

**AN ANNOTATED CHECKLIST OF THE BIRDS OF
WAY KAMBAS NATIONAL PARK, SUMATRA.**

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Introduction

The Way Kambas National Park is located in the eastern plains of Sumatra, in Lampung province at the south of the island (105°45'E, 5°00'S), and totals some 123,500 ha. The park is bounded mainly by large rivers including the Way Penet (30 km) in the south and the Way Sukadana (18 km)/Way Pagadangan (95 km)/Way Seputih (30 km) in the west, northwest and north. A 65 km coastline forms the eastern boundary. The park has a highest point of 16 m above sea level (Santiapillai & Suprahman 1985) and contains a variety of lowland and coastal habitats including the largest freshwater (non-peat) swamp forest area in any Sumatran reserve (Wind *et al.* 1979). There are two distinct seasons; a wet season from November to March and a dry season from May to October. The average annual rainfall is 2000 mm though less than 100 mm per month falls in the dry season (Wind *et al.* 1979).

History of Way Kambas

Established as a Game Reserve by the Dutch colonial administration in 1937, the park has retained various degrees of legislative protection, although until recently this has been largely ineffective. From 1968 to 1974 the park was opened up to commercial forestry which logged all the accessible areas, following which a period of illegal logging by the local people continued for a further eight years. During this period the population in Lampung province greatly increased with an influx of Javanese transmigrants and large numbers of people began to settle within the park boundaries. As a result of these activities, and periodic fires, particularly those of 1972, 1974 and 1976, much of the original lowland Dipterocarp rainforest has been converted to *alang-alang* *Imperata cylindrica* grassland. In 1984 settlers were forcibly evicted from the park and since then it has been afforded greater protection. Way Kambas was formally upgraded from a reserve to National Park status in April 1989.

Ornithological surveys

Tweedale (1877), Vorderman (1882), Nicholson (1882,1883), Vorderman (1891,1895), Stone (1902), and Kloss (1931) provide information on collections from Lampung. In many instances localities are no more specific than 'Lampung', much of the collections are from hill or montane areas, and none of them refers directly to the Way Kambas area. Nonetheless, they are important references for three reasons: firstly, they include records of species nominally from Lampung

which have not subsequently been recorded from Sumatra but should be sought at Way Kambas (eg *Dendrocopos macei*), secondly, some species formerly collected in the lowlands that have not been reported from Lampung since should be sought at Way Kambas (eg *Trichastoma buettikofferi*), and thirdly, some migrants based on very few sight records at Way Kambas are lent credibility by their earlier collection in Lampung (eg *Ficedula mugimaki*).

There exists also a gap of some half a century between the explorations documented in these accounts and the next era of ornithological endeavour, which commenced when Holmes published observations from Lampung, including Way Kambas (Harvey & Holmes 1976, Holmes 1977, 1977a).

In Oct 1978 and Jan & Feb 1979 Wind carried out observations within the park in the preparation of the Way Kambas Management Plan 1980/81-1984/85 (Wind *et al.* 1979). The management plan did not include a checklist but some of Wind's records are included in Marle & Voous (1988).

The first checklist of the birds of Way Kambas is a booklet published in Bahasa Indonesia in 1982 listing 286 species and based mostly on the observations of Sunji and Wind (Anonymous 1982). This checklist includes a number of anomalies and not all the species listed are included here. In 1985 three checklists were published as appendices in WWF/IUCN reports. These lists, of 175 species (Santiapillai & Suprahman 1985), 197 species (Nash & Nash 1985), and 277 species (Milton 1985), include fewer anomalies but make little attempt to review records. The lists draw extensively on each other and cannot be treated as independent sources of records but all the species listed therein are included or discussed here.

Marle & Voous (1988) is the first modern review of the birds of Sumatra and contains numerous records from Way Kambas. The authors critically reviewed records, particularly those of species new to Sumatra, but nonetheless included a number of records from Way Kambas that have not been repeated and consequently have been treated as tentative here.

Between August 1988 and July 1989 the University of Southampton team spent twelve months in the field to carry out observations as part of a research project studying aspects of the ecology of Way Kambas. The ornithological results are documented in two unpublished reports, Wilson (1990) and Wilson *et al.* (1992).

In summary, this checklist of the birds of Way Kambas includes or discusses the species reported in the foregoing publications, and records submitted to *Ku/dia* by observers visiting Way Kambas in the period from 1983 to the end of 1995. Records are attributed to the following: P. Andrew (PA), A van den Berg (AvdB), K.D. Bishop (KDB), N. Bostok (NB), J. Bowler (JB), D. Bradford (DB), H. Buck (HB), L. Cross (LC), P. Heath (PH), D.A. Holmes (DAH), J. Homskov (JH), J.R. Howes (JRH), B. King (BK), F. Lambert (PL), A. Long (AL), G.R. Milton (RM), M. Ounsted (MO), L. Phelps (LP), C. Robson (CR), Rudyanto, B. Simpson (BS), Southampton University Team [A. Chambers, M. Cousins, S. Hedges, J. Newman, G. Riddoch, A. Webb and S. Wilson] (SU), J. Tobias (JT), J. Wall (Wall), J. Warne (JW), J. Wind (Wind), D. Yong (DY).

Habitats

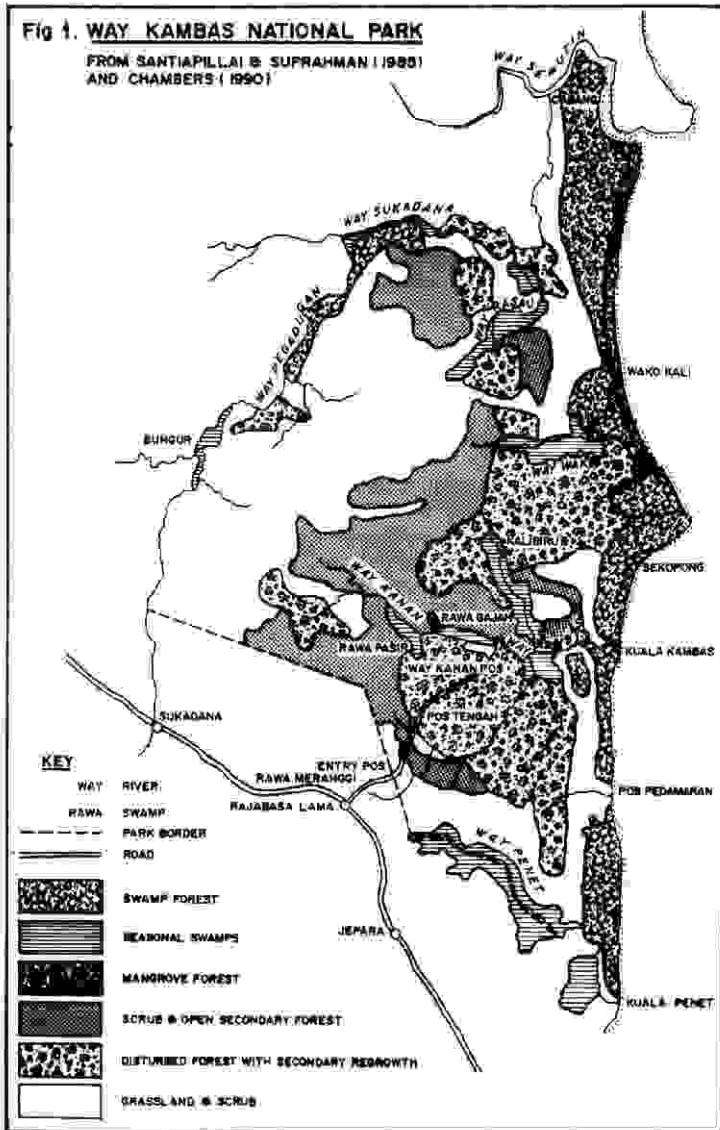
Mudflats bordered by mangrove forest extended along about half the coastline, primarily south of the mouth of the Way Seputih. There is now almost certainly no dryland primary forest remaining in the park, the only untouched areas being the permanently-flooded forests near the coast, and patches of forest bordering the major rivers where the ground is very wet. The secondary forest is variable in age and character, is often not completely closed and there is usually dense understorey. About half the park is now dominated by *alang-alang* grassland which is subject to periodic fires, often spreading from the burning of rice stubble in the surrounding farmland. There are also large areas which have been subjected to fire damage which now consist of poor scrub forest with patches of *alang-alang* grassland where there are few large trees. The only forest outside the park is production forest to the north, but this was being clear felled from 1989.

Fig. 1 is a map of the Way Kambas National Park marking the localities mentioned and the approximate distribution of habitats.

- **Dipterocarp forest:** logged dry lowland Dipterocarp forest with secondary regrowth (including seasonal ponds within).
- **Swamp forest:** freshwater (non-peat) swamp forest, containing both primary and secondly communities.
- **Seasonal swamps:** riverside vegetation and seasonally flooded grassland bordering rivers.
- **Mangrove:** mangrove, comprising both primary and secondary habitat.
- **Scrub:** scrub & open secondary Dipterocarp forest
- **Grassland:** *alang-alang* dominated grassland, composed of large open areas of grassland with some scrub.

The majority of records are from the transect between the Entry Pos and Pos Way Kanan. It must be emphasised that the majority of visitors stay at Pos Way Kanan and work the network of small trails in the immediate vicinity, and only occasionally visit by boat Rawa Pasir, Kali Biru and Kuala Kambas. This means that the coverage of the habitats in Way Kambas is very uneven, and that species usually associated with mangroves and swamp forest are probably under reported.

The University of Southampton Team conducted more systematic observations from August 1988 to July 1989, particularly in the heavily disturbed dry lowland forest with secondary regrowth between Pos Tengah and Pos Way Kanan. Transects were cut totalling 9 km in length and most of the observations were carried out from the transects between November 1988 and June 1989. However, the rivers and the seasonally flooded swamp grasslands bordering them were also visited regularly between January and July 1989 as part of a survey of habitats frequented by the White-winged Duck *Cairina scutulata*. Nonetheless, the vast majority of



passerine observations are from around Pos Way Kanan, and in the logged Dipterocarp forest between the Entry Pos and the Way Kanan.

Milton made the first coastal survey in 1985 (Milton 1985), otherwise apart from a few observations made at the mouth of the Way Kambas and from Way Penet, where access is possible by road, records and estimates of numbers are from the systematic surveys of the Southampton Team. The Southampton Team surveyed the coastal mudflats five times between October 1988 and June 1989 to monitor numbers and species composition of the migrating and resident birds.

Species accounts.

This section includes details on specific species, overviews of some genera or larger groups, and occasional taxonomic notes. It also discusses some species whose presence at Way Kambas requires confirmation. It is difficult to evaluate records with real objectivity, but records at odds with the status reported in Marle & Voous (1988), and single and undocumented records, particularly of species not otherwise known from Sumatra, are considered in need of confirmation. Reference is made to all species recorded from Way Kambas in Marle & Voous (1988), Santiapillai & Suprahman (1985), Nash & Nash (1985), and Milton (1985). Classification and nomenclature follow the *Kukila* Checklist (Andrew 1992). The reader is also referred to the Sumatra Bird Report in this same issue of *Kukila*, hereafter referred to as SBR. Marle & Voous (1988) is hereafter referred to as M&V.

Fregata spp.: Christmas Frigatebird *Fregata andrewsi*, 1 male on 2 Apr 1989 near the mouth of the Way Wako (SU); see M&V for an additional record. Probably overlooked as there are other records from the Malacca Straits (cf M&V) and it occurs regularly in the Sunda Straits and off northern Java (PA); completely overlooked is Lesser Frigatebird *F. ariel*, which is rather common along adjacent coasts.

Phalacrocorax spp.: Little Black *P. sulcirostris* and Little Cormorant *P. niger*. see SBR for comments regarding the problem of the specific identity of these cormorants. 10 on 12 Apr 1989 at the mouth of the Way Penet, and 1 on 14 Apr 1989 at the mouth of the Way Seputih (SU); see M&V for an additional record.

Spot-billed Pelican *Pelecanus philippensis*: the only record is 2 in Feb 1988 at Way Wako (Lambert 1988). Pelican records, including a tentative record of Australian Pelican *P. conspicillatus* (cf M&V), are discussed in SBR.

Great-billed Heron *Ardea sumatrana*. 1 on 2 Jun 1983 at mouth of Way Penet (KDB); see M&V for aft additional record. The paucity of records might reflect inadequate coverage of coastal mangroves though M&V note that this species is commoner on off-shore islands.

Javan Pond-heron *Ardeola speciosa*. pond-herons were the most frequently recorded ardeid on sand and mudflats between Oct 1988 and Jun 1989; numbers fluctuated between 142 in Oct 1988

and 83 in Jan 1989 (SU). It is possible that some of these basic plumage birds were Chinese Pond-heron *A. bacchus*, see SBR for comment on distribution on Sumatra. However, groups of 6 and 11 *A. speciosa* were in breeding plumage on 2 Jun 1989; nests were not observed but this species is now known to breed in southern Sumatra (see SBR) (SU).

Malayan Night-heron *Gorsachius melanolophiis*. 1 on 29 Dec 1984 on the track near Pos Way Kanan (KDB in M&V), and presumably the same bird observed on 10 and 11 Jan 1985 (PA); then remarkably, a single bird was repeatedly seen in essentially the same location between Feb and May 1989 (SU).

Ixobrychus spp.: there is only one record of Schrenk's Bittern *I. eurhythmus* (cf M&V), and farther records are sought to confirm its status as a vagrant to southern Sumatra. Records of Black Bittern *I. flavicollis*, Apr 1983 in bank vegetation at Rawa Pasir (PA) and Dec 1988 in bank vegetation just down stream of Pos Way Kanan (SU), are consistent with winter visitors; see M&V for an additional record and SBR for comment. There have been no further reports of *Bolaiims*, a genus not otherwise known from Sumatra and discussed in M&V.

Milky Stork *Mycterea cinerea*: between Oct 1988 and Jun 1989 numbers fluctuated between 35 on 10 Oct 1988 and 300 on 1 Jun 1989; birds were most often observed feeding on the mudflats between Way Wako and Way Seputih, though pairs were also occasionally seen in flight up to 15 km inland during May and Jun 1989. On 1 Jun 1989 a colony of between 200 and 230 Milky Storks and 25 Lesser Adjutant Storks was located about 6 km south of Pos Pedemaran and about 1 km inland. Storks and Adjutants were seen carrying sticks to the trees but nests could not clearly be seen (SU).

Woolly-necked Stork *Ciconia episcopus*: frequently recorded in Lampung though usually in agricultural land and in small parties, a group of 13 soaring above Pos Way Kanan and gradually moving north with . 27 Lesser Adjutant in Apr 1984 (PA) is the only record within the reserve.

Storm's Stork *Ciconia stormi*. see SBR for first record for Lampung. Records are few; 1 circling low over Pos Way Kanan on 14 Apr 1983 (PA) and 1 circling to land in a tree at Rawa Pasir on 12 May 1985 (PA & MO). Single birds standing on the banks of small ponds on 29 Apr 1989 and 16 May 1989, in disturbed lowland forest between Pos Tengah and Pos Way Kanan (SU). 1 soaring above track to Pos Way Kanan 18 Nov 1995 (MT & GS) and 1 over the clearing at Pos Way Kanan 21 Nov 1995 (MT, GS & DG).

Lesser Adjutant Stork *Leptoptilos javanicus*. a group of 27 soaring above Pos Way Kanan and gradually moving north with 13 Woolly-necked Storks in Apr 1984 (PA). Between Oct 1988 and Jun 1989 numbers fluctuated between 9 on 10 Oct 1988 and 74 on 14 Apr 1989; usually single birds on mudflats near river mouths and on the mudflats between Way Wako and Way Seputih 12 birds were seen in the crown of a 30 m tall tree on the edge of a swamp near Kali Biru, 15 km inland on 30 May 1989 and about 25 birds were observed with Milky Storks at a possible mixed breeding colony (see above) on 1 Jun 1989 but nests were not observed at either locality; during

this time individuals were also seen in and around forest ponds, feeding on fish in the shallow water (SU)

Black-headed Ibis *Thresidomis melanocephalus*: 2 birds recorded on 12 May 1985 at Way Penet (PA & MO), and 3 foraging on the coastal mudflats between Way Wako and Way Seputih on 10 Oct 1988 (SU).

Raptors: a number of raptor species reported from Way Kambas are likely to occur but require confirmation. Raptors are reported with so few details that few records are of much value; elucidation of the status of raptor species at Way Kambas is a field of great potential.

Black Baza *Aviceda leuphotes*. a record listed Nash & Nash (1985) would be the second record for Lampung; however, early September is an unprecedented date for a species not known to reach Malay Peninsula until mid Oct (cf Harvey & Holmes 1976, M&V) and the authors prefer to consider the record tentative.

Oriental Honey-buzzard *Pernis ptilorhynchus*: migrant *orientalis* has been reported, but whether 'crestlessness' is a reliable feature is doubted (cf M&V). Migrant *orientalis* is known to cross the Straits of Malacca in some numbers but in the absence of records of resident *torquatus* the status of the species at Way Kambas remains unclear.

Bat Hawk *Macheiramphus alcinus*: 2 observed near the Entry Pos on 9 Jan 1984, calling and performing aerobatics low overhead (PA); also 2 from 4 - 8 Jun 1985 over swamp beside the Way Kanan (RM) and a record near Pos Way Kanan on 14 Jul 1994 (JT & LP).

Circus spp : the only record of a harrier *Circus* sp is reported in M&V; it was not specifically identified but other records from the east coast lowlands suggest harriers may winter regularly in Sumatra (see SBR).

Accipiter spp.: there are very few reports of accipiters from Way Kambas, partly on account of identification problems Crested Goshawk *A. trivirgatus* is apparently not uncommon but there are only single records of Japanese Sparrowhawk *A. gularis*, recorded Apr 1984 (PA, DB & HB), and Besra *A. virgatus*, a female Aug 1986 (FL); the latter is typically a bird of hill and mountain forest but occasionally reported from the lowlands (cf M&V).

Common Buzzard *Buteo buteo*: tentatively reported from Way Kambas by a number of observers and the species appears likely to be a regular winter visitor. It is known to cross the Straits of

Malacca but as yet there are no documented records from Sumatra (cf M&V).

Black Eagle *Ictinaetus malayensis*. lowland records of this predominantly hill and mountain species are 1 over the Kali Biru swamp grassland in May 1989 and 1 over Pos Way Kanan in Jun 1989 (SU); see M&V for an additional record.

Rufous-bellied Eagle *Hieraaetus kienerii*: 2 seen 5 Jul 1991 (PH). Predominantly a species of hills and mountains in Sumatra according to M&V though there are a number of recent records of this distinctive species from the lowlands; see SBR.

Spizaetus spp.: the few records of Blyth's Hawk-eagle *S. alboniger* are without details and might pertain to Wallace's Hawk-eagle *S. nanus*; records of the latter are of perched birds, 1 immature 16 Apr 1983 at Pos Way Kanan (PA), 1 adult on 20 Apr 1984 in a tree between Entry Pos and Pos Way Kanan (DB), and 1 on 9 Aug 1985 at Pos Way Kanan (BK). See SBR for a comment on the status of this species.

Oriental Hobby *Falco severus*. there is one tentative record (cf M&V); see SBR for comment on other Sumatran records.

Wandering Whistling-duck *Dendrocygna arcuata*: the only recent record from mainland Sumatra is a flock of approximately 15 birds on 15 Jan 1989 in a freshwater grass swamp on the Way Penet (SU); see M&V for an earlier record and SBR for comments on status in Sumatra.

White-winged Duck *Cairina scutulata*: Lambert (1988) compiled historical reports from villagers and forest guards, and documented the decline of this species in the region. Green (1992) summarises records of this species in Way Kambas. Between Aug 1988 and July 1989 birds were seen on 104 of 300 days observations and the Way Kambas population was estimated to be at least 30 (Chambers 1990). Ekspedisi (1991) made observations between 12 Jul 1990 and 6 Sep 1990 and estimated a population of 20 to 30 for the Way Kambas/Kali Biru/Kali Batin area, partly based on discriminating 12 individuals by plumage differences.

Cotton .Pygmy Goose *Nettapus coromandelicus*: 3 on 15 Jan 1989 in freshwater grass swamp beside Way Penet and groups of up to 30 between Feb and Jul 1989 in grass swamps near Way Wako and Way Seputih (SU). For comment on current status in Sumatra see SBR.

Sunda Teal *Anas gibberifrons*. recorded on mudflats, 70 on 10 Oct 1988, 5 on 2 Dec 1988, 2 on 2 Feb 1989, 40 on 14 Apr 1989 and 130 on 2 Jun 1989 (SU). On 2 Jun 1989 a group containing 6 ducklings was seen in the shallow water of a channel between the mudflats of Way Wako and Way Seputih, the first breeding record of *A. gibberifrons* in Sumatra (SU). It can only be assumed that the ducklings, none of which had fledged, had reached the coast by river from a nesting site inland

(see SBR for comments on status).

Ferruginous Partridge *Calopercix oculea*: a pair tape recorded and drawn into view by play-back near Pos Way Kanan in Nov 1987 (KDB). A pair seen on 25 Apr 1989 and 2 June 1989, between Pos Tengah and Pos Way Kanan (SU); also recorded Jun 1989 (AvdB). 1 drawn in by tape play back 18 Nov 1995 near Pos Way Kanan (MT & GS). Refer SBR for comment on altitudinal distribution.

Crested Partridge *Rollulus rouloul*: small parties were recorded near Pos Way Kanan in Sep 1984 (JB, JRH & AL). A party of 8 flushed across the Way Kanan just upstream from Pos Way Kanan on 10 Jan 1985 (PA). Two records of single birds, on 21 Mar 1989 and 14 Jun 1989, between Pos Tengah and Pos Way Kanan (SU). One group of 19 and a group of 4 adults and 3 fledged young 4-5 Jul 1991 (PH); this and a pair with 3 very young chicks mid-July 1994 (JT & LP) are the first breeding records from Sumatra (cf. M&V).

Lophura spp.: the status of the Crestless Fireback *L. erythrophthalma* at Way Kambas is uncertain; it has been reported (eg Holmes 1989, Balen & Holmes 1993) but in the light of its apparent rarity compared to Crested Fireback *L. ignila*, records have been withdrawn. The latter was heard almost daily between Aug 1988 and Jun 1989 in disturbed lowland forest between Pos Tengah and Pos Way Kanan; most observations were of 1 or 2 birds, but groups of up to 6 were occasionally noted (SU).

Masked Finfoot *Heliopais personata*: Milton (1985a) summarised recent records; note the following corrections to records from Way Kambas. 1 female was recorded on the Way Kanan on 16 Apr 1983, clambering on to stream side vegetation at Rawa Pasir (PA); 1 female was recorded in mangrove lined tidal water on 22 Apr 1984, near the mouth of the Way Kambas (DB & HB). The record dated 3 Jun 1985 must be treated with some caution as forest guards did not always differentiate between this species and

Oriental Darter *Anhinga melanogaster*.

Charadrius spp.: Little Ringed Plover *Charadrius dubius* is listed Milton (1985) without details but also recorded from elsewhere in Lampung (cf M&V). Kentish Plover *C. alexandrinus*, an uncommon migrant in Sumatra, is reported 1 on 2 Dec 1988 and 3 on 2 Feb 1989 on coastal mudflats (SU); see M&V for an earlier record. There is only one record of Oriental Plover *C. veredus* (cf M&V), and further records are sought to confirm its status as a vagrant to Way Kambas.

Asian Dowitcher *Limnodromus semipalmatus*: the most numerous wader species recorded on the mudflats between Oct 1988 and Jun 1989; peak counts were 340 on 9 Oct 1988 and 521 on 2 Feb 1989. There were few still present on 14 Apr 1989 and none were recorded in June. These figures represent minimum totals as dowitchers in dense mixed flocks with Bar-tailed Godwit *Limosa lapponica* could not always be numbered; mixed flocks of 864 birds on 2 Dec 1988 and 340 on 2 Feb 1989 extrapolate to as many as 800 dowitchers being present in the Dec and Feb surveys

(SU).

White-headed Stilt *Himantopus leucocephalus*. M&V considered this species a visitor, and though it is now known to breed (cf SBR), its status in Sumatra is still unclear: up to 115 birds were observed on the mudflats between Oct 1988 and Feb 1989, but numbers dropped to 16 on 14 Apr 1989 and none were present in June (SU). This pattern of occurrence does not appear to support the supposition of M&V that birds reach Sumatra as visitors from Australia, and residence status with seasonal movements according to water conditions might also be considered.

Terns: Whiskered Tern *C. hybridus*, recorded Nov 1988 to May 1989 between Way Wako and Way Seputih, is the commoner marsh tern most months; the greatest number 75 on 14 Apr 1989 and none were seen in June (SU). This pattern is consistent with wintering *hybridus* from the north; see SBR for comment. White-winged Tern *C. leucopterus* is apparently much less common but this might reflect a problem with the identification of basic plumage birds; reported in small numbers Nov 1988 to May 1989, except for 230 in breeding plumage on 14 Apr 1988, and none recorded Jun (SU). Numbers of Gull-billed Tern *Gelochelidon nilotica* peaked at 583 birds on 2 Feb 1989 (SU), and the highest count of Common Tern *S. hirundo*, also regularly reported Nov 1988 to Jun 1989 between Way Wako and Way Seputih, was 225 birds on 2 Feb 1989. Much less common was Lesser Crested Tern & *bengalensis*, recorded 23 on 2 Feb 1989 at mouth of Way Seputih, and not recorded other months (SU).

Treron spp.: the least common of the lowland green pigeons is Large Green Pigeon *T. capellei*, recorded 1 on 27 Jul 1984 at Rawa Pasir (DY), 3 on 1 Jul 1991 at Pos Way Kanan (PH), 4 in the period 21-26 Feb 1994 (BS, LC & JW), 2 on 7 Aug and 4 on 8 Aug 1993 (NB), and 2 flushed, probably off a nest, near Pos Way Kanan on 17 Nov 1995 (DY & HB), see SBR for comment. A species of doubtful occurrence on Sumatra is the Grey-cheeked Green Pigeon *T. griseicauda* (cf M&V); however, there are several reports of this species from Way Kambas and careful diagnosis is required to exclude Thick-billed Green Pigeon *T. curvirostra*.

Ducula spp. the Green Imperial Pigeon *D. aenea* is common at Way Kambas; Mountain Imperial Pigeon *D. badia*, listed without details by Nash & Nash (1985) but recorded elsewhere in the lowlands (see SBR), requires confirmation. Pied Imperial Pigeon *D. bicolor* may have been overlooked as it occurs in some numbers along the coast to the north (eg Verheugt *et al.* 1993).

Loriculus spp.: Blue-crowned Hanging-parrot *L. galgulus* is common at Way Kambas, consequently a record of Yellow-throated Hanging-parrot *L. pusillus*, listed Nash & Nash (1985) and Milton (1985) but not otherwise known from Sumatra, requires confirmation. However, a tentative record Apr 1976 from coastal coconut groves in the southeast corner of Lampung Bay

(Holmes 1977) lends credibility to its occurrence in Lampung.

Chestnut-winged Cuckoo *Clamator coromandus*. 1 foraging in a tree fall at Rawa Pasir 28 Dec 1985 (KDB); also occasional observations at Pos Way Kanan Dec 1988 to Apr 1989 (SU). There is only one earlier record from Lampung (cf. M&V).

Hawk-cuckoos: the status of the hawk-cuckoos at Way Kambas is unclear. Large Hawk-cuckoo *C. sparverioides*, listed Nash & Nash (1985), and Moustached Hawk-cuckoo *C. vagans*, listed Milton (1985), are without details and in the absence of other records both are best considered tentative. Hodgson's Hawk-cuckoo *C. fugax* appears to be the commonest hawk-cuckoo in lowland Lampung though records from Way Kambas are few; 1 on 9 Dec 1985 (JH) and heard on 7 Jun 1989 (AvdB).

Owls: the only record of Oriental Bay Owl *Phodilus badius* is a bird heard on the nights of 6 - 8 Jun 1989 (AvdB). Reddish Scopsowl *Otus rufesceiu* is frequently heard at Pos Way Kanan (PA) but the only sight record is of 1 in Jun 1989 between Pos Tengah and Pos Way Kanan (SU). The Barred Eagle-owl *Bubo sumatranus* is listed Nash & Nash (1985) without details; although recorded regularly from near the Entry Pos (PA) the only record from within the reserve is a bird responding to imitations of its call on the evening of 4 Aug 1995 (DY & HB). More conspicuous is Buffy Fish-owl *Ketupa ketupu*, recorded 1 on 9 Jan 1985 (PA), 1 on 6 Aug 1985, 2 on 7 Aug 1985 (BK) and 1 on 1 Aug 1986 (FL), at Pos Way Kanan, occasionally perching on buildings. Brown Wood-owl *Strix leptogrammica* was heard on 14 Aug 1976 (DAH) and 27-29 Jul 1984 (DY & Wall), and a pair was observed 18 Apr 1989 and a single observed on 19 May 1989 between Pos Tengah and Pos Way Kanan (SU).

Batrachostomus spp.: there has been some confusion regarding the identity of frogmouths heard at Way Kambas, a problem compounded by the uncertainty surrounding the taxonomic status *B. javensis*, but it now seems that four species are involved. Large Frogmouth *B. auritus*, 1 on 25 Feb 1994 just before dawn and probably the same bird on 26 Feb 1994 at dawn, on the track to Pos Way Kanan (BS, LC & JW); some details noted, including a repeated rippling call 'coenr". Vocal records are 1 in riverine forest upstream from Pos Way Kanan night of 4 Aug 1995, 1 on track approaching Pos Way Kanan night of 17 Nov 1995, and 1, probably a second bird on the same track, morning 18 Nov 1995 (DY & HB). Gould's Frogmouth *B. stellatiis* was heard on the evenings of 27-28 Jul 1984 (DY & Wall) and 4-5 Sep 1985 (BK in M&V), and heard and spotlighted each evening 4-6 Jul 1991 (PH), on the main track to Pos Way Kanan. The Javan Frogmouth *B. javensis*, long a virtually unknown species on Sumatra, was reported calling on the nights of 27-29 Jul 1984 (cited as Aug 1984 in M&V) and a female was seen mid morning on 30 Jul 1984, on the main track approaching Pos Way Kanan (DY & Wall); it was also identified from recordings made by AvdB (AvdB & D.R. Wells) on the evenings of 6-8 Jun 1989, and heard once on 4 Aug 1995 on the track approaching Pos Way Kanan (DY & HB). Sunda Frogmouth *B.*

comutus was identified from recordings made by AvdB (AvdB & D.R. Wells) on the evenings of 6-8 Jun 1989. A pair heard and spotlighted each evening 4-6 Jul 1991 with a presumed juvenile on 4 Jul 1991 at Pos Way Kanan and up to four calling in the vicinity (PH) Several heard and a male Spotlighted 19 Sep 1991 (HB), heard each night 3 - 6 Aug 1995 (1 spotlighted on 5 Aug 1995) and 17-21 Nov 1995 (DY & HB), all on the track approaching Pos Way Kanan.

Bonaparte's Nightjar *Caprimulgus concretus*. the following records are the first for Sumatra since 19 IS (tM&V) 1 seen beside Way Kanan about 300 m down stream of Pos Way Kanan and at least 3 heard in forest beside track approaching Pos Way Kanan on evening of 4 Aug 1995; the same bird seen beside the Way Kanan and another seen beside track approaching Pos Way Kanan on evening of 5 Aug 1995, and 2 heard beside the same track morning 6 Aug 1995 (DY & HB). The birds observed were drawn in response to a tape cut from a recording made of the bird beside the Way Kanan by Ken Mitchell; interestingly, birds heard were responding to imitations of the call of the Barred Eagle-owl *Bubo sumatranus*, and no birds responded to tapes 17-21 Nov 1995.

Swifts: identification of *Collocalia* and *Aerodramus* swiftlets is rarely attempted as (with good reason) they are dismissed as too difficult to identify at the species level. *Aerodramus* spp. almost certainly include *fusciphagus* and *Collocalia* spp. are almost certainly *esculenta*. Brown-backed Needletail *Hirundapus giganteus*, recorded 29 Jul 1984 (DY & Wall) and 6 on 13 May 1985 at Kali Biru (PA), is presumably resident; there is one tentative record of Silver-backed Needletail *Hinindapus cochinchinensis* (cf M&V) that requires confirmation.

Kingfishers: records of Blue-banded Kingfisher *Alcedo euryzona* are 1 on 3 Jul 1991 upstream of Pos Way Kanan (PH) and 1 on 6 Aug 1993 (NB); see SBR for another lowland record of this hill stream (cf M&V) species. Small Blue Kingfisher *Alcedo caeruleascens*, only recently established in Lampung (Holmes 1977, M&V), is still only recorded from the Way Penet on the southern boundary of the reserve. The few records of Black-capped Kingfisher *Halcyon pileata*, recorded Oct 1976 (DAH) and Dec 1988 (SU) but common in coastal and riverine habitats in Sumatra according to M&V, suggest it is uncommon in southern Sumatra.

Merops spp.: the only additional record of Chestnut-headed Bee-eater *M. leschenaultii* to those cited in M&V is 2 on 6 Aug 1993 (NB). The status of Blue-throated Bee-eater *M. viridis* at Way Kambas requires investigation, as although known as a breeding species in Sumatra all records are Sep - May, dates more consistent with migrants.

Hornbills: the mosaic of swamp and forest makes Hornbills relatively conspicuous at Way Kambas, and reports of abundance, particularly of Wrinkled, Wreathed and Bushy-crested, are anecdotal evidence of a decline between 1983-1985 (PA, KDB) and 1988-1989 (SU). White-crowned Hornbill *Berenicornis contains*, 2 on 14 Apr 1983 (PA) and 1 in Mar 1989 (SU), in middle storey of disturbed lowland forest between Pos Tengah and Pos Way Kanan, is probably the least conspicuous of the Hornbills Great Hornbill *Buceros bicornis*, recorded Jan 1979 (Wind), Jul 1983 (KDB), 2 at Kali Biru in May 1985 (PA) and 2 in Sep 1988 (SU), and Helmeted Hornbill *Rhinoplax vigil*, 2 in flight over swamp beside Way Kanan in Jan 1985 (PA), singles in

flight twice in May 1989 at Pos Way Kanan (SU), and heard 7 Aug 1993 (NB), are perhaps rarer as both are usually quite conspicuous.

Woodpeckers: Lesser Yellow-nape *Pinus chlorolophus* is listed in Nash & Nash (1985) but in the absence of other records of this hill and mountain species its occurrence at Way Kambas must be considered tentative. Common Goldenback *Dimpium javanense* is 'common and conspicuous' in a variety of disturbed lowland habitats according to M&V, but only recorded 1 on 6 Aug 1985 (BK), 1 on 19 Dec 1988 and 2 on 27 Apr 1989 between Pos Tengah and Pos Way Kanan (SU), at Way Kambas. The status of the *Dendrocopos* species is also uncertain, particularly because no one observer has reported more than one species. There are numerous records of the Brown-capped Woodpecker *D. moluccensis*, particularly about dead standing trees in areas of grassland, but records of the more typically higher altitude Grey-capped Woodpecker *D. canicapillus*, listed Nash & Nash (1985) and reported elsewhere in the lowlands of southern Sumatra (cf M&V; also refer to SBR) require confirmation. The presence of Fulvous-breasted Woodpecker *D. macei* in Sumatra requires confirmation (cf M&V) though there are tentative reports from Way Kambas and elsewhere in southern Sumatra (see SBR).

Black-and-red Broadbill *Cymbirhynchus macrorhynchos*: M&V consider this the 'commonest species of broadbill'. This is not the experience at Way Kambas where of the five species of lowland broadbill this is the rarest; recorded Feb 1979 (Wind), 1 on 23 April 1984 at Rawa Pasir (PA), recorded Jul 1984 (DY & Wall), 1 on 10 Jan 1985 beside river at Kali Biru (PA), 1 on 6 Aug 1985 (BK & KDB), and 2 pairs on several occasions in Jun 1989 in riverside trees at Rawa Pasir (SU). These records emphasise the close association between this broadbill and broad, slow flowing streams. Refer to SBR for further discussion.

Pitta spp.: Pittas are apparently poorly represented at Way Kambas, where the only frequently reported is Banded Pitta *Pitta guajana*. Given the confusion surrounding the taxonomic status of *venusta* and *granalim* the few records of *P. granatina* from Way Kambas are best treated as tentative, though the latter is recorded south to Riau and can be expected throughout the eastern lowlands (refer to SBR). Hooded Pitta *Pitta sordida*, 1 on 20 Dec 1988 and 1 on 10 Apr 1989 (SU), and 1 on 22 Feb 1994 (BS, LC & JW) might refer to migrant *cucullata* from Asia. It is surprising that there are no records of the migrant Blue-winged Pitta *Pitta moluccensis* and the lack of records of the Mangrove Pitta *Pitta megarhyncha* must reflect an inadequate coverage of the coastal swamps at Way Kambas; see SBR for a record close to Way Kambas.

Striated Swallow *Hirundo striolata*: listed Milton (1985) without details. This is a breeding bird on Java and M&V include a record from Sumatra with the comment that its status there is unknown; given the possibility of confusion with migrant Red-rumped Swallow *H. dauurica*, a

species also recorded from Sumatra (cf M&V), confirmation is required.

Motacillidae spp.: Forest Wagtail *Dendronanthus indicus*, 1 on track near Pos Way Kanan 15 May 1986 (KDB in M&V), is the only record. Yellow Wagtail *Molacilla flava* is frequent in fallow padi near the Entry Pos but rarely recorded elsewhere, and Grey Wagtail *M. cinerea*, a common visitor to Sumatra (cf M&V), is recorded at Pos Way Kanan Sep 1984 (JRH, JB & AL). The absence of records of Richard's Pipit *Anthus novaehollandiae* is presumably an oversight as they occur in neighbouring cultivation outside Way Kambas (PA).

Sunda Cuckoo-shrike *Coracina larvata*: listed Nash & Nash (1985), is more usually a montane species (cf M&V) and the one record from Way Kambas requires confirmation.

Bulbul spp.: Straw-headed Bulbul *Pycnonotus zeylanicus*, recorded 1976 - 1979 (Wind, DAH) but not since; refer to SBR for discussion of decline. Sooty-headed Bulbul *P. aurigaster*; believed to be introduced from Java but now widespread in Sumatra and frequent in open areas of fallow cultivation at the Entry Pos is now also recorded at Pos Way Kanan (PA). There are apparently problems with the identification of bulbuls, particularly in *Criniger* where the status of Ochraceous Bulbul *C. ochraanis*, a species more usually associated with higher altitudes (cf M&V), and Grey-cheeked Bulbul *C. bres*, both listed Nash & Nash (1985) but not otherwise reported, require elucidation. The paucity of records of *Hypsipetes* also would suggest that bulbuls are being overlooked; apart from Hairy-backed Bulbul *H. criniger*, which appears to be scarce, records are Buff-vented Bulbul *H. charlottae*, reported 4 & 5 Aug 1995 (DY & HB).

Meropsis spp.: records of Golden-fronted Leafbird *C. aurifrons*, listed Nash & Nash (1985) but typically a montane species (cf M&V), probably refer to Blue-winged Leafbird *C. cochinchinensis*, the Sumatran subspecies *icterocephala* is extensively yellow about the face and upper breast compared to Peninsular Malayan birds.

Turdidae: the record of Orange-flanked Bush-robin *Tarsiger cyaiwms*, listed Milton (1985), was with drawn by the observer (cf M&V). There are no records of Siberian Blue Robin *Luscinia cyaiie* besides those in M&V: single adult males early Jul 1983 and Jan 1985 (KDB). There is only one record of Orange-headed Thrush *Zoothera citrina* (cf M&V), and further records are sought to confine its status as a vagrant to southern Sumatra. Siberian Thrush *Z. sibirica*, 1 female on 9 Dec 1985 (JH) and 1 male 15 Apr 1987 (KDB), and Eye-browed Thrush *Turdus obscurus*, the first records for Lampung, 1 on 9 Dec 1985 (JH) and '150+- going over' March 1988 (TA) (without details), are presumably on passage as these species more commonly winter in montane forest.

Babblers: Abbott's Babbler *Trichastoma abbotti*, recorded Sep 1984 (JRH, JB & AL), Aug 1985 (BK), and Dec 1985 & Jul 1987 (KDB) are the first records for Lampung. The only lowland *Trichosloma* not reported from Way Kambas is Buettikofer's Babbler *T. buettikoferi*, the type of which is 'Lampung' (Vorderman 1891), and recently recorded Bukit Tigapuluh (Danielsen & Heegaard 1995) where *abbotti* was not reported. The White-chested Babbler *T. rostratum*, surprisingly listed in Collar *et al.* (1994), is frequent in the riverine swamp vegetation though

Grey-breasted Babbler *Malacopteron albogulare*, also listed, was reported only twice, 1 in Aug 1986 (FL), 1 on 26 June 1989 (SU). Parties of the mid and lower storey *Malacopteron* species are conspicuous and Way Kambas would be an ideal spot for ecological studies; also for the resolution of identification problems between the Sooty-capped Babbler *M. affine* and Moustached Babbler *M. magnirostre*. For a comment on the peculiarities of the lowland (compared to the montane population on Java) of Chestnut-backed Scimitar-babbler *Pomatorhinus montanus*, see SBR. The Striped Wren-babbler *Kenopia striata*, also listed in Collar *et al.* (1994) and virtually unknown in Sumatra (cf. M&V), recorded Sep 1984 (JRH, JB & AL), 1 Jan 1985 (PA), and occasionally as single birds and pairs Aug 1988 to Jun 1989 (SU), in lowland forest between Pos Tengah and Pos Way Kanan. Records of the Spot-necked Babbler *Stachyris striolata*, listed Nash & Nash (1985) and a common bird of the mountains of Sumatra, require confirmation.

Rhinomyias spp.: of the two species known from Sumatra, the Fulvous-chested *Rhinomyias R. olivacea* and Grey-chested *Rhinomyias R. umbratilis*, only the latter is recorded from Way Kambas, where 'Seen singly... in disturbed lowland forest' between Pos Tengah and Pos Way Kanan (SU). However, there are two tentative records of Brown-chested *Rhinomyias*^[^]. *brunneata*, 1 on 1 Jan 1985 (PA) and 1 on 11 Dec 1985 (JH), both near Pos Way Kanan. In both instances a solitary bird was observed in mid-storey and a 'horn' (PA) or 'fleshy-yellow' (JH) dark tipped lower mandible with rictal bristles clearly visible (JH), and slight contrast between a pale throat and darker breast-band, was noted. Further, the second bird was calling repeatedly 'a sharp metallic monotone' whilst 'slowly cocking and lowering its tail ... sometimes fanning it in the downward, motion' (JH). *R. brunneata* is known as an uncommon winter visitor to the Malay Peninsula but specimens collected in the Straits of Malacca indicate that migrants probably reach Sumatra (Medway & Wells 1976). The dark tipped pale lower mandible is characteristic of first winter *R. brunneata* (Medway & Wells 1976), but the paucity of other records of *Rhinomyias* from Way Kambas and the uncertainty surrounding the taxonomic position and status of the Nicobar population warrants treating these records as tentative.

Ficedula spp.: Yellow-rumped Flycatcher *Ficedula zanthopygia*, 1 on 26 Dec 1984 (KDB), 1 on 12 and 2 on 13 Jan 1985 (PA), 1 on 12 Dec 1988 and 1 on 30 Jan 1989 (SU), is a regular winter visitor to Way Kambas There is only one record of Mugimaki Flycatcher *F. mugimaki*, recorded Oct 1978 (Wind; cf M&V), but other records of wintering birds from Lampung suggest it might have been overlooked. Snowy-browed Flycatcher *Ficedula hyperythra*, listed Nash & Nash (1985) but without details, is typically a hill and montane species and requires confirmation.

Cyornis spp.: Malaysian Blue Flycatcher *Cyornis turcosus* is regularly reported though records might well refer to the same pair in riverine forest upstream of Pos Way Kanan. The paucity of records of Mangrove Blue Flycatcher *Cyornis rufigastra*, recorded Aug 1986 (FL), probably reflects a lack of coverage of coastal and swamp forest habitat as the species is not uncommon elsewhere in Sumatra (cf M&V).

Japanese Paradise-flycatcher *Terpsiphone atrocaudala*. there is one record (cf M&V); this species is reasonably to be expected (cf M&V) but the common Asian Paradise-flycatcher *T. paradisi* was not reported by the observer at the time and there is a possibility that there was a problem with identification.

Mangrove Whistler *Pachycephala grisola*: the paucity of records of this species is extraordinary; it is not uncommon in lowland Lampung in secondary scrub, woodland and rubber plantation (DAH) and yet there are few records from within the reserve (see Discussion below).

Flowerpeckers: a pair of Scarlet-breasted Flowerpecker *Prionochilus thoracicus* with presumed immature 30 Dec 1985 (KDB & SC) is the first record for Lampung, greatly extending the known range (cf M&V, SBR), and is also the first putative breeding record for Sumatra; see also SBR for further evidence of widespread distribution in Sumatra. Another species for which there are few recent records (cf M&V) is Yellow-vented Flowerpecker *Dicaeum chrysorrheum*, recorded occasionally in disturbed lowland forest between Pos Tengah and Pos Way Kanas between Nov 1988 and Jul 1989 (SU). Records of Plain Flowerpecker *D. concolor*: not normally associated with the lowlands require confirmation (but see SBR for records from foothills), and it is surprising that the Scarlet-headed Flowerpecker *D. trochileum*, a very distinctive species now widespread in coastal south Lampung (cf. M&V and SBR), has only been reported once, 1 overhead on 30 May 1976 (DAH).

Spiderhunters: Little Spiderhunter *Arachnothera longirostra* is the common lowland forest spiderhunter at Way Kambas, as elsewhere in Sumatra. There are few records of other Spiderhunters and only Thick-billed Spiderhunter *A. crassirostris*, recorded May 1985 (PA&MO), Dec 1985 (JH), Aug 1986 (FL), and 24 Feb 1994 (BS, LC & JW), has been reported by more than one observer. Long-billed Spiderhunter *A. robusta*. Spectacled Spiderhunter *A. flavigaster*; Yellow-eared Spiderhunter *A. chrysoagenys* and Grey-breasted Spiderhunter *A. affinis* are each reported only once and provisionally have not been included in the species list; the distribution and relative abundance of Spiderhunters at Way Kambas requires clarification though some of the above species doubtless occur.

Oriental White-eye *Zosterops palpebrosa*: this is not a particularly common species in lowland Sumatra but it is recorded from mangrove to the south of Way Kambas (DAH) and elsewhere in Lampung, eg Tanjung Karang (DAH), so the complete lack of reports from Way Kambas is

extraordinary (see Discussion, below).

Lonchura spp.: White-rumped Munia *L. striata*, only recorded Sep 1984 (JRH, JB & AL), is evidently much commoner in padi outside of the reserve. In the lowland forest between Pos Tengah and Pos Way Kanan there are records of White-bellied Munia *L. leucogastra*, noted 2 in Apr 1983 (PA), Sep 1984 (JRH, JB & AL), Sep 1985 (BK), 1 pair Mar 1989 (SU), and 2 mid Jul 1994 (JT & LP), but Javan Munia *L. leucogastroides*, common in agricultural land in much of Lampung, has colonised grassland along the Way Kanan (PA). Records of Chestnut Munia/-*malacca*, Sep 1988 (JRH, JB & AL) and Dec 1988 (SU), are the first for Lampung (cf M&V).

Starlings: the SBR draws attention to the status of Asian Glossy Starling *Aplonis panayensis* and a summary of records at Way Kambas follows: recorded at Entry Pos and Rawa Pasir Apr 1983 (PA), 'common in open country Jul 1984 (DY & Wall), 8 on 10 Jan 1985 at Kali Biru (PA), recorded Aug and Sep 1985 (BK), 6 in Dec 1985 (JH), and 1 record of a group comprising 8 adults and 6 juveniles in Apr 1989 (SU). This species is usually conspicuous, often perched in dead trees in swamp, a common habitat at Way Kambas, and all records are of interest; also, Asian Pied Starling *Stumus contra* once common in Lampung (see SBR) but last recorded Aug 1985 from Way Kambas (BK in M&V).

Orioles: Maroon Oriole *Oriolus trailii*, listed Nash & Nash (1985), is not otherwise reported from Indonesia and the record requires confirmation. Black-naped Oriole *Oriolus chinensis* is apparently scarce within Way Kambas though not uncommon at the Entry Pos and in neighbouring villages. Black-hooded Oriole *Oriolus xanthomus*, with one tentative record (cf M&V) requires confirmation, though it has been reported as a winter visitor to north Sumatra (cf M&V) and might be expected as a vagrant to the south Sumatran coast.

Drongos: the status of *Dicrurus* species at Way Kambas requires clarification. Ashy Drongo *D. leucophaeus*, listed Nash & Nash (1985), is more usually a montane species (cf M&V) and the one record from Way Kambas requires confirmation. Sumatran Drongo *D. sumatranus*, listed in Nash & Nash (1985) without details, is otherwise recorded 1 on 17 Aug 1995 (DY & HB). This species is quite distinct from neighbouring populations of *hottentottus*, with which it is sometimes combined, in having a tail shape reminiscent of Crow-billed Drongo *Dicrurus annectans*; although the tufts above and behind the eyes should separate from the latter, records without details of *D. annectans* must be treated with some caution, as they would represent the first records for Lampung.

Racquet-tailed Treepie *Crypsirina temia*: listed in Nash & Nash (1985) but without details and not recorded from Sumatra with certainty. A specimen is reported from Lampung (Tweedale 1877) but its validity is questioned (cf M&V) and the occurrence of this Javan species still

requires confirmation.

Crows: the only records of *Corvus* are Slender-billed Crow *C. enca* and there is little doubt this is the usual crow of lowland forested Sumatra. However, Large-billed Crow *C. macrorhynchus* is common in populated agricultural regions of Lampung (cf M&V) and has probably been overlooked in cleared and fringing areas of Way Kambas.

Checklist

The following is a checklist of the 314 species recorded from Way Kambas. The codes of abundance are indicative only; a great deal depends upon the ability of the observer and the conspicuousness of the species. For example, the five species of barbet at Way Kambas are common, but if these birds did not call repeatedly and distinctively, and estimates of abundance relied on observations, no doubt all would be considered scarce or rare. The following codes therefore refer more to the frequency of identification than to any absolute measure of abundance, and refer to the relevant appropriate habitat and seasons.

Common: encountered in some numbers or several times in a day.

Frequent: encountered regularly in a period of a couple of days.

Scarce: rather few records but may be recorded once or twice in a week.

Rare: less than five records from Way Kambas.

Christmas Frigatebird <i>Fregata andrewsi</i>	R
Oriental Darter <i>Anhinga melanogaster</i>	P
Spot-billed Pelican <i>Pelecanus philippensis</i>	R
Grey Heron <i>Ardea cinerea</i>	F
Great-billed Heron <i>Ardea sumatrana</i>	R
Purple Heron <i>Ardea purpurea</i>	F
Great Egret <i>Casmerodius albus</i>	F
Intermediate Egret <i>Egretta intermedia</i>	F
Little Egret <i>Egretta garzetta</i>	S
Reef Egret <i>Egretta sacra</i>	R
Cattle Egret <i>Bubulcus ibis</i>	S
Javan Pond-heron <i>Ardeola speciosa</i>	C
Striated Heron <i>Butorides striatus</i>	S
Black-crowned Night-heron <i>Nycticorax nycticorax</i>	R
Malayan Night-heron <i>Gorsachius melaulophus</i>	R
Yellow Bittern <i>Ixobrychis sinensis</i>	S
Cinnamon Bittern <i>Ixobrychus cinnamomeus</i>	S
Black Bittern <i>Ixobrychus flavicollis</i>	R
Milky Stork <i>Mycteria cinerea</i>	C
Woolly-necked Stork <i>Ciconia episcopus</i>	S
Storm's Stork <i>Ciconia stormi</i>	S

Lesser Adjutant <i>Leptoptilos javanicus</i>	C
Black-headed Ibis <i>Thresidomis melanocephalus</i>	R
Osprey <i>Pandion haliaetus</i>	S
Bat Hawk <i>Macheiramphus alcinus</i>	R
Black-winged Kite <i>Elanus caerulescens</i>	S
Brahminy Kite <i>Haliastur Indus</i>	C
White-bellied Sea-eagle <i>Haliaeetus leucogaster</i>	F
Lesser Fish-eagle <i>Ichthyophaga humilis</i>	S
Grey-headed Fish-eagle <i>Ichthyophaga ichthyaetus</i>	S
Crested Serpent-eagle <i>Spilomis cheela</i>	F
Crested Goshawk <i>Accipiter trivirgatus</i>	S
Japanese Sparrow-hawk <i>Accipiter gularis</i>	R
Besra <i>Accipiter badius</i>	R
Black Eagle <i>Ictinaetus malayensis</i>	R
Rufous-bellied Eagle <i>Hieraaetus kienerii</i>	R
Changeable Hawk-eagle <i>Spizaetus cirrhatus</i>	S
Wallace's Hawk-eagle <i>Spizaetus nanus</i>	S
Black-thighed Falconet <i>Microhierax fringillarius</i>	F
Wandering Whistling-duck <i>Dendrocygna arcuata</i>	R
Lesser Whistling-duck <i>Dendrocygna javanica</i>	F
White-winged Duck <i>Cairina scutulata</i>	S
Cotton Pygmy Goose <i>Nettapus commandelianus</i>	F
Sunda Teal <i>Anas gibberifrons</i>	F
Blue-breasted Quail <i>Coturnix chinensis</i>	S
Ferruginous Partridge <i>Calopercix oculoa</i>	R
Crested Partridge <i>Rollulus rouloul</i>	F
Crested Fireback <i>Lophura ignita</i>	F
Red Junglefowl <i>Gallus gallus</i>	S
Great Argus <i>Argusianus argus</i>	F
Barred Button-quail <i>Turnix suscitator</i>	S
White-breasted Waterhen <i>Amaurornis phoenicurus</i>	F
Watercock <i>Gallixrex cinerea</i>	S
Masked Finfoot <i>Heliopais personata</i>	R
Grey Plover <i>Pluvialis squatarola</i>	F
Pacific Golden Plover <i>Pluvialis fulva</i>	F
Little Ringed Plover <i>Charadrius dubius</i>	R
Kentish Plover <i>Charadrius alexandrius</i>	F
Lesser Sand-plover <i>Charadrius mongolus</i>	F
Greater Sand-plover <i>Charadrius leschenaultii</i>	F
Whimbrel <i>Numenius phaeopus</i>	C

Eurasian Curlew <i>Numenius arquata</i>	C
Far Eastern Curlew <i>Numenius madagascariensis</i>	S
Black-tailed Godwit <i>Limosa limosa</i>	C
Bar-tailed Godwit <i>Limosa lapponica</i>	C
Common Redshank <i>Tringa totatus</i>	C
Marsh Sandpiper <i>Tringa stagnatilis</i>	F
Common Greenshank <i>Tringa nebularia</i>	F
Wood Sandpiper <i>Tringa glareola</i>	S
Terek Sandpiper <i>Xenus cinereus</i>	C
Common Sandpiper <i>Actitis hypoleucos</i>	C
Asian Dowitcher <i>Limnodromus semipalmatus</i>	F
Sanderling <i>Calidris alba</i>	S
Curlew Sandpiper <i>Calidris ferruginea</i>	C
White-headed Stilt <i>Himantopus leucocephalus</i>	C
Oriental Pratincole <i>Glareola maldivarum</i>	S
Whiskered Tern <i>Chlidonias hybridus</i>	C
White-winged Tern <i>Chlidonias leucopterus</i>	C
Gull-billed Tern <i>Gelocheidon nilotica</i>	C
Common Tern <i>Sterna hirundo</i>	C
Little Tern <i>Sterna albifrons</i>	C
Great Crested Tern <i>Sterna bergii</i>	C
Lesser Crested Tern <i>Sterna bengalensis</i>	S
Large Green Pigeon <i>Treron capellei</i>	S
Thick-billed Green Pigeon <i>Treron curvirostra</i>	S
Cinnamon-headed Green Pigeon <i>Treron falvicollis</i>	F
Little Green Pigeon <i>Treron olax</i>	P
Pink-necked Green Pigeon <i>Treron vernans</i>	F
Green Imperial Pigeon <i>Ducula aenea</i>	C
Rock Pigeon <i>Columba livia</i>	R
Spotted Dove <i>Streptopelia chinensis</i>	S
Zebra Dove <i>Geopelia striata</i>	S
Emerald Dove <i>Chalcophaps indica</i>	F
Long-tailed Parakeet <i>Psittacula longicauda</i>	F
Blue-rumped Parrot <i>Psittinus cyanurus</i>	S
Blue-crowned Hanging-parrot <i>Loriculus galgulus</i>	F
Chestnut-winged Cuckoo <i>Clamator coromandus</i>	S
Hodgson's Hawk-cuckoo <i>Cuculus fugax</i>	R
Indian Cuckoo <i>Cuculus micropterus</i>	S
Banded Bay Cuckoo <i>Cacomantis sonneratii</i>	F
Plaintive Cuckoo <i>Cacomantis merulinus</i>	C

Rusty-breasted Cuckoo <i>Cacomantis sepulchralis</i>	F
Violet Cuckoo <i>Chrysococcyx xanthorhynchus</i>	S
Little Bronze Cuckoo <i>Chrysococcyx minutillus</i>	S
Drongo Cuckoo <i>Surncius lugubris</i>	S
Asian Koel <i>Eudynamys scolopacea</i>	R
Black-bellied Malkoha <i>Rhopodytes diardi</i>	R
Chestnut-bellied Malkoha <i>Rhopodytes sumatranus</i>	S
Green-billed Malkoha <i>Rhopodytes tristis</i>	R
Raffles's Malkoha <i>Rhinortha chlorophaea</i>	C
Red-billed Malkoha <i>Zanclostomus javanicus</i>	S
Chestnut-breasted Malkoha <i>Rhamphococcyx curvirostris</i>	F
Greater Coucal <i>Centropiis sinensis</i>	S
Lesser Coucal <i>Centropus bengalensis</i>	F
Oriental Bay Owl <i>Phodilus badius</i>	R
Reddish Scopsowl <i>Otus rufescens</i>	F
Collared Scopsowl <i>Otus lempiji</i>	S
Barred Eagle-owl <i>Bubo sumatranus</i>	R
Buffy Fish-owl <i>Ketupa ketupu</i>	R
Brown Boobook <i>Ninox scutulata</i>	S
Brown Wood-owl <i>Strix leptogrammica</i>	R
Large Frogmouth <i>Batrachostomus auritus</i>	R
Gould's Frogmouth <i>Batrachostomus stellatus</i>	S
Javan Frogmouth <i>Batrachostomus javensis</i>	R
Sunda Frogmouth <i>Batrachostomus cornutus</i>	S
Malaysian Eared Nightjar <i>Euostopodus temminckii</i>	F
Large-tailed Nightjar <i>Caprimulgus macrurus</i>	F
Savanna Nightjar <i>Caprimulgus affinis</i>	C
Bonaparte's Nightjar <i>Caprimulgus concretus</i>	R
Edible-nest Swiftlet <i>Aerodramus fuciphagus</i>	C
Glossy Swiftlet <i>Collocalia esculenta</i>	F
Brown-backed Needletail <i>Hirundapus giganteus</i>	R
Silver-rumped Swift <i>Rhaphidura leucopygialis</i>	F
Fork-tailed Swift <i>Apus pacificus</i>	S
Little Swift <i>Apus affinis</i>	S
Asian Palm-swift <i>Cypsiurus balasiensis</i>	C
Grey-rumped Tree-swift <i>Hemiprocne longipennis</i>	C
Whiskered Tree-swift <i>Hemiprocne comata</i>	F
Red-naped Trogon <i>Harpactes kasumba</i>	S
Diard's Trogon <i>Harpactes diardii</i>	R
Cinnamon-rumped Trogon <i>Harpactes orrhophaeus</i>	S

Scarlet-rumped Trogon <i>Harpactes duvaucelii</i>	P
Common Kingfisher <i>Alcedo atthis</i>	S
Blue-eared Kingfisher <i>Alcedo meninting</i>	F
Blue-banded Kingfisher <i>Alcedo euryzona</i>	R
Small Blue Kingfisher <i>Alcedo caerulescens</i>	S
Oriental Dwarf Kingfisher <i>Ceyx erithacus</i>	S
Stork-billed Kingfisher <i>Pelargopsis capensis</i>	F
Banded Kingfisher <i>Lacedo pulchella</i>	S
Ruddy Kingfisher <i>Halcyon coromanda</i>	S
White-throated Kingfisher <i>Halcyon smyrnensis</i>	C
Black-capped Kingfisher <i>Halcyon pileata</i>	R
Collared Kingfisher <i>Halcyon chloris</i>	C
Rufous-collared Kingfisher <i>Actenoides concretus</i>	S
Chestnut-headed Bee-eater <i>Merops leschenaulti</i>	R
Blue-tailed Bee-eater <i>Merops philippinus</i>	F
Blue-throated Bee-eater <i>Merops viridis</i>	S
Red-bearded Bee-eater <i>Nyctyomys amictus</i>	S
Common Dollarbird <i>Eurystomus orientalis</i>	F
White-crowned Hornbill <i>Berenicomis comatus</i>	R
Bushy-crested Hornbill <i>Anorrhinus galeritus</i>	F
Wrinkled Hornbill <i>Rhyticeros corrugatus</i>	F
Wreathed Hornbill <i>Rhyticeros undulatus</i>	F
Black Hornbill <i>Anthracoceros malayanus</i>	S
Asian Pied Hornbill <i>Anthracoceros albirostris</i>	S
Rhinoceros Hornbill <i>Buceros rhinoceros</i>	F
Great Hornbill <i>Buceros bicornis</i>	R
Helmeted Hornbill <i>Rhinoplax vigil</i>	S
Gold-whiskered Barbet <i>Megalaima chrysopogon</i>	F
Red-crowned Barbet <i>Megalaima rafflesii</i>	C
Red-throated Barbet <i>Megalaima mystacophanos</i>	F
Yellow-crowned Barbet <i>Megalaima henricii</i>	C
Blue-eared Barbet <i>Megalaima australis</i>	C
Coppersmith Barbet <i>Megalaima haemacephala</i>	S
Brown Barbet <i>Calorhamphus fuliginosus</i>	C
Rufous Piculet <i>Sasia abnormis</i>	S
Rufous Woodpecker <i>Celeus brachyurus</i>	S
Checker-throated Yellowthroat <i>Picus mentalis</i>	S
Crimson-winged Yellowthroat <i>Picus puniceus</i>	F
Banded Woodpecker <i>Picus miniaceus</i>	F

Common Goldenback <i>Dinopium javanense</i>	S
Olive-backed Woodpecker <i>Dinopium rafflesii</i>	R
Buff-rumped Woodpecker <i>Meiglyptes tristis</i>	S
Buff-necked Woodpecker <i>Meiglyptes tukki</i>	S
White-bellied Woodpecker <i>Dryocopus javensis</i>	F
Brown-capped Woodpecker <i>Dendrocopos moluccensis</i>	F
Grey-and-buff Woodpecker <i>Hemicircus concretus</i>	S
Maroon Woodpecker <i>Blythipicus rubiginosus</i>	S
Orange-backed Woodpecker <i>Reinwardtipicus validus</i>	S
Dusky Broadbill <i>Corydon sumatranus</i>	S
Black-and-red Broadbill <i>Cymbirhynchiiis macrorhynchos</i>	S
Banded Broadbill <i>Eurylaimus javanicus</i>	F
Black-and-yellow Broadbill <i>Eurylaimus ochromalus</i>	S
Green Broadbill <i>Calyptomena viridis</i>	S
Banded Pitta <i>Pitta guajana</i>	F
Garnet Pitta <i>Pitta granatina</i>	R
Hooded Pitta <i>Pitta sordida</i>	R
Barn Swallow <i>Hirundo rustica</i>	S
Pacific Swallow <i>Hirundo tahitica</i>	F
Forest Wagtail <i>Dendronanthus indicus</i>	R
Yellow Wagtail <i>Motacilla flava</i>	S
Grey Wagtail <i>Motacilla cinerea</i>	R
Bar-bellied Cuckoo-shrike <i>Coracina striata</i>	S
Lesser Cuckoo-shrike <i>Coracina fimbriata</i>	S
Pied Triller <i>Lalage nigra</i>	F
Fiery Minivet <i>Pericrocotus igneus</i>	F
Scarlet Minivet <i>Pericrocotus flammeus</i>	F
Black-winged Hemipus <i>Hemipus hirundinaceus</i>	F
Large Wood-shrike <i>Tephrodomis gularis</i>	R
Straw-headed Bulbul <i>Pycnonolus zeylanicus</i>	R
Black-headed Bulbul <i>Pycnonotus atriceps</i>	S
Sooty-headed Bulbul <i>Pycnonotus aurigaster</i>	F
Puff-backed Bulbul <i>Pycnonolus eutilotus</i>	S
Yellow-vented Bulbul <i>Pycnonotus goiavier</i>	C
Olive-winged Bulbul <i>Pycnonotus plumosus</i>	S
Cream-vented Bulbul <i>Pycnonotus simplex</i>	C
Red-eyed Bulbul <i>Pycnonotus brunneus</i>	F
Spectacled Bulbul <i>Pycnonotus erythrophthalmos</i>	S
Yellow-bellied Bulbul <i>Criniger phaeocephalus</i>	F
Buff-vented Bulbul <i>Hypsipetes charlottae</i>	R

Hairy-backed Bulbul <i>Hypsipetes criniger</i>	F
Common lora <i>Aegithina tiphia</i>	S
Green lora <i>Aegithina viridissima</i>	F
Greater Green Leafbird <i>Chloropsis sonnerati</i>	F
Lesser Green Leafbird <i>Chloropsis cyanopogon</i>	S
Blue-winged Leafbird <i>Chloropsis cochinchinensis</i>	F
Asian Fairy Bluebird <i>Irena puella</i>	F
Tiger Shrike <i>Lanius tigrinus</i>	S
Brown Shrike <i>Lanius cristatus</i>	S
Long-tailed Shrike <i>Lanius schach</i>	S
Siberian Blue Robin <i>Luscinia cyane</i>	R
Oriental Magpie-robin <i>Copsychus saularis</i>	F
White-rumped Shama <i>Copsychus malabaricus</i>	C
Rufous-tailed Shama <i>Copsychus pyrropygus</i>	F
White-crowned Forktail <i>Enicurus leschenaulti</i>	S
Orange-headed Thrush <i>Zoothera citrina</i>	R
Siberian Thrush <i>Zoothera sibirica</i>	R
Eye-browed Thrush <i>Turdus obscurus</i>	R
Rail-babbler <i>Eupetes macrocerus</i>	S
Black-capped Babbler <i>Pellomeum capistratum</i>	S
Short-tailed Babbler <i>Trichastoma malaccense</i>	F
White-chested Babbler <i>Trichastoma rostratum</i>	S
Ferruginous Babbler <i>Trichastoma bicolor</i>	F
Abbott's Babbler <i>Trichastoma abbotti</i>	R
Moustached Babbler <i>Malacopteron magnirostre</i>	S
Sooty-capped Babbler <i>Malacopteron affine</i>	C
Scaly-crowned Babbler <i>Malacopteron cinereum</i>	C
Rufous-crowned Babbler <i>Malacopteron magnum</i>	C
Grey-breasted Babbler <i>Malacopteron albogulare</i>	R
Chestnut-backed Scimitar-babbler <i>Pomatorhinus montanus</i>	S
Striped Wren-babbler <i>Kenopia striata</i>	S
Grey-headed Babbler <i>Stachyris poliocephala</i>	S
Chestnut-rumped Babbler <i>Stachyris maculata</i>	C
Black-throated Babbler <i>Stachyris nigricollis</i>	C
Chestnut-winged Babbler <i>Stachyris erythroptera</i>	C
Striped Tit-babbler <i>Macronous gularis</i>	F
Fluffy-backed Tit-babbler <i>Macronous ptilosus</i>	C
Zitting Cisticola <i>Cisticola juncidis</i>	S
Golden-headed Cisticola <i>Cisticola exilis</i>	R-

Bar-winged Prinia <i>Prinia familiaris</i>	F
Yellow-bellied Prinia <i>Prinia flaviventris</i>	C
Dark-necked Tailorbird <i>Orthotomus atrogularis</i>	F
Rufous-tailed Tailorbird <i>Orthotomus sericeus</i>	P
Ashy Tailorbird <i>Orthotomus ruficeps</i>	F
Arctic Leaf-warbler <i>Phylloscopus borealis</i>	S
Grey-chested Rhinomyias <i>Rhinomyias umbratilis</i>	R
Yellow-rumped Flycatcher <i>Ficedula zanthopygia</i>	S
Mugimaki Flycatcher <i>Ficedula mugimaki</i>	R
Malaysian Blue Flycatcher <i>Cyornis turcosus</i>	S
Mangrove Blue Flycatcher <i>Cyornis rufigastra</i>	R
Flyeater <i>Gerygone sulphurea</i>	S
Rufous-winged Philentoma <i>Philentoma pyrhopenum</i>	F
Maroon-breasted Philentoma <i>Philentoma velatum</i>	R
Black-naped Monarch <i>Hypothymis azurea</i>	C
Asian Paradise-flycatcher <i>Terpsiphone paradisi</i>	F
Pied Fantail <i>Rhipidura javanica</i>	F
Mangrove Whistler <i>Pachycephala grisola</i>	S
Velvet-fronted Nuthatch <i>Sitta frontalis</i>	F
Scarlet-breasted Flowerpecker <i>Prionochilus thoracicus</i>	R
Yellow-breasted Flowerpecker <i>Pronochilus maculatus</i>	S
Crimson-breasted Flowerpecker <i>Prionochilus percussus</i>	S
Yellow-vented Flowerpecker <i>Dicaeum chijsorrheum</i>	R
Orange-bellied Flowerpecker <i>Dicaeum trigonostigma</i>	S
Plain Sunbird <i>Anthreptes simplex</i>	R
Brown-throated Sunbird <i>Anthreptes malacensis</i>	S
Red-throated Sunbird <i>Anthreptes rhodolaema</i>	S
Ruby-checked Sunbird <i>Anthreptes singalensis</i>	S
Purple-naped Sunbird <i>Hypogramma hypogrammicum</i>	R
Purple-throated Sunbird <i>Nectarinia sperata</i>	S
Copper-throated Sunbird <i>Nectarinia calcostelha</i>	R
Olive-backed Sunbird <i>Nectarinia jugidaris</i>	S
Crimson Sunbird <i>Aethopyga siparaja</i>	S
Little Spiderhunter <i>Arachnothera longirostra</i>	F
Thick-billed Spiderhunter <i>Arachnothera crassirostris</i>	R
White-rumped Munia <i>Lonchura striata</i>	S
Javan Munia <i>Lonchura lencogastroides</i>	F
Scaly-breasted Munia <i>Lonchura punctulata</i>	F
White-bellied Munia <i>Lonchura leugogastra</i>	S
Chestnut Munia <i>Lonchura malacca</i>	R
White-headed Munia <i>Lonchura maja</i>	C
Tree Sparrow <i>Passer montanus</i>	F
Asian Glossy Starling <i>Aplonis panayensis</i>	S

Asian Pied Starling <i>Sturnus contra</i>	R
White-vented Myna <i>Acridotheres javanicus</i>	R
Hill Myna <i>Gracula religiosa</i>	F
Dark-throated Oriole <i>Oriolus xanthonotus</i>	F
Black-naped Oriole <i>Oriolus chinensis</i>	S
Bronzed Drongo <i>dicrurus aeneus</i>	F
Sumatran Drongo <i>Dicnirus sumatranus</i>	R
Greater Racquet-tailed Drongo <i>Dicrurus paradiseus</i>	F
White-breasted Wood-swallow <i>Artamus leucorhynchus</i>	F
Crested Jay <i>Platylophus galericulatus</i>	R
Black Magpie <i>Platysmurus leucopterus</i>	S
Slender-billed Crow <i>Corvus enca</i>	S

Discussion

The mammalian fauna of Way Kambas includes Sumatran Tiger *Panthera tigris sumatrae*. Clouded Leopard *Neofelis nebulosa*, Asiatic Golden Cat *Felis temminckii*. Marbled Cat *Felis marmorata*, Malayan Sun Bear *Helarctos malayanus*, Dhole *Cuon alpinus*, Oriental Small-clawed Otter *Aonyx cinerea*, Eurasian Otter *Lutra lutra*. Hairy-nosed Otter *Lutra sumatrana* and Malayan Tapir *Tapirus indicus* (Santiapillai & Suprahman 1995).

In addition, there are an estimated 250-300 Elephants *Elephas maximus* and a population of Sumatran Rhinoceros *Dicerorhinus sumatrensis* that probably has the best prospects of any population in Sumatra (World Birdwatch 17). That the mammalian fauna has survived essentially intact at Way Kambas, despite extensive logging and agricultural encroachment, augers well for an intact lowland avian fauna of the Sumatran east coast lowlands.

Much of the effort in southeast Sumatra has been focussed on wetland birds, particularly White-winged Duck and the Ciconiiformes, and Way Kambas is known to be significant for the conservation of this group (eg Silvius 1988, Silvius & Verheugt 1989, Verheugt *et al.* 1993). Likewise, the coastal mudflats are regionally important in harbouring significant numbers of Asian Dowitcher and other migrant coastal birds. But most significantly the variety of lowland habitats appears to sustain a representative lowland avifauna that is unique in Sumatra where the majority of east coast lowland reserves are extensively brackish peat swamp forest. Perhaps the main limitation to Way Kambas is that it includes no ground above 16 m and is effectively isolated from the hills by wide expanses of agricultural land. Some species that are rare or not yet known at Way Kambas are perhaps predominately hill species that have but a tenuous hold in these lowland forests; Buettikofer's Babbler might be such a species.

A major shortcoming of this checklist is that the various habitats within the reserve have not received equal effort from visiting birdwatchers. The disturbed lowland Dipterocarp forest between Pos Tengah and Pos Way Kanan has received a disproportionate amount of attention. The coast has also been relatively well covered, though not the neighbouring mangrove and

brackish swamp forest But the botanic feature most prominently associated with Way Kambas, that the park includes the largest freshwater (non-peat) swamp forest area in any Sumatran reserve (Wind *et cil.* 1979), is also the least well explored vegetation in the reserve.

Species of swamp and other wet grasslands are also probably under reported, There are no records of Richard's Pipit and few records of Wood Sandpiper from within the reserve but both are common in surrounding agricultural land; likewise other predominantly freshwater waders, rails and crakes, and the two cisticolas are probably not as rare in the reserve as this checklist would suggest.

Threats to the park such as small scale logging and poaching remain illegal. Timber and rattan were being extracted from beside the Way Rasau in 1989. Fish poachers still operated there, and shelters, canoes, fish snares and drying racks are contemporary evidence of poaching elsewhere in the park.

Way Kambas is one of the more visited reserves in Sumatra, and yet in some areas knowledge of its avifauna is still very inadequate. The relative abundance of species in several clades is quite unresolved and there is a disturbing inconsistency in species reported by different observers There is still huge scope for birdwatchers visiting Way Kambas to contribute to a better understanding of the birds of lowland Lampung. This checklist must be viewed as an interim list much in need of refinement; records, with notes where appropriate, should be sent to the Editors, *Kukila*.

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