

NOTES ON THE BIROS OF THE TIDAL LOWLANDS AND FLOODPLAINS OF SOUTH SUMATRA PROVINCE, INDONESIA

by

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Summary

During an environmental baseline survey of the tidal lowlands and floodplains of South Sumatra Province in 1988-89, a total of 270 bird species was recorded. This paper focuses on wetland species, including those inhabiting swamp forests. No upland forest habitats are found within the region described.

The area supports a diverse avifauna, including some globally threatened species that have a core population here, notably Milky Stork *Mycteria cinerea*, Storm's Stork *Ciconia stormi*, Lesser Adjutant *Leptoptilos javanicus*, Black-headed Ibis *Threskiomis inelanocephalus* and Asian Dowitcher *Limnodromus semipalmatus*. The coast has vital passage and wintering grounds that rank second in importance only to coastal wetlands in Bangladesh for East Palaearctic waders in terms of numbers of birds.

Three species were recorded for the first time in Sumatra: Spotted Eagle *Aquila clanga*, Steppe/Imperial Eagle *Aquila nipalensis/heliaca* and Spotted Redshank *Tringa erythroga*, and first Sumatran breeding records were obtained for Javan Pond-heron *Ardeola speciosa* and White-beaded Stilt *Himantopus leucocephalus*. A few species were observed outside their previously recorded usual habitats.

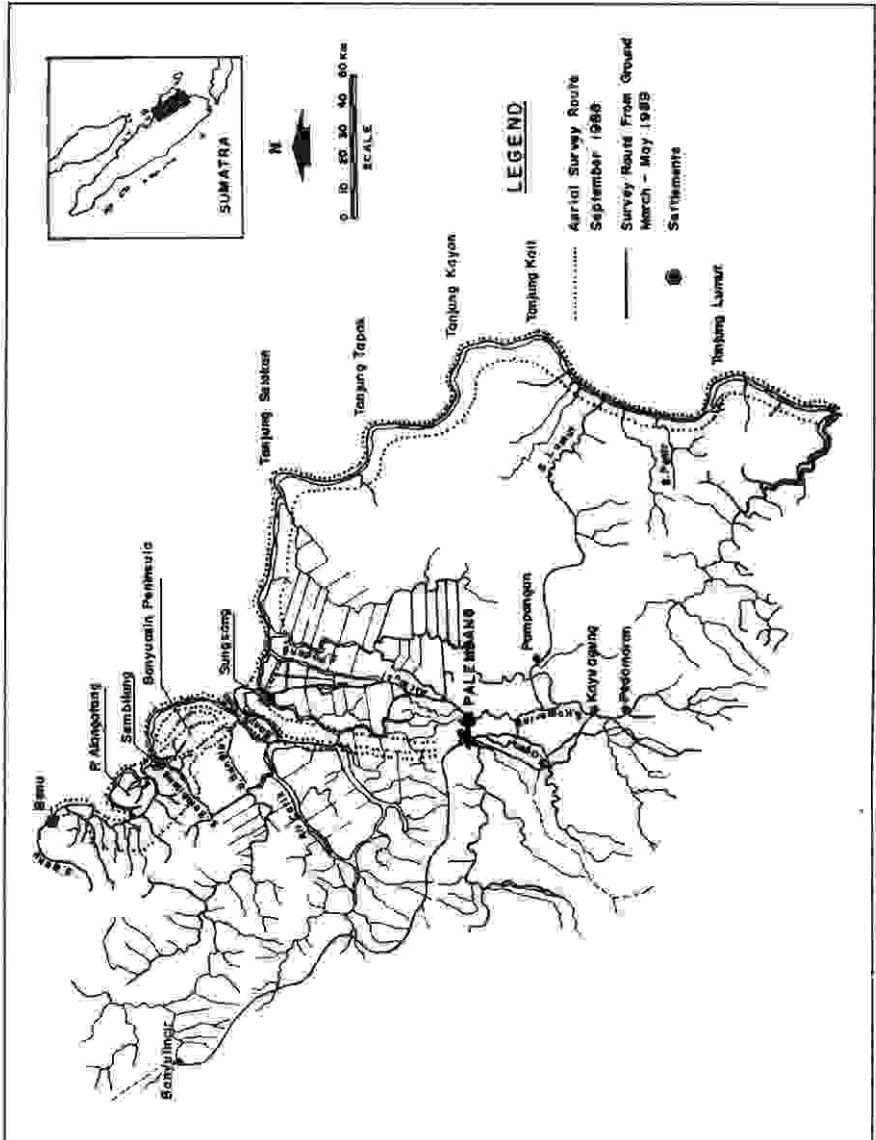
The paper discusses the principal habitats of the area, and the very rapid rate of development that has occurred during the past two decades. Only one wetland area in the province has protection status, Padang-Sugihan. This Wildlife Reserve does not provide habitat for eight out of the eleven globally threatened species recorded in the study area. Consequently the establishment of two additional swamp reserves and of a bird sanctuary is strongly recommended.

Introduction

This report describes the avifauna of the tidal lowlands and floodplains of South Sumatra Province, Indonesia, which lie between 1°30' -5°00'S latitude and 103°30' - 106°00'E longitude. Fig. 1 shows the delineation of the study area.

The area encompasses approximately 4 million ha and forms part of a wide, continuous belt of swamps extending down the east coast of Sumatra. Elevations rarely exceed 5 m AMSL and tidal influence is recorded up to 100 km upstream. There are four major river systems in the survey area, the Must with its tributaries the Ogan and Komering being the largest. Wide areas are prone to inundation for up to nine months. The coastline is accreting, with very extensive mudflats, while sandy beaches occur only locally. Formerly widespread swamp forests have been substantially reduced in area.

Figure 1. Survey Routes



The mean annual rainfall varies between 2,000 and 2,500 mm, with rather poorly defined seasons. The dry season from April to October/November occasionally brings drought and large stretches of peat-swamp forest have been destroyed by fire. It is believed that dry spells cause local migrations of several water-bird species, a subject which deserves further research.

Until 1983 the avifauna of the area remained virtually unstudied, due to its inaccessibility. Marle & Voous (1988) document the history of ornithological research in Sumatra to 1986. Their overview includes the surveys carried out in the area in 1983 (Silvius *et al.*, 1986), 1984 (Silvius & Verheugt 1986), 1985 (Nash & Nash 1985, Danielsen & Skov 1986) and 1986 (Silvius 1986). Silvius (1988) summarized the importance of the eastern coast for waterbirds. Up to 1988, the most important contribution, other than on the coast, was the study by Nash & Nash (1985) in Padang-Sugihan Wildlife Reserve.

From 1 August 1988 - 31 August 1989, a project was executed by the Indonesian Directorate General of Forest Protection and Nature Conservation (PHPA) and the Asian Wetland Bureau-, entitled: "Integrating Wetlands Conservation with Land Use Development in South Sumatra Province". The main purpose of this study was to collect environmental baseline data covering all wetland habitats in the tidal lowlands of the province. As part of this project, extensive ornithological surveys were conducted (see Methods).

Methods

This paper tabulates all species recorded in the tidal lowlands and floodplains of South Sumatra Province during the period 1 August 1988 to 31 August 1989. From the beginning, monthly waterbird surveys were conducted along the mudflats of the Must Delta and Banyuasin Peninsula to collect information on the seasonal variations in wader populations. Unless otherwise specified, the wader and tern records of mudflats listed in Appendix 1 concern this area.

On 1-2 September 1988, an aerial inventory was made covering the entire coast of the province. During 11-20 March 1989, the entire coast was surveyed by boat. From 15 March to 31 May 1989, field surveys were made in the mangrove and swamp forests and the lebaks. These included bird netting for scientific purposes.

Most records were made by the entire team and therefore all records are presented without specifying observers. Appendix 1 presents the data from this 1988 - 1989 survey. The more significant records are described in the text.

A full report on the turn-over of waders has been published elsewhere (Verheugt *et al.*, 1990). Separate reports on the mangrove bird community, and the status of terns and large waterbirds, will also be published elsewhere (see, for example, Danielsen *et al.*, 1991).

To complement these observations, the records of 37 other species reported from the study area have been annexed in Appendix 2, mainly those of Nash & Nash (1985) in the Padang-Sugihan

Wildlife Reserve. These records have been incorporated in order to provide a comprehensive overview of the birds in the wetlands of South Sumatra Province.

This is a preliminary list of the birds of the area. It should be understood that Appendix 1" does not cover the entire avifauna of the wetlands. The list has been compiled while pursuing other activities (fauna surveys, socio-economic and sectoral studies). Many of the species recorded were seen only once, and therefore no firm statements can be made in respect of habitat and status. As the field surveys of the swamp forests and lebaks were limited to three months only, definite status could be determined for only a few species. However, the authors express the hope that this list will be used as a basis for more in-depth ornithological research in the region.

Habitat Types

For the purpose of this study, six main natural habitat types were identified: coastal waters, mudflats, mangroves, inland swamps, swamp forests and lebaks (see below). Secondary growth, ricefields, oil palm and rubber plantations, and settlements provide additional bird habitats

Coastal waters

The coastal waters between Bangka island and the mainland are shallow, wide areas having a depth of less than 20 m. These coastal waters are very rich and provide ideal feeding grounds for terns and frigatebirds.

Mudflats and mudbanks

Intertidal mudflats and mudbanks are extensive. During low spring tides, they locally extend out to 2 km from the coast. The substrate is extremely soft and access is consequently difficult. However, they provide excellent feeding grounds for many large waterbirds waders.

Mangrove forest

Mangrove formations along the coast occupy c. 195,000 ha, and here reach their widest zone on Sumatra. The largest area lies between the rivers Benu and Banyuasin, where they are 35 km wide and cover 77,000 ha. The mangrove forests in Sumatra are botanically some of the richest in the tropics (Danielsen & Verheugt 1990).

An association of *Avicennia marina* and *Sonneratia alba* on the coast grades inland to a *Rhizophora/Bruguiera* association. On the landward edge, there is a gradual floristic transition to fresh-water swamp forest. *Sonneratia caseolaris* and *Nypa fruticans* occur along the tidal sections of rivers. A belt of mangrove forest varying from 0,5 to 20 km wide has official status as "protection forest".

Inland swamps

Inland swamps are found in depressions behind the mangrove belt, mainly comprising fresh-water herbaceous plant communities. *Cyperaceae* and *Gramineae* with *Phragmites karha* are common species.

Swamp forest

Originally fresh-water and peat-swamp forest covered nearly 3.9 million ha of the province, but only 7% of this remains undisturbed and only 2% is presently within conservation areas. Fig. 2 shows the present distribution of swamp forests. Fresh-water swamp forest is found along the main rivers and is occasionally inundated during the rainy season. The habitat is rich in tree species, similar to those in lowland dipterocarp forest, and contains numerous commercial hardwoods. The average tree height is 30 - 40 m but some emergents reach 50 m. Peat-swamp forest differs in having varying depths of surface peat accumulation. In this region the depth does not exceed 3 m. It is water-logged for most of the year which, together with the many stilt roots, makes access difficult. Increasing infertility towards the central peat areas is reflected by decreasing canopy height. Under the more extreme conditions only a few tree species occur, rarely taller than 15 m. The wildlife in peat-swamp forest is consequently poorer than in fresh-water swamp forest, but has been little documented.

Lebaks

Backswamps along the river floodplains are locally called "lebaks". They occur especially along the middle sections of the Ogan and Komering rivers (see Fig. 3). The lebaks become flooded during the rainy season to depths of four or five metres above the lowest dry season level. Their total surface is c. 500,000 ha in February, compared with only c. 5,000 ha in August (Vaas *et al*, 1953). There is a marked seasonality in both fish biomass and density, with adult fish migrating into the lebaks during the wet season, where ideal conditions exist for the fish to spawn. As water levels recede, the fish become concentrated in pools and attract many fish-eating birds. The lebaks are intensively used for inland fisheries and rice cultivation.

The shallower swamps were formerly covered by fresh-water swamp forest, but most of this has now been cleared. It is possible that the deeper lebaks were never forested. The modified habitats are still very important to many water-birds.

Other habitats

Other habitats include extensive oil palm and rubber plantations, ricefields, secondary growth and settlements. Originally most of the rubber was planted as a smallholder crop ("jungle rubber"), but large concession areas have been granted recently for plantation development. Mono-culture plantations have very low avian diversity. Settlements are mostly found on the riverbanks, or as stilted villages along the coast. A total of c. 50,000 people are living along the coast and estuaries, main centres being Sungsang, Ppsir and Lumpur.

Figure 2. Vegetation

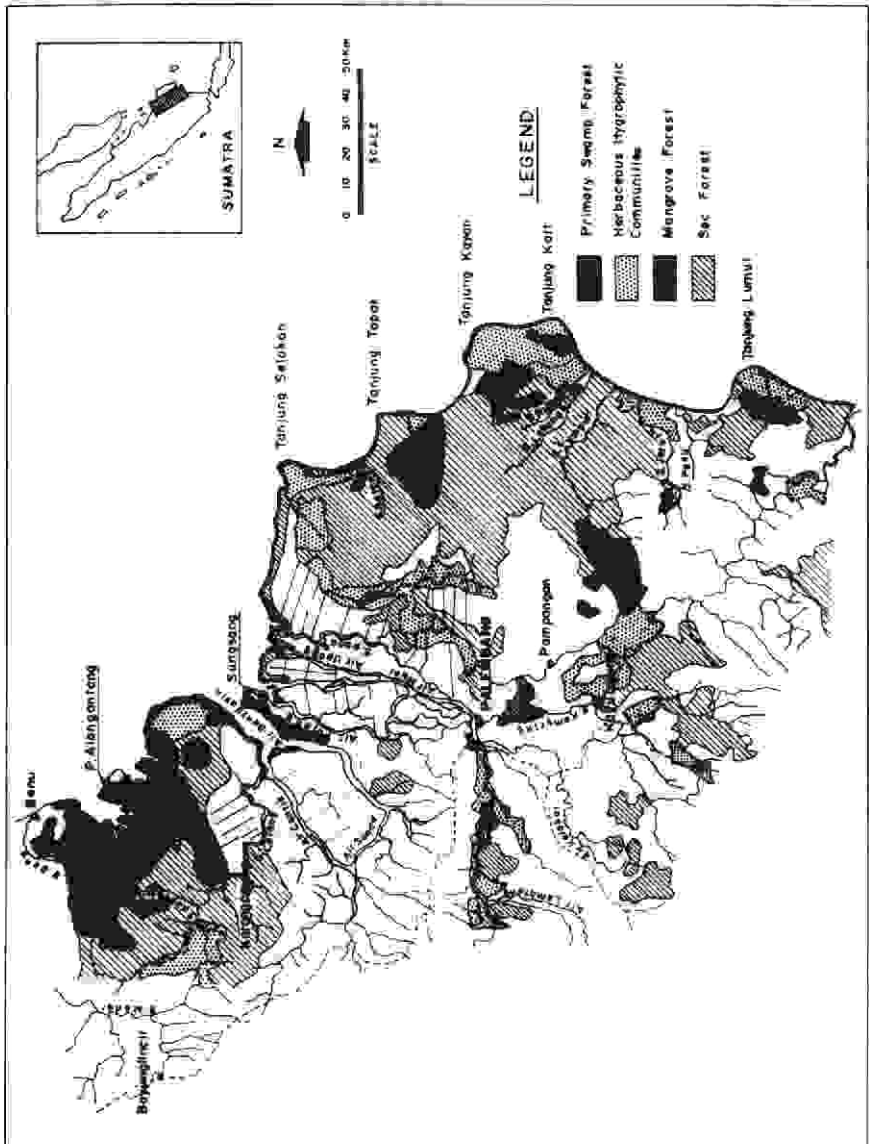
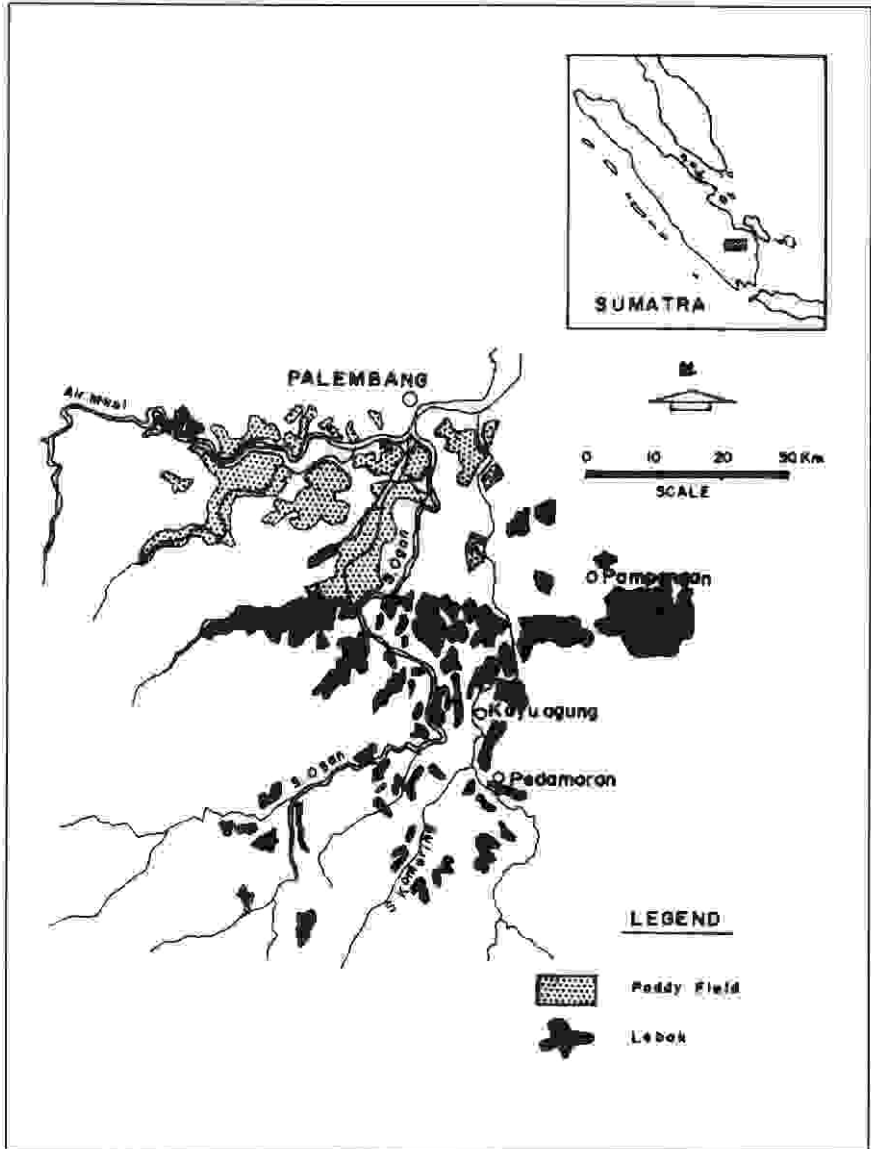


Figure 3. Location of Ogaa-Koueriig Lebaks



Development Programmes Affecting the Wetland Forest

Until c. 1960, the area was chiefly uninhabited and undisturbed. Large scale development is a recent phenomenon, and increasing demands are being made upon the natural resource of South Sumatra province, the most affluent province in Sumatra. Three major development sectors play key roles in swamp reclamation and development: agriculture, forestry & aquaculture. Outside the mangrove zone and the one protected area of Padang-Sugihan, remaining forests are under logging concessions, and scheduled aquaculture and agriculture programmes will contribute to forest conversion. It is estimated that within eight years, no primary swamp forest will remain. The wildlife reserve of Padang-Sugihan had been subjected to habitat alterations prior to its gazettelement in 1983, and has suffered two major forest fires.

Over the last two decades, many spontaneous settlers, often of Buginese origin, have opened up areas along the rivers and estuaries. Government programmes for the tidal swampy commenced in the early 1970s, with some 55,000 families mainly from Java and Bali being given 2 ha holdings under the transmigration programme, resulting in at least 320,000 ha of forest being cleared (Danielsen & Verheugt 1990).

In addition, the Government is actively encouraging the establishment of fish ponds in the coastal zone. Three sites have been identified; although covering an area of less than 10,00 ha, the sites are located in the ecologically very sensitive mangrove zone and are close to the Milky Stork colonies.

In summary, while the uplands of the interior have been under cultivation for many decades, the development of the coastal wetlands has been recent. With the continuing inflow of spontaneous migrants, mainly from Java, destruction of the wetland forests continues to expand. Without the establishment of additional protected and managed areas, the Padang Sugiban Wildlife Reserve will soon become an isolated island of disturbed forest habitat.

Notes of Selected Bird Species

This section provides details on selected species where the information from the present survey adds to the data that have already been published for the region, notably in Nash & Nash (1985), Silvius (1988) and Marle & Voous (1988). Nomenclature is based on Andre« (1992); scientific names are given in Appendix I. Birds not identified to species level have, been bracketed.

[Frigatebird] - Five immatures off Banyuasin Peninsula, 5 Sept 1988 were tentatively identified as Christmas Island Frigatebird *Fregata andrewsi*. The following description is made from analysis of slides: All birds had brown heads. Two individuals showing white *area* on belly extending in a narrow band to the axillaries. Dark breast band was well marked. Juvenile Greater *F.minor* and/or Lesser Frigatebirds *F. oriel* can be ruled out by the combination of a clear breast band and white on axillaries.

Oriental Darter - Commonly observed throughout the year, suggesting resident status (*contra* Marie & Voous, 1988). Population scattered throughout mangrove belt. Occasional aggregations in lebaks: 27 Oct, one roost of 68 at Lebak Air Hitam. Occasionally in riverine swamp forest.

Spot-billed Pelican - Regularly observed along Baayuasins delta, with a maximum of seven adults seen in March 1989. They were seen singly, or in two's or three's, either feeding within 200 m of the shore, or roosting at high tide in *Avicennia* mangroves.

Great-billed Heron - Common but scattered in small numbers (max. seven, Danau Deling, 8 Sept 1988). Mangroves, occasional in swampy areas up to 80 km inland. Inland swamps not mentioned as a habitat in Sumatra in Marie & Voous (1988).

Purple Heron - Common resident. Lebaks, inland swamps, ricefields, occasionally mangroves (Banyuasin Peninsula, Aug 1985). Circumstantial evidence of breeding provided by young birds in fishermen's shelters around the lebaks, March - July.

Great Egret - Three mixed Milky Stork/Great Egret colonies were located 1 Sept 1988 (Danielsen *et al*, 1991). One roost of 133 birds at Lebak Air Hitam, 27 Oct 1988; 1,000* along the coast, March 1989. Adults were first observed in breeding plumage on 7 March 1989.

Intermediate Egret Resident (?) in small numbers. Lebaks, occasionally mudflats. Max 60 at Lebak Air Hitam, 29 March 1989.

Little Egret Commonly observed and presumed to be resident as observed year-round. Records mostly from the mangrove fringes, occasionally inland swamps and lebaks. All specimens observed closely had the black feet of the race *nigripes*.

Javan Pood-heron - Common resident. Inland swamps, ricefields and lebaks, occasionally mudflats. Colony of 1,000 - 2,000 breeding pairs discovered March 1989, Teluk Tomang, constitutes the first breeding record for Sumatra.

Black-crowned Night-heron One adult bird seen at Tanjung Koyan. 20 March 1989.

Yellow Bittern - Commonly observed but status unknown. Lebaks, occasionally inland swamps. Recorded in 8 lebaks during waterbird inventories covering 15 lebaks in March 1989.

Schrenk's Bittern - Two seen 2 Feb 1969, swampy area near agricultural land; one recorded Lebak Pampangan, 28 March 1989, and one south of Pedamaran village, 29 March 1989.

Cinnamon Bittern - Common resident. Lebaks and inland swamps. Recorded in 8 out of 15 lebaks surveyed, March 1989.

Black Bittern - Presumed winter visitor. A total of 18 confirmed sightings includes an oft season record at Danau Teloko on 15 July 1988. Seen in 10 out of the 15 lebaks visited March 1989, with the highest count of 7 near Kayu Agung.

Milky Stork - Resident. Breeding confirmed (July-Sept). Three inland colonies discovered (see Danielsen *et al.*: 1991), Mudflats and mangroves, occasionally visiting lebaks up to 15 km from coast. First adult in breeding plumage (bill turns deep yellow with facial skin wine red and legs magenta), 2 Feb 1989. A maximum of 1,000 birds observed on the BanyuasN Peninsula- During spring tides, often seen roosting in remnant trees in ricefields on transmigration settlements.

Storm's Stork - Resident. Breeding confirmed, inland margin of mangroves and swampy forest (Danielsen *et al.* in press). Max: 7 birds together. From the various records in undisturbed fresh-water swamp forests, it is concluded that the species is rare but still occurs widely in primary swamp forests in tow numbers, with perhaps a total population of less than 150 birds within the study area of four million hectares.

Lesser Adjutant - Common, mudflats and mangroves, breeding not confirmed. Occasionally on lebaks, inland swamps and ricefields. In 1985 Danielsen & Skov (1986) observed c. 600 at Banyuasin Peninsula, whereas during the monthly waterbirds counts on Banyuasin a maximum of 266 was observed in July 1989. Populations recorded during 1988/89 (Mk) mudflats remained stable throughout the year. One flock of 55 birds, 15 km inland south of Sungsang, 2 Feb 1989.

Black-headed Ibis - Common resident. Mudflats and mangroves, chiefly along Banyuasm Peninsula. Steep, steady decline in number from a maximum of 595, 1 Nov 1988, to only 3, 5 April 1989, suggesting seasonal migration to breeding areas in hinterland, but breeding sites have not yet been located.

Black Baza - Winter visitor, inland swamps. Night roost recorded; 23 birds at Teluk Betung, 6 Jan 1989.

Bat Hawk - Singles observed on 26 April and 27 May 1989 in swamp forest at & Kepahiang.

Brahminy Kite - A total of 200 along the coast. 11 - 14 March 1989. Breeding observed March.

White-bellied Sea-eagle - Common resident. Open sea and mangroves, a few records upstream along larger rivers and lebaks. A total of 65 along the entire coastline, 11-14 March 1989.

Grey-headed Fish-eagle - Resident. Primarily mangroves, but also lebaks and inland swamps. Frequently observed, and exploiting a wider range of habitats than Lesser Fish-eagle. The latter species was observed only in mangroves, but may have been overlooked in other habitats. Records include one at Danua Deling, 8 Aug 1988, and rivers Benu, Terusan Dalam, Sembilang (including tributaries), Musi. Laiang, Banyuasm and Benawang during March 1989.

Created Serpent-eagle - Breeding observed in mangroves: Sembilang River, May 1989.

[Marsh Harrier] - On 21 March 1989, one brown, probably immature bird was seen. The observation was from a distance of 300 m, while the bird was flying low and gliding over Lebak Pampang. Distinctive flight pattern, at relatively low height, slim tail. Brown upper tail coverts, dark brown upper wings and a buff cap. Possible misidentification can only be with immature Brahminy Kite, but flight pattern very different and flight feathers darker. Not specifically identified as *Circus aeruginosus* or *C. splionotus*.

Shikra - Status unclear. One at River Kepahaang, 25 May 1989, while crossing river near rather open secondary swamp forest. The bird was seen from below while soaring above the tree canopy fringing the river. Size and 'jizz' were very much like Northern Goshawk. Breast and belly were narrowly barred with rufous and white; white under tail coverts; underwing coverts uniform greyish without streaks, contrasting with heavily barred outer underwing.

[Black Eagle] Seen along Rivers Benu and Sembilang, two dates in March 1989. Two probable Black Eagles seen perched at 200 m range on 15 March, at the edge of a heavily disturbed swamp forest along the Beau River. One bird appeared all dark, the other pale brown. When flushed, they were at first believed to be Spotted Eagle, but the flight-pattern was different, the tail was clearly longer than in Spotted Eagle and the wings looked much slimmer, especially near the body. Plumage characters of the dark bird did not indicate any contrasts. The pale bird's plumage was poorly observed; it was presumed to be an immature bird because of the close association with the adult bird. Such a swamp habitat far from mountains is atypical.

Spotted Eagle - Winter visitor. Mangroves. 11 records including both immatures and adults: 1 Dec 1988, four near Banyuasin estuary resting in emergent *Rhizophora* trees; 14 March 1989, two at Sembilang River; 19 April 1989, one at Benawang River; 20 April 1989, the immature at Simpangagas River; 21 April 1989, one at Simpangagas River, 22 April 1999, one at Pulau Alangatang; 30 April 1989, one at Sembilang River. These observations constitute the first records for Indonesia.

Of the eleven birds, one adult (21 April) and one immature (20 April) were encountered at close range. The other birds, all perched, were identified on basis of their compact silhouette (relatively broad wings, small head and short tail), flight pattern (especially drooping outer wings) and large wings.

One immature bird passed Simpangagas River on 20 April 1989. Upperparts were examined in good light conditions at 200-300 m distance. It appeared as a bulky, broad-winged and dark eagle - almost resembling a small White-tailed Eagle *Haliaeetus albicilla*. The flight was strong and wing beats rather deep. Generally, plumage was dark-brown, not black. The flight feathers were darker than underwing coverts. Distinct white primary patch, narrow, but prominent clean white upper tail, and a narrow unbroken white wing bar. The identification of the immature is

straightforward, by combining silhouette and the patterns of the feathers on the dark wings and upper-tail.

On 21 April 1989 at Simpangagas River, one adult bird was seen soaring with typical compact silhouette 100 m above the river. Near the body the trailing edge of the wings was slightly curved inwards, but not as prominent as in Black Eagle, in excellent light conditions, the bird appeared all black, including under tail coverts. Black Eagle can be ruled out on basis of the short tail and slimmer wings. Lesser Spotted Eagle *Aquila pomarina* on basis of all black appearance, rather than brown, combined with the silhouette characteristics.

[Steppe/Imperial Eagle] - One immature, perched in *Rhizophora* tree, Simpangagas River, 20 April 1989. This observation would constitute the first record of either species for Sumatra. A very large, pale eagle (size of Golden Eagle, *A. chrysaetos*), when approaching the eagle at a range of 50-100 m by dug-out canoe, the bird flushed showing long and brow wings, and flew actively away at 40-50 m height under good light conditions. The flight was very different from Golden Eagle, appearing rather ungraceful. From above; uniform yellows brown wing coverts, prominent broad white upper tail and large white patch on primaries. The bird was overall very pale with no white wing and tail lining, pale primary patch rather contrasting with the rest of primaries. Silhouette and proportions were not well seen. Compared to immatures of Black and Spotted Eagle, the bird appeared very pale and the almost white patch on primaries strikingly clear and large. Compared to immature Imperial Eagle, upper tail patch seemed less striking and contrasting to the rest of the bird.

[Wallace's Hawk-eagle] - Several observations of unidentified Blyth's/Wallace's Hawk-eagle in mangroves and swamp forests. One on 23 May 1989 over the River Kepahiang was almost certainly this species. A swamp habitat far from mountains is atypical.

Lesser Whistling-duck Common resident. Lebaks, occasionally swamps and ricefields. Max 1,000 birds near Palembang airport, July 1989.

White-winged Duck - Resident. Reported by local fishermen in mangroves of River Sembilang (a habitat not quoted as typical in Lambert 1988); not observed by the authors.

Cotton Pygmy Goose - Probably resident, but no breeding record. Small numbers on Lebak, Kelakar, Bubusan and Pampangan.

Sunda Teal - Common visitor to coastal mudflats with records from April up to Now.; During 19K9, numbers steadily increased along the Banyuasin Peninsula from 44 on 3 May to a maximum of 350 birds on 1 Aug, when the birds were sighted in groups of up to 150. The status and origin of these birds is not known, but it is likely that birds congregate at the coast during the dry season.

Garganey - Uncommon winter visitor. One record of 28 birds, 4 Jan 1989 in ricefields newf the coast.

Crested Fireback - Resident. Swamp forests near areas slightly higher in elevation with permanently dry ground. Vocal records, and wing and tail feathers seen that had been collected by villagers.

Great Argus - Resident. Swamp forests, near areas slightly higher in elevation. Vocal records, and feathers seen that had been collected by villagers.

Baillon's Crane One confirmed record, 30 March 1989 at lebak near Pampangan.

Watercock - Single birds commonly observed during surveys of lebaks (Indiralaya, Air Hitam and Pampangan), March 1989.

Pheasant-tailed Jacana - Uncommon at lebaks, recorded 8 Sep 1988 and 31 March 1989, with highest count of 4 at Danau Deling on the first dale. For note on Bronze-winged Jacana, see discussion.

Grey Plover - Winter visitor in small numbers with a peak migration on 3 Oct 1988 when 930 were seen on the mudflats, the highest total to date (cf Silvius 1988).

Eurasian Curlew - Common migrant and winter visitor on mud banks-Peak count of 7, KM) on 3 Oct 1988 substantially exceeds the previous total for the province (cf Silvius 1988).

Far Eastern Curlew ' Common migrant and winter visitor on mudbanks, First record 4 Sept 1988. Peak count of 2,600 on 3 Oct 1988 substantially exceeds the previous total for the Sumatran east coast (cf Silvius 1988).

Black-tailed Godwit Very common migrant, with a small non-breeding summer population. Early passage, with max. count of 25,000 at a single high tide roost, 1 Nov 1988 (cf Silvius 1988).

Bar-tailed Godwit - Maximum in autumn: 5,600, 3 Oct 1988 (cf Silvius 1988).

Common Redshank - Maximum in autumn: 6,000, 3 Oct 1988 (cf Silvius 1988). Small non-breeding population remains in summer.

Spotted Redshank - Migrant and winter visitor at lebaks. Eight birds at Lebak Pampangata. 9 Sept 1988, and three at Lebak Teluk Tomang. 31 March 1989. The observation in September concerned eight foraging birds in a swampy meadow near the river. The birds were photographed and seen at close proximity with excellent light conditions. Readily identified on the basis of their breeding plumage: black underparts and red legs. These observations constitute the first record of this species for Sumatra.

Marsh Sandpiper - Maximum count of 200 on Oct 1989 (cf Silvius 1988). Mudhank-s and wet ricefields.

Nordmann's Greenshank - Rare migrant. A group of 21, 1 Dec 1988, observed at a high tide roost. Readily identified as Common Greenshanks were also present, actively feeding on the water's edge. The Nordmann's differed in having shorter legs, of yellowish colour, and slightly up-turned, two-toned bills, distinctly yellow at the base with a greyish tip.

Green Sandpiper - Five. 3 Oct. and 20. 1 Nov 1988, mudflats.

Terek Sandpiper - Maximum autumn count: 5.600, 3 Oct 1988 (cf Silvius 1988).

Common Sandpiper - Common visitor. Some over-summering individuals recorded almost daily in low numbers throughout the year in waterlogged areas of Palembang city.

Ruddy Turnstone - Maximum: 560. 3 Oct 1988 (cf Silvius 1988).

Asian Dowitcher - Winter visitor on mudbanks. Maximum estimate of 13,000, 1 Nov 1988 of which 12,000 recorded as a single flock. During 10-14 March 1989 a total of 10,067 were counted along the entire coastline, including 4,420 along Lumpur Bay and 3,900 along the Banyuasin peninsula. These numbers greatly exceed those previously recorded (Silvius 1988)

Sanderling - One record of 31, 3 Oct 1988.

Curlew Sandpiper - Maximum autumn count on the coast: 1,000, Nov and Dec 1988 (cf Silvius 1988). Also observed on ricefields at Delta Upang, c. 25 km inland.

Broad-billed Sandpiper One record of 15, 1 Dec 1988.

While-headed Stilt - Resident, breeding confirmed, 8 Sept 1988, Lebak Pampangan, an adult bird and two juveniles (less than four weeks in age), were seen feeding on swampy meadow near river. This observation constitutes the first record of the species breeding in Sumatra. Adult birds showed the black hind-neck of this species. Also seen in March 1989 on mudflats, but only near the Lampung border: 20 between the Lumpur and Pasir Riv 27 between the River Pasir and Tanjung Lumut, 8 between the Tanjung Lumut and Sibur River, and 45 between Rivers Sibur and Mesuji, all records during March 1989.

Whiskered Tern - Common visitor to the coast, fewer to inland swamps near recorded throughout the year. Maxima 1,200, Oct 1988 (Banyuasin Peninsula), and 2,000 March 1989 (entire coast). Low numbers during the period March - Sep 1989, suggesting that the peak early autumn count reflects influx of continental Asian migrants rather than Australian (see Mees 1977). Full breeding plumage in April, and post-nuptial moult first recorded in August, support this origin.

White-winged Tern - Common visitor to the coast Maxima 2,300 May 1989 (Banyuasin peninsula). Recorded in all months except July. implying some over-summer. Full breeding plumage in April, while birds in Aug - Sept were showing post-nuptial moult,

Gull-billed Tern - Visitor to the coast. Maximum 1,200, 3 Oct 1988, Banyuasin peninsula.

Caspian Tern - Two records: 11. 1 Dec 1988 and 2, 1 Aug 1989. on mudflats along the Banyuasin Peninsula.

Common Tern - Common winter visitor to the coast and open sea.

Roseate Tern - Observed in small numbers offshore, Sept-Oct.

Little Tern - Common migrant and winter visitor to the coast. Maximum 620, 7 March 1989.

Great Crested Tern - Common migrant to the coast and open sea. Maximum 700, 1 Aug 1988.

Lesser Crested Tern - Migrant to the coast. Maximum 250, 4 Sept 1988.

Large Green Pigeon - Resident. Mangroves and swamp forests. Seen 21 April 1989 along the Simpangagas River; and one observed along the Kepayang River on 25 May 1989. All three birds were entirely light green with prominent yellow breast-bands. No brown on wings or back was seen.

Thick-billed Green Pigeon - Common resident Mangroves and swamp forest. Nest building recorded on 23 April 1989 near Simpangagas River.

[Mountain Imperial Pigeon] - Three records in 1989: one, back swamps of Banyuasin Peninsula, 7 March; two flying along Sugihan River, 20 May; one, Kepayang River, 27 May.

On 27 May, a large pigeon of *Ducula* type was seen at about 40 m range in swamp forest 50 m above the Kepayang River. Differed from the Green Imperial Pigeon, which is common, by the wings and back being uniform brown. Head and entire underside were a contrasting light grey. The tail patterns were not identified. A swamp habitat far from mountains is atypical for this species.

Pied Imperial Pigeon - Resident. Mangroves north of Banyuasin. Mostly seen in flocks of less than 10 birds, and less common than the Green Imperial Pigeon.

[A suspected common resident is the Silvery Pigeon *Columba argentina*, in mangroves and to a lesser degree swamp forests. Widespread and seen in large numbers, especially along the Sembilang River in March 1989. this bird appeared to be the most common large pigeon. However, the identification was based solely on the grey tone of the plumage (milky white in Pied Imperial Pigeon). If correct, these observations would be unprecedented, and they are reported here in order to draw attention to the possible common presence of this species in mangroves on the mainland].

Red-breasted Parakeet - Resident, *contra* Marle & Voous (1988). Mangroves and swamp forests. It was observed in small numbers, often forming mixed feeding parties with the more numerous Long-tailed Parakeet.

To date, this species has been seen on mainland Sumatra only in the South Sumatra coastal plain, suggesting the presence of a local feral population (D.A. Holmes pers. comm.).

Common Koel - Winter visitor. Single birds observed in mangroves, swamp forests and inland swamps.

Javan Frogmouth - Resident. Mangroves. Two birds seen at Benawang River, 19 April 19891 at 2 m distance. Plumage rufescent/chestnut with only a few black-edged feathers on upper breast (not a large patch as in the Sunda Frogmouth *Batrachostomus comutus*).

Fork-tailed Swift - Migrant. Recorded over mangroves. Records between 1 March and 30 April 1989.

Whiskered Tree-swift - Resident. Mangroves and swamp forests. Apparently more common than the Grey-rumped Tree Swift. Unlike description and illustration in King *et al*, (1975), all birds had pale, almost whitish bellies,

Common Kingfisher - Observed throughout the year but insufficient records to substantiate; definite status as resident. Mangroves, swamp forests and often along drainage canals in transmigration sites.

Blue-banded Kingfisher - Few sight records all from mangroves, a habitat not listed by Marle&Voous(1988).

Small Blue Kingfisher - Uncommon, lebaks. May now be resident as the species has extended its range from Java to Lampung and South Sumatra (cf Marle & Voous 1988), Two observed at Lebak Air Hitam and two Lebak Teluk Tomang, both March 1989.

Oriental Dwarf Kingfisher - Common resident. Mangroves and swamp forests. Red-backed form predominates over Black-backed.

Stork-billed Kingfisher - Common resident, up to 100 km from coast.

Ruddy Kingfisher - Resident. Mangroves, occasionally swamp forests, as far as 20 km from coast.

Rufous-collared Kingfisher - One bird observed, 15 March 1989, in *Rhizophora* zone of Sembilang River.

Chestnut-headed Bee-eater - Migrant. Small numbers on passage southwards over swampy forests: 12 near River Padang on 22 Sept 1989. and 5 over Musi River on 4 Oct 1989.

Blue-tailed Bee-eater - Peak migration on 3 Oct 19K9 near Sungsang, (up to 500 per hour totalling up to 5,000 during the day).

Blue-throated Bee-eater - Recorded from early September to end of March.

White-crowned Hornbill - One bird seen in flight over *Rhizophora* mangroves, Pulau Alangatang, April 1989.

Grey-capped Woodpecker - Breeding resident. One observation of pair breeding in 6 m tall Pandan Palm, May 1989, 20 km inland along small river.

The Pandan was part of riverine fringe along Merang River in a former peat swamp area, destroyed by fire some six years ago. Beside Pandan poles, the vegetation of this inundated area consisted of sedges and grasses. According to Mark & Voous (1988), this species is confined to montane areas and there is no range overlap with the next species. This record (and photographic documentation available) confirms a lowland population of the Grey-capped Woodpecker. However, with only a single observation, it is not possible to determine whether there is any ecological separation from the next species.

Brown-capped Woodpecker - Common resident. Mangroves and swamp forests. Several pairs and single birds near rivers Simpangagas, Banyuasin, Benawang, Sembilang and Kepahiang as well as near Pulau Alangatang.

Greater Goldenback - Common resident. Mangroves. Observations from Sembilang River, Terusan Dalam, Pulau Alangatang and River Benawang.

Mangrove Pitta - Probably common resident, but all records coincided with surveys in April-May. Mangrove and swamp forests. Mainly voice records. One sight observation: 20 April 1989, River Simpangagas.

Siberian Thrush - One late record in mangroves Of Simpangagas river, 25 April 1989.

Oriental Reed-warbler - Winter visitor. Recorded Oct to May, inland swamps. Song recorded, March 1989.

Golden-headed Cisticola - Common resident. New colonizer of dry grassland near Palembang, occasionally seen in ricefields, reed beds.

Arctic Leaf-warbler - Winter visitor. Commonly observed throughout mangrove belt. Recorded till late April.

Dark-sided Flycatcher - Two observations, mangroves: single birds near near Simpangagas River; 21 and 22 April 1989.

Great Tit - Resident Mangroves. Observed regularly in small numbers or single birds. [Crow-billed Drongo] - Two along Kepahiang River, 23 May 1989, near swamp forests. Distinguished from Greater Racket-tailed Drongo by lack of outer tail feathers and by the overall smaller size of the birds, lack of any gloss on plumage, the clearly larger bill (relative to rest of

head), lack of any crest features and the modest fork of the tail which was upturned at the tip. This is, however, a very late date for this species, and the description may not rule out Sumatran Drongo *Dicrurus sumatranus*.

Slender-billed Crow - Resident, Mangroves and swamp forests. Slender-billed and Large-billed Crows were distinguished mainly by voice, although with difficulty. The former species was reconfirmed by WJMV on a visit to the Telang and Saleh Transmigration settlements early in 1993.

Discussion of Avifaunal Importance and Recommendations for Conservation

A total of 268 bird species was recorded, of which 189 are presumed resident, 65 are now breeding visitors, and the status could not be established for 14. Three new species were recorded for Sumatra: Spotted Eagle, Steppe/Imperial Eagle and Spotted Redshank, in addition a number of species were observed outside their previously recorded habitat on range in Sumatra (cf. Marle & Voous 1988), including Great-billed Heron and Grey-capped Woodpecker. The observation of adult and immature White-headed Stilt and a colony of Javan Pond-heron constitute the first published breeding records for these species in Sumatra. (Marle & Voous 1988).

Intertidal mudflats

The intertidal mudflats provide important staging sites for migrant waders. To date 241 species have been recorded (cf Silvius 1988). The mudflats of the Banyuasin Peninsula rank second in importance after Noakhali Island, Bangladesh, for migratory waders in the East Palaearctic flyway system (Howes and Parish 1989). Subsequently a second site of international importance was discovered further south at Lumpur Bay. It is estimated that up to 500,000 waders are dependent on the coastal mudflats of South Sumatra (Verheugt *et al*, 1990). For a number of species, these sites are the principal global wintering ground including almost the entire world population of Asian Dowitcher. The populations of Lesser Adjutant, Milky Stork and Black-headed Ibis, which find their principal feeding areas on the mudflats, are considered to be of global importance.

Mangrove birds

A total of 120 bird species was recorded in mangrove forest, of which at least 12 may be restricted to this habitat. Only three weeks were spent in the mangroves, and more detailed surveys would probably increase the list considerably. The total compares favourably to observations by Silvius & Verheugt (1985 - 28 mangrove species in the Berbak Wildlife Reserve, Jambi Province), and by Nisbet (1968 - 60-70 breeding bird species in the mangrove of Malaysia).

Insectivorous, nectarivorous (sunbirds) and frugivorous (parakeets and pigeons) birds were the most common resident species. The absence of frugivores such as barbets was striking. The abundance of pigeons and parakeets seems to be a characteristic of the Sembilang mangroves. The wide belt of mangroves north of the Banyuasin River seems to hold significantly more forest species than the narrower zone to the south-east.

Freshwater and peat swamp forest

A total of 144 species was recorded in these two forest habitats. This list is considerably longer than that for Sungai Tengi peat-swamp forest, Selangor, West Malaysia, where Marsh & Yong (in press) recorded 124 species, and the Barito swamps of South Kalimantan, where Prentice *et al.* (1989) recorded 77 species.

All 9 species of Sumatran hornbill have been recorded, all but one lowland species of barbet (6 species), all but one species of kingfisher (8 species), 5 species of broadbill and 3 species of drongo. There is also a good representation of lowland raptors (7 species), pigeons (10 species), cuckoos (8 species), woodpeckers (7 species), bulbuls (8 species) and babblers (10 species).

It is expected that more intensive surveys would increase the list considerably, as a number of common Sumatran lowland birds have yet to be recorded, especially bulbuls, babblers, and some migrants.

Lebaks

The environmental conditions of the open swamps vary a great deal, depending on land use activities, the remaining area of original forest cover, water quality and vegetation. Where remnant forest occurs, it is often very impoverished, consisting mainly of pure low *Melaleuca* stands. A total of 53 species compares favourably with the birds recorded for the Barito swamps (Prentice *et al.*, 1989) where 47 species were recorded.

This habitat is important for 12 species of herons and egrets. The most common are Javan Pond-heron, Intermediate and Cattle Egrets, and Purple Heron. The largest colony of Javan Pond-heron in Indonesia was discovered at Lebak Telok Toman, with an estimated 1,000 nests, the first breeding record of this species in Sumatra. Other first records include breeding White-headed Stilt; this species is also recorded on mudflats in Lampung and southernmost South Sumatra, in flocks of up to 150 (S. Wilson *in litt.*, 1989).

Although the Pheasant-tailed Jacana was observed in a number of lebaks, the absence of Bronze-winged Jacana *Metopidius indicus* is significant. The latter species is known from open freshwater swamps of Lampung (Maile & Voous 1988) and the population appears to have declined.

The total number of waterbirds in the Ogan-Komering lebaks may be as high as 100,000, based on extrapolations from the ground surveys. Aerial surveys of the lebaks for location of waterbird colonies and evaluation of their importance are strongly recommended.

Need for establishment of additional priority conservation areas

The authors propose that the following areas should be accorded high priority for reserve or sanctuary status;

- 1) Sembilang Wildlife Reserve, 387,500 ha. Establishment of this swamp reserve is justified because it is one of the largest, almost undisturbed, remaining examples of the Indo-Malayan swamp forest ecosystem, and because it supports 9

globally endangered bird species: Spot-billed Pelican, Milky Stork, Storm's Stork, Lesser Adjutant, White-winged Duck, Nordmann's Greenshank, Asian Dowitcher, and Helmeted and Wrinkled Hornbills.

- 2) Tanjung Selokan Nature Reserve, 10,000 ha. Establishment of this swamp reserve is justified as it holds the largest colony in the world of the endangered Milky Stork.
- 3) Teluk Toman Bird Sanctuary, 20 ha. Establishment of this swamp reserve is justified as it holds one of the largest colonies in the world of the Javan Pond-heron.

Detailed recommendations for the protection of the above sites are given in Danielsen & Verheugt (1990). Their location is shown in Figure 4.

Need for future bird surveys and monitoring

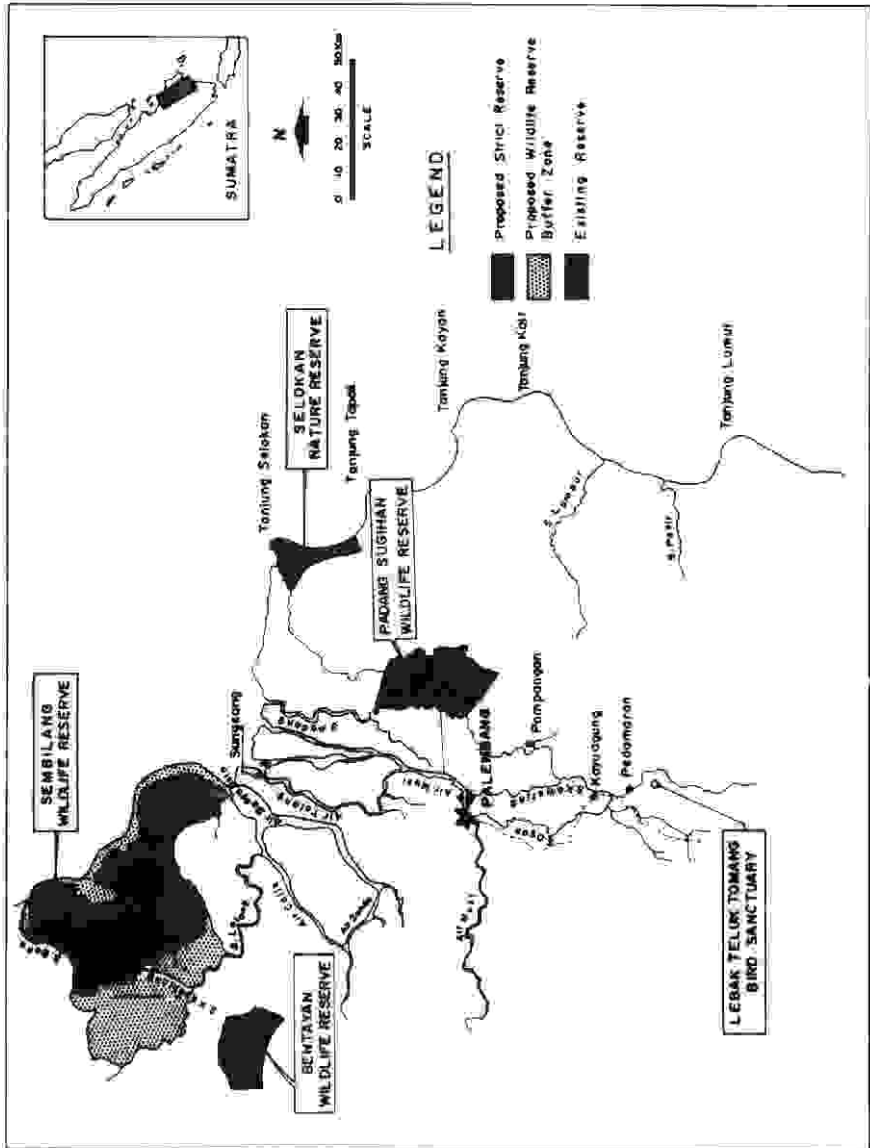
This list of bird species on the coastal plains of South Sumatra is by no means complete. Most field work was carried out in the mangroves, lebaks and secondary swamp forests (Padang-Sugihan). Surveys in undisturbed swamp forests, where the majority of forest species has been recorded, numbered less than 30 days in total, and further studies are needed. It is hoped that the list will encourage future ornithologists to pay more attention to the avifauna of the lowland forests of South Sumatra.

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Figure 4. Present and Proposed Conservation Areas



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APPENDIX I
THE SYSTEMATIC LIST OF BIRD SPECIES RECORDED DURING THE SURVEY

Legend

Status (stat); R = Resident; V =Visitor
Habitats

Period of surveys

SC	Sea coast	Year-round
Mud	Mudbanks and mudflats	Year round
Man	Mangrove	11-20 March 1989
IS	Inland swamps	11-20 March 1989
SF	Swamp forest	March-May 1989 (include edge habitats)
Leb	Lebaks	March-May 1989
Sec	Secondary growth	March-May 1989
Saw	Ricefields (Sawah)	March-May 1989
Plan	Plantations	March-May 1989
Sett	Settlements	March-May 1989

Bracketed records are not identified to species level, or not confirmed.
Nomendalnr follows Andrew (1992).

Scientific Name	English Name	Stat	SC	Mud	Mang	IS	SF	Leb	Sec	Saw	Plan	Sett
<i>Fregata</i> spp	Frigatebird	V	X									
<i>(Phalacrocorax niger/sulcirostris)</i>	Little/Little Black Cormorant	V						X				
<i>Anhinga melanogaster</i>	Oriental Darter	R			X		X	X				
<i>Pelecanus philippensis</i>	Spot-billed Pelican	?R	X									
<i>Ardea cinerea</i>	Grey Heron	R		X	X	X						
<i>Ardea sumatrana</i>	Great-billed Heron	R			X	X		X				
<i>Ardea purpurea</i>	Purple Heron	R			X	X		X		X		
<i>Casmerodius albus</i>	Great Egret	R		X	X			X				
<i>Egretta intermedia</i>	Intermediate Egret	?		X				X				
<i>Egretta garzetta</i>	Little Egret	?			X	X		X				
<i>Egretta sacra</i>	Reef Egret	R		X	X							
<i>Bubulcus ibis</i>	Cattle Egret	R				X		X		X		
<i>Ardeola speciosa</i>	Javan Pond-heron	R		X		X		X		X		
<i>Butorides striatus</i>	Striated Heron	R			X	X						
<i>Nycticorax nycticorax</i>	Black-crowned Night-heron	V			X							
<i>Ixobrychus cinnamomeus</i>	Yellow Bittern	?R				X		X				
<i>Ixobrychus eurhythmus</i>	Schrenk's Bittern	V				X		X				
<i>Ixobrychus cinnamomeus</i>	Cinnamon Bittern	R				X		X				
<i>Ixobrychus flavicollis</i>	Black Bittern	V				X		X				
<i>Mycteria cinerea</i>	Milky Stork	R		X	X			X		X		

Scientific Name	English Name	Stat	SC	Mud	Mang	IS	SF	Leb	Sec	Saw	Plan	Sett
<i>Pluvialis fulva</i>	Pacific Golden-plover	V	x									
<i>Charadrius alexandranu</i>	Kentish Plover	V	x									
<i>Charadrius mongolus</i>	Lesser Sand-plover	V	x									
<i>Charadrius leschenaultii</i>	Greater Sand-plover	V	x									
<i>Nmnenius phaeopus</i>	Whimbrel	V		X								
<i>Nmnenius arquata</i>	Eurasian Curlew	V		x								
<i>Numenius madaiascanetisis</i>	Far Eastern Curlew	V		x								
<i>Limosa limosa</i>	Black-tailed Godwit	V		x								
<i>Limosa lapponica</i>	Bar-tailed Godwit	V		x								
<i>Tringa totanus</i>	Common Redshank	V		x								
<i>Tringa erythropus</i>	Spotted Redshank	V						X				
<i>Tringa stagnatilis</i>	Marsh Sandpiper	V		x						X		
<i>Tringa nebularia</i>	Common Greenshank	V		x								
<i>Tringa guttifer</i>	Nordman's Greenshank	v		x								
<i>Tringa ochropus</i>	Green Sandpiper	V		x								
<i>Tringa glareola</i>	Wood Sandpiper	V				x				X		
<i>Xeos cmereus</i>	Terek Sandpiper	V		x								
<i>Actitis hypoleucos</i>	Common Sandpiper	v		x		x						X
<i>Arenaria interpres</i>	Ruddy Turnstone	v		x								
<i>Limnodromus semipalmatus</i>	Asian Dowitcher	v		x								
<i>Gallinago spp.</i>	Snipe	v				x				X		
<i>Calidris tenuirostris</i>	Great Knot	v		x								
<i>Calidris canutus</i>	Red Knot	v		x								
<i>Calidris alba</i>	Sanderling	v		x								
<i>Calidris ruficollis</i>	Red-necked Stint	v		x								
<i>Calidris ferruginea</i>	Curlew Sandpiper	v		x						X		
<i>Limicola falcinellus</i>	Broad-billed Sandpiper	v		x								
<i>Himantopus leucophalus</i>	White-headed stilt	R		x				x				
<i>Glareola maldivarum</i>	Collared Pratincole	v						x				
<i>Chlidonias hybridus</i>	Whiskered Tern	v		x		x						
<i>Chlidonias leucopterus</i>	White-winged Tern	v		x								
<i>Gelochelidon nilotica</i>	Gull-billed Tern	v		x	x							
<i>Hydroprogne caspia</i>	Caspian Tern	v		x								
<i>Sterna hirundo</i>	Common Tern	v		x								
<i>Sterna dougalii</i>	Roseate Tern	v		x								
<i>Sterna albifrons</i>	Little Tern	v		x	x							
<i>Sterna bergii</i>	Great Crested Tern	v		x	x							
<i>Sterna bengatensis</i>	Lesser Crested Tern	v		x	x							
<i>Treron capellei</i>	Large Green Pigeon	R				X		X				
<i>Treron curvirostra</i>	Thick-billed Green Pigeon	R				x		x				
<i>Treron fulvicollis</i>	Cinnamon-beaded Green Pigeon	R				x		x				
<i>Treron olax</i>	Little Green Pigeon	R				x		x				

Scientific Name	English Name	Stat	SC	Mud	Mang	IS	SF	Leb	Sec	Saw	Plan	Sett
<i>Treron vernans</i>	Pink-necked Green Pigeon	R			X		x		?			
<i>Ducula aenea</i>	Greea Imperial Pigeon	R			x	x	x					
(<i>Ducula badia</i>)	Mountain Imperial Pigeon)					x	x					
<i>Ducula bicolor</i>	Pied Imperial Pigeon	R			x		x					
<i>Streptopelia chinensis</i>	Spotted Dove	R										X
<i>Geopelia striata</i>	Zebra Dove	R					x					x
<i>Chalcophaps indica</i>	Emerald Dove	R					x					
<i>Psittacula alexandri</i>	Red-breasted Parakeet	R			x		x					
<i>Psittacula longicauda</i>	Long-tailed Parakeet	R			x		x				x	
<i>Psittinus cyanurus</i>	Blue-rumped Parrot	R					x					x
<i>Loriculus galgulus</i>	Blue-crowned Hanging-parrot	R			x		x					
<i>Cuculus micropterus</i>	Indian Cuckoo	R					x					
<i>Cacomantis merulinus</i>	Plaintive Cuckoo	R					x		x			
<i>Eudynamys scolopacea</i>	Asian Koel	V			x	x	x					
<i>Rhinorhiza chlorophaea</i>	Raffles' Malkoha	R					x					
<i>Rhamphococcyx curvirostris</i>	Chestnut-breasted Malkoha	R			x		x					
<i>Centropus sinensis</i>	Greater Coucal	R			x	x	x		x			
<i>Ceatropus bengalensis</i>	Lesser Coucal	R			x	x	x		x			
<i>Otus rufescens</i>	Reddish Scops-orm					x	x					
<i>Otus lempiji</i>	Collared Scops-owl					x	x					x
<i>Bubo sumatranus</i>	Barred Eagle-owl				x		x					
<i>Ketupa ketupu</i>	Buffy Fish-owl						x					
<i>Strix leptogrammuca</i>	Brown Wood-owl						x					
<i>Barachostomus javensis</i>	Javan Frogmouth				x							
<i>Buroopodus teoiaunddi</i>	Malaysian Nightjar				x		x					
<i>Caprimulgus macrurus</i>	Large-tailed Nightjar						x		x			x
<i>Caprimulgus affinis</i>	Savana Nightjar					x		x		x		x
<i>Collocalia esculenta</i>	Glossy Swiftlet				x		x					
<i>Hirundapus giganteus</i>	Brawn-backed Needletail				x		x					
<i>Rhapidura leucopygialis</i>	Silver-rumped Swift				x		x					
<i>Apus pacificus</i>	Fork-tailed Swift				x							
<i>Apit affinis</i>	Little Swift				x	x	x	x	x	x		x
<i>Cypsiurus balastensis</i>	Asian Palm-swift				x		x				x	x
<i>Hemiprocne longipennis</i>	Grey-Rumped Tree-swift				x		x					
<i>Hemiprocne comata</i>	Whiskered Tree-swift						x					
<i>Harpactes kasumba</i>	Red-naped Trogon						x					
<i>Harpactes diardii</i>	Diard's Trogon						x					
<i>Alcedo althis</i>	Common Kingfisher	V			x		x			x		
<i>Alcedo meninting</i>	Blue-eared Kingfisher				.X		x					
<i>Alcedo eurizona</i>	Ble-banded Kingfisher				x							
<i>Alcedo caerulescens</i>	Small Blue Kingfisher							x				
<i>Ceyx erithacus</i>	Oriental Dwarf Kingfisher	R			x		x					
<i>Palargopsis capensis</i>	Stork-billed Kingfisher	V			x	x	x					

Scientific Name	English Name	Stat	SC	Mud	Mang	IS	SF	Leb	Sec	Saw	Plan	Sett
<i>Iacedo pulchella</i>	Banded Kingfisher	P					\					
<i>Halcyon coromanda</i>	Ruddy Kingfisher	R			X		x					
<i>Halcyon smymensis</i>	White-throated Kingfisher	R								X		
<i>Halcyon pileata</i>	Black-capped Kingfisher	V			x		x	x				
<i>Halcyon chloris</i>	Collared Kingfisher	R			x		x			X		
<i>Actenoides concretus</i>	Rufous-collared Kingfisher	R			x							
<i>Merops leschenaultii</i>	Chesnut-headed Bee-eater	V					x					
<i>Merops philippinus</i>	Blue-tailed Bee-eater	V			x		x					
<i>Merops viridis</i>	Blue-throated Bee-eater	?R			x		x					
<i>Eurystomus orientalis</i>	Common Dollarbird	R			x		x					
<i>Berenicornis comatus</i>	White-crowned Hornbill	R			x							
<i>Anorrhinus galeritus</i>	Bushy-crested Hornbill	R					x					
<i>Rhyticeros corrugatus</i>	Wrinkled Hornbill	R			x		x					
<i>Rhyticeros undulatus</i>	Wreathed Hornbill	R					x					
<i>Anthracoceros malayanus</i>	Black Hornbill	R				x	x					
<i>Anthracoceros albirostris</i>	Asian Pied Hornbill	R			x		x					
<i>Buceros rhinoceros</i>	Rhinoceros Hornbill	R			x		x					
<i>Buceros bicornis</i>	Great Hornbill	R			x		x					
<i>Rhinoptax vigil</i>	Helmeted Hornbill	R					x					
<i>Megalaima chrysopogon</i>	Gold-whiskered Barbet	R					x					
<i>Megalaima rafflesii</i>	Red-crowned Barbel	R					x					
<i>Megalaima mystacophanos</i>	Red-throated Barbet	R					x					
<i>Megalaima henricii</i>	Yelkw-crowned Barbel	R					x					
<i>Megalaima australis</i>	Blue-eared Barbet	R					x					
<i>Megalaima haemiacephala</i>	Coppersmith Barbet	R							X			
<i>Celeus brachyurus</i>	Rufous Woodpecker	R			x		x		x			
<i>Picus mimaceus</i>	Banded Woodpecker	R			x		x					
<i>Dinopium javanense</i>	Common Goldenback	R			x		x		x			
<i>Meiglyptes tristis</i>	Buff-rumped Woodpecker	R					x					
<i>Dryocopus javensis</i>	White-bellied Woodpecker	R			x		x					
<i>Dendrocopos canicapillus</i>	Grey-capped Woodpecker	R				Y						
<i>Dendrocopos moluccensis</i>	Brown-capped Woodpecker	R			x		x					
<i>Reinwardtipicus validus</i>	Oranfle-Backed Woodpecker	R					x					
<i>Chrysolocaptes lucidus</i>	Greater Goldenback	R			x							
<i>Corydon sumatranus</i>	Dusky Broadbill	R					x					
<i>Cymbirhynchus macrorhynchus</i>	Black-and-red Broadbill	R			x		x					
<i>Eurylaimus javanicus</i>	Banded Broadbill	R					x					
<i>Eurylaimus ochromalus</i>	Black-and-yellow Broadbill	R					x					
<i>Calypomena viridis</i>	Green Broadbill	R					x					
<i>Pitta megarhyncha</i>	Mangrove Pitta	R			x		x					
<i>Hirundo rustica</i>	Barn Swallow	V							x	X	x	X
<i>Hirundo tahitica</i>	Pacific Swallow	R										x
<i>Motacilla flava</i>	Yellow Wagtail	V								X		

Scientific Name	English Name	Stat	SC	Mud	Mang	IS	SF	Leb	Sec	Saw	Plan	Sett
<i>Motacilla cinerea</i>	Grey Wagtail	V								X		
<i>Anthus novaeseelandiae</i>	Richard's Pipit	R								x		
<i>Pericrocotus iagoes</i>	Fiery Minivet	R			<		x					
<i>Hemipus hiruadinaceus</i>	Black-Winged Hemipus	R					x					
<i>Pycnonotus atriceps</i>	Black-haded Bulbul	R			<		x		x			
<i>Pycnonotus aurigaster</i>	Sooty-chadede Bulbul	R				K	x					
<i>Pycnonotus goiavier</i>	Yellow-wated Bulbul	R				X				x	x	X
<i>Pycnonotus plumosus</i>	Olive-winaed Bulbul	R					x		x			
<i>Pyowootus simplex</i>	Cream-vented Bulbul	R					x					
<i>Pycnonotus brunneus</i>	Red-eyed Bulbul	R					x					
<i>Criniger bres</i>	Orey-cheeked Bulbul	R					x					
<i>Criniger phaeocephalus</i>	Yellow-bellied Bulbul	R					x					
<i>Hypsipetes charlottae</i>	Buff-vented Bulbul	R			X		x					
<i>Aegithina tiphia</i>	Common lora	R			x		x		x			
<i>Chloropsis sonneratii</i>	Greater Green Leafbird	R					x					
<i>Irena puella</i>	Asian Fairy Bluebird	R					x					
<i>Lanius tigrinus</i>	Tiger Shrike	V			X		x		x			
<i>Lanius cristatus</i>	Brown Shrike	V			x		x		x			
<i>Lanius schach</i>	Long-tailed Shrike	R							x			
<i>Copsychus saularis</i>	Magpie-robin	R			x		x		x		x	
<i>Copschus malabaricus</i>	White-rumped Shama	R				x	x					
<i>Zoothera sibirica</i>	Siberian Thrush	V			x							
<i>Trihastoma malaccense</i>	Short-tailed Babbler	R					x					
<i>Trichastoma rostratum</i>	White-chedest Babbler	R			x		x					
<i>Trichastoma bicolor</i>	Ferruginous Babbler	R			x		x					
<i>Trichastoma abbotti</i>	Abbott's Babbler	R			x		x					
<i>Malacopteron affine</i>	Chesnut-rumped Babbler	R					x					
<i>Malacopteron cinereum</i>	Scaly-crowned Babbler	R					x					
<i>Malacopteron magnum</i>	Rufows-cromed Babller	R			x		x					
<i>Stachyris maculata</i>	Chesnut-rumped Babbler	R					x					
<i>Macrooas gularis</i>	Striped Tit-babbler	R			x		x					
<i>Macronous pilosus</i>	Fluffy-backed Tit-babbler	R					x					
<i>Acrocephalus orieualis</i>	Oriental Reed-babbler	?V				x						
<i>Cisticola juncidis</i>	Zitting Cisticola	R								x		
<i>Cisticola exilis</i>	Golden-headed Cisticola	R							x	x		
<i>Prinia flaviventris</i>	Yellow-bellied Prinia	R								x		x
<i>Ortobotomus atrogularis</i>	Black-necked Tailorbird	R			x		x					
<i>Ortobotomus sericeus</i>	Rufous-tailed Tailorbird	R			x		x					
<i>Ortobotomus ruficeps</i>	Ashy Tailorbird	R			x	x	x		x		x	
<i>Phylloscopus borealis</i>	Arctic Leaf-warbler	V			x							
<i>Muscicapa sibirica</i>	Dark-sided Flycatcher	V			x							
<i>Cyornis turcosa</i>	Malaysian Blue Flycatcher	R			x		x					
<i>Cyornis rufigastra</i>	Mangrove Blue Flycatcher	R			x							
<i>Gerygone sulphurea</i>	Fly-eater	R			x		x					

Scientific Name	English Name	Stat	SC	Mud	Mang	IS	SF	Leb	Sec	Saw	Plan	Sett
<i>Hypothymis azurea</i>	Black-naped Monarch	R					X					
<i>Terpsiphone paradisi</i>	Asian Paradise Flycatcher	R			X		X					
<i>Rhipidura javanica</i>	Fied Fantail	R			X		X					
<i>Pachycephala grisola</i>	Mangrove Whistler	R			X		X					
<i>Parus major</i>	Great Tit	R			X							
<i>Sitta frontalis</i>	Velvet-fronted Nuthatch	R			X		X					
<i>Prionochilus maculatus</i>	Yellow-breasted Flowerpecker	R					X					
<i>Prionochilus percussus</i>	Crimson-breasted Flowerpecker	R					X					
<i>Dicaeum chrysorrheum</i>	Yellow-vented Flowerpecker	R							X			
<i>Anthreptes malacensis</i>	Brown-throated Sunbird	R			X				X			
<i>Anthreptes singalensis</i>	Ruby-cheeked Suabird	R					X					
<i>Nectarinia sperata</i>	Purple-throated Sunbird	R			X		X		X			
<i>Nectarinia calcostetha</i>	Copper-throated Sunbird	R			X		X					
<i>Nectarinia jugularis</i>	Olive-backed Sunbird	R			X		X		X			
<i>Aelbopyga uparaja</i>	Crimson Sunbird	R			X		X		X			
<i>Arachnothera loogifrastra</i>	Little Spiderhunter	R					X					
<i>Zosterops palpebrosus</i>	Oriental White-eye	R			X		X					
<i>Lonchura striata</i>	White-rumped Munia	R				X					X	
<i>Lonchura malacca</i>	Chestnut Munia	R								X		
<i>Lonchura maja</i>	White-headed Muiia	R								X		
<i>Padda oryzivora</i>	Java Sparrow	R				X			X	X		
<i>Passer montanus</i>	Tree Sparrow	R									X	X
<i>Ploceus phillippinus</i>	Baya Weaver	R						X		X		X
<i>Aplonis panayensis</i>	Asian Glossy Starling	R			X		X					
<i>Sturnus sturninus</i>	Purple-backed Starling	V				X	X		X			X
<i>Acridotheres javanicus</i>	White-vented Myna	R									X	
<i>Gracula religiosa</i>	Hill Myna	R			X		X					
<i>Oriolus xanthonotus</i>	Dark-throated Oriole	R					X					
<i>Oriolus chinensis</i>	Black-naped Oriole	R			X		X		X		X	
<i>(Dicrurus annectans</i>	Crow-billed Drongo)	V					X					
<i>Dicrurus aeneus</i>	Bronzed Drongo	R			X		X					
<i>Dicrurus paradiseus</i>	Greater Racquet-tailed Drongo	R			X	X	X					
<i>Artamus leucorhynchus</i>	White-breasted Wood-swallow	R							X			
<i>Corvus enca</i>	Slender-billed Crow	R			X		X			X		X
<i>Corvus machrorhynchus</i>	Large-bated Crow	R			X							

APPENDIX 2
 ADDITIONAL RECORDS OF BIRDS OF THE COASTAL PLAIN OF
 SOUTH SUMATRA

Phedacrocorax sulcirostris Little Black Cormorant. Two cormorants ringed in March/April 1968 at the Pulau Dua colony. West Java, were found drowned in River Musi, both near Palembang on 8 March 1969 and another one near Kayu Agung, Palembang, on 12 July 1968 (McClure 1974).

Anous stolidus Brown Noddy. One immature off the coast, 4 Aug. 1985 (Skov & Danielsen 1985).

Records from Padang-Sugihan (Nash & Nash 1985):

<i>Aeghina viridissima</i>	Green lora
<i>Anthreptes rhodolaema</i>	Red-throated Sunbird
<i>Arachnothera chiysogenys</i>	Yellow-eared Spiderhunter
<i>Arachnothera affinis</i>	Grey-breasted Spiderhunter
<i>Batrachostomus auritus</i>	Large Frogmouth
<i>Butastur indicus</i>	Grey-faced Buzzard
<i>Cacomantis sonneratii</i>	Banded Bay Cuckoo
<i>Calorhamphus fuliginosus</i>	Brown Barbet
<i>Caprimulgus indicus</i>	Grey Nightjar
<i>Chloropsis cyartopogon</i>	Lesser Green Leafbird
<i>Clamator coromandus</i>	Chestnut-winged Cuckoo
<i>Copsychus pyrropygus</i>	Rufous-tailed Shama
<i>Coracina fimbriata</i>	Lesser Cuckoo-shrike
<i>Cuculus jugax</i>	Hodgson's Hawk-cuckoo
<i>Cuculus spwveriotdes</i>	Large Hawk-cuckoo
<i>Dicaeum cruentatum</i>	Scarlet-backed Flowerpecker
<i>Dicaeum agile</i>	Thick-billed Flowerpecker
<i>Dicaeum trigonostigma</i>	Orange-bellied Flowerpecker
<i>Ficedula zanthopygia</i>	Yellow-rumped Flycatcher
<i>Harpactes duvaucelii</i>	Scarlet-rumped
<i>Hemicircus concretus</i>	Trogon Grey-and-buff Woodpecker
<i>Hieraetus kienerii</i>	Rufous-bellied Eagle
<i>Lalage nigra</i>	Pied Thriller
<i>Muscicapa dauurica</i>	Asian Brown Flycatcher
<i>Ninox scutulata</i>	Brown Boobook
<i>Pericrocotus flammeus</i>	Scarlet Minivet
<i>Picus punicus</i>	Crimson-winged Yellownappe
<i>Pycnonotus eutilotus</i>	Puff-backed Bulbul
<i>Rhopodytes diardi</i>	Black-bellie Malkoha
<i>Sasia abnormiis</i>	Rufous Piculet
<i>Setornis criniger</i>	Hook-billed Bulbul
<i>Stachyris erythroptera</i>	Chestnut-winged Babbler
<i>Sumiculus lugubris</i>	Drongo Cuckoo
<i>Turdus obscurus</i>	Eye-browed Thrush
<i>Zanclostomus javanicus</i>	Red-billed Malkoha

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