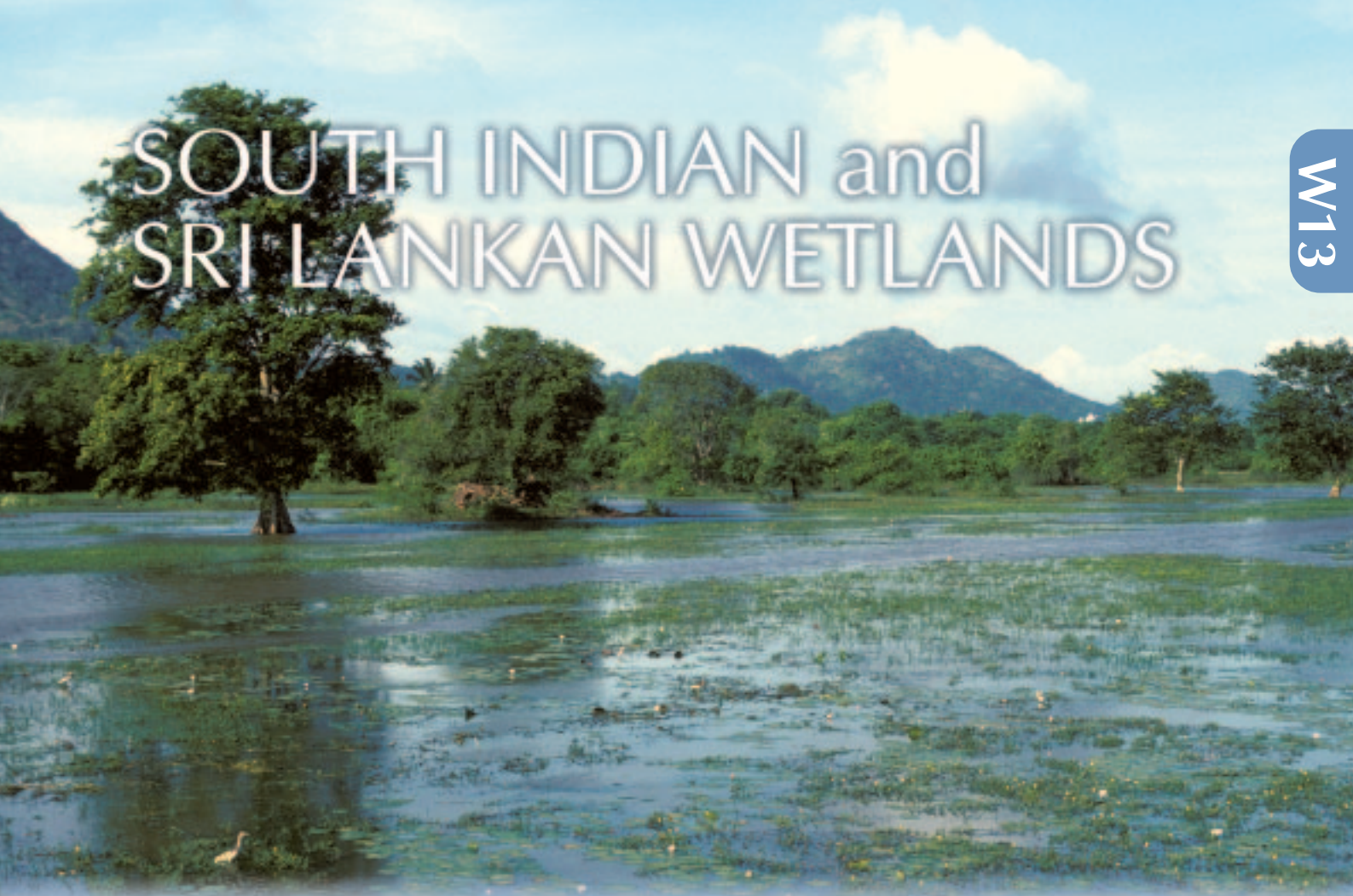


SOUTH INDIAN and SRI LANKAN WETLANDS



THE wetlands of this region support a high proportion of the global population of Spot-billed Pelicans, with many colonies associated with water storage reservoirs or ‘tanks’ on the Deccan plateau in southern India and the dry zone lowlands of Sri Lanka. Lesser Adjutant also occurs, but in relatively low numbers, and small numbers of Spoon-billed Sandpiper have been found wintering in coastal wetlands.

- **Key habitats** Freshwater and coastal wetlands.
- **Countries and territories** **India** (Karnataka, Andhra Pradesh, Kerala, Tamil Nadu, Orissa); **Sri Lanka**.

	Threatened species			Total
	CR	EN	VU	
●	—	—	2	2
✈	—	—	—	—
🦆	—	—	1	1
Total	—	—	3	3

Key: ● = breeding in this wetland region.
✈ = passage migrant.
🦆 = non-breeding visitor.

The South Indian and Sri Lankan wetlands region overlaps with part of Conservation International’s Western Ghats and Sri Lanka Hotspot (see pp.20–21).

Wetlands in the dry zone of Sri Lanka support large numbers of Spot-billed Pelicans, and a small population of Lesser Adjutants. PHOTO: RAY TIPPER





Table 1. Outstanding Important Bird Areas in the south Indian and Sri Lankan wetlands.

IBA name	Status	Territory	Threatened species
1 Kokkare Bellur	—	Karnataka	Large Spot-billed Pelican colony
2 Nelapattu WS	PA	Andhra Pradesh	Large Spot-billed Pelican colony
3 Pulicat Lake WS	PA	Andhra Pradesh	Important Spot-billed Pelican foraging area
4 Point Calimere S	PA ^R	Tamil Nadu	Foraging Spot-billed Pelicans and occasional Spoon-billed Sandpiper
5 Chitrangudi tank	—	Tamil Nadu	Large Spot-billed Pelican colony
6 Koondakulam BS	PA	Tamil Nadu	Large Spot-billed Pelican colony
7 Chilka Lake	— ^R	Orissa	Foraging Spot-billed Pelican and Spoon-billed Sandpiper
8 Maduru Oya NP	PA	Sri Lanka	Foraging and breeding Spot-billed Pelican and Lesser Adjutant
9 Ruhuna (Yala) NP	PA	Sri Lanka	Foraging and breeding Spot-billed Pelican and Lesser Adjutant
10 Bundala NP	PA ^R	Sri Lanka	Foraging and breeding Spot-billed Pelican and Lesser Adjutant

Note that more IBAs in this region will be included in the *Important Bird Areas in Asia*, due to be published in early 2004.

Key IBA name: BS= Bird Sanctuary; NP = National Park; S = Sanctuary; WS = Wildlife Sanctuary.
 Status: PA = IBA is a protected area; (PA) = IBA partially protected; — = unprotected; R = IBA is wholly or partially a Ramsar Site (see pp.31–32)

Spot-billed Pelicans nest in trees adjacent to wetlands, but there is now a shortage of potential sites in many areas.

PHOTO: OTTO PEISTER



Table 2. Threatened birds of the south Indian and Sri Lankan wetlands.

Species		Distribution and population
Spot-billed Pelican <i>Pelecanus philippensis</i>	● VU	A high proportion of the global population nests in colonies in this region, with recent estimates of 2,000–2,500 birds in southern India and c.5,000 on Sri Lanka
Lesser Adjutant <i>Leptoptilos javanicus</i>	○ VU	Scarce and local breeding bird on Sri Lanka, suspected to breed in small numbers in southern India
Spoon-billed Sandpiper <i>Eurynorhynchus pygmeus</i>	🐦 VU	Small numbers regularly winter on the east coast of India

Other threatened waterbirds recorded from this region as rare (or extinct) visitors are: Pink-headed Duck *Rhodonessa caryophyllacea* (extinct), Spotted Greenshank *Tringa guttifer* and Indian Skimmer *Rynchops albicollis*. In addition to the waterbirds, Greater Spotted Eagle *Aquila clanga* (VU; see F01) occurs in winter in southern India (but not Sri Lanka).

● = region estimated to support 50–90% of global breeding population, ○ = <10%; 🐦 = region estimated to support <10% of global non-breeding population

OUTSTANDING IBAs FOR THREATENED BIRDS (see Table 1)

Ten IBAs have been selected in this region, primarily for their importance to Spot-billed Pelican.

CURRENT STATUS OF HABITATS AND THREATENED SPECIES

The water storage reservoirs or ‘tanks’ favoured by Spot-billed Pelicans have been constructed close to virtually every rural village, and provide a vital source of water and other resources in this relatively arid region. They are therefore fairly secure, although some are being encroached for agriculture or industrial development, disturbed and/or polluted. The estuaries and coastal lagoons visited by non-breeding Spot-billed Pelicans and small numbers of Spoon-billed Sandpiper are being degraded by aquaculture, industrial development and siltation.

CONSERVATION ISSUES AND STRATEGIC SOLUTIONS (summarised in Table 3)

Habitat loss and degradation

■ CONVERSION TO AGRICULTURE

Drainage and conversion for cultivation affect many

wetlands in this region, both freshwater and coastal. The margins of freshwater wetlands are often lost under cultivation, with an estimated 37% of village tanks being encroached by agriculture in Karnataka. Some wetlands are drying out because of excessive water extraction to supply irrigation projects, and a few, e.g. Bundala Sanctuary on Sri Lanka, are adversely affected by the inflow of excess irrigation water. Important unprotected nesting and feeding areas for Spot-billed Pelicans and Lesser Adjutant need to be designated as new wetland sanctuaries and protected from conversion for agriculture, and their water supplies regulated.

■ CONVERSION TO AQUACULTURE

Nearly 400 km² of the Andhra Pradesh coastline had been converted to prawn ponds by the mid-1990s, and a further 600 km² were earmarked for development, particularly around the Krishna estuary. Some large inland wetlands are also affected, e.g. Kolleru Lake in Andhra Pradesh, once a major Spot-billed Pelican feeding area but now almost completely converted to aquaculture. The margins of Chilka Lake in Orissa are steadily being converted to prawn ponds, and aquaculture projects are replacing wetland habitat in Sri Lanka. Awareness campaigns are required to emphasise the importance of these wetlands for biodiversity (including fish stocks) to local and state governments, to

Coastal wetlands in eastern India are important fisheries and rich in biodiversity, but are steadily being converted to aquaculture.

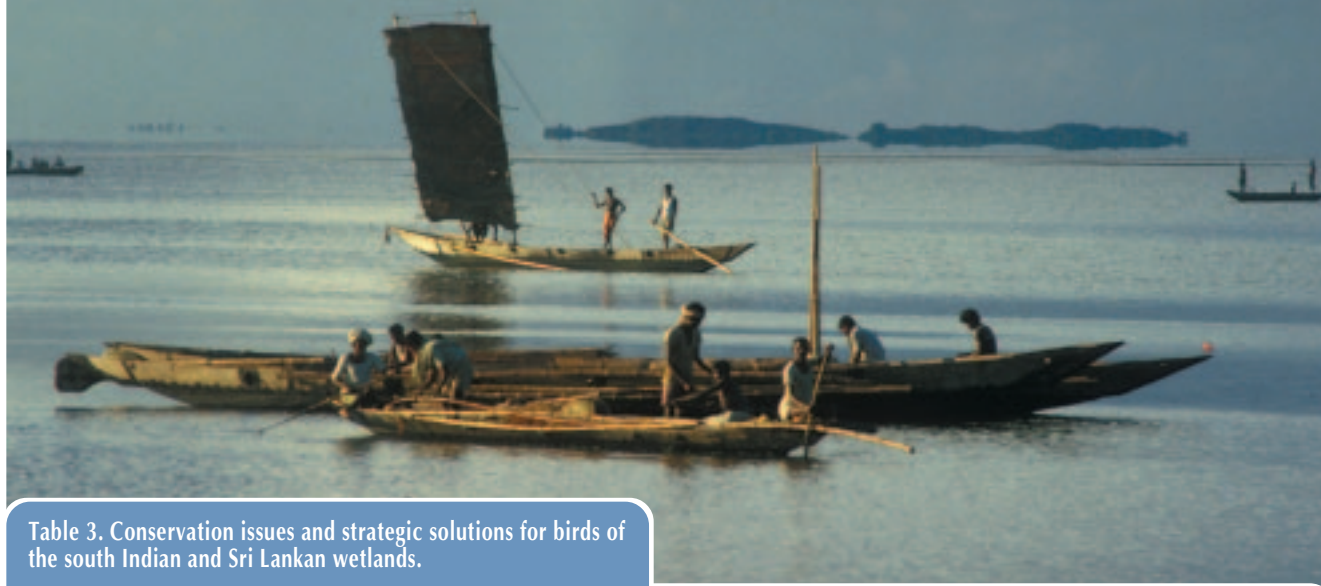


PHOTO: JON HORNBUCKLE

Table 3. Conservation issues and strategic solutions for birds of the south Indian and Sri Lankan wetlands.

Conservation issues	Strategic solutions
Habitat loss and degradation	
<ul style="list-style-type: none"> ■ CONVERSION TO AGRICULTURE ■ CONVERSION TO AQUACULTURE ■ DEVELOPMENT (URBAN, INDUSTRIAL, ETC.) ■ CUTTING OF NESTING TREES ■ DISTURBANCE ■ POLLUTION/PESTICIDES ■ REDUCED FOOD SUPPLY 	<ul style="list-style-type: none"> ➤ Control conversion for agriculture and the spread of aquaculture, and minimise encroachment of urban and industrial development into wetlands ➤ Assess the environmental impact of proposed development projects near key wetlands ➤ Establish community-based projects at Spot-billed Pelican colonies to reduce cutting of nest trees and conflicts with local people, and plant additional nest trees ➤ Regulate the use of agrochemicals, and encourage traditional organic farming methods ➤ Improve management of fisheries at key wetlands for Spot-billed Pelicans
Protected areas coverage and management	
<ul style="list-style-type: none"> ■ GAPS IN PROTECTED AREAS SYSTEM ■ WEAKNESSES IN RESERVE MANAGEMENT 	<ul style="list-style-type: none"> ➤ Establish new protected areas at key Spot-billed Pelican and Lesser Adjutant breeding and foraging sites ➤ Strengthen reserve management through improved funding, infrastructure and staff training
Exploitation of birds	
<ul style="list-style-type: none"> ■ HUNTING AND PERSECUTION 	<ul style="list-style-type: none"> ➤ Strengthen hunting and species protection laws, and improve their enforcement, including through education and awareness programmes
Gaps in knowledge	
<ul style="list-style-type: none"> ■ INADEQUATE DATA ON THREATENED BIRDS 	<ul style="list-style-type: none"> ➤ Monitor all major Spot-billed Pelican and Lesser Adjutant colonies, and identify their main foraging areas ➤ Survey coastal wetlands for Spoon-billed Sandpiper

encourage them to control the spread of aquaculture, especially inside protected areas.

■ **DEVELOPMENT (URBAN, INDUSTRIAL, ETC.)**

Many wetlands are being encroached by industrial facilities, roads and settlements, and this needs to be prevented or carefully controlled, especially inside protected areas. Bundala National Park on Sri Lanka is threatened by a number of proposed developments in its immediate vicinity, not least the Hambantota ‘mega-city’: an oil refinery, harbour, airport, hotels, etc. Development projects should be reviewed through environmental impact assessment and, if necessary, revised in order to reconcile the needs of nature conservation and economic development.

■ **CUTTING OF NESTING TREES**

Both Spot-billed Pelican and Lesser Adjutant nest in trees adjacent to wetlands, but there is now a chronic shortage of

potential nest sites in many areas because of the cutting or lopping of trees for timber, fuelwood and fodder, and several large pelican colonies have been lost. In southern India, most pelican colonies are in or close to villages as this is often where the only suitable trees remain, sometimes resulting in conflict with local people (see *Hunting and persecution* below). The trees used by nesting pelicans and storks need protection, including through the establishment of wetland sanctuaries, and trees should be planted periodically to provide additional nesting habitat. Artificial nest platforms could also be experimented with in selected protected areas, but only if this does not encourage local people to cut down nesting trees. Community forestry projects should be established near important colonies to develop alternative sources of timber, fuel and fodder, and thus lessen the pressure on colony trees. Other community-based projects could be developed to minimise conflict between pelicanries and people, e.g. tourism, with

awareness campaigns to build local pride in their global importance.

■ **DISTURBANCE**

Human disturbance (particularly as a result of fishing activity) affects most important sites for Spot-billed Pelican. Over 30,000 people depend on Pulicat Lake for their survival and, even though the area is legally protected, current legislation is inadequate to control over-exploitation and disturbance by fishermen. At Chilka Lake, around 9,000 fishing vessels are active throughout the day and night, with detrimental effects on waterbird populations. Human activities need to be managed inside protected areas (and ideally also at unprotected wetlands) so that nesting Spot-billed Pelicans and Lesser Adjutants are not disturbed, and levels of disturbance in important foraging areas are minimised.

■ **POLLUTION/PESTICIDES**

Agrochemicals are widely applied to farmland, and are contaminating wetlands; these are likely to build up in the food chain and affect piscivores and scavengers such as Spot-billed Pelican and Lesser Adjutant, and increased eutrophication and excessive aquatic vegetation reduce the value of wetlands to pelicans. The salinity of wetlands at Point Calimere is being increased by nearby salt-works. The use of pesticides or fertilisers should be controlled, especially in areas close to important wetlands, along with improvements in sewage treatment and management of salt-works. Traditional organic agricultural practices should be encouraged wherever possible.

■ **REDUCED FOOD SUPPLY**

Intensive fishing in lakes frequented by Spot-billed Pelicans presumably reduces their food supply, and may be a particular problem near colonies because large quantities of

fish are needed to feed the nestlings. A sustained recovery of fish stocks could be achieved by preventing fishing in parts of wetlands, and perhaps imposing fishing quotas.

Protected areas coverage and management

■ **GAPS IN PROTECTED AREAS SYSTEM**

Several protected areas in southern India and Sri Lanka include breeding colonies and important foraging areas of Spot-billed Pelican. All other nesting sites of this species and Lesser Adjutant should be considered for official protection in both countries, together with a satellite network of secure foraging sites to ensure that sufficient food is available through each breeding season.

■ **WEAKNESSES IN RESERVE MANAGEMENT**

Given the economic importance of wetlands in this densely populated region, wetland protected areas need to be managed with a view to balancing the needs of people and wildlife. Improved control of human activities is necessary in many reserves, for example by zoning sections of lakes where fishing is not allowed, to maintain fish stocks and undisturbed foraging grounds for birds. Protected areas in general are under-funded, under-staffed and poorly equipped, which needs to be addressed through improved finances and better training. A successful project has been conducted at the Kokkare Bellur Spot-billed Pelican colony to captive-rear and then release into the wild the many nestlings which fall from nests; this approach could be followed at other colonies to boost productivity.

Exploitation of birds

■ **HUNTING AND PERSECUTION**

Hunting is a problem at many wetlands in southern India and Sri Lanka, and eggs and young are taken at some Spot-billed Pelican colonies; this was one of the main reasons for the loss of Kolleru and Moonradaippu pelicanries. Hunting

Human disturbance, particularly as a result of fishing activity, affects most important sites for Spot-billed Pelican.



PHOTO: OTTO PFISTER

laws need to be strengthened and strictly enforced at key wetlands, particularly in protected areas. Education programmes should publicise the legal status and importance of threatened species to local hunters and communities. The control of gun ownership might be the best method of addressing this problem in some areas.

At some Spot-billed Pelican colonies in villages local people have tried to discourage nesting in trees close to their houses because of the odours, or in economically important tamarind *Tamarindus indica* trees because the fruit mature while the birds are nesting. Measures to reduce such conflicts could include the planting of new nest trees in less sensitive areas, and the enforcement of species protection laws backed up by conservation awareness programmes and possibly some form of compensation.

Gaps in knowledge

■ INADEQUATE DATA ON THREATENED BIRDS

Considerable research has been conducted to locate and monitor the size and breeding success of Spot-billed Pelican colonies in southern India. This work needs to be continued and expanded for this species and Lesser Adjutant in India and Sri Lanka, to help identify the waterbird colonies where conservation action is most urgently required. More data are required on key foraging sites and patterns of wetland use by breeding Spot-billed Pelicans (which travel considerable distances from some colonies to feed) and Lesser Adjutants, using marked birds and radio- and satellite-tracking. Shorebird surveys are needed to determine the size (and hence global significance) of the Spoon-billed Sandpiper population that winters in eastern India.