part of Bali; but will there be a programme for the Straw-headed Bulbul *Pycnonotus zeylanicus?* This bulbul is a favourite because of its song, and is expensive. We would guess that there are more kept in cages than there are in the wild in the whole of Java. It is an endangered species in Java, we must ensure it does not become one in Sumatra and Kalimantan as well.

We see that Indonesians love birds, and want to hear, near their homes, the songs they can no longer hear in nature. But this is self-defeating, as the scarcity value increases for the more popular birds. However, the country is in transition. A new awareness of the importance of the natural surroundings is growing, and all support should be given through such bodies as YIH to foster and to educate. The transition could include a new interest in the study of birds in the wild among the younger generation. If *KUKILA* can play a small part in this process, another of our objectives will be fulfilled. Please give us your support, by renewing your subscriptions and encouraging new subscribers.

THE BIRDS OF BERBAK GAME RESERVE, JAMBI PROVINCE, SUMATRA.

by Marcel J. Silvius and Wirn J.M. Verheugt.

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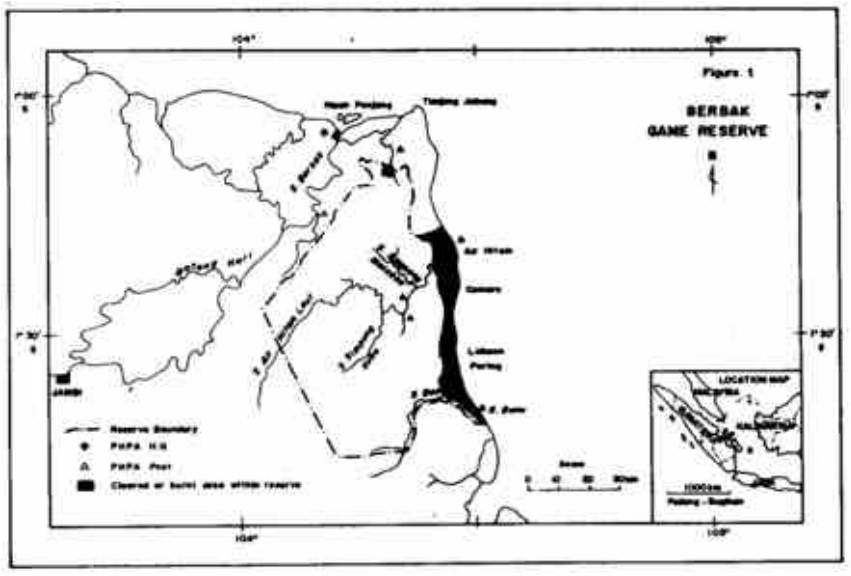
Introduction.

The Berbak Game Reserve (104°20'E, 1 ° 10'S) was established on 29 Oct 1935. As presently constituted it covers 190,000 ha, bounded by the S. Berbak in the north (a distributary of the Batang Hari river), S. Benu in the south and the coast in the east (see Fig. 1). It forms part of the vast coastal plain of eastern Sumatra. The reserve is flat and swampy, reaching an elevation of 15 metres AMSL in the west. Extensive peats have formed over the coastal sediments, reaching a depth of over 10 metres. Peatswamp forest covers 110,000 ha. Freshwater swamp forest covers the remainder, merging into riverine forest along the rivers, andmangrove and dry beach forests along the coasts. Some sandy beach ridges are a feature of this part of the coast. The smaller rivers are principally peat drains.

A description of the ecology of the reserve is given in Silvius et a). (1984). Figure 1 shows a zone of cleared land near the coast, which was reclaimed in the 1960's. Six villages are located in the reserve, the population living from rice, coconuts and off-shore fishing. Part of the disturbed area was burnt by two forest fires, which occurred during the droughts of 1972 and 1982-83.

Until 1982 the avifauna of Berbak was virtually unknown. Endert (1936) visited the area in 1935, and his report included some brief notes on its avifauna. A provisional checklist covering 105 species was published in the Berbak Management Plan (de Wulf & Rauf 1982). In 1983 a survey was carried out of the soils, vegetation, fauna and conservation aspects of the reserve (Silvius *et al.*1984). Field work took place during April June and Sept.- Nov. 1983. Data on birds were collected only incidentally to the main task, by Silvius in April June and by Silvius and Verheught in Sept. Nov. During Oct. Nov. 1984 the authors again visited the reserve's coastal area for a period of two weeks, including Tanjung Jabung, a promontory with wide mudflats north of the reserve. The 1984 visit was part of an ICBP - sponsored waterbird survey of the south-east coast of Sumatra (Silvius *et al.* 1985).

The checklist



Appendix 1 list all those species recorded by the authors with in the reserve, and serves as a preliminary checklist as a baseline for future studies. It is acknowledged that the list is incomplete, partly because the authors were not yet familiar with many of the commoner Sun-danese forest species and their calls, and also because they were unable to visit all parts of the reserve regularly. Due to the presence of thick mats of the floating river weed Susum on-*thelmicum* it was not possible to carry out surveys upstream on the Sungai Air Hitam Laut. Field work in the peat swamp was limited to only two weeks, yet every day in this forest type added new species to the list.

It should be noted that observations at Tanjung Jabung to the north are included, although this important stretch of coastline lies outside the reserve proper.

Appendix 2 lists those species recorded by de Wulf & Rauf (1982), or reported to the authors by the reserve wardens, but requiring further confirmation.

The more significant records are described In the text below. *Large water birds.*

Surprisingly there was only one record of a solitary Darter *Anhinga melanogaster* and its status appears to be that of a casual visitor. Similarly only one Great-billed Heron *Ardea sumatrana* was seen along the coast, a species which appears to be nowhere common. However the Grey Heron *A. cinerea* is a common resident along the coast, utilizing off-shore fishing stakes, and a party of 40 was seen near Tanjung Jabung in October. A heronry of over 70 nests west of Nipah Panjang probably belongs to this species. By contrast, the Purple Heron *A. purpurea* occurred in open country just inland in small numbers in 1983, but none were seen in 1984 and the species may be non-resident.

Two Chinese Egrets *Egretta eulophotes were* observed together on 14 October and 11 November

1983 on a sandy beach near Cemara Attention was first drawn to them by differences in shape and behaviour from nearby white phase *E. s*acra and E. intermedia. The birds were in winter plumage. Legs and toes were green, toes being slightly more yellowish, the upper mandible was greyish and the lower yellowish. While the colours of the soft parts in themselves may not be a reliable guide, when taken in conjunction with the characters that first attracted our attention, they serve to confirm the identification.

The commonest egret was *Egretta alba,* which may be resident. It occurs along the coast in small parties, but 80 were seen near Tanjung Jabung in October 1984. *E. s*acra is also resident in small numbers, mostly on sandy beaches or fishing stakes; white phase birds were more common.

Among the storks and ibises, it is especially satisfying to report that the Milky Stork *Ibis cinereus* is apparently a common coastal resident, with up to 50 observed along the southern shores of the reserve, and larger numbers at Tanjung Jabung. During the October November wader survey along the coasts of Riau, Jambi and South Sumatra provinces in 1984, a total of 3000 Milky Storks was counted, along with 634 Lesser Adjutant *Leptoptilos javanicus* and 854 Black-headed Ibis *Threskiornis melanocephalus.* The Adjutant occurs either on the open shoreline or in open country behind the mangroves, but occasionally far up rivers, but the Ibis was usually encountered on the outer fringe of mangroves.

Both the "white-necked" storks are present, *Ciconia episcopus* being seen on several occasions, while two *C. stormi* were seen occasionally far up the Air Hitam Laut.

Raptors.

At least one Osprey *Pandion haliaeetus* was present on the coast, with records between 10 October and 7 November. The White-bellied Sea-Eagle *Haliaeetus leucogaster* is resident, with about 8 pairs within Berbak and Tanjung Jabung. Nesting was observed in October. The Black-shouldered Kite Elonus *caeruleus* is very common in open areas.
Jerdon's Baza *Auiceda jerdoni* may be resident, with records in early and late May. Six were soaring over Simpang Malaka on 7 May. Four Black Baza *A. leuphotes,* which has been confirmed as a winter visitor to Sumatra only during the last decade, were seen on 14 October. Among the hawk-eagles, BIyth's *Spizaeetus alboniger* was recorded twice, once near Simpang Malaka on April 14 1983, and again along the Air hitam Laut However one record of S. nanus was not positively confirmed.
On 28 April 1983, a small falcon was seen hunting over the river Air Hitam Laut, near the village of that name, and was identified as *Falco severus,* the Oriental Hobby. Shaped like F. subbuteo, the plumage appeared wholly very dark, lacking the prominent white patch on the sides of the n eck of the latter bird. The species was observed a second time at the same locality at the end of October 1984. This provisional record constitutes the first of the species for Sumatra, *(confirmation of this record is needed. Ed.)*

Waders.

The Berbak coastline, as part of the SE Sumatran coast from Riau south at least to South Sumatra province, has proved to be a very important wintering ground for waders, with a gross total of some 100,000 birds along 1000 km of coastline in October November 1984. A report has been submitted to ICBP for the Interwader operation now in progress. Particularly significant was the Asian Dowitcher *Limnodromus semipalmatus* with 1460 in total, this being probably the largest number ever recorded. In the Berbak area, 97 were counted at Tanjung Jabung on 24 November, but there could have been many more. The largest roost contained 1143 individuals, on both shores of the Sungai Simbur Naik estuary, further to the northwest, mixed with *Limosa Lapponica, Pluvialis quatarola* and *Tringa stagnatilis.*
Several thousand Mongolian Plover *Charadrius mongolus* were counted along the Berbak and

Tanjung Jabung coast during the same period, whereas C. *leschenaultii* occupied only about 3% of these flocks. Only one Kentish Plover *C. alexandrinus* was identified, on 24 November. The Malaysian Plover C. peronii was presumed to be a migrant, with some 15-20 near Cemara in mid-October, though one was seen on 9 June of the previous year. Curlews and godwits were well represented, Numenius arquata being the most numerous of the former, often roosting on mangroves and fishing stakes. A flock of 800 was counted at Tanjung Jabung on 24 November. Both *N. phaeopus* and N. madagascariensis were also present in moderate numbers.

Of the two godwits, flocks of several hundred *Limoso lapponica were* present, but *Limosa limosa* outnumbered all other waders, with flocks numbering several thousands near Cemara and Tanjung Jabung in October, in both 1983 and 1984.

The other common waders, in flocks numbering several hundreds, were Tringa totanus and Xenus cinereus, with smaller flocks of *Calidris tenuirostris* and *C. ferruginea.* The largest group of *Arenaria interpres* totalled 30, on 14 October 1983.

A party of 7 probable Broad-billed Sandpipers *Limicola falcinellus* was seen at Cemara on 10 November 1983, but could not be confirmed.

Common Sandpipers Actitis *hypoleucos are* generally encountered spread out individually in their winter quarters, so a party of up to 60 on 20 October 1984 suggested a recent arrival of migrants, while pratincoles *Glareola maldivarum* were seen on southward migration on 8 and 24 November 1984, with 87 birds in the largest flock.

Sea birds.

Two Pomarine Skuas *Stercorarius pomarinus* were sighted some 750 metres from the shore of the Berbak coast on 18 October 1984. Both authors are familiar with skuas in Europe, and identified them from size, heavy build and appearance. The central tail feathers were lacking. Both birds were dark brown, without heavy barring on the underparts, but with lighter patches on the gular area and abdomen,'and with striking white primary patches. They were believed to be adults in non-breeding plumage. This is the second record for Sumatra, the first being recorded between Sabang (Pulau Weh) and mainland Aceh on December 20 1955 (Marle & Voous, in prep.).

The Caspian Tern *Hydroprogne caspio* was observed at three locations in Jambi province, and are the first records for Sumatra. Two were seen roosting on sandy beach ridges near Cemara on 14 Ocober 1983, and one on 27 October 1984. On the following day three were roosting on the beach near Labuan Pering, and on 24 November 1984 eight were roosting on the intertidal mudflats at Tanjung Jabung.

The commonest terns were Gull-billed *Gelochelidon nilotica,* with 150 along the Berbak coast in October 1984, Little Tern *Sterna albifrons* and Greater-crested Tem S. bergii, small numbers of which remain in summer. Many terns commonly use the fishing platforms and stakes for resting, especially *S. hirundo, S. albifrons and S. bergii.* There was only a single record each of Black-naped Tern S. sumatrana (2, 21 October 1983) and Bridled Tern *S. anaethetus* (1, 18 October 1984).

Of the two "marsh terns", *Chlidonias leucopterus* was moderately common, but the 1984 survey counted only 40 C. *hybrida* along 1000 km of coastline. Nevertheless this is significant as there have been only two previous records of *C. hybrida* from Sumatra, the first collected on Nias in December 1897, and once seen off the east coast of North Sumatra on March 15 1979 (Marle & Voous, in prep.).

Other migrants.

Chestnut-winged Cuckoo *Clamator coromandus*

One record in secondary growth at Nipah Panjang, 31 October 1984. Common Koel *Eudynamys scolopacea*

Two records of single birds in riverside *nipah* palms on 13 April 1983.

White-vented Needletail *Hirundapus cochinchinensis*

Probably a common migrant, but not confirmed. Although carefully observed, no evidence of white lores could be discerned, however the Malayan race of the very similar H. *giganteus* also has dark lores. Often seen in groups of up to 17 foraging above the river Air Hitam Laut, dipping to the water vigorously with a loud clapping sound.

Fork-tailed Swift *Apus pacificus.*

A rather common migrant, with groups of up to 20 regularly seen in May 1983.

Common Kingfisher *Alcedo atthis.*

The earliest date of this common visitor was 12 September.

Bee-eaters *Merops* spp.

Although *Merops viridis* is probably resident in Berbak, both this species and M. *philippinus are* very common migrants, seen moving south in large flocks in the autumn.

Crow-billed Drongo *Dicrurus annectans.*

Records from three locations along Simpang Malaka up to the beginning of May.

Tiger Shrike *Lanius tigrinus.*

Two records only, 16 October.

Other records.

Black Wood-Partridge *Melanoperdix nigra.*

Two records. Being shy, it may be more common than the few records indicate. It runs when disturbed, usually at only a few metres range.

Pied Imperial Pigeon *Ducula bicolor.*

One seen 27 October 1983 feeding in the middle storey of freshwater swamp forest. In 1984 large flocks were seen on the off-shore islands of the Riau Archipelago, and therefore might be expected to occur in the mangroves of Berbak.

Blue-crowned Hanging Parrot *Loriculus galgulus.*

A flock of 150 roosting at sunset in low bushes in an orchard is unusual.

Long-tailed Nightjar *Coprimulgus macrurus.*

Three fledglings were found in a coconut plantation on 22 October.

Hornbills.

Unlike the swamps of Padang Sugihan Reserve, where the Rhinoceros Hornbill Buceros rhinoceros has not yet been recorded, only *B. bicornis* being common (Nash & Nash 1985), the reverse appears to hold in Berbak, where B. *rhinoceros* is common and there were only three records of single *B. bicornis.* Among the other hornbills listed in Appendix 1, *Anthracoceros malayanus* was the most common species, with once a flock of 20, while *A. coronatus* and *Rhinoplox vigil* were also common.

Great Slaty woodpecker *Mulleripicus pulverulentus.*

The record quoted in Silvius et a((1984) was unconfirmed, and' is *now* withdrawn.

Woodpeckers *Picoides* spp

There were two records of *Picoides canicapillus* from secondary growth and forest edge; both sightings were of birds with clearly dark greyish-brown upperparts, barred with white. Compared with King *et at* (1975) one bird (a female) had a thinner malar stripe and the white cheek was slightly broader. According to Marle & Voous (in prep.) canicopilfus is confined to montane areas and there are no previous records of range overlap with *moluccensis.* However, Nash & Nash (1985) have also reported *canicapillus* in lowland swamps at Padang Sugihan.

A party of three P. mofuccensis was also seen in dead trees of an abandoned orchard on 7 June; the darker upperparts were clearly brown, without trace of greyish-black colouration *(The distribution of these two species in lowland Sumatra now requires further study.ed.)*

Greater Goldenback *Chrysocolaptes lucidus.*

One record obtained, in *Avicennia* mangrove.

Great lora *Aegithina lafresnayei.*

Single birds were seen twice, on 6 June and 12 October 1983, in Cosuarina *equisetifolia* in dry beach forest near Cemara. They were identified by longer and heavier bill than A. tiphia and no wing bars. The underparts were clearly yellow. These constitute the first provisional record of this sedentary bird for Sumatra, *(confirmation of this record is needed. Ed).*

APPENDIX 1. List of species recorded within the Berbak Reserve and adjacent coastline, including Tanjung Jabung. Habitat symbols are used where significant, as follows:

R River and immediate surroundings.
RF Riverine forest.
FF Freshwater swamp forest.
PF Peat swamp forest.
MF Mangrove forest.
DF Dry beach forest.
SG Secondary growth and scrub.
C Cultivated area.
0 Open country.
K Kampongs.

§ signifies the species is mentioned in the main text.

Anhinga melanogaster §
Fregata minor
Fregata oriel
Ardea sumatrana §
Ardea cinerea §
Ardea purpurea §
Butorides striatus
Egretta sacra §
Egretta eulophotes §
Egretta alba §
Egretta intermedia §
Egretta garzetta
Ixobrychus cinnamomeus
/bis cinereus §
Ciconia episcopus S
Ciconia stormi §
Leptoptilos javanicus §
Threskiornis melanocephalus §
(Anas querquedula) — not confirmed
Pandion haliaetus §
Aviceda jerdoni §
Aviceda leuphotes §
Elanus caeruleus §
Haliastur indus
Haliaeetus leucogaster §
/cthyophaga ichthyaetus
Spilornis cheela
Accipiter trivirgatus
Ictinaetus malayensis
Spizaetus cirrhatus .
Spizaetus alboniger §
Spizaetus nanus § • not confirmed.
Microhierax fringillarius
Falco severus § - not confirmed.
Melanoperdix nigra §
Coturnix chinensis
Porzana fusca • not confirmed.
Gallicrex cinerea
Gallinula chloropus
Porphyrio porphyrio
Pluvialls squatarola S
Pluuialis dominica
Charadrius alexandrinus §
Charadrius peronii §
Charadrius mongolus §
Chorodrius leschenaultii §
Numenius arquata §
Numenius phaeopus S
Numenius madagascariensis §
Limosa limosa §
Limoso lapponica §
Tringa totanus §
Tringa stagnatilis §
Tringo glareola
Xenus cinereus §
Actitis hypoleucos §
Arenaria interpres §
Limnodromus semipalmatus S
Calidris tenuirostris §
Calidris ruficollis
Calidris ferruginea §
Limicola falcinellus - not confirmed
Glareola maldivarum §
Stercorarius pomarinus §

Childonias hybrida §
Chlldonlas leucopterus §
Gelocheilidon nilotica §
Hydroprogne caspia §
Sterna hirundo §
Sterna dougallii
Sterna sumatrana §
Sterna anaethetus §
Sterna albifrons §
Sterna bergii §
Sterna bengalensis
Treron fuluicolis FF RF
Treron o/ax
Treron vernans
Ducula aenea
Ducula bicolor §
Streptopelia chinensis
Psittacula longicauda
Psittinus cyanurus
Loriculus galgulus §
Clamator coromandus §
Eudynamys scolopacea §
Phaenicophaeus sumatranus
Phaenicophaeus chlorophaeus
Centropus sinensis
Centropus bengalensis
Otus bakkamoena FF PF
Ketupa ketupu MF RF
Ninox scutulata FF
Eurostopodus temminckii RF
Caprimulgus macrurus § C K DF
Collocalia esculenta
Hirundapus cochinchinensis § - not confirmed
Raphidura leucopygialis
Apus pacificus §
Apus affinis
Cypsiurus batasiensis
Hemiprocne comata
Harpactes diardii PF
Harpactes duvaucelii RF
Alcedo atthls § R
Alcedo meninting R RF
Ceyx erithacus R
Ceyx rufidorsus R MF
Pelargopsis capensis R MF
Halcyon coromanda RF R
Halcyon smyrnensis SG R C
Halcyon pileata R
Halcyon chloris SG C MF R
Rhyticeros corrugatus
Rhyticeros undulatus
Anthracoceros malayanus §
Anthracoceros coronatus §
Buceros rhinoceros §
Buceros bicornis §
Rhinoplax uigil §
Megalaima chrysopogon
Megalaima rafflesii
Picus miniaceus RF
Dinopium javanense MF C
Meiglyptes tukki FF
Dryocopus javensis FF
Picoides canicapillus § SG
Picoides moluccensis § SG
BIythipicus rubiginosus FF
Chrysocolaptes lucidus § MF
Corydon sumatranus FF
Cymbirhynchus macrorhynchus RF R
Eurylaimus jabvanicus FF
Hirundo rustica
Hirundo tahitica
Hemlpus hirundinaceus
Pericrocotus divaricatus SG
Pericrocotus igneus RF DF
Pericrocotus flammeus RF
Aegithina tiphia DF SG
Aegithina lafresnayei § DF - not confirmed
Chloropsis sonnerati FF
Chloropsis cochinchinensis RF PF
Pycnonotus atriceps R SG
Pycnonotus eutilotus SG
Pycnonotus goiavier SG C
Pycnonotus plumosus SG
Pycnonotus simplex RF
Criniger phaeocephalus SG
Hypsipetes criniger PF SG
Hypsipetes charlottae SG
Dicrurus annectans § RF
Dicrurus aeneus RF SG
Dicrurus paradiseus RF PF SG MF
Oriolus chinensis
Irena puella
Platysmurus leucopterus
Corvus enca
Coruus macrorhynchus
Sitta frontalis MF
Pellorneum capistratum
Trichastoma malaccense

Halcyon concreta R
Merops philippinus §
Merops viridis §
Eurystomus orientalis
Berenicornis comatus
Anorrhinus galeritus
Macron us ptilosus
Copsychus saularis
Copsychus malabaricus FF PF
Copsychus pyrropygus FF PF
Acrocephalus arundinaceus - not confirmed
Orthotomus atrogularis FF SG
Orthotomus ruficeps SG R
Prinia flauiuentris
Cisticola juncidis
Rhynomias umbratilis PF
Cyornis turcosa RF R
Cyornis rufigastra MF
Rhipidura jauanica RF MF!R)
Hypothymis azurea RF
Philentoma pyrhopterum RF PF
Terpsiphone paradisi RF R
Pachycephala dnerea DF MF SG(R)
Artamus leucorhynchus
Lanius tigrinus §
Aplonis panayensis
Trichastoma rostratum
Trichastoma bicofor
Malacopteron affine
Malacopteron magnum
Malacopteron albogulare - not confirmed . *PF*
Stachyris maculata
Acridotheres jauanicus
Gracula religiosa
Anthreptes malaccensis
Anthreptes singalensis
Hypogramma hypogrammicum FF
Nectarinia calcostetha SG C
Nectarinia jugularis MF C SG
Aethopyga siparaja SG
Arachnothera longirostra
Arachnothera robusta
Arachnothera flauigaster
Prionochilus maculatus FF
Prionochilus percussus FF SG
Dicaeum trigonostigma FF(SG)
Zosterops palpebrosa MF
Passer montanus
Ploceus philippinus
Lonchura punctulata
Lonchura maja

APPENDIX 2. Additional species listed by de Wulf & Rauf (1982). or reported by forest guards, but not confirmed by the authors. These species require reconfirmation before acceptance on the Berbak list.

Dupetor flauicollis
Dendrocygna javanica
Gallus gallus
Argusianus argus
Heterosceles brevipes
Larus ridibundus
Columba argentina
zonthopygia
Chalcophaps indica
Surniculus lugubris
Alcedo euryzonia
Hemicircus concretus
Lalage nigra
Pycnonotus aurigaster
Erithacus cyane
Ficedula

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