

# THE STATUS OF STORKS, IBISES AND SPOONBILL IN INDONESIA

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## Abstract

A brief summary is given of the current status in Indonesia of the eleven Stork, Ibis and Spoonbill species occurring in Indonesia. Of these the Storm's Stork, Royal Spoonbill, and White-shouldered Ibis are considered as endangered and likely to disappear in Indonesia within the next decades if no conservation action is undertaken. Ongoing conservation programmes for the species are discussed and additional conservation measures outlined.

## Introduction

In the beginning of 1989, the Indonesian Ornithological Society was asked by Dr. Philip Kahl to compile some information on the status of Storks, Ibises and Spoonbills of Indonesia. This request was passed on to the Asian Wetland Bureau - Indonesia (AWB). AWB has been involved with extensive surveys of wetlands and waterbirds 'In the framework of an Arrangement with the Indonesian Directorate General of Forest Protection and Nature Observation (PHPA). Under this Arrangement which started in 1987, AWB and PHPA cooperate in the development and execution of a nation-wide wetland and water-bird survey programme.

Many joint surveys have been carried out subsequently in Sumatra, Java, Kalimantan, Sulawesi, Irian Jaya and other regions of Indonesia, often in conjunction with other local institutes or organisations. Data gathered included information on the distribution of large waterbirds. AWB also compiled a small library with literature relevant to waterbird and wetland studies. This report is the product of data compiled recently, and some additional data from literature, on the distribution and conservation status of the Indonesian Storks, Ibises and Spoonbill.

## Species accounts

In this paper an attempt is made to classify the stork, ibis and spoonbill species according to their conservation status as either "Endangered", "Vulnerable", "Rare" and "Indeterminate", in the Indonesian context. These specific categories follow the IUCN guidelines for threatened species. Species' conservation needs are briefly listed. It should be noted that for solitary species, which generally occur in very low numbers over a wide area, such as the Storm's Stork, successful conservation campaigns are likely to be those which are not single-species orientated, but rather campaigns focussing on the conservation of critical habitats, or a multi-species approach. It should be noted that all five stork species

and three species of ibis, *Threskiornis melanocephala*, *Plegadis falcinellus* and *Pseudibis davisoni* are protected under Indonesia law (Strien, 1982).

## **Ciconiidae**

### **Milky Stork *Mycteria cinerea*: Vulnerable**

Resident in Sumatra, Java and Sulawesi (?); vagrant to Bali and Sumbawa.

#### Distribution and population size:

The only known breeding sites of Milky Stork are located in Sumatra and Java. In 1985, one colony with 74 active nests was found in the mangrove Nature Reserve Hutan Bakau Pantai Timor, Jambi Province, Sumatra (Danielsen and Skov, 1987). Aerial surveys carried out in South Sumatra Province in 1988 revealed three breeding sites in unprotected mangrove back swamp areas, totaling about 1,000 occupied nests (Anon. 1989). The species' future in this region remains uncertain due to plans to convert tidal forests into large scale brackish-water fish farms, forest logging and conversion schemes and increased capture of storks for food and trade. The Sumatran population is estimated to number about 5,000 individuals. The species still breeds in small numbers on Pulau Rambut off the north coast of West Java Province. In August 1984, there was a minimum of 14 active nests. The total residential population of West Java Province has been estimated to be around 400 (Allport & Wilson 1986). Surveys on the south coast of Central Java recorded a minimum of 164 birds, but breeding could not be confirmed (Erftemeijer *et al.* 1988). Surveys in East Java found only 38 birds, including 4 immatures (Erftemeijer and Djuharsa, 1988). The stork's status in Sulawesi is unclear. Its presence on this island was established for the first time in 1977 (Escott & Holmes, 1980), but the origin of the small but apparently resident population in Sulawesi is not known. Watling (1983) found a flock of 10 - 15 birds at Marisa, North Sulawesi, in February 1979. Uttley (1987) found 69 birds in Teluk Bone, South Sulawesi, in 1986, including immatures, but no nesting sites were located. A total of 17 birds was observed by T. Andrews on the coast of western Sumbawa in May 1988 (D.A. Holmes, pers. comm.). The species is likely to perform seasonal movements in the non-breeding season; true migration is not documented (Verheugt 1987), although some observations have been made of Milky Storks crossing the Sunda Straits (Allport & Wilson, 1986).

#### **Conservation recommendations:**

A network of coastal Nature or Wildlife Reserves should be established in Riau, Jambi and South Sumatra Province. A public awareness campaign should be launched to inform the local communities, including those fishermen living semi-permanently off-shore, of the conservation and protection status of this species. Research programmes are required on the general ecology and the seasonal movements of the species. Surveys are required in Sulawesi to establish the status of this species, and identify management

requirements. AWB and PHPA will start a wetland and waterbird survey project in South Sulawesi in June 1999, and will attempt to gather more information on the species' status in that province.

**Woolly-necked Stork *Ciconia episcopus*: vulnerable**

Resident in Java. Bali (?), Sulawesi, Lombok, Sumbawa and Flores. Presumably non-breeding visitor in southern provinces of Sumatra. Distribution and population size:

The Woolly-necked Stork occurs widely in the southern provinces of Sumatra (Holmes, 1977). and both sub-species are recorded as presumably non-breeding visitors [*episcopus* in the north, *neglecta* in the south, (van Marle & Voous 1988)]. Birds from Java and Wallacea are thought to be of the *neglecta* subspecies. In Wallacea it is recorded as not uncommon (White & Bruce, 1986). This solitary species is believed to have a total Indonesian population of less than 1,000 individuals. It seems to be most common in eastern Java, southern, central and southeast Sulawesi. Concentrations of up to 20 birds have been recorded in South Sulawesi (Andrew, in prep.). An AWB survey recorded groups of 5 to 20 individuals all along the west coast from Pasangkayu to Mamuju (M. Baltzer, pers. com.). There has been only one recent breeding record of a nest in a large isolated tree in a hill area in South Sulawesi (Andrew, in prep.). School (1987) regularly recorded the species on Buton. In October 1989, an AWB survey at Po leang, South-east Sulawesi. was informed of a Woolly-necked Stork colony which had been raided of their fledgelings in February 1989, to be served at a wedding party. The adult storks failed to return (W. Giesen pers. com.). The species is recorded from freshwater and peat swamp forests, open swamps (lebaks), ricefield areas and grasslands (Holmes, 1977), but has also been recorded in hilly or mountainous areas (Hoogerwerf 1938), including the upland valleys of Napu, Lindu and Besoa (Watling, 1983).

Conservation recommendations:

Survey work is urgently needed to properly assess habitat requirements for this species, in particular requirements for breeding. In addition, more information on its distribution needs to be collected. Critical areas should be identified for designation as Nature Reserves. With the current lack of data on its habitat requirements for breeding it is difficult to assess its conservation status.

**Storm's Stork *Ciconia stormi*: Endangered**

Resident in Kalimantan and Sumatra.

Distribution and population size:

Indonesia holds the core of the remaining world population of this extremely rare stork. It occurs widely but in low densities in the eastern lowlands of Sumatra, Mentawai Islands (Sumatra), and in Kalimantan in undisturbed freshwater habitats including peat swamp forests. In Lampung Province it has been seen feeding in small forest ponds (Southampton Univ. Sumatra Expedition. 1989). Evidence of nesting has been found in South

Sumatra province, where in April 1989, a pair was sighted building a nest in the canopy of a *Rhizophora* mangrove tree. In July 1989 two nestlings successfully fledged. Food brought to the nest consisted mainly of fish. The distribution area overlaps in Sumatra with the Woolly-necked Stork *Ciconia episcopus* (Holmes, 1977), which seems to be more numerous and better adapted to disturbed habitats.

Storm's Stork is threatened due to swamp forest conversion and forest logging activities. Its population in Indonesia may well number less than 300. It is not inconceivable that Storm's Storks obtained by a West German Bird Park in 1988 were illegally obtained from the wild.

Conservation recommendations:

Survey work is urgently needed to assess the habitat (breeding and foraging) requirements of this species and its exact distribution, and to identify critical areas to be designated as Nature or Wildlife Reserves.

**Lesser Adjutant *Leptoptiloe javanicus*: Vulnerable**

Resident in Sumatra, Java, Kalimantan and Bali. A likely vagrant to Lombok and islands further east.

Distribution and population size:

The Lesser Adjutant still holds viable populations in Sumatra, Java and Kalimantan. Its main stronghold is South Sumatra Province, where small to medium sized groups (up to 40-50 individuals) have been regularly sighted during surveys in 1984, 1985, 1986 and 1988/89, up to a maximum of 620 individuals (Silvius *et al.* 1986; Damelsen and Skov 1987; Silvius 1986). The total Indonesian population is believed not to exceed 2,000 individuals. Surveys in Java found only small numbers. Erftemeyer and Djuharsa (1988) found only 3 individuals during extensive surveys in the Brantas and Solo Deltas in north-east Java. Erftemeijer *et al.* (1988) found a population of at least 25 individuals in the Segara Anakan, the largest remaining mangrove swamp on Java. Data from Kalimantan, where it is considered rare, are scarce.

The largest concentrations are found on mudflats and in mangrove forests, but it is also common inland. Hoogerwerf (1938) found several nests in large mangrove trees along the north coast of West Java. Already in that time he noticed the population to be decreasing which, according to him, was caused by the logging of big mangrove trees and the disturbance of nests by local people who took the eggs for consumption. Recent nesting has been confirmed in Kalimantan and Sumatra. Galdikas and King (1989) found a small colony of 4 nests in October 1988, near the Tanjung Puting reserve in Central Kalimantan. The nests were built in two huge *Alstonia* *sp.* trees, a freshwater swamp forest species. In Sumatra, two small colonies were discovered in June, in the Way Kambas reserve, Lampung Province. One of the

colonies probably included nests of Milky Stork (Southampton University Sumatra Expedition, 1989).

In Sumatra the species is at risk as a result of swamp forest clearance and direct persecution. Individual birds are often seen for sale at local markets, either for food or as pets. The Sriwijaya University at Palembang, has developed a proposal for a Lesser Adjutant Conservation Programme, which would include censusing, ecological and socio-economic assessments and a large public awareness component' using the University's network of school teachers.

Conservation recommendations:

Conservation programmes, such as the afore-mentioned for South Sumatra Province, should be launched in other provinces in Indonesia that hold viable populations of this species. More coastal protected areas should be established where feasible.

**Black-necked Stork *Ephippiorhynchus asiaticus*. Indeterminate**

Resident in south-east Irian Jaya.

Distribution and population:

The species occurs widely but in small numbers in the southeastern lowlands of Irian Jaya where it frequents semi permanently inundated savanna grasslands, oxbow lakes and swamps.

In the dry season of 1983, Bishop (1984) counted 300 individuals during an aerial survey over Kinam island and 350 at Wasur/Rawa Biru. An AWB/PHPA field team observed much smaller numbers (usually solitary or in pairs) in April - July 1988 (Silvias *et al.* in prep). In the dry monsoon the species may gather in higher numbers at the few remaining inundated areas and takes giving an impression of being common. Still, the southern lowlands can be considered a stronghold of this species, which is rare' and endangered in most of its range.

Conservation recommendations:

The species faces no significant threats in south-east Irian Jaya. The AWB/PHPA field' team observed no signs of hunting or poaching of this species. Large areas of its natural habitat are located in the present protected' area system.

**Threskiornithidae**

**White ibis *Threskiornis molucca*: Locally common**

(Sacred, Black-necked or Australian Ibis, *T. Aethiopicus*)

Resident in Seram and Irian Jaya. Vagrant to Babar, Tanimbar (both Lesser Sundas); Kai and Geser (both Moluccas).

Distribution and population size:

The White Ibis is reportedly not uncommon on Seram, where it may breed

(White & Bruce 1986). Population size is unknown. The species is scarce or very uncommon in western Irian Jaya (Salawati, Waigeu and Sele Strait) (Coates, 1985) and occurs in small numbers in Binturn Bay.

It is common in south-east Irian Jaya where it occurs singly and in pairs, and in flocks of up to several thousands of individuals. In 1988, an AWB/PHPA survey found breeding colonies in the Wasur/Rawa Biru Reserve in South-east Irian Jaya with about 10,000 birds (Silvius *et al.* in prep). The species appeared common throughout the savanna plains of this region. The breeding colonies, although located in a reserve, were sometimes disturbed by pleasure-hunters. Bishop (1984) found even larger numbers during the non-breeding season, which may indicate an influx of migrant birds from Australia. Banding recoveries in southern New Guinea and sight observations in Torres Strait reveal annual migration (Draffan *et al.* 1983). Frequents grassland, open swamps, 'swamp forest, coastal mudflats, mangroves and burned savanna.

Conservation recommendations:

Training and upgrading of local offices in south-east Irian Jaya of the Nature Conservation Agency PHPA. To enable proper monitoring and protection of the local wetland reserves, including the ibis colonies.

**Black-headed Ibis *Threskiornis Hielanocephalus*:**

Locally common; Indeterminate

Resident in Java and probably Sumatra. Vagrant to Sulawesi and northern Borneo.

Distribution and population size:

The Black-headed Ibis occurs in sizeable flocks in southern Sumatra where an estimated population of 2,000 individuals occurs. The largest number, totalling more than 800 birds, was counted during a coastal survey covering about 1000 km of the eastern coast line of Sumatra (Silvius. 1988). However, breeding sites have not been located in Sumatra. In the first half of this century, the species occurred widely in Java, where numerous colonies were reported (Hoogerwerf, 1935. 1936a and 1936b). Breeding sites for the species have recently been rediscovered in remnant mangrove patches in brackish water ponds at Ujung Pangkah near the Brantas delta. East Java (Erftemeijer & Djuharsa. 1986).

Conservation recommendations:

The Java population could greatly profit from mangrove reforestation programmes and colony protection inside brackish water ponds. AWB has developed a project proposal for integration of conservation of waterbird colonies and tambak production in the Brantas and Solo deltas on East Java.

**White-shouldered Ibis *Pseudibis daviaoni*: Endangered**

Resident in Kalimantan.

Distribution and population size:

Although recent ibis sightings were not positively identified (Holmes & Burton, 1987), and AWB did not record it in the Barito swamps in January 1989, a small number survive along the interior rivers, especially perhaps the upper Mahakam. An AWB-officer saw several dark ibises at the Mahakam lakes in 1988, but again could not confirm the identification (H. Simons, pers. comm. 1988). It is not known whether the remaining population is viable, and almost nothing is known of its habitat requirements. It may well be highly endangered.

(Ed: Since the publication of Holmes & Burton (1987), reports have been received of the following observations from the Mahakam region. In 1983, P.R.Morgan (pers. comm.) reported 7 in flight above Long Iram on 2 Oct, and 2 birds on a shingle bank on 19 Oct. Further, as this issue was going to press, a new report has been received of a flock of 12, and another single bird, on the Mahakan lakes, but further details are awaited).

Conservation recommendations:

Survey work is urgently required to assess population size and habitat requirements of this species, map its precise distribution and to identify critical areas to be designated as reserves. Initially, a survey should be conducted in the Mahakam lakes region and upper Mahakam river area.

**Glossy Ibis *Plegadis falcinellus*: Locally common**

Resident in Java, and probably Sulawesi and Irian Jaya. Visitor to West Timor and Sumba. Vagrant to Ternate. Halmehera and Kai (all three in the Moluccas).

Distribution and population size:

The Glossy Ibis is a rare resident in Java where breeding was recorded in the first half of this century in the Brantas Delta (Hoogerwerf, 1935, 1936, 1948) and later, in 1951 and 1952 in the Nature Reserve Pulau Dua (Hoogerwerf, 1953). Recently breeding was again confirmed on Pulau Dua (40 nests) by Milton & Mahardi (1985).

A survey of AWB and PHPA in the Brantas and Solo deltas in northeast Java, which discovered 10 breeding colonies of waterbirds, did not find any evidence of nesting by this species and it was present in only two colonies in small numbers (Erftemeijer and Djuharsa. 1988). Holmes (pers.comm.) saw flocks of up to 60 birds in East Java in 1979. Small numbers of up to 15 birds have been sighted at the tambak areas near Cengkareng, Jakarta.

On Sulawesi the species occurs in fairly large numbers (Bruce & White, 1986; Uttley, 1987; Andrew , in prep.), in both lowland and upland localities (Watting, 1983), but breeding sites are unknown. A survey of AWB and PHPA in 1989 recorded flocks of up to 1000 individuals travelling

across Lake Tempe or feeding in the short grass and along the muddy shoreline. Small flocks of up to 20 individuals were observed at Lake Sidenreng. In the Mampie Nature Reserve the presence of the species in small numbers was confirmed, but local people reported large flocks. On Buton the species was first recorded in 1981 by Schoorl (1987). On Sumatra the species is a non-breeding visitor. There is one historic record for Kalimantan, but see *P. Davisoni*.

Andrew (1966) found small flocks (< 30 individuals) at Kupang Bay, West Timor, in August and October 1985. D. Bishop (pers. comn) recorded 6 individuals on Sumba.

Seasonally common in South-east Irian Jaya where large numbers have been recorded in the Wasur/Rawa Biru reserves and Pulau Kimaam Wildlife Reserve, but also in non-protected areas (Okaba region), with flocks of up to several thousand individuals (Bishop, 1984; Silvius *et al.* in prep.). However, breeding has not been confirmed and it is possibly only a visitor from Australia. The species has also been recorded in small numbers in other regions of Irian Jaya, notably Bintuni Bay.

Conservation recommendations:

Easy access to the Pulau Dua colony has caused unnecessary loss of eggs and chicks of waterbirds (Milton & Marhadi, 1985) and may also have an impact on the Glossy Ibis breeding population. Stringent enforcement of regulations regarding access to the colony should dramatically curb this problem.

The population in Irian Jaya faces no immediate threats and large areas of its habitat are included in the present reserve system. In Sulawesi large numbers occur outside the protected area system. Breeding sites should be located as soon as possible to allow for proper protection.

**Straw-necked Ibis *Threskiornis spinicollis*: Locally common migrant.**

Migrant to South-east Irian Jaya.

Distribution and population:

The Straw-necked Ibis is a migrant from Australia. Hoogerwerf (1964) saw the species regularly at Kurik. Bishop (1984) saw small numbers (up to 350 individuals) in the Wasur/Rawa Biru reserve in south-east Irian Jaya, in October to December 1983 (dry monsoon). The species is less associated with water than the other ibises. Frequents dry grasslands (Beehler *et al.*, 1986), and is often seen following grass fires (Coates, 1985). It is reported to be a passage migrant in Torres Strait during the dry season in flocks of 50 to 100 birds (Draffan *et al.* 1983).

Conservation recommendations:

The migrant population to Irian Jaya, Indonesia, faces no significant threats.



**Royal Spoonbill *Platalea regia* : Rare. Endangered as breeding bird.**

Possibly resident in Sulawesi islands of the Moluccas, Lesser Sundas and Irian Jaya.

**Distribution and population size:**

The species used to breed in Java (Hoogerwerf, 1948 and 1952) where a maximum of 5 birds were present in 1951 and 1952 in the Nature Reserve Pulau Dua. There are no records in recent decades. Sporadic breeding in Moluccas/Lesser Sundas seems likely but there are few records.

An AWB/PHPA survey found a -Mock of 250 birds during the dry season in the Wildlife Reserve of Pulau Kimaam, south-east Irian Jaya, in 1968. Small numbers were observed also near Merauke (Silvius *et al* in prep.). Status in New Guinea (including Irian Jaya) uncertain; present throughout the year but probably only a non-breeding visitor from Australia. Reported to migrate across Torres Strait in large flocks. Also occurs west to Geelvink Bay and the Birdshead (Coates, 1985). Frequents swamps, lagoons and estuaries.

**Conservation recommendations:**

More surveys in eastern Indonesia are needed to identify key sites.

**Discussion**

Almost all of the world's, . 90 stork species face significant conservation problems. Luthin (1987) lists 16 of them as regionally threatened, while seven species are globally threatened. These include three Indonesian species: Milky Stork, Storm's Stork and Lesser Adjutant.

In this paper the Woolly-necked Stork is also considered threatened, particularly an information on its breeding habitat requirements is lacking. The Storm's Stork is considered endangered in Indonesia, a statue of highest concern (Table 1). Luthin (*op. cit.*) listed it as indeterminate world wide, but this status should be revised as Indonesia is the main stronghold of the species

Of the Threskiornithidae, 6 species occur in Indonesia, only one of which, the White-shouldered Ibis, is considered to be both regionally as well as globally endangered.

An overview of conservation priorities is given in Table 1. Several survey programmes should be initiated covering threatened stork and ibis species. However, for a number of species such as the Storm's Stork, Woolly-necked Stork and White-shouldered Ibis, even the most basic ecological data on their feeding and breeding ecology are lacking, making it extremely difficult for PHPA to plot out a concise conservation strategy.

Table 1. Status of stork. Ibis and spoonbill species In Indonesia AND THE WORLD

Common name	Status worldwide*	Status Indonesia	Region of concern in Indonesia	Conservation priorities in order
<b>CICONIDAE</b>				
Milky stork	Vulnerable	Vulnerable	Sumatra, Java	R, P, S, H
Wooly-necked Stork	Out of danger	Vulnerable	Java, Sulawesi, Lombok, Sumbawa and Flores	S, R, P
Storm's Stork	Indeterminate	Endangered	Kalimantan, Sumatra	S, R
Lesser Adjutant	Vulnerable	Vulnerable	Java	S, P, R
Black-necked Stork	Out of danger	Indeterminate		S

Common name	Status worldwide*	Status Indonesia	Region of concern in Indonesia	Conservation priorities in order
<b>THRESKIORNITHIDAE</b>				
White Ibis	Out of danger	Locally common	South-east Irian Jaya	N
Black-headed Ibis	Out of danger	Locally common	Java	H, S, R, P
White-shouldered Ibis	Endangered	Endangered	Kalimantan	S, R
Glossy Ibis	Out of danger	Locally common	Java	S, P
Straw-necked Ibis	Out of danger	Locally common		S
Royal Spoonbill	Out of danger	Rare	Moluccas, Lesser Sundas	S

Legend:

S = Survey work

R = Reserve establishment

P = Public awareness campaigns

H = Habitat restoration

M = Management implementation

\* **Source: Luthin 1987**

More survey work is clearly needed to provide the basic data for development of a nation-wide conservation strategy for Indonesia's storks, ibises and spoonbill. In addition, with the information presently available, conservation action can be undertaken for several species, including the Milky Stork, Lesser Adjutant, Storm's Stork, Black-headed Ibis and Glossy Ibis.

For some of these species breeding areas are known, often located outside official protected areas. Steps should be taken to implement conservation management of these areas, The general public should be made aware of Indonesia's natural heritage, including the large waterbirds, and especially those which are threatened or endangered and thus merit special conservation management and attention.

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