et al.* 2002). This site is also home to several resident and migrant raptor species, including the White-eyed Buzzard *Butastur teesa*, the Long-legged Buzzard *Buteo rufinus*, the Common Buzzard *Buteo buteo*, the Crested Serpent Eagle *Spilornis cheela* and the Black Eagle *Ictinaetus malayensis*.

The site lies in the Western Ghats Endemic Bird Area (EBA) where Stattersfield *et al.* (1998) have listed 16 restricted range species. Seven of them are found in Thaishola. All the five restricted range species associated with Wet Temperate and Subtropical Broadleaf Hill Forest (Stattersfield *et al.* 1998) are found.

This site is located in Biome-10 (Indian Peninsula Tropical Moist Forests). Fifteen species represent this biome. Five have been recorded in this site. The site is an important wintering area for many birds that are listed in other biomes such as the Tickell's Leaf Warbler *Phylloscopus affinis*, Large-billed Leaf Warbler *Phylloscopus magnirostris* and Indian Blue Robin *Luscinia brunnea*.

This site qualifies three IBA criteria: A1 because it has globally threatened species; A2 because it has seven restricted range species confined to the Western Ghats EBA; and, A3 because it has many biome-restricted species.

Endangered	
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Vulnerable	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Near Threatened	
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Endemic Bird Area 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Small Sunbird	<i>Nectarinia minima</i>

### OTHER KEY FAUNA

Thaishola harbours almost all the mammals species expected in a Montane Evergreen *shola* habitat. Troops of Nilgiri Langur *Trachypithecus johni* are seen or heard throughout the forest. Tiger *Panthera tigris*, and Leopard *P. pardus* are uncommonly sighted and their major prey Sambar *Cervus unicolor* and Barking Deer *Muntiacus muntjak* are very common. The Asian Elephants *Elephas maximus* frequent this site during their seasonal migration



Thaishola Tea Estate is bordered by well protected forest.

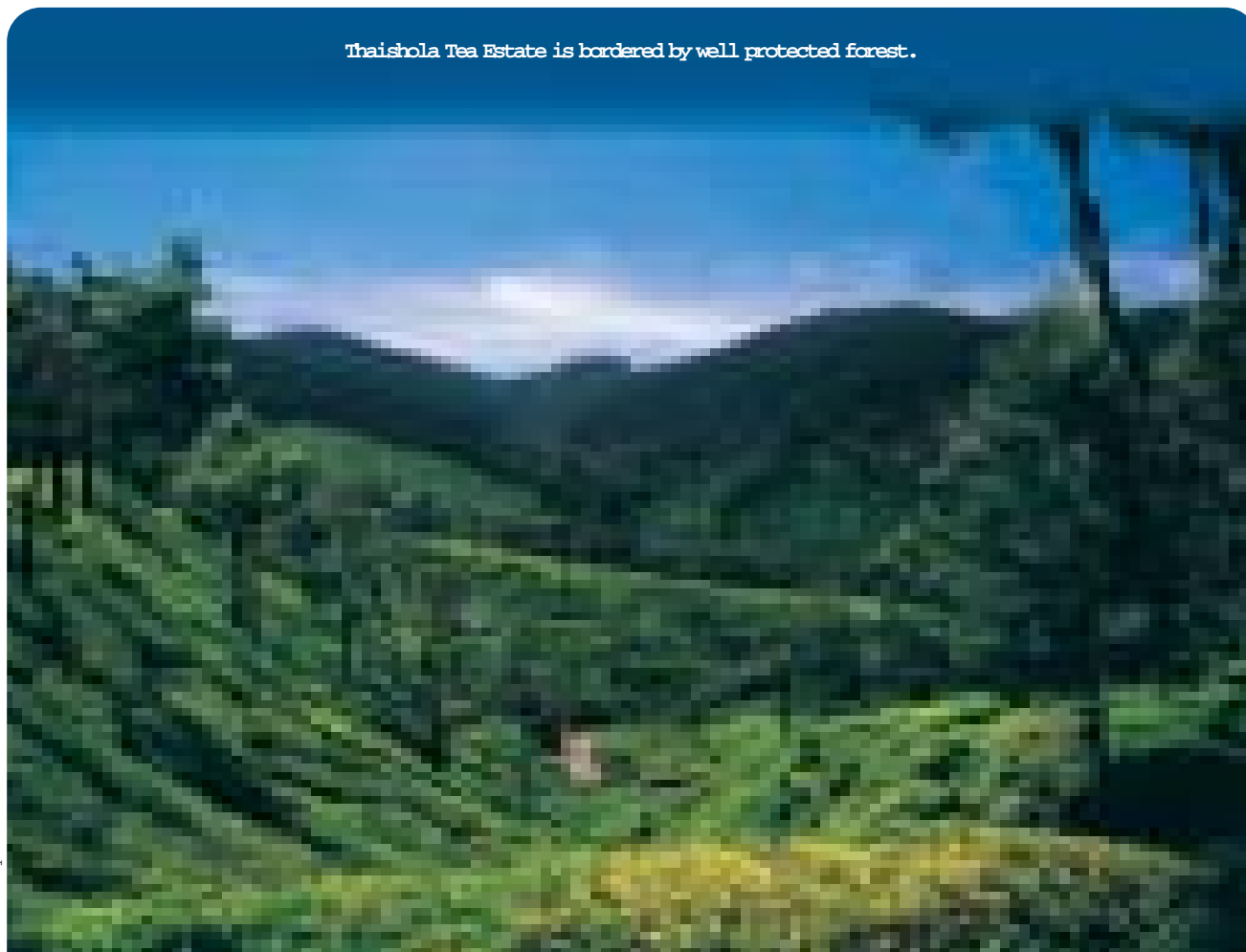


Photo: Ashfaq Ahmed Zarri

through the Nilgiris. Golden Jackal *Canis aureus* and packs of Wild Dog *Cuon alpinus* are also commonly reported. Besides, the Forest provides home to a number of small carnivores such as the Small Indian Civet *Viverricula indica*, Brown Palm Civet *Paradoxurus jerdoni*, Common mongoose *Herpestes edwardsi*, and lesser cats.

#### LAND USE

q Forest

#### THREATS AND CONSERVATION ISSUES

Thaishola is under the control of the Forest Department and the surrounding land under the Thaishola Tea Estate management. Though the present estate management has taken special care and strictly controls human disturbance of any sort from the resident workers, commercial interests in future could become a problem for the area.

Presently the Thaishola Tea Estate is organic-in-progress, and has minimized the use of inorganic pesticides, which are potentially hazardous to the birds in particular. The inclusion of this IBA site

in the neighbouring Mukurthi National Park (another IBA) could safeguard this important forest from future commercial exploitation. Fortunately, grazing, the bane of all Indian forests, is not seen in Thaishola. Similarly, poaching appears to be minimal due to the protection afforded by the tea estate management and the Forest Department.

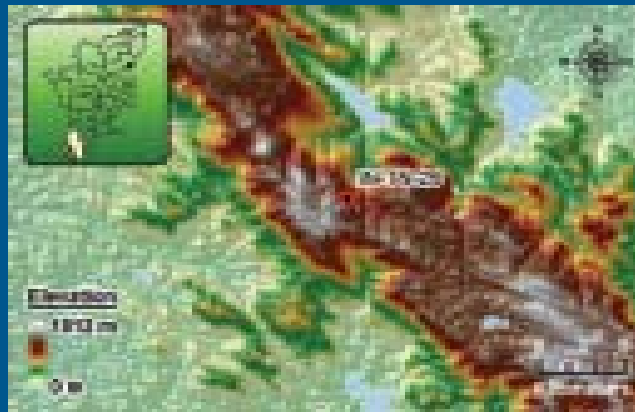
#### KEY CONTRIBUTOR

Ashfaq Ahmed Zarri

#### KEY REFERENCES

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## TIRUNELVELI RESERVE FOREST



<b>IBA Site Code</b>	: IN-TN-26
<b>State</b>	: Tamil Nadu
<b>District</b>	: Kanyakumari and Tirunelveli
<b>Coordinates</b>	: 8° 35' 02" N, 77° 17' 57" E
<b>Ownership</b>	: State
<b>Area</b>	: Not available
<b>Altitude</b>	: 1,829 m
<b>Rainfall</b>	: 600 - 2,200 mm
<b>Temperature</b>	: 25 °C to 40 °C
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Tropical Dry Evergreen Forest, Montane Wet Temperate Forest, Tropical Moist Deciduous Forest, Tropical Thorn Forest

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Areas 123: Western Ghats), A3 (Biome 10: Indian Peninsula Tropical Moist Forest)

**PROTECTION STATUS:** .Not officially protected

### GENERAL DESCRIPTION

This IBA covers Tirunelveli South Forest in Kanya Kumari district and a major portion of Tirunelveli district, comprising Nangunen, Tirunelveli, Tiruchendur, Koilpatti and part of Ambasamudram talukas. The Western Ghats, which run north to south, form one continuous block along the western boundary of the division. The entire area is hilly, in many places very steep and rugged, with a few prominent peaks. The highest point is 1,829.4 m above msl at the junction of Mahendragiri, Kalakkad and Veerapuli Reserve Forests. The major portion of the forests of Tirunelveli South Forest Division lies at the junction. The eastern slope of the Western Ghats, which is in the rainshadow region, shows marked variation in growth and contains commercially less valuable forests (Working Plan, Forest Department).

### AVIFAUNA

No detailed study on avifauna has been done, though the area is very rich in bird life mainly due to its range of habitats from West Coast Tropical Evergreen, Southern Subtropical Hill, Southern Moist Mixed Deciduous to Southern Thorn Forest.

The site lies in the Western Ghats Endemic Bird Area (EBA) where Stattersfield *et al.* (1998) have identified 16 restricted range species. Based on the information provided by the IBA seminar participants, 15 out of 16 restricted range species are found here. Similarly, the biome list is also long. This site falls in Biome-10 (Indian Peninsula Tropical Moist Forest) where BirdLife International (undated) has listed 15 species. Twelve are found here.

White-cheeked Barbet *Megalaima viridis* is one of the Biome-10 species seen in this IBA.



Photo: Clement Francis M.

Many of these birds need reconfirmation. We are including this site as it has good habitat types but good information on the bird life is required.

#### Vulnerable

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>

#### Endemic Bird Areas 123: Western Ghats

Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Blue-winged Parakeet	<i>Psittacula columboides</i>
Malabar Grey Hornbill	<i>Ocyrceros griseus</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-headed Bulbul	<i>Pycnonotus priocephalus</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Wynaad Laughingthrush	<i>Garrulax delesserti</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Indian Rufous Babbler	<i>Turdoides subrufus</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
White-bellied Blue-Flycatcher	<i>Cyornis pallipes</i>
Small Sunbird	<i>Nectarinia minima</i>
White-bellied Treepie	<i>Dendrocitta leucogastra</i>

#### Biome-10: Indian Peninsula Tropical Moist Forest

Small Green-billed Malkoha	<i>Phaenicophaeus viridirostris</i>
Ceylon Frogmouth	<i>Batrachostomus moniliger</i>
Jerdon's Nightjar	<i>Caprimulgus atripennis</i>
Indian Edible-nest Swiftlet	<i>Collocalia unicolor</i>
Malabar Trogon	<i>Harpactes fasciatus</i>
White-cheeked Barbet	<i>Megalaima viridis</i>
Crimson-breasted Barbet	<i>Megalaima rubricapilla</i>
Malabar Whistling-Thrush	<i>Myiophonus horsfieldii</i>
Indian Scimitar-Babbler	<i>Pomatorhinus horsfieldii</i>
Black-headed Babbler	<i>Rhopocichla atriceps</i>
Loten's Sunbird	<i>Nectarinia lotenia</i>
Black-throated Munia	<i>Lonchura kelaarti</i>

Malabar Trogon *Harpactes fasciatus* of Bione-10 is reported from this IBA.



Photo: Clement Francis M.

#### OTHER KEY FAUNA

In the old Working Plan document of the Forest Department, there is a long list of animals that used to occur in this area, including the Asian Elephant *Elephas maximus* and the Blackbuck *Antelope cervicapra*. Blackbuck was seen in Kurumalai and Vallanad areas, perhaps the southernmost record of this species. It is also reported that the Nilgiri Tahr *Hemitragus hylocrius* was found on precipitous rock faces, especially at Variattu Mottai near Winch Point. Spotted Deer *Axis axis*, Barking Deer *Muntiacus muntjak*, Mouse Deer *Moschiola meminna* and Lion-tailed Macaque *Macaca silenus* are also reported. But, it is not clear whether these animals are still found here or not.

#### LAND USE

- q Agriculture
- q Watershed management

#### THREATS AND CONSERVATION ISSUES

- q Grazing
- q Cultivation

This site suffers from a plethora of problems, all man-made. Despite steep cliffs and deep valleys, livestock grazing is a problem. As the site is surrounded by villages, illicit wood cutting goes on. Many parts have been cleared for cultivation.

#### KEY CONTRIBUTORS

IBA seminar participants

#### KEY REFERENCES

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- Stattersfield, A. J., Crosby, M. J., Long, A. J. and Wege, D. C. (1998) *Endemic Bird Areas of the World: Priorities for Biodiversity Conservation*. BirdLife International Series No. 7. BirdLife International, U.K.

## VANDIOOR AND KUNNATHUR TANKS (MADURAI)



<b>IBA Site Code</b>	: IN-TN-27
<b>State</b>	: Tamil Nadu
<b>District</b>	: Madurai
<b>Coordinates</b>	: 09° 55' 17" N, 78° 09' 14" E
<b>Ownership</b>	: Municipal Corporation
<b>Area</b>	: 278 ha
<b>Altitude</b>	: Not available
<b>Rainfall</b>	: Not available
<b>Temperature</b>	: Not available
<b>Biogeographic Zone</b>	: Deccan Peninsula
<b>Habitats</b>	: Freshwater Reservoir

**IBA CRITERIA:** A1 (Threatened Species)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

The Madurai tank, as the name indicates, is located on the outskirts of Madurai city, north of the river Vaigai. The tank is fed by monsoon rains and also by the Periyar-Vaigai irrigation system, located about 2 km from the tank. This irrigation system is on the two rivers, Periyar in Kerala and the seasonal Vaigai. The water is diverted to Madurai tank through channels. The tank contains water till February/March, after which it dries out.

*Prosopis chilensis* and *Ipomea* mainly dominate the vegetation of the tank, which is infested with Water Hyacinth *Eichhornia crassipes*.

### AVIFAUNA

The site has become significant as the globally threatened Spot-billed Pelican *Pelecanus philippensis* is present during the monsoon. About 150 Spot-billed Pelicans were reported from this site during April 1997 (Sathasivam 1997). Apart from this, the site harbours several resident and migratory waterfowl. The significant species

are Lesser Whistling Duck *Dendrocygna javanica*, Comb Duck *Sarkidiornis melanotos*, Cotton Pygmy Goose *Nettapus coromandelianus*, Spot-billed Duck *Anas poecilorhyncha*, Garganey *A. querquedula*, Northern Shoveller *A. clypeata*, Common Pochard *Aythya ferina*, Purple Moorhen *Porphyrio porphyrio*, Common Coot *Fulica atra*, Black-winged Stilt *Himantopus himantopus*, Pheasant-tailed Jacana *Hydrophasianus chirurgus*, Little Grebe *Tachybaptus ruficollis*, Darter *Anhinga melanogaster*, Little Cormorant *Phalacrocorax niger* and Indian Shag *P. fuscicollis*.

#### Vulnerable

Spot-billed Pelican	<i>Pelecanus philippensis</i>
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#### Near Threatened

Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Oriental White Ibis	<i>Threskiornis melanocephala</i>

### OTHER KEY FAUNA

As the tank lies close to the city, the site does not have any large mammal of conservation concern.

### LAND USE

- ☐ Fishing
- ☐ Water Management

### THREATS AND CONSERVATION ISSUES

- ☐ Heavy drainage flow from the city
- ☐ Dumping of wastage in the tank
- ☐ Human over population
- ☐ Fishing by explosives

As the tanks are close to Madurai City, there is heavy traffic on the roads surrounding the Vandioor tank, while Kunnathur is slightly inside and hence comparatively undisturbed. Local conservationists have given a proposal to the Forest Department to declare the 2 tanks together as a bird sanctuary. According to Sathasivam (1997), poachers use explosives for fishing.

### KEY CONTRIBUTORS

V. Kannan, S. Badrinarayanan, S. Balachandran and J. C. Daniel

### KEY REFERENCE

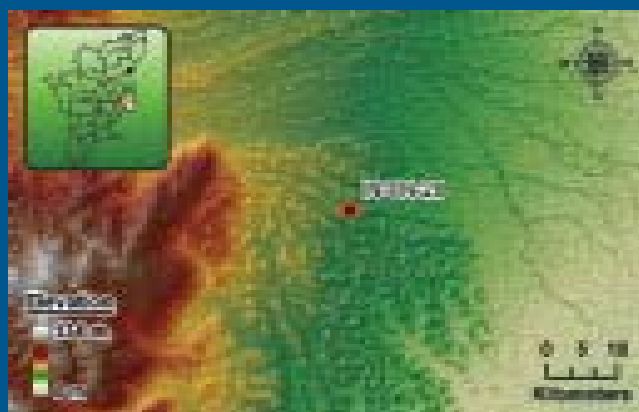
Sathasivam, K. (1997) Notes from Madurai. *Newsletter for Birdwatchers*. 37:86.



Darter *Anhinga melanogaster* is one of the Near Threatened birds of this IBA.

Photo: Ketil Knudsen/Peter Lobo

## VADUVOOR LAKE BIRD SANCTUARY



IBA Site Code	: IN-TN-28
State	: Tamil Nadu
District	: Tiruvarur
Coordinates	: 10° 42' 19" N, 79° 18' 53" E
Ownership	: State
Area	: 128 ha
Altitude	: Not available
Rainfall	: 80 mm
Temperature	: Not available
Biogeographic Zone	: Deccan Peninsula
Habitats	: Freshwater Reservoir

IBA CRITERIA: A1 (Threatened Species)

PROTECTION STATUS: Wildlife Sanctuary, established in November 1991

### GENERAL DESCRIPTION

The Vaduvloor Lake Bird Sanctuary is situated in the Tiruvarur district of Tamil Nadu. It is c. 24 km from Thanjavur and 15 km from Mannargudi. The Lake has a depth of c. 2.5 m, and receives water mainly from the northeast monsoon and the Vennaru river. The Lake irrigates about 1,356 acres of agricultural land. Nayvasal and Vaduvloor villages are situated around the Sanctuary. The road to Mannargudi borders one side of the Lake. The other sides are protected by huge bunds. Migratory birds start to arrive by October and stay till February to March.

This freshwater lake is rich in aquatic flora, with submerged, floating and emergent vegetation. *Ipomoea carnea* is seen in many parts of the Lake. There are thickets of *Prosopis chilensis*. The Forest Department has planted *Acacia nilotica* in the lake environs.

### AVIFAUNA

The Sanctuary is well known for several species, notably the Spot-billed Pelican *Pelecanus philippensis*. Several thousand migratory birds congregate in Vaduvloor during the winter. Detailed studies on the avifauna of this IBA are required. Presently, it can be considered as Data Deficient.

Vulnerable	
Spot-billed Pelican	<i>Pelecanus philippensis</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Oriental White Ibis	<i>Threskiornis melanocephalus</i>

### OTHER KEY FAUNA

Few published records are available on the fish, reptile and amphibian fauna of this lake. Some of fish recorded are *Ambassis urotaenia*, *Channa punctatus*, *Ophiocephalus* sp. and *Mystus tenegra*.

### LAND USE

- ☐ Agriculture
- ☐ Fishing
- ☐ Water Management

### THREATS AND CONSERVATION ISSUES

- ☐ Indiscriminate fishing
- ☐ Over-grazing
- ☐ Siltation
- ☐ Encroachment
- ☐ Invasion by exotic species
- ☐ Pollution

The bund is very old and urgently needs repair to avoid a breach during heavy rainfall. Like most other lakes of Tamil Nadu, Vaduvloor is silting up. It needs dredging to increase the depth to store more water. The soil containing bird guano is rich in minerals, and is collected by the villagers to use in their crop fields, which is why the villagers provide protection to the birds. Removal of guano-rich soil should be regulated with the cooperation of the villagers, so that the birds are least disturbed. There is some poaching of birds, mainly by outsiders. This could be stopped by the villagers because they are the beneficiaries of bird guano. A conservation awareness programme and patrolling by the Forest Department could take care of the poaching problem.

There is a need to avoid over-fishing. Larger mesh size nets should be used, and there should be no fishing during the breeding season of the fish. *Ipomoea carnea* is spreading fast. Although it provides habitats to some birds and fish, its spread should be regulated. And finally, there is the larger issue of the use of harmful pesticides in the agricultural fields, which enter the lake with the run-off from the fields. Regular monitoring of the water quality, through the local college/university could be taken up. Vaduvloor Bird Sanctuary is a good site for research on freshwater ecosystems, fish, birds, impact of pesticides, socio-economic benefits of birds conservation and regulated use of guano-rich soil.

### KEY CONTRIBUTOR

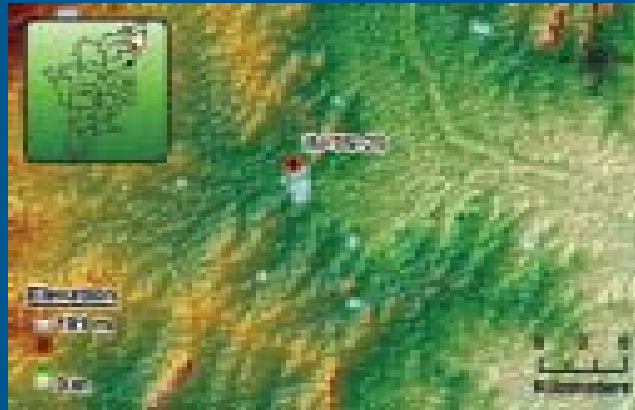
V. Kannan

### KEY REFERENCE

None



## VEDANTHANGAL AND KARIKILI BIRD SANCTUARIESa



IBA Site Code	: IN-TN-29
State	: Tamil Nadu
District	: Chengalpet
Coordinates	: 12° 32' 02" N, 79° 52' 29" E
Ownership	: State
Area	: 80 ha
Altitude	: 25 m4
Rainfall	: 1,100 mm
Temperature	: Not available
Biogeographic Zone	: Deccan Peninsula
Habitats	: Freshwater Reservoir

**IBA CRITERIA:** A1 (Threatened Species), A4iii (≥ 20,000 waterbirds)

**PROTECTION STATUS:** Vedanthangal Bird Sanctuary, established in 1925 and Karikili Bird Sanctuary, established in 1998

### GENERAL DESCRIPTION

The Vedanthangal (50 ha) and Karikili (30 ha) bird sanctuaries are located about 85 km southwest of Chennai, in Chengalpet district of Tamil Nadu. These are old water storage reservoirs for irrigation in the Chengalpet plains. They have also become important as breeding sites for large waterbirds. There are several much larger tanks (e.g. 350 ha Madurantakam Tank) in the surrounding plains, but these are generally less important from the wildlife point of view. Vedanthangal tank receives some water from Madurantakam tank through a link channel, but Karikili is wholly rainfed.

Vedanthangal Bird Sanctuary is one of the oldest bird sanctuaries in south India. Documentary evidence of its existence is available from 1793. In 1798, the Collector of Chengalpet district issued a prohibitory order against shooting of birds in Vedanthangal. In 1858, a sub-magistrate revived the 1798 order as it had not been followed strictly. But only in 1936 did the Collector officially recognised Vedanthangal as a Sanctuary and sanction government funds towards its maintenance (Venkatraman 1996a).

Vedanthangal has been visited by many ornithologists since the last 100 years. Hume and Oates (1889-1890), Bates (Bird Life in India 20-47), Whistler and Kinnear (1937) during their Vernay Scientific Survey, Sanjeeva Raj (1956) and Spillet (1966).

Vedanthangal has been developed to enhance its value to wildlife; a number of elevated mud islands have been created and planted with trees to provide ideal nesting sites for herons, egrets and other colonial nesting birds. By contrast, Karikili Tank is undeveloped and remains in much the same condition as Vedanthangal was during the 1950s. Karikili is situated about 10 km from Vedanthangal, and is in fact two small tanks with a combined area of about 50 ha. Both tanks fill up during the northeast monsoon in October-November. In immediate vicinity of the tanks there are bare plains, paddy fields and scrub forest. During the monsoon, shallow pools are formed in many places, which provide additional foraging areas for water birds. The area has a tropical monsoon climate, with an average annual rainfall of about 1,000 mm, mostly during October-November (northeast monsoon).

There are mainly common herbaceous plants in the marshy areas. In the late 1970s, the islands in Vedanthangal were

replanted with *Barringtonia acutangula* to replenish the dead and dying trees. These trees are preferred for nesting by Spot-billed Pelican *Pelecanus philippensis*, Asian Openbill *Anastomus oscitans* and Black-headed or White Ibis *Threskiornis melanocephala*.

### AVIFAUNA

Vedanthangal and Karikili tanks satisfy IBA criteria A1 and A4iii and are treated as one IBA site due to their proximity. Both sites are used by a large number of waterbirds for nesting (Vedanthangal) and foraging (Karikili). An estimated 30,000 birds are present at Vedanthangal Tank during the breeding season.

The main species at both the tanks are the Indian Cormorant *Phalacrocorax fuscicollis*, Little Cormorant *Phalacrocorax niger*, Darter *Anhinga melanogaster*, Black-crowned Night-Heron *Nycticorax nycticorax*, Cattle Egret *Bubulcus ibis*, Little Egret *Egretta garzetta*, Intermediate Egret *Egretta intermedia*, Grey Heron *Ardea cinerea*, Asian Openbill and Indian Pond Heron *Ardeola grayii*. A small number of Spot-billed Pelicans also visits both tanks. Pelicans breed occasionally in Vedanthangal, mainly on *Barringtonia* trees (Paulraj and Gunasekaran 1988, Venkatraman and Muthukrishan 1993). According to the booklet produced by the Department of Tourism, Government of Tamil Nadu, 15 species of storks, egrets and cormorants breed in Vedanthangal. The total number of bird species seen is about 115, mostly common species.

These tanks are also important as roosting sites for many birds, especially Little Cormorant, outside the breeding season. Large numbers of migratory waterfowl are seen on passage and in winter, particularly the Northern Pintail *Anas acuta*, Garganey *Anas querquedula*, Northern Shoveller *Anas clypeata*, Black-winged Stilt *Himantopus himantopus*, and many shorebirds and terns, particularly Whiskered Tern *Chlidonias hybrida*.

Santharam (1999) has seen the globally threatened Greater Spotted Eagle *Aquila clanga* in 1996 in Vedanthangal.

This site is selected as an IBA mainly because of the occurrence and occasional breeding of the globally threatened Spot-billed Pelican, and other Near Threatened species and presence of more than 30,000 waterfowl during winter.

Vulnerable	
Spot-billed Pelican	<i>Pelecanus philippensis</i>
Greater Spotted Eagle	<i>Aquila clanga</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Oriental White Ibis	<i>Threskiornis melanocephala</i>
Black-bellied Tern	<i>Sterna acuticauda</i>

#### OTHER KEY FAUNA

There is no large wild mammal of conservation concern in these sanctuaries as they are surrounded by human habitations and agricultural fields.

#### LAND USE

- ☐ Nature conservation and research
- ☐ Water management
- ☐ Agriculture

#### THREATS AND CONSERVATION ISSUES

- ☐ Fisheries
- ☐ Disturbance to birds
- ☐ Tourism

At Vedanthangal thousands of tourists come to observe breeding birds, which causes disturbance (Venkatraman 1996b). These sites are owned by the Tamil Nadu Forest Department. Tourists movement in the Sanctuary should be strictly regulated. Non-degradable material should not be allowed.

#### KEY CONTRIBUTORS

IBA Team

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- Venkatraman, C. (1996b) Human disturbance a major factor for nest destruction. *Newsletter for Birdwatchers* 36: 33-34.
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- Whistler, H. and Kinnear, N. B. (1937) The Vernay Scientific Survey of the Eastern Ghats (Ornithological Section): *J. Bombay Nat. Hist. Soc.* 39: 447-463.

Vedanthangal is perhaps the oldest bird sanctuary in India, protected since 1798 by locals.

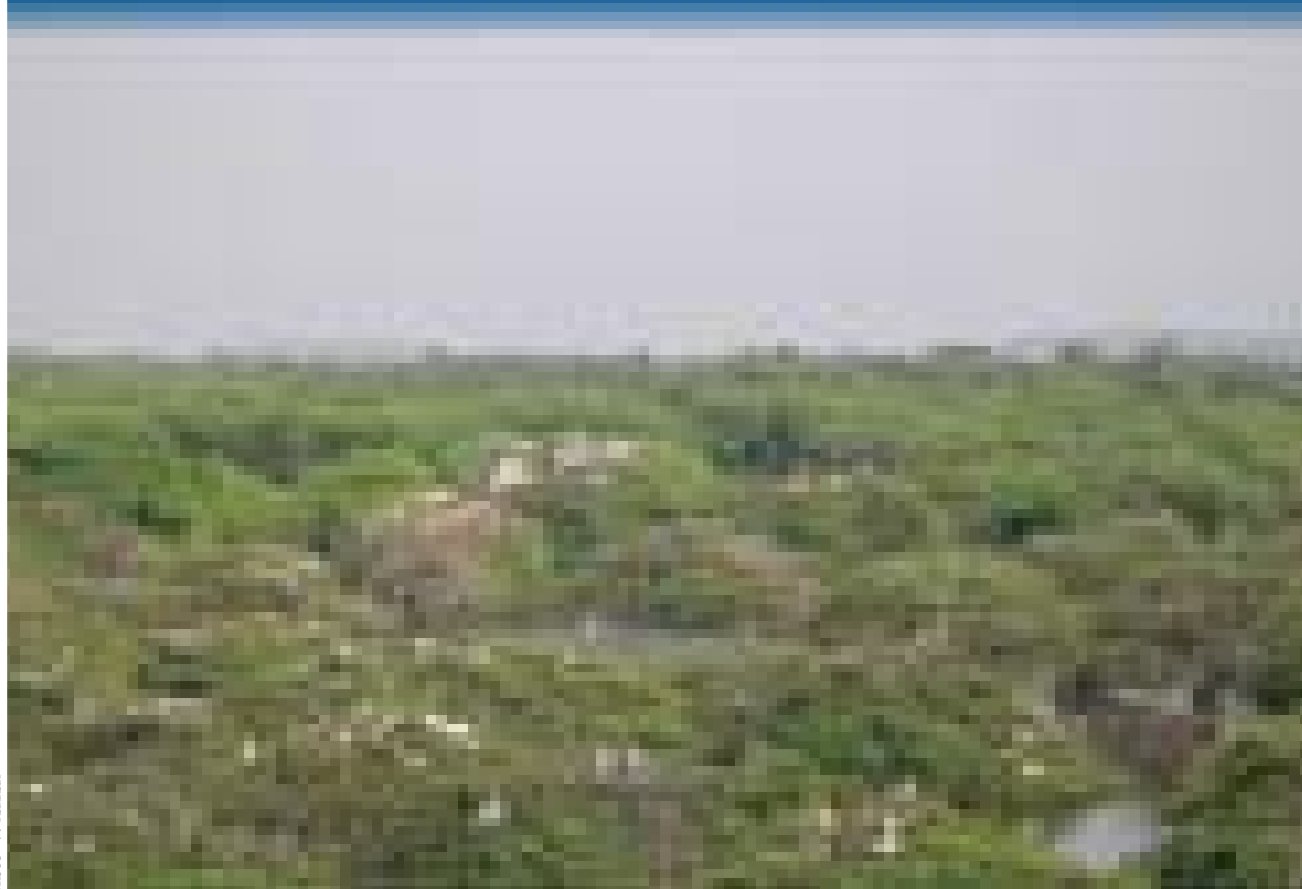
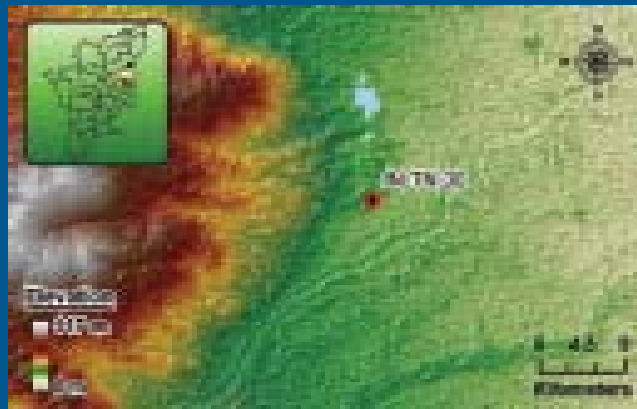


Photo: V. Kannan

## VEERANAM LAKE



IBA Site Code	: IN-TN-30
State	: Tamil Nadu
District	: Cuddalore
Coordinates	: 11° 15' 00" N, 79° 32' 30" E
Ownership	: State
Area	: 3,885 ha
Altitude	: 72 m
Rainfall	: 500 - 950 mm
Temperature	: 28 °C to 41 °C
Biogeographic Zone	: Deccan Peninsula
Habitats	: Freshwater Reservoir

**IBA CRITERIA:** A1 (Threatened Species), A4i ( $\geq 1\%$  biogeographic population), A4iii ( $\geq 20,000$  waterbirds)

**PROTECTION STATUS:** Not officially Protected

### GENERAL DESCRIPTION

Veeranam lake is situated in Cuddalore district, about 25 km west of Chidambaram town. It is one of the biggest and oldest lakes in Tamil Nadu. The Chola King Paranthaga constructed this lake in the 9<sup>th</sup> century AD. The book Ponnien Selvan authored by Kalki in 1950 gives information on this lake, stating that it was constructed over 1,000 years ago by Prince Rajathithar, son of Paranthaga Cholan. The lake was originally called Veeranarayanan lake. The lake is about 16 km long and 8 km broad with a waterspread of about 15 sq. km. There are 34 sluices around the lake through which about 40,000 acres of two talukas, namely Chidambaram and Kattumanarkoil receive irrigation. The lake is fed by Vadavar river and Sengal stream. Under the current New Veeranam Project, parts of the lake were desilted recently.

Veeranam Lake has a rich aquatic plant diversity with submerged, floating and emergent species. In several parts of the lake, mats of reeds and *Ipomoea carnea* occur. The trees found in the surrounding areas, islets and on the bunds are *Acacia nilotica*, *Prosopis chilensis*, *Thespesia populnea*, *Pithecelobium dulce*, *Borassus flabellifer*, *Ficus benghalensis*, *F. religiosa* and *Azadirachta indica*.

### AVIFAUNA

Veeranam lake is an important area for migrant and resident birds. The lake qualifies A4iii criteria as it holds, on a regular basis, more than 20,000 waterbirds. According to Thiyagesan (*pers. comm.* 2001), about 20,000 Asian Openbill *Anastomus oscitans* visit this area, and V. Santharam (*pers. comm.* 2003) has counted about 10,000 Black-tailed Godwits *Limosa limosa*. According to Wetlands International (2002), the total breeding population of the Asian Openbill in South Asia is 1,25,000 and the 1% population threshold is 1,250. Similarly, the total biogeographic population in South Asia of Black-tailed Godwit is 1,00,000 (Wetlands International 2002). With the sighting of 10,000 in Veeranam, it means that 10% of the population uses this IBA. Therefore, this site also qualifies A4i criteria.

The Asian Openbill regularly forages in the lake and nests in the adjacent village Tiruchinapuram. According to the locals, Spot-billed Pelicans *Pelecanus philippensis* also visit the lake in small numbers especially during summer when the water level is reduced. Altogether, 54 species have been recorded, of which 81% are waterbirds (Anand *et al.* 1997, Meganathan 2002).

### Vulnerable

Spot-billed Pelican	<i>Pelecanus philippensis</i>
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### Near Threatened

Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Oriental White Ibis	<i>Threskiornis melanocephala</i>

### OTHER KEY FAUNA

As the lake is surrounded by agricultural fields and human habitations, there are no large wild mammals of any conservation concern. The lake is rich source of many commercial fish such as *Anabas testudines*, *Channa punctatus*, *Mastacembelus armatus* and *Mystus tenegra*, (Anand 1999, Bharathi 2002).

### LAND USE

- ☐ Agriculture
- ☐ Domestic uses
- ☐ Fishing
- ☐ Grazing land
- ☐ Water management
- ☐ Fuel wood collection
- ☐ Medicinal plant collection

### THREATS AND CONSERVATION ISSUES

- ☐ Poaching of birds
- ☐ Fishing and associated disturbances
- ☐ Cattle grazing
- ☐ Siltation
- ☐ Encroachment
- ☐ Weed invasion
- ☐ Pollution

Improvements of the Vadavar channel, and strengthening of the Veeranam lake main bund are two pressing needs. There has been a demand to declare this area as a bird sanctuary, or to create community conservation areas where water would be managed by the Irrigation Department, and the Forest Department would have the authority to ensure a viable water level for birds.

The Asian Openbill regularly forages in the lake and nests in the adjacent Tiruchinapuram.



Photo: Arunayan Sharma

Use of pesticides is very high in the area, which may be causing problems. There is a proposal to divert water from Veeranam to Chennai for drinking purposes. This would deplete the reservoir quickly, much before the migratory waterfowl leave the site.

Several research studies have been conducted by the Wildlife Biology Division of Anbanathapuram Vagayara Charity College (Autonomous) (A.V.C), Mayiladuthurai, all of which suggest the importance of this wetland area for the welfare of both the local people and birds.

#### KEY CONTRIBUTOR

V. Kannan

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## VETTANGUDI BIRD SANCTUARY



<b>IBA Site Code</b>	: IN-TN-31
<b>State</b>	: Tamil Nadu
<b>District</b>	: Sivagangai
<b>Coordinates</b>	: 10° 05' 53" N, 78° 32' 23" E
<b>Ownership</b>	: State
<b>Area</b>	: 38 ha
<b>Altitude</b>	: 70 m
<b>Rainfall</b>	: 943 mm
<b>Temperature</b>	: 20 °C to 35 °C
<b>Biogeographic Zone</b>	: Deccan Peninsula
<b>Habitats</b>	: Freshwater Reservoir

**IBA CRITERIA:** A1 (Threatened Species), A4i (>1% biogeographic population)

**PROTECTION STATUS:** Wildlife Sanctuary, established in June 1997

### GENERAL DESCRIPTION

The Vettangudi Bird Sanctuary is located in the Sivagangai district, although its administration is under the authority of Ramanad district. The sanctuary is about 2 km from Solasakarakottai village, about 10 km from Tirupattur and about 51 km from Madurai on Madurai-Melun-Tirupattur road. The Vettangudi Bird Sanctuary (38.4 ha) consists of three freshwater tanks: Periyakollukudi-kanmai (13.5 ha), Chinnakollukudi-kanmai (6.2 ha) and Vettangudi-kanmai (18.2 ha). All three tanks are in the vicinity of villages and were together declared as a sanctuary in 1997. The Sanctuary receives its major rainfall from the northeast monsoon, with 330-390 mm precipitation between October and December. The southwest monsoon also brings some showers between June and September, with a maximum rainfall of 300 mm. Thus, from June to December, rainwater helps to sustain the breeding birds at Vettangudi. Besides this, Vaigai, the major river of the district, and surrounding paddyfields also provide foraging grounds.

The area surrounding the wetland has been invaded by *Prosopis chilensis*, which was introduced a few decades ago. *Acacia nilotica* trees grow in the lake and remain submerged for a few months. On the bunds, large *Tamarindus indica*, *Azadirachta indica* and *Mangifera indica* trees are present which provide roosting sites for birds.

### AVIFAUNA

This site was selected as an IBA due to the large breeding colony of up to 5,000 birds. More than 250 nests of Asian Openbill *Anastomus oscitans* have been seen. The 1% threshold of Oriental White Ibis *Threskiornis melanocephalus* is 100 (Wetlands International 2002). In Vettangudi, up to 250 birds are found. Similarly, the Glossy Ibis *Plegadis falcinellus* is also found above 1% threshold of its total biogeographic population (Wetlands International, 2002). Little Cormorant *Phalacrocorax niger* and Indian Shag *Phalacrocorax fuscicollis* also breed here.

Waterfowl such as the Spot-billed Duck *Anas poecilorhyncha*, Northern Shoveller *A. clypeata* and Common Teal *A. crecca* also congregate at Vettangudi. Darter *Anhinga rufa*, and Eurasian Spoonbill *Platalea leucorodia* are also seen in small numbers. The Spot-billed Pelican *Pelecanus philippensis* appears in Vettangudi to feast on the abundant fish life, depending upon water conditions (Manakadan and Kannan 2003).

### Vulnerable

Spot-billed Pelican *Pelecanus philippensis*

### Near Threatened

Darter *Anhinga melanogaster*

Painted Stork *Mycteria leucocephala*

Oriental White Ibis *Threskiornis melanocephala*

### OTHER KEY FAUNA

All the three tanks harbour fish species such as *Ambasis urotaenia*, *Channa punctatus*, *Ophiocephalus* sp. and *Mystus tenegra*. Some of these fish are the major prey component for pelicans, storks and cormorants.

### LAND USE

- ☐ Water management
- ☐ Irrigation
- ☐ Fishing
- ☐ Firewood collection

### THREATS AND CONSERVATION ISSUES

- ☐ Draining of water for irrigation during bird breeding season.
- ☐ Firewood collection
- ☐ Tree felling
- ☐ Cattle grazing

There is a need to strengthen the tank bunds to avoid any breach due to heavy flow of water during the monsoon. This will help to store more water, which would be beneficial to both birds and farmers. The Forest Department intends to plant more trees inside the tanks. This would help in providing more space for roosting and nesting of birds.

Owing to siltation, the depth of the tank is decreasing. There is a need to deepen the tanks by dredging. Perhaps villagers can be involved in this activity as they are the direct beneficiaries of the water. The Forest Department should also allow the farmers to collect bird guano for agriculture after the breeding season is over. This will help in creating more local support for the Sanctuary.

As the Sanctuary is very close to human habitations, the anthropogenic disturbances increase during festivals. For example, the birds start breeding from October. By the time chicks emerge



Painted Stork is one of the most widespread storks of India.

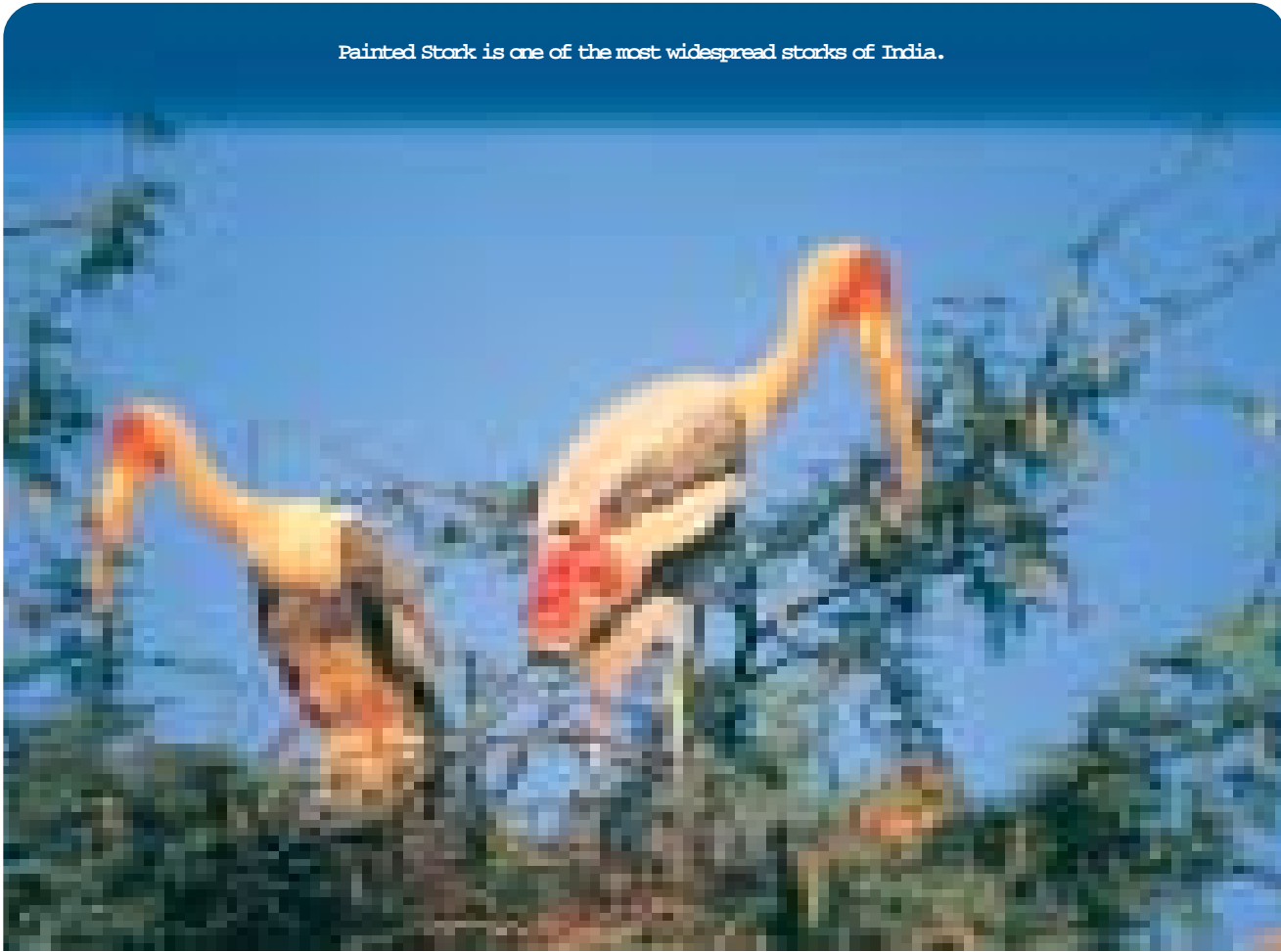


Photo: Asad R. Rahmani

in November, Diwali, the major festival is on and lasts for about a week. Loud music and firecrackers are heard, which sometimes scare away the birds. This disturbance could be minimized through environmental awareness and cooperation of the villagers.

Sometimes the water is drained for irrigation while the birds are breeding, exposing young chicks to ground predators. With the consultation of villagers, attempts should be made to retain some water around nesting trees.

#### KEY CONTRIBUTOR

V. Kannan

#### KEY REFERENCES

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## WATRAP PERIAKULAM AND VIRAKASAMUTHRAKULAM



<b>IBA Site Code</b>	: IN-TN-32
<b>State</b>	: Tamil Nadu
<b>District</b>	: Virudhunagar
<b>Coordinates</b>	: 09° 31' 60" N, 77° 31' 00" E
<b>Ownership</b>	: State (Irrigation Department)
<b>Area</b>	: 251 ha
<b>Altitude</b>	: 2 m
<b>Rainfall</b>	: 580 mm
<b>Temperature</b>	: 22 °C to 39 °C
<b>Biogeographic Zone</b>	: Deccan Peninsula
<b>Habitat</b>	: Freshwater Swamp

**IBA CRITERIA:** A1 (Threatened Species), A4i (≥1% biogeographic population), A4iii (≥ 20,000 waterbirds)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Watrap Periakulam and Virakasamuthrakulam are situated 5 km west of the town Watrap in Virudhunagar District. The two wetlands are divided by the Watrap-Pulavakkal dam road. These wetlands receive water from the Pulavakkal dam situated in the Sirivilliputhur Hills of the Western Ghats. Locally they are called 'system tanks.' Periakulam has been planted with a large number of *Acacia nilotica* trees which attract breeding and roosting waterbirds. Areas covered by *Scirpus* are frequented by rails and grebes. The Virakasamuthrakulam tank is more open, and devoid of *Acacia nilotica*. According to the villagers, the open water attracts congregations of ducks and pelicans. The wetlands are not rich in aquatic flora, except for *Scirpus*, *Cyperus pygmeus*, *C. difformis* and *Cynodon dactylon*.

### AVIFAUNA

This site has been selected as an IBA based on the large number of congregatory waterfowl, and especially as a nesting site for a small population of the globally threatened Spot-billed Pelican *Pelecanus philippensis*. In February 2003, five pelicans and one nest were recorded by S. Balachandran of BNHS (Manakadan and Kannan 2003) Besides the Spot-billed pelican, species such as Purple Heron *Ardea purpurea*, Little cormorant *Phalacrocorax niger*, Cattle Egret *Bubulcus ibis*, Little Egret *Egretta garzetta* and Great Egret *Casmerodius albus* also nest on the numerous *Acacia nilotica* trees growing inside Periakulam. Coot *Fulica atra* is also found breeding in these wetlands. In January 2003, a very large roost of birds was seen. There were more than 3,000 Little Cormorants, over 5,500 Grey-headed Starlings *Sturnus malabaricus*, nearly 1,000 Common Myna *Acridotheres tristis* and large numbers of Cattle and Little Egrets on the *Acacia nilotica* trees.

More than 150 Darters *Anhinga melanogaster* were found roosting and foraging. The number of Darters observed is more than the 1% threshold mentioned by the Wetlands International (2002). The surrounding paddy fields attract a large number of birds, such as Rosy Starling *Sturnus roseus*, especially during the harvesting period.

According to the local farmers, ducks frequent Virakasamuthrakulam in thousands when the tanks are full. Being a drought year, in 2003, the water was too low to attract ducks. It

is likely that the two wetlands and their environs would easily support over 20,000 birds in a year of good monsoon.

Vulnerable	
Spot-billed Pelican	<i>Pelecanus philippensis</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Oriental White Ibis	<i>Threskiornis melanocephala</i>

### OTHER KEY FAUNA

As this wetland is surrounded by human habitation, there is little mammal diversity. Black-naped Hare *Lepus nigricollis*, Jungle Cat *Felis chaus*, Small Indian Civet *Viverricula indica* and Golden Jackal *Canis aureus* are seen, as in most other agricultural areas of India.

### LAND USE

□ Irrigation and Fishing

### THREATS AND CONSERVATION ISSUES

- Poaching of ducks
- Collection of eggs and chicks
- Illegal tree cutting

Bird eggs and chicks are illegally collected as there is no control by the Forest Department staff. There is the possibility of establishment of a pelicanry on this site, if suitable measures are taken up by the Forest Department (Manakadan and Kannan, 2003). The invasive weed, Water Hyacinth *Eichhornia crassipes* needs to be controlled.

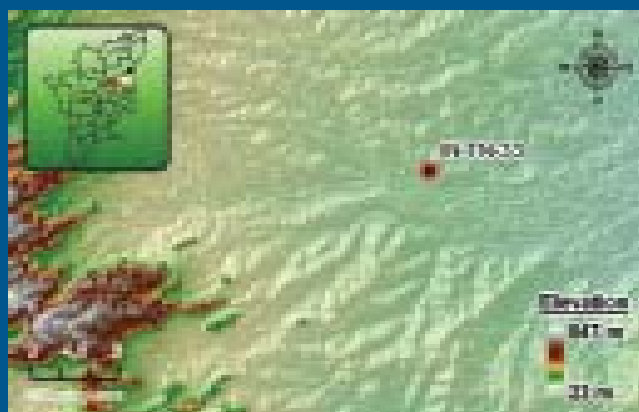
### KEY CONTRIBUTORS

S. Balachandran and S. S. Ramchandra Raja

### KEY REFERENCE

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## WELLINGTON RESERVOIR



IBA Site Code	: IN-TN-33
State	: Tamil Nadu
District	: Cuddalore
Coordinates	: 11° 25' 00" N, 79° 00' 00" E
Ownership	: State
Area	: 650 ha
Altitude	: 72.320 m
Rainfall	: 1,000 mm
Temperature	: 28 °C to 41 °C
Biogeographic Zone	: Deccan Peninsula
Habitats	: Freshwater Reservoir

**IBA CRITERIA:** A1 (Threatened Species), A4i (≥ 1% biogeographic population), A4iii (≥ 20,000 waterbirds)

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

The 650 ha Wellington Reservoir is located in Keelacheruvai village, about 3.2 km from Tittagudy town in Cuddalore district. The Reservoir is locally called Yemaneri. It receives water mainly from the Vellar river, which originates in Salem district and flows from west to east. The tank also receives water from Tholudur regulator through a supply channel, and drainage from catchment areas during the northeast monsoons. The Reservoir has a catchment area of 129 sq. km. This reservoir supports 10,000 ha of agricultural fields for irrigation. The length of the bund is about 4 km. The maximum depth of the lake is about 9 m.

The waterbody has rich benthic flora and other hydrophytes. The Forest Department has planted *Acacia nilotica* especially in the northern part of the Reservoir. Besides the plantation, there are dense stands of old *Acacia nilotica* and *Prosopis chilensis*.

### AVIFAUNA

The Wellington Reservoir qualifies as an IBA on two accounts. Firstly, about 100-150 threatened Spot-billed Pelicans *Pelecanus philippensis* were seen, that is 6.5% of the known biogeographic population at the 1% threshold level of 40 birds as determined by Wetlands International (2002). Secondly, there is known to be a large congregation of waterfowl, sometimes more than 20,000 in all. The dominant avian species of the lake are duck species, Northern Pintail *Anas acuta*, Northern Shoveller *A. clypeata* Red-crested Pochard *Rhodonessa rufina* and Lesser Whistling Duck *Dendrocygna javanica*.

According to a recent study, there are about 70 bird species in this IBA, of which 67% are water birds (Meganathan 2002).

Vulnerable	
Spot-billed Pelican	<i>Pelecanus philippensis</i>
Near Threatened	
Darter	<i>Anhinga melanogaster</i>
Painted Stork	<i>Mycteria leucocephala</i>
Oriental White Ibis	<i>Threskiornis melanocephala</i>

### OTHER KEY FAUNA

There is not much wildlife as the reservoir is surrounded by agricultural fields and human habitations, but the fish fauna is obviously quite rich. The Fisheries Department has introduced

commercial fish such as *Catla catla*, *Labeo rohita* and *Cirrhinus mrigala*, that also serves as good food for the piscivorous birds.

### LAND USE

- ☐ Agriculture
- ☐ Fishing
- ☐ Water Management

### THREATS AND CONSERVATION ISSUES

- ☐ Heavy poaching pressure
- ☐ Pesticide pollution from the catchment areas during monsoon
- ☐ Fuel wood collection

Like most of the old reservoirs of Tamil Nadu, Wellington is suffering from neglect and is in a state of disrepair. The bunds must be reconstructed to stop leakages. This will help in storing more water during the monsoon, for irrigation and other uses during the rest of the year. It will also provide water for a longer period for waterfowl. It is important to appoint a Forest Department guard/official to safeguard the wild birds from poaching by local tribes, especially *Nariquravas*, who are professional bird trappers.

The lake has nine villages on the periphery (with a total population of almost 20,000). The people mainly use the lake for fishing and cattle grazing. The surrounding agricultural lands are subjected to a variety of pesticides.

Wellington Reservoir could play an important role in conservation education. Students from schools and colleges can be brought here to generate interest in bird watching.

### KEY CONTRIBUTOR

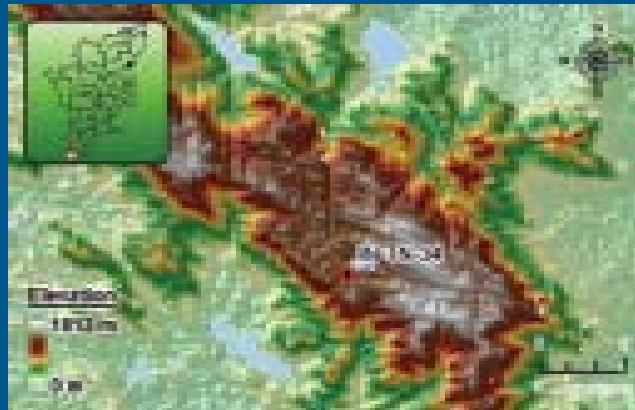
V. Kannan

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Wetlands International (2002) *Waterbird Population Estimates, Third Edition*. Wetlands International Global Series No.12. Wageningen, the Netherlands.

## MUTHUKUZZHI



<b>IBA Site Code</b>	: IN-TN-34
<b>State</b>	: Tamil Nadu
<b>District</b>	: Nagercoil
<b>Coordinates</b>	: 8° 30' 00" N, 77° 22' 60" E
<b>Ownership</b>	: Not available
<b>Area</b>	: Not available
<b>Altitude</b>	: Not available
<b>Rainfall</b>	: Not available
<b>Temperature</b>	: Not available
<b>Biogeographic Zone</b>	: Western Ghats
<b>Habitats</b>	: Montane Wet Temperate Forest

**IBA CRITERIA:** A1 (Threatened Species), A2 (Endemic Bird Area 123: Western Ghats), Data Deficient

**PROTECTION STATUS:** Not officially protected

### GENERAL DESCRIPTION

Almost the entire area of Muthukuzhi lies within the Kalakad-Mundanthurai Tiger Reserve (KMTR) (part of Virapuli Reserved Forest annexed to KMTR). Some areas in and around the Upper Kodayar reservoir belong to the Tamil Nadu Electricity Board.

This IBA is a transition zone from mid-elevation tropical wet evergreen forests to montane *shola* grasslands. There are extensive grasslands around the reservoir, and patches of evergreen forest on the slopes. The vegetation on the islands within the reservoir has been badly altered due to planting of non-indigenous species like *Eucalyptus* sp.

Detailed information on avifauna is lacking, however, as this site is within the Kalakad-Mundanthurai Tiger Reserve, the birdlife is not very different from the Reserve. This is a Data Deficient site.

### OTHER FAUNA

Gaur *Bos frontalis*, Tiger *Panthera tigris*, Leopard *P. pardus*, Asian Elephant *Elephas maximus*, Sambar *Cervus unicolor*, Barking Deer *Muntiacus muntjak*, Mouse Deer *Moschiola meminna*, Lion-tailed Macaque *Macaca silenus*, Nilgiri Langur *Trachypitecus johnii*, Brown-palm Civet *Paradoxurus jerdoni* and Nilgiri Marten *Martes gwatkinsi* and many other mammals are recorded from this IBA (Johnsingh 2001).

### AVIFAUNA

Endangered	
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Vulnerable	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>
Near Threatened	
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
Endemic Bird Areas 123: Western Ghats	
Nilgiri Wood Pigeon	<i>Columba elphinstonii</i>
Nilgiri Pipit	<i>Anthus nilghiriensis</i>
Grey-headed Bulbul	<i>Pycnonotus priocephalus</i>
White-bellied Shortwing	<i>Brachypteryx major</i>
Wynaad Laughingthrush	<i>Garrulax delesserti</i>
Nilgiri Laughingthrush	<i>Garrulax cachinnans</i>
Grey-breasted Laughingthrush	<i>Garrulax jerdoni</i>
Indian Rufous Babbler	<i>Turdoides subrufus</i>
Broad-tailed Grass-Warbler	<i>Schoenicola platyura</i>
Black-and-Orange Flycatcher	<i>Ficedula nigrorufa</i>
Nilgiri Flycatcher	<i>Eumyias albicaudata</i>
White-bellied Blue-Flycatcher	<i>Cyornis pallipes</i>
Small Sunbird	<i>Nectarinia minima</i>
White-bellied Treepie	<i>Dendrocitta leucogastra</i>

### LAND USE

- ☐ Private plantation
- ☐ Electricity board enclaves

### THREATS AND CONSERVATION ISSUES

- ☐ Disturbance
- ☐ Forest fires
- ☐ Grazing
- ☐ Exotic tree plantations
- ☐ Invasive species

Disturbance is caused due to reservoir and electricity board settlements, roads and operations. The other threats to this IBA are the fragmentation of habitat, exotic tree plantations programmes especially *Eucalyptus* sp., forest fires and grazing. The adjoining grasslands are grazed by cattle and feral buffalos.

### KEY CONTRIBUTORS

Divya Mudappa, T. R. Shankar Raman and Nature Conservation Foundation, Mysore

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Johnsingh, A. J. T. (2001) The Kalakad-Mundanthurai Tiger Reserve: A global heritage of biological diversity. *Current Science* 80: 378-388.