
The Birds of
BORNEO



Clive F. Mann

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Editor's Foreword

Borneo is the third-largest island in the world and boasts a wealth of biodiversity, not least the 630 or more species of birds documented in this checklist. The avifauna includes five endemic genera (one representing an endemic monotypic family) and 11% of the resident landbirds are endemic. Such a centre of endemism inevitably comprises many species of conservation concern, most of which are threatened by deforestation. One reason for the high species diversity present on Borneo is the wealth of different habitats, with seven different eco-regions recognised, occurring from sea-level up to the peak of Gunung (Mount) Kinabalu at 4095 m. This mountain brings Borneo into another of the world's top ten, making it the sixth-highest island.

Like the Galapagos Islands, made famous by Charles Darwin, Borneo also has a place in the history of evolutionary ideas as Alfred Russel Wallace, another scientist whose contribution to evolutionary theory was paramount, collected birds in Sarawak in the 1850s. It was in Sarawak in February 1855 that he wrote a seminal work on evolution, although then still lacking insight into natural selection (Wallace 1855). That insight emerged three years later in the famous letter to Darwin (Wallace 1858). Although enthralled by the island's insects, he was far from impressed by its birds, about which he wrote:

The birds I found remarkably scarce and uninteresting, almost all being common Malacca species. Out of about a hundred I do not think more than ten are peculiar to Borneo, and probably not more than one or two are new. In the northern and eastern parts of the island there are probably many novelties to be found, but the districts nearest to Sumatra and to the peninsula of Malacca possess an ornithological fauna so little peculiar as to furnish strong presumptive evidence of a closer connexion between these countries having existed at no very distant geological epoch. What is known of the whole island, indeed, favours the same view, for out of 107 species of Bornean birds in the Leyden Museum only twenty-five are peculiar to it, the rest being also found in Java, Sumatra or Malacca, and the greater portion common to all those countries. Birds of brilliant plumage are remarkably rare, and the Psittacidae, so beautiful and numerous further eastward, are here represented only by the four common Malacca species. It is clear, therefore, that, from what is known of it, Borneo does not offer a very tempting field for the researches of the ornithologist (Wallace 1856).

Together with the books on the birds of Borneo by Bertram E. 'Bill' Smythies, who last worked in Sarawak in 1964, Clive Mann's checklist has now laid to rest Wallace's notion that Bornean birds are uninteresting. As the species accounts show, not only is Borneo important for its resident birds but there are also numerous migrant species that rely on it as a staging post or non-breeding destination. Some of these are well known to British ornithologists, both as exotic vagrants and as regular visitors. The numbers of familiar species that appear on the Borneo list also rub in the message of how small the world is and how conservation must now take on these international dimensions. The British Ornithologists' Union has always appreciated this and this book, its 23rd checklist, provides another welcome example of a commitment to furthering knowledge of the world's birds. Clive must be congratulated on bringing the book to fruition and patiently following the sometimes contradictory strictures of a succession of checklist editors, listed in his acknowledgements, who have contributed in one way or another to the achievement.

Different parts of the island and its associated smaller islands are owned by different nations, so this checklist will be required reading for environmental authorities in Brunei, Indonesia and Malaysia. It is to be hoped that they will preserve what remains of the flora and fauna that Wallace witnessed in the 19th century and that this book will help them in planning their conservation measures.

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INTRODUCTION

History of Borneo

Until recent decades Borneo was perceived in the West as being an almost-mythical, awe-inspiring land, shrouded in mystery, generating such well-worn clichés as ‘the wild man of Borneo’. With the development of the oil industry in coastal regions, starting in the 1920s, and the opening up of tourism in some areas in the 1980s, there has been a change of perception. Many birding groups, and other eco-tourists, now have Sabah, and parts of Sarawak, particularly Gunung Mulu National Park, as part of their itineraries.

The earliest record of modern *Homo sapiens* in Borneo comes from the Niah Caves in northeast Sarawak, where a skeleton from 40 000 YBP, and stone artefacts from 42 000 YBP have been found. How the story of Man unfolded between then and the invasion of western Austronesian (Malayo-Polynesian) speakers is unknown, although mitochondrial-DNA evidence points to an earlier migration into Sabah from the Malay Peninsula of Orang-Asli peoples (Aboriginals) who were presumably Austro-Asiatic speakers (Oppenheimer 1998). No trace of that language group remains on the island today. Austronesian speakers, thought to originate in Taiwan, moved into the Philippines about 5000-4500 YBP, where a split in the population occurred, and part of the western branch moved into north Borneo about 4000-3500 YBP (Bellwood 1995). The native tongues of the present-day peoples of Borneo are all Austronesian, apart from those of the more recent Chinese, Dravidian, Indo-European and other immigrant groups.

The historical record of Borneo begins in about AD 150 with Ptolemy's *Guide to Geography*, but archaeological finds, such as Roman trade beads and Indo-Javanese artefacts, point to a flourishing civilisation on the island dating back to the 2nd or 3rd century BC. By the 5th century AD Hindu kingdoms, and perhaps Buddhist states, had become established in what is now Kalimantan. By the early 16th century, or perhaps earlier, Islam arrived and rapidly became very influential, at least in coastal regions, and a number of Islamic kingdoms were established. Some owed allegiance to political bodies outside the island, eg the Mataram kingdom of Java.

Brunei, sometimes Brunei, is an alternative form of Borneo, and there is reference to it trading with and owing allegiance to China as early as the 6th century AD. The connection between this entity and the Islamic sultanate of Brunei, which at the time of Magellan's visit in 1521 controlled much of Borneo's coastal regions, as well as the Sulu Archipelago and other islands, is unclear and disputed. The first-recorded European visitor to Borneo was a Franciscan friar, Odoric of Pordenone, who stopped off on his way from India to China in 1330. In the early 16th century the Portuguese, and then the Spanish, opened up trade with the island. At the beginning of the 17th century the Dutch broke this monopoly, and furthermore became politically influential, breaking the previous inter-island Islamic ties, particularly in the southern parts of the island. Dutch influence was consolidated, and Kalimantan became part of the Netherlands East Indies. This situation changed when the Japanese overran the island during World War II, and the Dutch were unable to regain control after the liberation. Kalimantan was incorporated along with the rest of the Netherlands East Indies into the new nation of Indonesia in 1949.

Britain's colonial influence dates from the mid 19th century, when Sir James Brooke, in return for help in suppressing Iban uprisings in that territory, had bestowed upon him the title of Rajah of Sarawak by the Sultan of Brunei. More territory was ceded to Sarawak under Brooke's direct control, thus diminishing Brunei considerably in size. Through expeditions to the hinterland, in part to suppress head-hunting, the Rajah extended his government's influence to most of the territory. Thus began the ‘White Rajah’ dynasty of the Brookes, which lasted until 1941, when the third Rajah, Charles Vyner Brooke, abrogated his absolute powers and endeavoured to establish democratic

self-government. This was delayed by the Japanese occupation, and in 1946 Sarawak was ceded to Britain. In 1963 it became part of Malaysia.

The northernmost part of Borneo, today known as Sabah, traded with China from the 7th century, and later became controlled by the Sultan of Brunei, who, in the early 18th century, transferred much of the territory to the Sultan of Sulu. The British claimed the island of Labuan as a crown colony in 1848, and a British merchant established a settlement on the east coast of the mainland at Sandakan in 1872. Britain occupied much of the mainland by 1877. In 1881 the British North Borneo Company was chartered, and obtained land grants from Brunei and Sulu. In 1898 territorial boundaries were established. As with much of the rest of Borneo, it fell to the Japanese in World War II, leading to the infamous 'death marches' in which many allied prisoners of war perished. In 1946 it became a British crown colony, and joined Malaysia as Sabah in 1963. Being south of the typhoon belt, Sabah is often referred to as the 'land below the winds'.

Traditional shifting agriculture, including the growth of rice (wet and dry), maize, cassava (manioc), potatoes, red peppers, sweet potatoes, groundnuts and other fruits and vegetables, along with livestock, particularly pigs and chickens, and fishing, chiefly marine, have been the mainstays of the indigenous peoples. The harvesting of honey, fungi, sago palms and forest fruits such as jackfruit and durian, supplements the diets, and beeswax and resin are also collected. In areas where the Edible-nest Swiftlet *Aerodramus fuciphagus* and the Black-nest Swiftlet *A. maximus* breed in huge numbers in caves, their nests are a lucrative harvest, being the main ingredient of the delicacy bird's nest soup. Hunter-gatherer groups, particularly the Punan (Penan), are rapidly changing their lifestyles in response to government pressure and the shrinking rainforest. The mining of gold, diamonds, iron and coal was developed, the first two early trade items, and later oil extraction came to dominate the economies of some areas, in particular, Brunei. Amongst the forest products, timber, rattan, and previously gutta-percha, became important. Various cash-crops such as soybeans and cutch have been introduced at different times, and plantations of copra, rubber and oil palm were established, particularly in the northern parts of the island. Compared to much of southern and eastern Asia, the island is sparsely populated, with about 13 million people. The largest urban concentrations are at Kuching and Miri (Sarawak), Kuala Belait/Seria, Tutong and Bandar Seri Begawan (Brunei), Kota Kinabalu and Sandakan (Sabah), Samarinda and Balikpapan (Kalimantan Timur), Palangkaraya (Kalimantan Tengah), Banjarmasin (Kalimantan Selatan) and Pontianak (Kalimantan Barat).

Borneo, the third-largest island in the world (755 000 sq km), is situated on the Sunda Shelf and bounded by the South China, Sulu, Celebes and Java Seas, and the Makassar and Karimata Straits. It is 1336 km from northeast to southwest, with a maximum breadth of 1000 km.

Geography, Geology, Topography and Climate

The area covered by this checklist (Figures 1 & 2) is the main island of Borneo, ie Kalimantan, itself subdivided into four provinces, Timur (east), Tengah (central), Selatan (south) and Barat (west) - 549 223 sq km (part of Indonesia); Sarawak - 131 582 sq km and Sabah - 76 115 sq km (parts of Malaysia); Brunei - 5765 sq km (independent state), the island of Labuan, off the coast of Sabah (a Federal Territory of Malaysia, but here considered as part of Sabah), and satellites, including Barren Island (Kayu Ara), Pulau Mantanani, P. Banggi, P. Balambangan, P. Layang-Layang, Maratua Islands, Karimata Islands, Anamba Islands, Tambelan Islands, North and South Natuna Islands, P. Sebuk, and P. Laut, and the islands between this island and P. Matasirih, which is also included, falling between 108° 00 E and 119° 00 E, and 07° 40 N and 05° 50 S. Pulau Layang-Layang, previously Swallow Reef, is chiefly a man-made island, and like Mantanani, Balambangan and Banggi Islands is administratively part of Sabah, as is P. Sipadan, which lies off the continental shelf. The Maratua Islands are part of Kalimantan

Java (the Sunda Shelf). There is dispute as to how recently these areas had substantial land connections, but it may have been as little as about 3000 YBP (Hapgood 1966), or 5000-8000 YBP (Oppenheimer 1998). However, recent inundation maps show that Borneo became isolated by rising water levels between 10 000 and 12 000 YBP (Proudman Oceanographic Laboratories, undated). Two *umbilici*, one containing present-day Balabac, Palawan and Calamian, the other containing the Sulu Archipelago, connected Borneo and the Philippines (Diamond and Gilpin 1983).

The climate is typically equatorial, with high temperatures (dropping by 5°C for every 1000 m rise in altitude), humidity and rainfall. The last is greatest during the northeast monsoon (*landas*), October-March, with the heaviest rainfall in November-February, and to a lesser extent during the southwest monsoon, May-September, but varying from area to area because of local conditions, and with altitude. Average annual rainfall throughout the island is approximately 3800 mm, but up to 5080 mm on northern slopes in Sabah and Sarawak. As in most parts of the world, climate has become much less predictable in recent decades (Table 1).

Vegetation

Floristically Borneo is considered to be part of the Malesian Subkingdom of the Paleotropical Kingdom. The following classification, largely based on Wong (1998), Cranbrook & Edwards (1994) and Smythies (1999), concentrates on different vegetation types as habitats for birds.

(a) Primary (natural) vegetation

- (i) **Mangrove, or mangal, forests and swamps** in estuaries, lagoons and other low wave-energy coasts on most islands. Typical trees are the stilt-rooted *Rhizophora mucronata* and *R. apiculata*, and *Avicennia* and *Bruguiera* with their breathing roots, or pneumatophores, developing from long lateral roots. Other trees such as *Sonneratia*, *Xylocarpus*, and the palms *Oncosperma* and *Nypa* also occur. Some species form almost pure stands. These plants must be salt-tolerant, and some store water. This forest is usually muddy, and may be found up to 50 km inland along rivers. Fine silt and clay are accreted. They are important breeding grounds of many fish, crustacea and molluscs.
- (ii) **Beach scrub/coastal vegetation** on high wave-energy coasts on most islands; trees are not dominant, although *Casuarina equisetifolia* occurs commonly. The screw-pine *Pandanus odoratissimus*, the palm *Oncosperma*, terrestrial creepers and sparse, tough, grass are typical, along with a variety of bushes such as *Scaevola sericea*.
- (iii) **Coastal scrub forest** (= Strand woodland of Wells 1999) on most islands; contains *Casuarina equisetifolia*, *Calophyllum inophyllum*, *Planchonella obovata*, *Barringtonia*, *Pandanus*, and *Oncosperma* and other palms, and ferns; dense undergrowth only at edge; single storey reaching 5-20 m.
- (iv) **Kerangas** (an Iban word meaning an area where hill rice cannot grow) a well-drained heath forest on coarse, sandy, podzolic soils which were beaches in ancient times. Usually three storeys of trees, up to 10-25 m. It has dense undergrowth and many climbers, but tree-ferns and bamboos are absent. Insectivorous *Drosera* (sundews) and *Nepenthes* (pitcher plants) are common, as are the epiphytic ant-plants *Hydnophytum* and *Myrmecodia* whose stems are developed into a massive maze of tunnels for their fierce symbiotic ants. In places a *kerangas*-peat-swamp forest mosaic occurs. Here a higher type of *kerangas* occurs, which may include the large conifer *Agathis borneensis* over deeper soil, and the dipterocarps *Cotylelobium lanceolatum*, *Dryobalanops aromatica* and *D. beccarii*. It may become savanna under the impact of Man.

- (xii) *Montane forest/moss forest/elfin forest* at 1300-4000 m asl, consisting of a ground layer and one storey of trees reaching 10-15 m. Rhododendrons, *Vaccinium*, heathers, shrubs, herbs and hanging mosses and lichens are characteristic, as are insectivorous *Nepenthes*, many of which produce very large pitchers.
- (xiii) *Tropical alpine/montane ericaceous scrub* above 4000 m, on G. Kinabalu only, consisting of ericaceous shrubs, grasses and algae.
- (xiv) *Lakeside vegetation* sizeable lakes are few in most parts of Borneo, but there are large lacustrine complexes in Kalimantan. In terms of vegetation and birds, seasonally flooded alluvial valleys and oxbows are similar. Water-lily pads float on the water surface, sedges and reeds are rooted at the edge and in shallow water.
- (xv) *Grassland* created mostly by repeated fire-trauma of lowland forest, and usually dominated by *alang* or *alang-alang* (*Imperata cylindrica*). Largest areas are found in Kalimantan Tengah and Kalimantan Barat. Support a depauperate avifauna with Javan elements. Similar to the next category, but from predominantly natural causes.

(b) Secondary (man-influenced) vegetation

- (i) *Grassland* predominantly *Imperata cylindrica*, includes fire-*padang* and *ladang*, and results from swidden agriculture before secondary forest develops.
- (ii) *Grassland savanna* may form on drier areas of low fertility, eg western Borneo, after primary vegetation has been removed by Man.
- (iii) *Secondary forest* regenerating after swidden agriculture or logging. Older forest trees may grow up to 20 m, and some primary forest trees may remain, as after selective logging. The shrub layer is well developed, the ground layer less so, with few lianas or epiphytes, but ferns may be abundant. *Macaranga* is a typical tree, also found in primary forest after tree falls or logging create holes in the natural canopy where intense light penetrates to ground level. *Fagraea* spp. are also typical.
- (iv) *Agricultural land* mostly *padi* (rice), on alluvial and submontane areas.
- (v) *Plantations* include *Albizia*, *Eucalyptus*, oil palm and rubber, the last mostly abandoned and reverting to secondary forest.

Other Fauna

Aside from birds, Borneo has an immense wealth of other fauna with mammals well represented. The Asian Elephant *Elephas maximus* occurs in Sabah, but may be derived from introduced stock. The very rare Sumatran Two-horned Rhinoceros *Didermoceros sumatrensis* exists in small but unknown numbers. The Tiger *Panthera tigris* (Piper *et al* 2007), the Javan One-horned Rhinoceros *Rhinoceros sondaicus* (Cranbrook & Piper 2007) and the Malay Tapir *Tapirus indicus* (Cranbrook & Piper in press) occurred in recent times, although are now extirpated from the island. The rarely seen Tembadau or Banteng *Bos javanicus* is the largest of the artiodactyls, and deer include two species each of mouse deer, *Tragulus javanicus* and *T. napu*, of barking deer, *Muntiacus muntjak* and *M. atherodes*, all of which are widespread, and the much larger Sambar *Cervus unicolor*. The Bearded Pig *Sus barbatus* is common in many areas. The larger primates include the endangered Orang Utan *Pongo pygmaeus*, two species of gibbon, *Hylobates muelleri* and *H. agilis*, eight species of monkey, *Macacus* and *Presbytis*, and the endemic mangrove-dwelling Proboscis Monkey *Nasalis larvatus*. There are two smaller primates, the infrequently encountered Western Tarsier *Tarsius bancanus* and Slow Loris *Nycticebus coucang*, both nocturnal. Rodents are legion, and include various ground squirrels such as the large Tufted Ground Squirrel *Rheithrosciurus macrotis*, tree squirrels including

the Giant Squirrel *Ratufa affinis*, fourteen species of flying squirrels (ten species on G. Kinabalu alone) including the large *Aeromys* and *Petaurista*, three species of porcupines, and numerous rats and mice. There are five cats including the rare Clouded Leopard *Neofelis nebulosa*, seven mustellids, twelve viverrids, and Ursidae is represented by the Malay Bear *Helarctos malayanus*. There are eight species of tree shrews (Scandentia), seven of which occur on G. Kinabalu. Eight species of Insectivora occur including the bizarre-looking Moonrat *Echinosorex gymnurus*. The Flying Lemur or Colugo *Cynocephalus variegatus* (Dermoptera) is widespread in the lowlands but difficult to find, as is the Scaly Anteater or Pangolin *Manis javanica* (Pholidota). Bats are ubiquitous, comprising eight genera of fruit bats (Pteropodidae) and insectivorous bats are represented by the Emballonuridae, Rhinolophidae, Hipposideridae, Vespertilionidae and Molossidae. Some provide spectacular sights, such as big foraging flocks of Large Flying Fox *Pteropus vampyrus*, and the millions of small insectivorous bats that leave the caves in G. Mulu National Park in vast clouds every evening. The most frequently observed marine mammals are cetaceans, particularly dolphins *Sousa*, *Lagenodelphis*, *Orcaella*, *Tursiops*, *Grampus* and *Delphinus*, and the Finless Porpoise *Nephocaena*, but whales are rare and most records are of stranded animals. The endangered Dugong *Dugong dugon* (Sirenia) can still be seen, but rarely, close inshore or in estuaries.

The numerous reptiles include marine turtles (Chelonia) which nest on beaches on Borneo, particularly on smaller islands, freshwater turtles and tortoises (Testudines) and the huge Saltwater Crocodile *Crocodilus porosus*, now becoming rare. Snakes, though common, are infrequently seen, and include the flying snake *Chrysopelea*, the longest venomous snake, the King Cobra *Ophiophagus hannah*, arguably the longest non-venomous snake, the Reticulated Python *Python reticulatus*, and sea snakes (Hydrophiidae), the last forming an important part of the diet of the White-bellied Sea-eagle *Haliaeetus leucogaster*. Lizards are ubiquitous, and include flying lizards *Draco*, geckos (Gekkonidae), skinks (Scincidae), very large monitors *Varanus* sp., which are important predators of ground-nesting birds, and the enigmatic, almost unknown and extremely rare endemic Earless Monitor *Lanthanotus borneensis*.

Amphibia are abundant in forests and freshwater wetlands, with over fifty species present in some localities, and are an important source of food for many birds, including herons. They include frogs and toads (Anura), and legless caecilians (Apoda) which live in soil.

History of Ornithology in Borneo

Moulton (1914a), repeated in Smythies (1960), reports in anecdotal fashion on the 'pre-scientific period' but from 1820 onwards, the Natural History Commission in Batavia, Dutch East Indies, appointed naturalists to collect and explore in Borneo. The following account comprises, in chronological order, notes on those who have contributed to the ornithology of Borneo. Where known, the locations of specimens are noted in brackets using the abbreviations given on page 22. It would be impossible to mention all those who have made contributions to the advancement of ornithology in Borneo, especially from the 1960s onwards. I hope that those whose names do not appear will not be offended. In some cases I may be ignorant of their contribution, in others where observations were of a casual rather than a systematic nature, although of some importance, I plead constraints of space.

Nineteenth century

Pierre Diard, working as an inspector of agriculture for the Dutch East Indies Company, travelled in Borneo in 1826 and collected 50 species (LM). **H.A. von Henrici**, an officer of the Dutch East Indies Army, was in charge of a topographical survey of the Chinese districts of West Borneo (Kalimantan Barat) 1830-32, and toured southeast Borneo 1833-34. Some of his collection (LM) was reported on by Temminck (1823-36).

The Bornean Avifauna

Taxonomy and nomenclature

The Biological Species Concept (BSC) versus the Phylogenetic Species Concept (PSC) controversy continues to get much coverage in the ornithological literature (Greenwood 1997, Helbig *et al* 2002, Maclean *et al* 2005). The former, with its stress on reproductive isolation, and the latter, with diagnosability as its mainstay, can converge. This is the case, for instance, when limited interspecific hybridisation (genetic introgression limited by partially successful pre-zygotic reproductive barriers and/or reduced fitness of hybrids) is acceptable under the BSC and analysis of distinctness of contiguously distributed subspecies requires knowledge of interbreeding of the forms for a decision to be made under the PSC. Here they both seek to identify a self-contained genetic lineage. Throughout much of the tropics knowledge of the degree of hybridism, the fitness of hybrids, and geographic boundaries of contiguous forms is scanty. Therefore there is still much subjectivity in accepting species limits by either concept. Where species range over archipelagos, the numbers of species accepted under the PSC would be greatly inflated. For example, Cheke and Mann (2001) found 23 acceptable subspecies of Black Sunbird *Leptocoma sericea* from Wallacea and New Guinea island groups. At least 22 of these would be acceptable as full species under the PSC. Also, the small intertaxa differences that tax the decision-making process at the subspecific level in the BSC take on much greater importance as they are now used to define species in the PSC. Biochemical techniques, particularly those using mitochondrial DNA, are potential generators of multitudes of, mostly, cryptic species.

Species concepts have practical implications for authors of works that include systematic sections as publishers may be reluctant to accept faunistic works significantly increased from the norm by following the PSC, as the species is usually the basal unit. Similarly, excessive splitting, which would result from acceptance of a strict PSC worldwide, would hinder the delicate politics of conservation. The Taxonomic Subcommittee (TSC) of the British Ornithologists' Union Records Committee (BOURC) has adopted a system that most closely approaches the Evolutionary or General Lineage Species Concepts of Mayden (1997) and de Queiroz (1999) for British taxa. Here, all individuals of each taxon must be diagnosable from individuals in all other taxa, and they must have diverged sufficiently so that they are not likely to merge with other species in the future. However, usage of this system on a global scale would, as with any other system, result in many arbitrary decisions. Perhaps a more revolutionary concept such as the Evolutionary Significant Unit (ESU) as defined by Waples (1991) will receive greater usage in future. For a fuller discussion of these problems see Davison (1998), Collinson (2001, 2002), Helbig *et al* (2002) and Summers and Piernney (2003).

In this book a hybrid approach, close to that used by the TSC of the BOURC, has been adopted. For example, the parapatric Garnet Pitta *Pitta granatina* and Black-headed Pitta *P. ussheri* are split, as there appears to be little or no introgressive hybridisation along their (apparently) long mutual border. Individual cases of isolated populations, eg Long-billed Partridge *Rhizothera longirostris* and Dulit Partridge *R. dulitensis* (following Smythies 1999), have been considered to be sufficiently diagnostic for separation at the species level, thus giving a PSC veneer to a BSC base. In seeking some conformity with other works in the region, the sequence in the systematic list follows Dickinson (2003, and privately circulated amendments up to June 2005). English names generally also follow Dickinson (2003), and any differences are justified in the species accounts.

The avifauna

Six hundred and thirty species have been reliably recorded in the area; they are mostly of the Oriental avifauna, with some Nearctic/Palearctic migrants, small numbers of Australasian migrants and a few oceanic species. The avifauna of Borneo constitutes a part of the Sundaic avifauna, and hence shares many species with the Malay Peninsula,

in place. The flooding would have been quite rapid, giving little time for the lowland species to adapt to hill and montane habitats. Highland species would not have been affected in the same way by this phenomenon, and this theory is supported by the fact that the majority of species involved are lowland, with the exception of Bornean Barbet *Megalaima eximia*, Red-breasted Hill Partridge *Arborophila hyperythra*, Chestnut-capped Laughing-thrush *Garrulax mitratus*, and Temminck's Babbler *Trichastoma pyrrogenys*, which are entirely associated with highlands, and the Blue-winged Leafbird/Montane Blue-winged Leafbird *Chloropsis cochinchinensis/kinabaluensis* and Southern White-crowned Forktail/Northern White-crowned Forktail *Enicurus leschenaulti/sinensis*, with a widespread lowland form (not found in Sabah in the former) and a highland form. However, since Sabah would still have been connected by a broad area of dry land, probably at least two-thirds of the width of today's connection, this can only be part of the picture. There is no evidence that Sabah was ever totally isolated from the rest of Borneo. Inundation maps (Proudman Oceanographic Laboratories undated) show that at least as far back as 20 000 years ago the sea level around Borneo was not appreciably higher than it is today, so any flooding would have occurred before this time.

Bird Conservation

All existing and proposed protected areas are listed together with their statuses and areas in Table 3. These data were extracted from MacKinnon & MacKinnon (1986), Payne (1990), MacKinnon *et al* (1997) and Sarawak Forestry Department (1997). For an admirable summary of conservation in Borneo see Davison in Smythies (1999).

Species classified as threatened (24) or near threatened (44) are treated in depth by BirdLife International (2001), and a further five are classed as 'data deficient'. The conservation status is mentioned under each species in the systematic list. The main threats to the avifauna, and nature in general, are logging, both legal and illegal, land clearance for settlement and plantations, and forest fires, both natural and man-made. As in other parts of southeast Asia it is lowland forest that suffers most, and damage is reaching critical proportions in some areas, particularly in Kalimantan. Hunting and trapping, mostly illegal and uncontrolled, is locally important, affecting mainly pheasants and partridges (Phasianidae), hornbills (Bucerotidae), and smaller birds for

Table 3. Protected areas within Borneo. National Parks are known as 'Parks' in Sabah, and 'Taman Nasional' in Kalimantan.

	Area protected (hectares)			Area within National Parks (and number)		
	existing	proposed	total	existing	proposed	total
Sarawak	292 539	732 938	1 025 477	115 334 (10)	450 244.1 (8)	565 578.1 (18)
Brunei	48 854	1 200	50 054	48 854 (1)	0 (0)	48 854 (1)
Sabah	476 901	45 160	522 061	243 815 (6)	45 160 (3)	288 975 (9)
Kalimantan Timur	1 862 500	2 565 000	4 427 500	200 000 (1)	0 (0)	200 000 (1)
Kalimantan Tengah	1 351 575	815 000	2 166 575	305 000 (1)	70 000 (0)	375 000 (1)
Kalimantan Selatan	149 800	311 250	461 050	0 (0)	0 (0)	0 (0)
Kalimantan Barat	2 465 000	181 000	2 646 000	130 000 (2)	60 000 (0)	190 000 (0)
Natuna Is.	0	2 000	2 000	0 (0)	0 (0)	0 (0)

SYSTEMATIC LIST

Sources of material

The following were used in the preparation of the text.

1. Published material (publication cited).
2. Museum specimens (museum cited).
3. Information received from other workers (cited by name, and frequently also as pers comm, *in litt*, in prep, or in press). Certain extremely unlikely occurrences, eg vagrants unsupported by an adequate field description, or resident birds far out of normal range and/or in unsuitable habitat, were deemed unacceptable, and it is hoped that this process has caused minimal offence.
4. The author's own observations.

Glossary of abbreviations and non-English terms

* = often forms part of place name

= Bahasa Melayu (Malay language)

Local terms

B. #	= Batu (rock, stone) *
Bt. #	= Bukit (hill) *
G. #	= Gunung (mountain) *
I(s).	= Island(s)
K. #	= Kuala (river mouth) *
Kg. #	= Kampung (village) *
L.	= Lake
Mt(s).	= Mountain(s)
Nat.	= National
P. #	= Pulau (island) *
R.	= River
Sg. #	= Sungai/Sungei (river) *
Tg. #	= Tanjung (promontory, peninsula) *
Tk. #	= Telok/Teluk (bay) *
Danau#	= Lake *
Kerangas	= Heath forest (Iban language; literally, 'a place where hill rice will not grow')
Kota#	= literally 'a fort' *
Ladang#	= open areas left after swidden agriculture, usually colonised by <i>Imperata</i> and ferns*
Lalang#	= (= <i>alang-alang</i>) <i>Imperata</i> , a grass *
Loagan#	= Swampy area formed on oxbow lake *
Padang#	= open, usually grassy, area *
Tasek#	= Lake *
Ulu#	= literally 'river headwaters', used now as 'upriver' or 'up country' *

Abbreviations used for museums

AMNH	= American Museum of Natural History, New York, USA
ANSP	= Academy of Natural Sciences, Philadelphia, USA
BaM	= Bamberg Museum, Germany
BgM	= Staatliches Naturhistorisches Museum, Braunschweig, Germany
BoM	= Museum of Zoology, Bogor, Indonesia
BrM	= Brunei Museum, Bandar Seri Begawan, Brunei
DMNH	= Delaware Museum of Natural History, Greenville, USA
FMNH	= Field Museum of Natural History, Chicago, USA
HNH	= Hungarian National Museum, Budapest, Hungary
IRSNB	= Institut Royal des Sciences Naturels, Brussels, Belgium
LM	= Rijksmuseum voor Natuurlijke Historie (National Museum of Natural History), Leiden, the Netherlands
LNHM	= Lubeck Natural History Museum, Germany
LSUMNS	= Louisiana State University Museum of Natural Science, Baton Rouge, USA
MCML	= Merseyside County Museums, Liverpool, UK
MCZ	= Museum of Comparative Zoology, Boston, USA
MNHN	= Museum National d'Histoire Naturelle, Paris, France
MSNG	= Museo Civico di Storia Naturale, Genoa, Italy
NHM	= Natural History Museum, Tring, previously British Museum (Natural History), London, UK
NHMW	= Naturhistorisches Museum, Vienna, Austria
NMO	= Norwegian Museum, Oslo, Norway
NRM	= Natural History Museum, Stockholm, Sweden
OUMNH	= Oxford University Museum of Natural History, Oxford, UK
ROM	= Royal Ontario Museum, Canada
SM	= Singapore Museum, previously Raffles Museum, Singapore
SkM	= Sarawak Museum, Malaysia
SbM	= Sabah Museum, Malaysia
SMF	= Senckenbergmuseum, Frankfurt, Germany
SMTD	= Staatliches Museum für Tierkunde, Dresden, Germany
SNMS	= Staatliches Museum für Naturkunde, Stuttgart, Germany
UMZC	= University Museum of Zoology, Cambridge, UK
USNM	= United States National Museum (Smithsonian Institution), Washington, D.C., USA
WVZ	= Western Foundation of Vertebrate Zoology, Los Angeles, USA
YU	= Peabody Museum of Natural History, Yale University, New Haven, USA
ZMA	= Zoologisch Museum, Amsterdam, the Netherlands
ZMB	= Zoologisches Museum, Berlin, Germany
ZRCNUS	= Zoological Reference Collection, National University of Singapore, Singapore

Status codes

RB	resident breeder
RB(E)	resident breeder (endemic)
R(B)	resident; breeding not recorded but obviously occurs
R(E)(B)	resident (endemic); breeding not recorded but obviously occurs
WVN	'winter' visitor from north
WVS	'winter' visitor from south
AV	accidental visitor
OV	oceanic visitor
MB	migrant breeder
PV	passage visitor
I	introduced
[]	doubt as to whether species has been correctly identified, or has occurred naturally within area

Ordering of records and references in the systematic list

A number of factors were taken into consideration when ordering records and references:

- (a) Chronology, where this is important.
- (b) In order to save words and space, records are grouped by references, ie a string of localities separated by semi-colons all relate to the next bracketed reference.
- (c) In some cases, very close localities appear together. In the case of Brunei, because it is so narrow it was often possible to list localities approximately NE to SW, but elsewhere it was impossible to fit a two-dimensional pattern into a one-dimensional list. Therefore, when there was no other obvious way to arrange records, they were arranged alphabetically.
- (d) In compilation works which draw on many published and unpublished sources, the original reference(s) or museum specimens were cited, and not the later work, unless there was good reason to believe they refer to different records, or involve rare species.
- (e) Bracketed references are ordered thus: firstly published works in chronological order, then museum specimens alphabetically, followed by observers alphabetically.

MEGAPODIIDAE

MEGAPODES

Tabon Scrubfowl

Megapodius cumingii
Dillwyn 1853

RB

Philippine Scrubfowl

Philippines and Wallacea.

Distribution Local, and generally uncommon resident (*M. c. cumingii*) on islands off Sabah coast, P. Layang-Layang (**Spratly Is.**) (Smythies 1999), and possibly still Maratuas, and in a few localities on the mainland of Sabah (Smythies 1957, Appell 1965). Future survival within the Bornean region vulnerable due to the ease with which eggs can be taken and adults trapped. **Sabah:** P. Menggalum; P. Mantanani (Kloss 1930); P. Balambangan; P. Banggi; P. Malawali (Chasen & Kloss 1930b); Labuan and satellites; P. Tiga (Smythies 1957, CFM); P. Gaya; P. Sapi (Wells 1976); Semporna Is. of Bodgaya and Boheydulang (Smythies 1999); P. Selingaan (Sheldon *et al* 2001); P. Manukan (CFM); P. Sipadan (SH). The following are mainland records: K. Abai; Tg. Teluk; Sandakan (Gibson-Hill 1952), Marudu Bay; Kudat Peninsula (Smythies 1981); Mumiang (Smythies 1999). Probably now absent from the Rusikan group of islands (including Kuruman) where it occurred until the early 1980s (CFM), but still numerous on some islands such as P. Tiga (CFM, CR) and P. Sipadan (SH). **Spratly Is.:** skull of a long-dead individual, thought to be a dispersing bird, P. Layang-Layang (Davison 1999, Smythies 1999). **Maratuas** (Bangs & Peters 1927).

Habitat Sandy terrain in coastal scrub forest.

Breeding Sabah: eggs P. Gaya, 24 Jun 1921; eggs Mantanani Is., on main island and Mantanani Kecil, 25-26 Jan 1939 and 6 nest mounds there, 9-11 Mar 1982 (Sheldon 1983); eggs Sandakan, 5 Aug 1938; eggs Tg. Teluk, near Sandakan, 1 Aug 1938; eggs K. Abai, Jan 1939 (Gibson-Hill 1952); eggs Tajau, Marudu Bay, no date; eggs at 3 localities in Kudat district in Jan, Jun, Jul and Aug (Smythies 1981); several young and nest mounds P. Tiga, late Apr 1993 (PJH); 5 nest mounds on P. Gaya and 1 on P. Sapi in 1975 (Wells 1976); previously bred on the mainland on Kudat Peninsula (Appell 1965).

[Orange-footed Scrubfowl

Megapodius reinwardt
Dumont 1823

Wallacea and islands in Java Sea.

Hearsay records from P. Matasirih (Oberholser 1917a). If the species does exist on the island, it would probably be *M. r. gouldii*, subsumed within nominate by Elliott (1994), which it is similar to, but smaller.]

PHASIANIDAE

PARTRIDGES, PHEASANTS & QUAILS

Long-billed Partridge

Rhizothera longirostris
(Temminck 1815)

RB

Malay Peninsula and Sumatra.

Distribution Uncommon resident (Smythies 1957, 1981), near threatened (BirdLife International 2001). **Sarawak:** G. Penrissen (Sharpe 1893); Bako National Park (Good 1988); Kuching; Sg. Saribas (Smythies 1957); Lingit, Saribas district; Baram; Sadong district (NHM). **Sabah:** Busau; Marup (NHM); Paitan (AMNH); Danum (Showler 1992, 1993); birds at Tenom, Crocker Range, could have been Dulit Partridge *R. dulitensis* (Comber 1971). **Kalimantan Timur:** Limbang Ganeca, Jul-Aug 1998 (Gönner 2000b); G. Lumut Protection Forest (TB in litt to SPi & BW 2008). **Kalimantan Tengah:** Barito Ulu; Barito drainage (Wilkinson *et al* 1991a, Smythies 1999); Muarateweh (Smythies 1957). **Kalimantan Selatan:** Banjarmasin (Smythies 1957). **Kalimantan Barat:** Nyandung; Godang Damar (Coomans de Ruiter 1946); Pontianak; Kotawaringen (Smythies 1999).

Habitat Lowland dipterocarp forest, apparently favouring limestone hills (Smythies 1981).

Breeding Kalimantan Barat: eggs Nyandung, 6 Feb 1934; eggs Godang Damar, 28 Feb 1934 (Coomans de Ruiter 1946).

Taxonomic note Following Davison (2000b) *R. dulitensis* is separated as a full species on the grounds that there are considerable differences between the two forms with no intermediates, and large gaps in distribution.

Dulit Partridge

Rhizothera dulitensis
Ogilvie-Grant 1895

R(E)(B)

Distribution A rare endemic resident, 900 to 1200 m (Smythies 1957, 1981, 1999), with limited distribution giving cause for concern. **Sarawak:** G. Dulit (Sharpe 1894b, Banks 1937a); B. Song (Banks 1937a, Smythies 1957); G. Murud (Smythies 1999). **Sabah:** G. Kinabalu, 1895 (Davison 2007).

Habitat Lower montane habitat (Smythies 1981, 1999).

Breeding No records; nest and eggs are unknown.

Taxonomic note See under previous species.

Black Partridge

Melanoperdix niger
(Vigors 1829)

RB

Black Wood Partridge

Malay Peninsula and Sumatra.

Distribution Uncommon and local resident (*M. n. borneensis*, if valid – see below) in lowland and submontane localities of south and west Borneo, north to Sg. Baram, Sarawak, on west coast, from sea level up to 1200 m (Smythies 1957, 1999). Considered vulnerable (BirdLife International 2001), the main danger being habitat loss, with hunting a secondary threat. **Sarawak:** Bintulu (Sharpe 1877); G. Pueh (Sharpe 1893, Chasen &

Kloss 1930a); G. Dulit, 300 m (Hose 1893, ZMB, NHM); Balingean, Dec 1902 (Rothschild 1917); Baram district, including Bakong (Robinson & Chasen 1936, NHM); Kuching (Smythies 1957); Semengoh (Fogden 1976); G. Mulu National Park (Davison 1979); Pak Main, Kelabit uplands at 1200 m (Smythies 1981); Similajau National Park (Duckworth & Kelsh 1988) but record deleted by Duckworth *et al* (1996); Sg. Suai, before 1892; Tegora, Oct 1877; Betong, Saribas, Aug 1916 (NHM); Sg. Entoyut 1894 (USNM); Sg. Baram, Nov 1894 (AMNH). **Brunei:** Sg. Tutong, Nov 1897 (NHM), reported in BirdLife International (2001), but specimen could not be found in Mar 2002 (CFM). **Sabah:** G. Kinabalu, Jun/Jul 1903 (AMNH); 1 in Papar market, 1961, had apparently been collected in Ulu Papar; 1 collected at an untraced locality, 'Teuton' or 'Tenton' by J.B. Bell, Jun 1895, may come from Kudat area, or very probably Tutong, Brunei (GWHB *in litt* to BirdLife International 2001) and since other species in NHM have 'Tutong' on original labels which has been transcribed as 'Tuton' on more recent labels, this suggestion seems reasonable (CFM); possible sight record Poring (Sheldon *et al* 2001); Danum Valley (RS *in litt* to BirdLife International 2001); Batu Song, Jan 1892 (NHM). **Kalimantan Timur:** unconfirmed Kayan Mentarang Nature Reserve (Holmes 1997); Kihammawon, Aug-Oct 1969 (BoM). **Kalimantan Tengah:** Tg. Puting National Park, since c1970 (bin Jalan & Galdikas 1987, Nash & Nash 1988); Barito Ulu, 800-900 m (Wilkinson *et al* 1991a,b); Sg. Busang at 1500 m, Jul-Sep 1989 (BirdLife International 2001); Lihong Bahaja, Jan 1882 (Blasius 1884, Grabowsky 1885). **Kalimantan Barat:** 'östlich vom Barito' (Grabowsky 1885); Pontianak, Jan-Feb 1893 (Blasius 1896) and Mar-Apr 1931 (Chasen & Kloss 1932); Rumah Manual, G. Kenepai, Dec 1893-Jan 1894 (Büttikofer 1897, 1899); B. Ampur, Kubu, Pontianak; G. Raja, Singkawang (Coomans de Ruiter 1946); Lihong Bahaja; G. Kenepai, Kapuas drainage, at 550 m (Nash & Nash 1988); Mandor, near Pontianak (LM, SJA); G. Palung National Park, 1986-1995 (Laman *et al* 1996, Holmes 1997, BFK pers comm to BirdLife International 2001) and adjacent to Park, Sep 1998 (EP *in litt* to BirdLife International 2001); Sg. Kapuas, Sep 1905 (USNM), and another undated (LM); Sg. Kendawangan, Aug 1908 (USNM); Sg. Tjagat, Peniti, Apr 1932 (BoM). **?Kalimantan Barat:** Maveling, Mar 1907 (Parrot 1908).

Breeding Sarawak: eggs, 3 clutches, Baram district, Sep (Robinson & Chasen 1936); downy young Baram district, undated (NHM); downy young Pak Main, Kelabit uplands, 24 Oct (Smythies 1981). **Kalimantan Tengah:** eggs Tg. Puting National Park, 12 Sep 1986, and eggs just hatched there, 19 Jun 1986 (Nash & Nash 1988). **Kalimantan Barat:** eggs B. Ampur, Pontianak, 27 Jan 1930; eggs G. Raja, Singkawang, 23 May 1934 (Coomans de Ruiter 1946).

Habitat Lowland dipterocarp forest, alluvial forest, peat-swamp forest, lower montane forest, closed-canopy secondary forest and bamboo (Wilkinson *et al* 1991a,b, Laman *et al* 1996, Smythies 1999).

Taxonomic note Wells (1999) recognises no races.

Blue-breasted Quail

Coturnix chinensis
(Linnaeus 1766)

RB

India, Nicobar Islands, S China, Taiwan, SE Asia, Greater Sundas, Philippines, Wallacea, New Guinea and Australia.

Distribution Common and widespread resident. *C. c. caeruleascens* in Sarawak, Brunei and Kalimantan, and *C. c. lineata* in Sabah (Smythies 1957), with intermediates in Tawau and Ranau, Sabah (Thompson 1966). Occurs from sea level to 1550 m. Appears to wander, as may be absent from some areas for a few months at a time.

Habitat Open country, particularly grassland, *padi*-fields, young oil-palm plantations and young *Albizia* plantations, and at edge of swamps; colonises new agricultural settlements in **Kalimantan** (Holmes & Burton 1987).

Breeding Sarawak: nests Kelabit uplands (Smythies 1957); downy young Kuching, 22 Nov (Anon 1958, Smythies 1999). **Brunei:** eggs and nests Wasan, 23 Jun 1989; downy young Wasan, 21 Mar 1985; distraction display Wasan, 28 Apr 1986 (Mann 1991a, CFM). **Sabah:** eggs and nests, 'mid-Feb and other months' (Sharpe 1889); eggs Labuan, Jan (Sharpe 1879b); eggs Mawau, 6 Mar, tiny young Mawau, 5 Feb; enlarged testes Quoin, 6 Sep (Sheldon *et al* 2001); downy young Sabah, no locality, end Apr (Phillipps 1970); G. Kinabalu, mid Feb (Gibson-Hill 1952); downy young, end Apr, and immatures, 21 Aug, no locality (Phillipps 1970). **Kalimantan Barat:** eggs and nests, no localities, Jan, Feb, May and Jun; eggs Pontianak, 6 Jun 1930; eggs Montrado, 8 Feb 1934 (Coomans de Ruiter 1946).

Taxonomic note *C. c. caerulescens* is merged with *lineata* by McGowan (1994).

Red-breasted Hill Partridge	<i>Arborophila hyperythra</i> (Sharpe 1879)	RB(E)
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Red-breasted Tree Partridge

Distribution Uncommon endemic resident. *A. h. erythrophrys* from 610 to 1890 m on G. Kinabalu, Sabah (Smythies 1957, CFM), and presumably this form on G. Trus Madi (Sheldon & Francis 1985), and also on G. Dulit, Sarawak (NHM). *A. h. hyperythra* elsewhere from 600 to 3050 m (Smythies 1981, 1999). **Sarawak:** G. Lawas (Sharpe 1879a); G. Mulu, 1220-2300 m (Banks 1935b, Davison 1979, JC); G. Murud, 1530 m; upper Sg. Trusan, 915 m (Banks 1935b); Maga Mts., up to 1070 m (Banks 1952); Kelabit uplands; upper Sg. Selio, Usun Apau Plateau (Smythies 1957); G. Dulit, 1220 m (NHM). **Sabah:** G. Kinabalu, 610-1890 m (Smythies 1957, CFM); G. Trus Madi, 750-2200 m, in secondary as well as primary forest (Sheldon & Francis 1985); Kaingaran; Lumu-Lumu; Rinangisan; Sinsuran road; Tambunan (Sheldon *et al* 2001). **Kalimantan Timur:** Bulungan, upper Sg. Kayan (Finsch 1905). **Kalimantan Tengah:** Barito Ulu, 850-950 m (Wilkinson *et al* 1991a).

Habitat *A. h. erythrophrys* occurs in submontane and montane vegetation and *A. h. hyperythra* in various forest types (Smythies 1981, 1999).

Breeding Sabah: male with enlarged testes Sinsuran road, 9 Dec (Sheldon *et al* 2001). The nest and eggs are unknown.

Taxonomic note Use of 'hill partridge' in the English name follows advice from P.J.K. McGowan (*in litt* 2002).

Chestnut-necklaced Hill Partridge	<i>Arborophila charltoni</i> (Eyton 1845)	R(B)
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Chestnut-necklaced Partridge, Scaly-breasted Hill Partridge, Chestnut-breasted Tree Partridge

SW China, SE Asia and Sumatra.

Distribution Resident (*A. c. graydoni*), locally common, in forested lowlands, more common in interior (Smythies 1981, 1999). Near threatened (BirdLife International 2001). Recorded definitely only from **Sabah:** Bengkoka; formerly Sandakan (Sharpe 1889, Smythies 1999); Suanlamba 1888; Sg. Kretam Kecil 1950 (FMNH); Sg. Kinabatangan

(Williams 1914, CR); Bettotan (Chasen & Kloss 1930a); Paiton Bay (SNMS); Sg. Kalabakan 1937 (MCZ); Kudat to Tawau; G. Magdalena; Sg. Sapagaya; Lamag (Smythies 1957); eastern slopes of Crocker Range (Gore 1968, Comber 1971); Kimanis inland to south of Tenom, patchily to Kota Belud; Kulamba; Tabin Wildlife Reserve (Smythies 1981, 1999, SbM); Danum (Kiew 1977, CFM); Gomantong (Speight *et al* 1986); Baru Jumpa; Sg. Bole; Brumas; Lumerau; Sg. Mokodou (Sheldon *et al* 2001); Sepilok (JH). [**Kalimantan Timur**: possibly occurs in northeastern corner (Holmes 1989).]

Habitat Forested lowlands, chiefly primary forest, but also *Albizia* plantations, often near rivers (Smythies 1981, 1999, Mitra & Sheldon 1993).

Breeding No records.

Taxonomic note See under previous species.

Ferruginous Partridge

Caloperdix oculeus
(Temminck 1815)

RB

Ferruginous Wood Partridge

Malay Peninsula and Sumatra.

Distribution Scarce resident (*C. o. borneensis*); generally at about 1000 m (Smythies 1957, 1981, 1999). Near threatened (BirdLife International 2001). **Sarawak**: G. Dulit (Banks 1937b); Kelabit uplands; Usun Apau Plateau (Smythies 1957). **Sabah**: G. Magdalena (Smythies 1981) and Ulu Kalumpang (Smythies 1999), although these records are doubted by Sheldon *et al* (2001). **Kalimantan Timur**: G. Duk Nan (= G. Latuk) (Pfeffer 1960). **?province**: Pajan-Tibang (MCZ).

Habitat Montane vegetation, hillsides, and dry sandy forest in upland valley bottoms (Smythies 1957, 1981, 1999).

Breeding Sarawak: eggs Kelabit uplands, Dec and Jan (TH in Smythies 1981).

Crimson-headed Partridge

Haematortyx sanguiniceps
Sharpe 1879

RB(E)

Crimson-headed Wood Partridge, Crimson-headed Tree Partridge

Distribution Uncommon to common endemic resident 'probably throughout mountains', and occasional at low altitudes, 185-3050 m (Smythies 1957, 1981). About 1 pair per 5.6 ha in G. Kinabalu Park (Smythies 1999). **Sarawak**: G. Lawas (Sharpe 1879a); G. Mulu National Park, 1220-1700 m (Banks 1935b, Davison 1979) and in lowland alluvial forest (BS); G. Murud; Tama Abo Range; G. Dulit (Banks 1937b); Maga Mts. (Banks 1952); G. Derian; Kelabit uplands (Smythies 1957). **Sabah**: Tawau, at 185 m (Thompson 1966); 'common on mountains', no localities given (Gore 1968); G. Kinabalu, up to 3050 m (Jenkins & de Silva 1978, Smythies 1978); G. Trus Madi, 1600-2100 m (Sheldon & Francis 1985); G. Tamboyukon; Crocker Range; Maliau; mountains of southeast (Smythies 1999); Kamborangoh; Lumu-Lumu; Mesilau Caves; Quoin Hill; Rinangisan; Sinsuran road (Sheldon *et al* 2001); Danum (Roberson & Carratello 2003); [Sepilok (de Silva 1981) is almost certainly a mistake]. **Kalimantan Timur/Barat**: watersheds of Kapuas-Mahakam and Mahakam-Teweh (Smythies 1957). **Kalimantan Timur**: Bulungan, upper Sg. Kayan (Finsch 1905, LM); G. Duk Nan (= G. Latuk) (Pfeffer 1960); Kayan Mentarang Nature Reserve (Holmes 1997).

Habitat Montane forest, also *kerangas* in valley bottoms, alluvial forest, and occasional at low altitudes (Smythies 1957, 1981).

Black Kite*Milvus migrans*
(Boddaert 1783)**AV**

Africa, Madagascar, Eurasia to Australia.

Distribution Vagrant (*M. m. lineatus*), only 7 records, all singles. **Sarawak:** Kuching, 25-26 Dec 1962 (Croxall 1969), and 19 Sep 1968 (Smythies 1981). **Brunei:** Seria, 18 Dec 1966 (Harrisson 1967), and 1 there, Nov-Dec 1975 (Vowles & Vowles 1997). **Sabah:** Labuan, Dec 1889 (Smythies 1957); Papar, 20-24 Mar 1967 (Gore 1968). **Kalimantan Selatan:** Balikpapan, 21 Dec 1996 (Holmes 1997).

Habitat Open areas of lowlands, with scattered trees, and around human habitation.

Taxonomic note *M. (m.) lineatus* (J.E. Gray) 1831 is sometimes recognised as specifically distinct (Thiollay 1994).

Brahminy Kite*Haliastur indus*
(Boddaert 1783)**RB**

Pakistan and S China to SE Asia, Philippines and Greater Sundas; Wallacea, New Guinea to Solomons and Australia.

Distribution Common resident (*H. i. intermedius*) throughout, but nomadic; sea level probably to over 1100 m (Smythies 1957, 1981). Numbers decreased in some areas in the 1980s and 1990s, eg coastal plain of **Brunei** (CFM). Reported as still common in parts of **Kalimantan** (Holmes 1997).

Habitat Open country, logged forest, oil plantations, cocoa plantations, refuse tips, on rivers far into the interior, and on the coast (Smythies 1981, 1999).

Breeding Eggs, Dec and Jan, no localities (Smythies 1981). **Sarawak:** young Sg. Rajang below Kapit, 16 Mar (Smythies 1957); nest Kelabit uplands at 1060 m, Jan (TH in Smythies 1999). **Brunei:** nest Jerudong, Mar 1990 (Mann 1991a). **Sabah:** nearly fledged young, 12 Apr, no locality (Whitehead 1893); egg Labuan, Dec 1873 (Sharpe 1879b); egg Bongawan, Jan 1963 (Sheldon *et al* 2001). **Kalimantan Timur:** nest Sg. Bahau at 1070 m, Jan (Smythies 1957); juveniles middle Mahakam lakes, early Jul onwards (Gönner 2000a). **Kalimantan Tengah:** nest Sg. Barito, 30 Aug 1989 (Wilkinson *et al* 1991a). **Kalimantan Barat:** 6 nests Telok Pakedai, Feb, 3 there in Mar and 1 in Apr (Coomans de Ruiter 1936a).

White-bellied Sea Eagle*Haliaeetus leucogaster*
(Gmelin 1788)**RB**

India, SE China, SE Asia, Greater Sundas, Philippines and Wallacea.

Distribution Widespread resident in low numbers around the coast of main island and on the islands of the **Anambas**, **Tambelans** (Oberholser 1917a, 1919), **Barren I. (= Kaya Aru)** (Gibson-Hill 1956), **N Natunas**, **Maratuas**, **Karimatas**, and those off **Sabah** coast (Smythies 1957); up to 200 m. **Brunei:** numbers decreased dramatically during the 1980s and early 1990s; inland at Wasan (CFM); up to 30 km from land on offshore platforms (Mann 1987b). **Sabah:** more numerous east coast (CFM); inland at Danum (Mobilik & Marsh 1992). **Kalimantan Timur:** inland along Sg. Mahakam at least as far as Muara Pahu (Holmes 1997), and on middle Mahakam lakes (Gönner 2000a). **Kalimantan Tengah:** inland on upper Sg. Sekonyer within Tg. Puting National Park (Nash & Nash 1988, Wilkinson *et al* 1991a). **Kalimantan Selatan:** inland at Negara, Riam Kanan Lake and Barabai, on Sg. Barito (Holmes 1997).

Habitat Open water; chiefly coastal; occasional inland; rarely offshore (CFM).

GAZETTEER

The coordinates given are approximate and to the nearest minute.

B = Brunei; KB = Kalimantan Barat (west); KS = Kalimantan Selatan (south); KTe = Kalimantan Tengah (central); KTi = Kalimantan Timur (east); Sb = Sabah; Sk = Sarawak.

SARAWAK

Adjan	02° 11' N 113° 10' E
Anut/ Anyut Paku	01° 33' N 111° 33' E
Arent	not traced
Bah Kelalan	04° 10' N 115° 30' E
Bako National Park	01° 43' N 110° 28' E
Bakong	02° 51' N 111° 53' E
Balai Ringin	01° 03' N 110° 45' E
Balingean/Balingian/Belingian	02° 57' N 112° 33' E
Bario	03° 35' N 115° 22' E
B. (Batu) Kitang (Kuching)	01° 26' N 110° 16' E
B. Lawi	03° 52' N 115° 23' E
B. Lintang/Lintan (?= G. Lintang)	01° 01' N 111° 33' E or 01° 30' N 111° 36' E
B. Niah	03° 48' N 113° 45' E
B. Niah Estate	near B. Niah
B. Patap	01° 25' N 110° 09' E
Bau	01° 25' N 110° 09' E
Bedi	not traced
Belaga	02° 45' N 113° 46' E
Belidah	01° 46' N 111° 18' E
Bengo/Bengoh/Bungoh/Bungal Hills/Range/Mts.	01° 16' N 110° 09' E
Betong	01° 26' N 111° 30' E
Binatang	02° 09' N 111° 37' E
Bintulu	03° 12' N 113° 01' E
Bt. Awai	01° 27' N 112° 08' E
Bt. (Bukit) Batu Mabun	02° 54' N 114° 34' E
Bt. Entimau	01° 30' N 112° 05' E
Bt. Sarang	not traced
Bt. G. Trahu/Traku	01° 02' N 111° 44' E
Buntal	01° 41' N 110° 22' E
Busan (?= Kg. Busang)	01° 39' N 109° 47' E
Dalat	02° 45' N 111° 57' E
Debak	01° 30' N 111° 28' E
Engkilil	01° 05' N 111° 42' E
Gedong	01° 15' N 110° 41' E
G. (Gunung) Api (G. Mulu National Park)	01° 28' N 110° 04' E
G. Apud Runan	03° 27' N 115° 35' E
G. Ayer	02° 09' N 112° 24' E
G. Batu Lawi	03° 52' N 115° 23' E
G. Batu Sang/Song	03° 44' N 114° 49' E
G. Batu Timbang (Sk/KTi border)	01° 39' N 114° 45' E
G. Berumput (Sk/KB border)	01° 41' N 109° 39' E
G. Derian	near Batu Lawi, Kelabit uplands
G. Dulit	03° 30' N 113° 05' E
G. Giggi/Gilly	01° 02' N 110° 20' E
G. Kalulong	03° 14' N 114° 39' E
G. Lawit	01° 26' N 112° 58' E
G. Lintang/Lintan (?= B. Lintang)	01° 01' N 111° 33' E or 01° 30' N 111° 36' E
G. Marabok/Marapok/Merabok/Merapok	05° 02' N 115° 40' E
G. Matang	01° 36' N 110° 11' E
G./Bt. Mersing	02° 31' N 113° 06' E
G. Mulu	04° 02' N 114° 54' E

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