An Update on the Avifauna of Gunung Lumut Protection Forest (East Kalimantan) reinforcing the Potential Conservation Value of *Hutan adat*

BEN WIELSTRA[1], TJALLE BOORSMA[2], SANDER M. PIETERSE [1]

[1] Naturalis Biodiversity Center, Leiden, The Netherlands; ben.wielstra@naturalis.nl;
[2] Wageningen University and Research Centre

Summary: We provide results of a second survey of the *hutan adat* (forest traditionally exploited on a small scale by local people) situated in the Gunung Lumut Protection Forest, East Kalimantan, conducted in 2007 and closely following the first survey in 2005 (Wielstra & Pieterse 2009. Kukila 14: 1-15). An additional 29 species were observed, bringing the total number of species observed in GLPF to 217. These include two globally threatened (Vulnerable) species, 16 "Sundaic Lowland Forest" biome-restricted species and one "Sundaic montane forest" biome-restricted species. We confirmed the presence of over 1% of the biogeographic population of the congregatory waterbird Storm's Stork *Ciconia stormi*. The findings provide further support for our previous suggestion to recognize Gunung Lumut Protection Forest as an Important Bird Area. We also provide some remarks on the potential conservation value of *hutan adat* and raise issues to be addressed in further studies.

Ringkasan: Kami menyajikan hasil-hasil survei kedua di Hutan Adat (kawasan hutan yang secara tradisional dieksploitasi dalam skala kecil oleh masyarakat setempat) yang terletak di Hutan Lindung Gunung Lumut, Kalimantan Timur. Survei ini dilaksanakan tahun 2007 melanjutkan survei pertama yang dilaksanakan tahun 2005 (Wielstra & Pieterse 2009. Kukila 14: 1-15). Sebanyak 29 jenis tambahan dihasilkan dari survei ini. Tambahan itu termasuk dua jenis yang secara global terancam punah (Rentan, *Vulnerable*), 16 jenis merupakan bioma "hutan dataran rendah Sunda" dengan sebaran terbatas. Penambahan ini, dan konfirmasi bahwa kawasan ini mendukung setidaknya 1% dari populasi kumpulan burung-burung air (Bangau Storm *Ciconia stormi*), lebih menegaskan rekomendasi kami sebelumnya yang mengusulkan kawasan Gunung Lumut sebagai Kawasan Penting untuk Burung. Kami juga memberikan beberapa catatan mengenai potensi nilai konservasi dari Hutan Adat dan mengangkat isu-isu yang perlu digarap untuk kajian-kajian selanjutnya.

Introduction

In Indonesia, forested areas are controlled by the state's Forestry Department. A small but unknown (i.e. not officially registered; J. van der Ploeg *in litt.*) percentage of the forests are subject to land claims based on traditional (*adat*) right by local communities: the so-called *hutan adat*. Although these claims often conflict with modern law, they can in theory find legal recognition (Bakker & Moniaga 2010). In practice, local communities claim exploitation rights to the forest, meaning they use the area for the gathering of non-timber forest products (such as fruit and honey), hunting and timber collection (van der Ploeg & Persoon 2007). If 'owners' decide to

exploit *hutan adat* in a sustainable way, this would ensure some form of forest management.

In 2005 and 2007 we surveyed the *hutan adat* of three villages located in Gunung Lumut Protection Forest (GLPF). Results from the 2005 survey were previously reported in Kukila (Wielstra & Pieterse 2009). In the current paper we present new results of the 2007 bird survey and discuss these in combination with those from 2005. In the light of the cumulative survey results of GLPF, we consider the potential role of *hutan adat* in conservation and raise issues that should be addressed in future studies.

Methods

Surveys were conducted in three villages of which the traditional forest (*hutan adat*) overlaps with GLPF: Pinang Jatus, Mului and Swanslutung (Fig. 1, Plate 1, 2). These villages can be reached from Balikpapan by taking the Trans Kalimantan Highway towards Tanah Grogot until the town of Long Ikis. From there, the villages can be reached via logging roads. The trip takes c. 4-6 hours from Balikpapan, depending on the state of the logging roads. Pinang Jatus and Mului were visited in both 2005 (January-March and March-April) and 2007 (April and May), whereas Swanslutung was only visited in 2007 (June). The total time spent at the three sites in 2005 and 2007 combined was 50, 24 and 14 field days, respectively. This paper presents details on interesting species encountered in 2007 and updates the checklist for GLPF. Further notes on the study area and details on observations from 2005 can be found in Wielstra & Pieterse (2009).

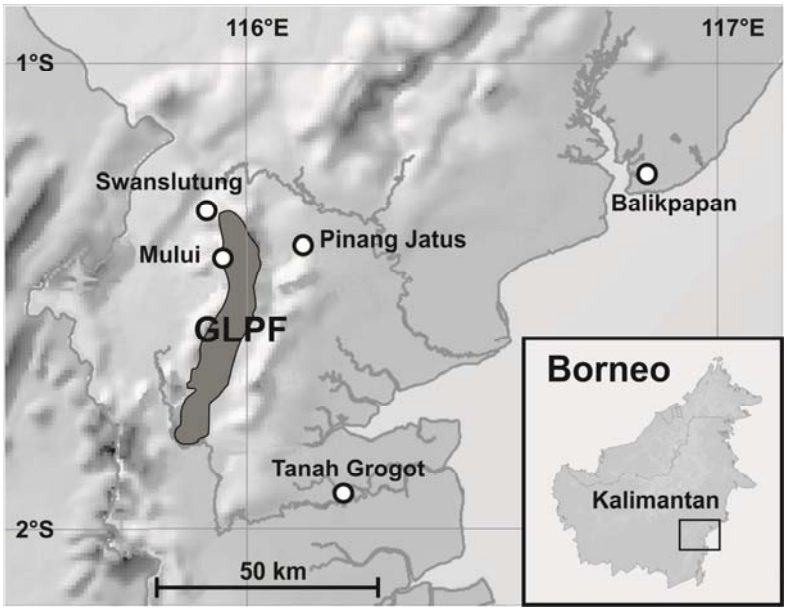


Figure 1. The position of Gunung Lumut Protection Forest (GLPF) and the three study sites. Swanslutung is located *c.* 15 km west of the border of GLPF (01°24'S, 115°52'E; *c.* 200 m asl). Details on Pinang Jatus and Mului can be found in Wielstra & Pieterse (2009).



SANDER M. PIETERSE

Plate 1. The village of Mului, with Gunung Lumut in the background. 12 January 2005, Mului, East Kalimantan.



TJALLE BOORSMA

Plate 2. Logging road. April 2007, Pinang Jatus, East Kalimantan.

Results

In the 2007 survey, 194 species were observed in GLPF with certainty; 142 around Pinang Jatus (PJ), 149 around Mului (M) and 144 around Swanslutung (S), excluding three introduced species (Sooty-headed Bulbul *Pycnonotus aurigaster*, Tree Sparrow *Passer montanus* and Crested Myna *Acridotheres cristatellus*). Compared with the data from 2005 (Wielstra & Pieterse 2009), the survey in 2007 yielded 29 additional species, bringing the total number of species observed in GLPF to 217. A detailed checklist of all observations is provided in Appendix 1.

Two additional globally threatened species (www.iucnredlist.org) were observed: the Blue-banded Kingfisher Alcedo euryzona and Sunda Blue Flycatcher Cyornis caerulatus, both classified as Vulnerable, bringing the total to seven. The presence of 16 additional "Sundaic Lowland Forest" biome-restricted species was established (see Appendix 1), bringing the total to 107 (Chan *et al.* 2004, Plate 3). Furthermore, Blue-banded Pitta *Pitta arquata* was observed: the first species endemic to the "Sundaic montane forest" biome recorded (with certainty) in GLPF. As our survey focused on the lower parts of GLPF we consider it likely that the higher regions hold additional species, missed in the 2005 and 2007 surveys. Storm's Stork *Ciconia stormi* is considered a congregatory waterbird (Chan *et al.* 2004) and the number of individuals present was confirmed in 2007 to pass the threshold of 1% of the biogeographic population (which is four, based on an estimated world population of 400; Chan *et al.* 2004).

Some of these additional species were to be expected (cf. Smythies & Davison 1999; Mann 2008), but others are more interesting and notes are provided below. Villages are abbreviated as PJ (Pinang Jatus), M (Mului) and S (Swanslutung). Asterisks indicate species that were added in 2007. Species between brackets were not identified with certainty. We recorded the calls of many species using a Sharp MT80 NetMD recorder and a Sony ECM-PB1C parabola microphone and have made these available on Xeno-canto. They are referred to below by their catalogue number.



Plate 3. Black-bellied Malkoha *Rhopodytes diardi*. June 2007, Swanslutung, East Kalimantan.

STORM'S STORK *Ciconia stormi*
A species considered 'Endangered' due to its small population, declining because of habitat destruction. In 2005, two individuals were noted at PJ in 2005. **PJ:** One was seen flying past; **M:** Four were seen perched in a tree along the Mului river.

BAT HAWK *Machaeramphus alcinus*
Considered uncommon and local, but probably under-recorded owing to its crepuscular behaviour (Mann 2008). In 2005, this species was also seen in PJ. **PJ:** One was seen flying past north of the village in the late afternoon.

*LONG-BILLED PARTRIDGE *Rhizothera longirostris*
Mann (2008) lists one previous record from East Kalimantan of this uncommon species. **PJ:** Based on the analysis of sound recordings (XC33421); **M:** One heard in the distance.

BORNEAN PEACOCK PHEASANT *Polyplectron schleiermacheri*
This Endangered endemic species is considered very rare. Estimates of its total population size differ (reviewed in Mann 2008). It was heard (and recorded; XC19458) in PJ during the 2005 survey. One of our hosts in 2005 pointed out this species in our field guide (MacKinnon & Phillipps 1993), and mimicked its call, reflecting the familiarity of the people of PJ with this species. **PJ:** Based on the analysis of sound recordings (XC33422). Furthermore, a feather was found during the 2007 survey (Plate 4).



Plate 4. Feather of Bornean Peacock-Pheasant *Polyplectron schleiermacheri*. April 2007, Pinang Jatus, East Kalimantan.

*RED-LEGGED CRAKE *Rallina fasciata*
Considered a very scarce resident and passage migrant in very low numbers, though probably under-recorded (Mann 2008). **M:** Based on the analysis of sound recordings from 11 April (XC33425). This record was formerly identified as Ruddy-breasted Crake *Porzana fusca* (and erroneously listed in Mann 2008), but has been re-identified based on a discussion on the Xeno-canto forum (by D.L. Yong and C. Trainor).

LARGE GREEN PIGEON *Treron capellei*
A very scarce, nomadic species considered Vulnerable (Mann 2008; Smythies & Davison 1999). The two records from 2005 concern pairs in both PJ and M. **M:** Two seen foraging; **S:** One seen foraging.

*MOUSTACHED HAWK-CUCKOO *Cuculus vagans*
This species is considered to be rare (Smythies & Davison 1999; Payne 2005). **M:** One was seen calling in flight; **S:** Based on analysis of sound recordings (XC33428).

BORNEAN GROUND-CUCKOO *Carpococcyx radiatus*
A widespread endemic, occurring in low densities (Long & Collar 2002; Mann 2008; Payne 2005). This species was heard at PJ in 2005. S: One was heard calling.

SHORT-TOED COUCAL *Centropus rectunguis*
A rare species, considered Vulnerable (Mann 2008; Payne 2008). Encountered in 2005 at both PJ and M. **PJ:** Based on the analysis of sound recordings; **M:** One was seen and heard just outside the village.

*ORIENTAL BAY OWL *Phodilus badius*
A sparingly distributed species (Mann 2008). **M:** Heard calling in the middle of the night close to the village.

*BLUE-BANDED KINGFISHER *Alcedo euryzona*
This uncommon kingfisher is considered Vulnerable (Mann 2008). **M:** One male seen perched at a small stream.

GREAT SLATY WOODPECKER *Mulleripicus pulverulentus*
An uncommon species (Mann 2008). Lammertink (2004) suggests it should be regarded as globally threatened with extinction. In 2005 it was only noticed in PJ. **PJ:** One or two individuals seen and recorded (XC33552); **M:** Two seen foraging; **S:** Group of five noisy birds seen chasing each other.

BANDED PITTA *Pitta guajana*
This pitta is considered uncommon and its range is poorly documented (Lambert & Woodcock 1996; Mann 2008). The Banded Pitta complex has been split into three species and the Bornean race is now considered a distinct (endemic) species, *Pitta schwaneri* (Rheindt & Eaton 2010). In 2005 it was noted at PJ. **PJ:** Two individuals heard; **M:** One individual seen and recorded (XC33653); S: One individual heard.

*BLUE-BANDED PITTA *Pitta arquata*
Records for this endemic pitta from Kalimantan are very sparse (Mann 2008). **PJ:** One individual heard; **M:** One individual seen and regularly heard close to the village; **S:** Based on the analysis of sound recordings (XC33559).

BLUE-HEADED PITTA *Pitta baudii*
This endemic pitta is considered to be Vulnerable (Mann 2008). The presence of a population at PJ was noted in 2005. **PJ:** One male seen and recorded (XC33650); **S:** Male and female seen and heard.

[WHITE-EYE sp. *Zosterops* sp.]
Either *Z. everetti* (Everett's White-eye) or *Z. palpebrosus* (Oriental White-eye). The former seems the likely candidate, based on distribution (van Balen 2008; Smythies & Davison 1999). However, the latter has been observed in Sungai Wain Protection Forest, near Balikpapan (Slik & van Balen 2006). **PJ:** As in 2005, white-eyes were observed which could not be identified to species level.

*CHESTNUT-CAPPED THRUSH *Zoothera interpres*
This thrush is considered very local or rare (Mann 2008) but it may be overlooked due to its elusive habits. **M:** Two individuals seen and heard on different locations (XC34499).

NARCISSUS FLYCATCHER *Ficedula narcissina*
Although there are very few records of this migrant from Kalimantan (Mann 2008) it might have been overlooked. In 2005 it was noticed at M. **M:** This species was again observed in 2007.

*MUGIMAKI FLYCATCHER *Ficedula mugimaki*
The few records from Indonesian Borneo of this migrant all stem from East Kalimantan (Mann 2008). **PJ:** A male was observed.

*DARK BLUE FLYCATCHER *Cyornis concretus*
An uncommon species with few records from Kalimantan (Mann 2008), whose presence was already suspected (at M) in 2005. **PJ:** A male seen perched.

*SUNDA BLUE FLYCATCHER *Cyornis caerulatus*
This uncommon to rare species is classified as Vulnerable (Mann 2008). **M:** A singing male was recorded (XC88289).

We made some incidental observations of bird trapping (Plate 5) but did not collect these in a systematic way. Bird trappers seem to take every bird they can catch, including those not known for being good songsters (Plate 6). Capture for the bird trade poses a direct threat for avifauna (Jepson & Ladle 2005). Could excessive trapping be the reason we did not observe Straw-headed Bulbul *Pycnonotus zeylanicus*? Hunting for food or ornaments mainly focusses on Phasianidae (Smythies & Davison 1999). We established that hunting occurs (Plate 7), but cannot provide a proper estimate of its impact. To obtain the necessary data, a proper survey should be conducted.



SANDER M. PIETERSE

Plate 5. Asian Fairy Bluebird *Irena puella*. 25 March 2005, Mului, East Kalimantan.



SANDER M. PIETERSE

Plate 6. Juvenile Black-and-red Broadbill *Cymbirhynchus macrorhynchos*. 26 March 2005, Mului, East Kalimantan.



SANDER M. PIETERSE

Plate 7. Great Argus *Argusianus argus*. 25 March 2005, Mului, East Kalimantan.

Discussion

The majority of the world's biodiversity depends on tropical forests, a biome at serious risk of being depleted (Myers *et al.* 2000). The decline of natural forest cover on the island of Borneo is progressing at an alarming rate (Jepson *et al.* 2001; Curran *et al.* 2004). Current conservation efforts are mainly focused on reserves. These, however, appear insufficient for conserving biodiversity (Johns 1997; Bruner *et al.* 2001).

Although the *hutan adat* visited by us has been shown to be slightly impoverished for particular avian feeding guilds (especially understory insectivores), it still contains a relatively intact avifauna compared to pristine forest (Wielstra *et al.* 2011; this paper). From a conservation point of view, the areas occupied by traditional forest on Borneo could be seen as complementing existing protected areas if deemed of sufficient importance to biodiversity. As the total amount of forest cover claimed by *adat* is unknown at this point, it would be worthwhile to gather existing information to obtain an estimate. Furthermore, some considerations regarding *hutan adat* should be taken into account.

An important question is how likely it is that our findings in GLPF are representative for *hutan adat* in general. To be more specific, what is the state of other *hutan adat* forest patches compared to those we visited in GLPF? The degree of isolation of the *hutan adat* from a large unexploited forest tract, the quantity and quality of habitat 'stepping stones' between them, and the dominant type of habitat in the surrounding matrix (e.g. treeless paddies versus degraded scrub) must be important factors in determining the avifauna present. The area covered by individual *hutan adat* patches alone is probably too small to maintain viable populations for most species (Lambert & Collar 2002). Another issue is the reproductive output of birds in *hutan adat*. It could be negative for some species, but complemented by a surplus from surrounding undisturbed forest. In other words, *hutan adat* might act as a sink for some species, and depend on nearby source populations for replenishment (Pulliam 1988). Future studies would be valuable.

We recommend increasing awareness among local communities at all levels (government, NGOs and villagers) about the conservation value of their *hutan adat*. This might encourage the continuation of environmentally "friendly", sustainable exploitation of *hutan adat* in the future, instead of converting forested areas to agricultural land, such as oil palm plantations, for short-term gain. Furthermore, the additional data from 2007 reinforce the argument to recognize GLPF as an Important Bird Area (Wielstra & Pieterse 2009). GLPF now represents one of the largest forest tracts in East Kalimantan as the better-known forests of Sungai Wain and Kutai have suffered from forest fire. This survey suggests that the majority of the original avifauna is still intact (107 of East Kalimantan's 143 Sundaic Lowland Forest biome-restricted species were recorded). Therefore, the continued protection of GLPF is of global importance.

Acknowledgements

These surveys were conducted as part of our studies at Leiden University (BW & SMP) and Hogeschool Van Hall Larenstein (TB) and were conducted in collaboration with the Institute of Environmental Sciences, Leiden (CML) and Tropenbos International Indonesia, Mulawarman University (UNMUL). We would like to thank our supervisors René Dekker and Hans de Iongh. We received logistic support from Tropenbos International Indonesia. Bas van Balen and James Eaton provided help with identification issues. Laurens Bakker and Jan van der Ploeg provided information regarding *hutan adat*. We would like to thank the people of Pinang Jatus, Mului and Swanslutung for their hospitality. BW and SMP were financially supported by the Delta fund, the LUSTRA fund and the J.J. Ter Pelkwijk fund. TB was financially supported by Pluspunt Individu.

References

Bakker, L. & S. Moniaga. 2010. The space between: Land claims and the law in Indonesia. *Asian Journal of Social Science* 38: 187–203.

Van Balen, S. 2008. Family Zosteropidae (White-eyes). Pp. 402-485 *in* del Hoyo, J., A. Elliott & D. Christie (eds). *Handbook of the birds of the World. Volume 13*. Lynx Edicions, Barcelona.

Bruner, A.G., R.E. Gullison, R.E. Rice & G.A.B. da Fonseca. 2001. Effectiveness of Parks in Protecting Tropical Biodiversity. *Science* 291: 125-128.

Chan, S., M.J. Crosby, M.Z. Islam & A.W. Tordoff. 2004. Important Bird Areas in Asia: key sites for conservation. BirdLife Conservation Series 13. BirdLife International, Cambridge.

Curran, L.M., S.N. Trigg, A.K. McDonald, D. Astiani, Y.M. Hardiono, P. Siregar, I. Caniago & E. Kasischke. 2004. Lowland forest loss in protected areas of Indonesian Borneo. *Science* 303: 1000-1003.

Johns, A.D. 1997. *Timber production and Biodiversity Conservation in Tropical Rainforests.* Cambridge University Press.

Jepson, P., J.K. Jarvie, K. MacKinnon & K.A. Monk. 2001. The End for Indonesia's Lowland Forests? *Science* 292: 859-861.

Jepson, P. & R.J. Ladle. 2005. Bird-keeping in Indonesia: conservation impacts and the potential for substitution-based conservation responses. *Oryx* 39: 442-448.

Lambert, F. & M. Woodcock. 1996. *Pittas, Broadbills and Asities.* Pica Press, Sussex.

Lambert, F.R. & N.J. Collar. 2002. The future of Sundaic lowland forest birds: long-term effects of commercial logging and fragmentation. *Forktail* 18: 127-146.

Lammertink, M. 2004. A multiple-site comparison of woodpecker communities in Bornean lowland and hill forests. *Conservation Biology* 18: 746-757.

Long, A.J. & N.J. Collar. 2002. Distribution, status and natural history of the Bornean Ground Cuckoo *Carpococcyx radiatus*. *Forktail* 18: 111-119.

MacKinnon, J. & K. Phillipps. 1993. *A field guide to the birds of Borneo, Sumatra, Java and Bali: the Greater Sunda islands.* Oxford University Press.

Mann, C.F. 2008. *The birds of Borneo: an annotated checklist.* BOU Checklist Series 23. British Ornithologists' Union/British Ornithologists' Club, Peterborough.

Myers, N., R.A. Mittermeier, C.G. Mittermeier, G.A.B. da Fonseca & J. Kent. 2000. Biodiversity hotspots for conservation priorities. *Nature* 403: 853-858.

Myers, S. 2009. *Birds of Borneo (Brunei, Sabah, Sarawak, and Kalimantan)*. Princeton University Press.

Payne, R.B. 2005. *The cuckoos*. Oxford University Press.

Phillipps, Q. & K. Phillipps. 2009. *Phillipps' field guide to the birds of Borneo*. Beaufoy books.

van der Ploeg, J. & G.A. Persoon. 2007. A socio-economic survey in the Gunung Lumut forest area. Pp 109-152 *in* de Iongh, H.H., G.A. Persoon & W. Kustiawan (eds) *Options for biodiversity conservation and sustainable use in lowland forests of Southeast Borneo*. Leiden: Tropenbos/CML/UNMUL.

Pulliam, H.R. 1988. Sources, sinks, and population regulation. *American Naturalist* 132: 652-661.

Rheindt, F.E. & J.A. Eaton. 2010. Biological species limits in the Banded Pitta *Pitta guajana*. *Forktail* 26: 86-91.

Slik, J.W.F. & S. van Balen. 2006. Bird community changes in response to single and repeated fires in a lowland tropical rainforest of eastern Borneo. *Biodiversity and Conservation* 15: 4425-4451.

Smythies, B.E. & G.W.H. Davison. 1999. *The birds of Borneo*. Natural History Publications (Borneo).

Wielstra, B. & S.M. Pieterse. 2009. A bird survey of Gunung Lumut Protection Forest, East Kalimantan and a recommendation for its designation as an Important Bird Area. *Kukila* 14: 1-14.

Wielstra, B., T. Boorsma, S.M. Pieterse & H.H. de Iongh. 2011. The use of avian feeding guilds to detect small-scale forest disturbance: a case study in East Kalimantan, Borneo. *Forktail* 27: 60-67.

Appendix 1: Bird species observed in Gunung Lumut Protection Forest.

Bird species observed in Gunung Lumut Protection Forest. *IUCN threat level*: EN = Endangered; VU = Vulnerable; NT = Near Threatened. *Status*: R = resident species with wider distribution outside of Borneo; B = Borneo endemic; W = wintering migrant (MacKinnon & Phillipps 1993; Mann 2008; Myers 2009; Phillipps & Phillipps 2009; Smythies & Davison 1999). *Biome*: AS14 = Sundaic lowland forest, AS15 = Sundaic montane forest (Chan et al. 2004). *PJ* (Pinang Jatus), *M* (Mului) and *S* (Swanslutung): 1 = species observed during 2005 survey only; 2 = species observed during 2007 survey only; B = species observed during both 2005 and 2007 survey; ? = species possibly observed. Species new to GLPF observed in 2007 are marked with an asterisk.

Scientific name	Common name	IUCN	Status	Biome	PJ	M	S
Anhinga melanogaster	Darter	NT	R	-	1	-	-
Egretta intermedia	Yellow-billed Egret	-	R W	-	1	-	-
Butorides striata	Striated Heron	-	R	-	1	2	-
Ciconia stormi	Storm's Stork	EN	R	AS14	B	B	-
Aviceda jerdoni	Jerdon's Baza	-	R	-	B	B	-
Pernis ptilorhynchus	Crested Honey Buzzard	-	R W	-	1	1	-
Macheiramphus alcinus	Bat Hawk	-	R	-	B	-	-
Elanus caeruleus	Black-winged Kite	-	R	-	1	-	-
Ichthyophaga humilis	Lesser Fish Eagle	NT	R	-	1	2	-
Ichthyophaga ichthyaetus	Grey-headed Fish Eagle	NT	R	-	1	-	-
Spilornis cheela	Crested Serpent Eagle	-	R	-	B	B	2
Accipiter sp.	Sparrowhawk sp.	-	W	-	1?	-	-
Ictinaetus malayensis	Black Eagle	-	R	-	1	B	-
Hieraaetus kienerii	Rufous-bellied Eagle	-	R	-	B	2	2
Spizaetus alboniger	Blyth's Hawk-Eagle	-	R	AS14	1	-	-
Microhierax fringillarius	Black-thighed Falconet	-	R	AS14	B	-	-
**Rhizothera longirostris*	Long-billed Partridge	NT	R	AS14	2	2	-
**Coturnix chinensis*	King Quail	-	R	-	-	-	2
Rollulus rouloul	Crested Partridge	NT	R	AS14	2	`	2
Lophura ignita	Crested Fireback	NT	R	AS14	B	-	-
Polyplectron schleiermacheri	Bornean Peacock-Pheasant	EN	B	AS14	B	-	-
Argusianus argus	Great Argus	NT	R	AS14	B	B	2
**Rallina fasciata*	Red-legged Crake	-	R	-	-	2	-
Amaurornis phoenicurus	White-breasted Waterhen	-	R	-	B	1	2
Actitis hypoleucos	Common Sandpiper	-	W	-	1	-	-
Treron capellei	Large Green Pigeon	VU	R	AS14	1	B	2
Treron curvirostra	Thick-billed Green Pigeon	-	R	-	B	-	2

Scientific name	Common name	IUCN	Status	Biome	PJ	M	S
Treron olax	Little Green Pigeon	-	R	AS14	B	B	2
Treron vernans	Pink-necked Green Pigeon	-	R	-	-	1	-
Ducula aenea	Green Imperial Pigeon	-	R	-	B	-	2
Ducula badia	Mountain Imperial Pigeon	-	R	-	-	1	2
Streptopelia chinensis	Spotted Dove	-	R	-	B	-	2
Chalcophaps indica	Common Emerald Dove	-	R	-	B	B	2
Psittinus cyanurus	Blue-rumped Parrot	NT	R	AS14	B	B	2
Loriculus galgulus	Blue-crowned Hanging Parrot	-	R	AS14	B	B	2
**Cuculus vagans*	Moustached Hawk-Cuckoo	NT	R	AS14	-	2	2
Cuculus micropterus	Indian Cuckoo	-	R	-	1	B	2
Cacomantis sonneratii	Banded Bay Cuckoo	-	R	-	2	B	2
Cacomantis merulinus	Plaintive Cuckoo	-	R	-	B	B	2
Chrysococcyx xanthorhynchus	Violet Cuckoo	-	R	-	1	B	-
Surniculus lugubris	Asian Drongo-Cuckoo	-	R	-	1	B	2
Rhopodytes diardi	Black-bellied Malkoha	NT	R	AS14	-	B	2
Rhopodytes sumatranus	Chestnut-bellied Malkoha	NT	R	AS14	B	-	2
Rhinortha chlorophaeus	Raffles's Malkoha	-	R	AS14	B	B	2
Zanclostomus javanicus	Red-billed Malkoha	-	R	AS14	B	-	-
Rhamphococcyx curvirostris	Chestnut-breasted Malkoha	-	R	AS14	B	B	2
Carpococcyx radiatus	Bornean Ground Cuckoo	NT	R	AS14	1	-	2
Centropus rectunguis	Short-toed Coucal	VU	R	AS14	B	B	-
Centropus sinensis	Greater Coucal	-	R	-	B	B	2
Centropus bengalensis	Lesser Coucal	-	R	-	B	B	2
**Phodilus badius*	Oriental Bay Owl	-	R	-	-	2	-
Ninox scutulata	Brown Hawk Owl	-	R	-	B	1	-
Strix leptogrammica	Brown Wood Owl	-	R	-	1	-	-
Collocalia sp.	'nest swiftlet' sp.	-	R	-	1?	1?	-
Collocalia esculenta	Glossy Swiftlet	-	R	-	B	B	2
Hirundapus giganteus	Brown-backed Needletail	-	R W	-	1	2	2
Rhaphidura leucopygialis	Silver-rumped Swift	-	R	AS14	B	B	2
Cypsiurus balasiensis	Asian Palm Swift	-	R	-	B	B	2
Hemiprocne longipennis	Grey-rumped Treeswift	-	R	-	B	B	2
Hemiprocne comata	Whiskered Treeswift	-	R	-	B	B	2
Harpactes kasumba	Red-naped Trogon	NT	R	AS14	B	2	2
Harpactes diardii	Diard's Trogon	NT	R	AS14	B	B	2
Harpactes duvaucelii	Scarlet-rumped Trogon	NT	R	AS14	B	B	2
Alcedo meninting	Blue-eared Kingfisher	-	R	-	B	-	-
**Alcedo euryzona*	Blue-banded Kingfisher	VU	R	AS14	-	2	-
Ceyx erithacus	Oriental Dwarf Kingfisher	-	R	-	B	B	2
Pelargopsis capensis	Stork-billed Kingfisher	-	R	-	B	-	-
Merops viridis	Blue-throated Bee-eater	-	R	-	B	1	2
Nyctyornis amictus	Red-bearded Bee-eater	-	R	AS14	2	B	2
Eurystomus orientalis	Oriental Dollarbird	-	R W	-	1	-	-

Scientific name	Common name	IUCN	Status	Biome	PJ	M	S
Berenicornis comatus	White-crowned Hornbill	NT	R	AS14	1	-	-
Anorrhinus galeritus	Bushy-crested Hornbill	-	R	AS14	B	B	2
Rhyticeros corrugatus	Wrinkled Hornbill	NT	R	AS14	B	B	-
Rhyticeros undulatus	Wreathed Hornbill	-	R	-	B	B	2
Anthracoceros malayanus	Black Hornbill	NT	R	AS14	B	2	2
Anthracoceros albirostris	Asian Pied Hornbill	-	R	-	B	-	-
Buceros rhinoceros	Rhinoceros Hornbill	NT	R	AS14	B	B	2
Rhinoplax vigil	Helmeted Hornbill	NT	R	AS14	B	B	2
Megalaima chrysopogon	Golden-whiskered Barbet	-	R	AS14	B	B	2
**Megalaima rafflesii*	Red-crowned Barbet	NT	R	AS14	2	2	2
Megalaima mystacophanos	Red-throated Barbet	NT	R	AS14	B	B	2
Megalaima henricii	Yellow-crowned Barbet	NT	R	AS14	B	B	2
Megalaima australis	Blue-eared Barbet	-	R	-	B	B	2
Calorhamphus fuliginosus	Brown Barbet	-	R	AS14	B	B	2
Indicator archipelagicus	Malaysian Honeyguide	NT	R	AS14	1	-	-
Sasia abnormis	Rufous Piculet	-	R	AS14	B	B	2
Micropternus brachyurus	Rufous Woodpecker	-	R	-	-	B	-
Picus puniceus	Crimson-winged Woodpecker	-	R	AS14	1	B	2
Picus miniaceus	Banded Woodpecker	-	R	AS14	1	1	-
Dinopium rafflesii	Olive-backed Woodpecker	NT	R	AS14	1	B	-
Meiglyptes tristis	Buff-rumped Woodpecker	-	R	AS14	B	B	2
Meiglyptes tukki	Buff-necked Woodpecker	NT	R	AS14	2	1	-
Mulleripicus pulverulentus	Great Slaty Woodpecker	-	R	-	B	2	2
Dryocopus javensis	White-bellied Woodpecker	-	R	-	1	1	2
Dendrocopos canicapillus	Grey-capped Pygmy Woodpecker	-	R	-	B	B	2
Hemicircus concretus	Grey-and-buff Woodpecker	-	R	AS14	B	B	-
Blythipicus rubiginosus	Maroon Woodpecker	-	R	AS14	B	B	2
Reinwardtipicus validus	Orange-backed Woodpecker	-	R	AS14	B	B	2
Corydon sumatranus	Dusky Broadbill	-	R	-	B	B	2
Cymbirhynchus macrorhynchos	Black-and-red Broadbill	-	R	AS14	B	1	2
Eurylaimus javanicus	Banded Broadbill	-	R	-	B	B	2
Eurylaimus ochromalus	Black-and-yellow Broadbill	NT	R	AS14	B	B	2
Calyptomena viridis	Green Broadbill	NT	R	AS14	B	B	2
Pitta caerulea	Giant Pitta	NT	R	AS14	1	-	-
Pitta guajana	Banded Pitta	-	R	AS14	B	2	2
**Pitta arquata*	Blue-banded Pitta	-	R	AS15	2	2	2
Pitta granatina	Garnet Pitta	NT	R	AS14	B	2	2
Pitta baudii	Blue-headed Pitta	VU	B	AS14	B	-	2
Pitta sordida	Hooded Pitta	-	R	-	B	B	2
Hirundo rustica	Barn Swallow	-	W	-	1	-	-
Hirundo tahitica	Pacific Swallow	-	R	-	B	B	2
Motacilla flava	Yellow Wagtail	-	W	-	1	-	-
Motacilla cinerea	Grey Wagtail	-	W	-	1	2	-

Scientific name	Common name	IUCN	Status	Biome	PJ	M	S
**Coracina striata*	Bar-bellied Cuckooshrike	-	R	-	-	-	2
Coracina fimbriata	Lesser Cuckooshrike	-	R	AS14	B	B	2
Pericrocotus flammeus	Scarlet Minivet	-	R	-	B	B	2
**Hemipus picatus*	Bar-winged Flycatcher-shrike	-	R	-	-	-	2
Hemipus hirundinaceus	Black-winged Flycatcher-shrike	-	R	AS14	B	B	2
**Tephrodornis virgatus*	Large Woodshrike	-	R	-	-	2	-
Aegithina tiphia	Common Iora	-	R	-	1	-	-
Aegithina viridissima	Green lora	NT	R	AS14	1	B	2
Chloropsis sonnerati	Greater Green Leafbird	-	R	AS14	B	B	2
Chloropsis cyanopogon	Lesser Green Leafbird	NT	R	AS14	1	B	2
Chloropsis cochinchinensis	Blue-winged Leafbird	-	R	-	1	B	2
Pycnonotus melanoleucos	Black-and-white Bulbul	NT	R	AS14	-	B	-
Pycnonotus atriceps	Black-headed Bulbul	-	R	-	B	B	2
**Pycnonotus squamatus*	Scaly-breasted Bulbul	NT	R	AS14	-	2	2
**Pycnonotus cyaniventris*	Grey-bellied Bulbul	NT	R	AS14	-	-	2
Pycnonotus eutilotus	Puff-backed Bulbul	NT	R	AS14	B	B	-
Pycnonotus goiavier	Yellow-vented Bulbul	-	R	-	B	B	2
Pycnonotus plumosus	Olive-winged Bulbul	-	R	AS14	1	B	-
Pycnonotus simplex	Cream-vented Bulbul	-	R	AS14	-	1	-
Pycnonotus brunneus	Red-eyed Bulbul	-	R	AS14	B	B	2
Pycnonotus erythropthalmos	Spectacled Bulbul	-	R	AS14	B	B	2
**Criniger finschii*	Finsch's Bulbul	NT	R	AS14	-	-	2
Criniger bres	Grey-cheeked Bulbul	-	R	AS14	B	B	2
Criniger phaeocephalus	Yellow-bellied Bulbul	-	R	AS14	B	2	2
Iole olivacea	Buff-vented Bulbul	NT	R	AS14	1	B	-
**Tricholestes criniger*	Hairy-backed Bulbul	-	R	AS14	2	-	2
Irena puella	Asian Fairy Bluebird	-	R	-	B	B	2
**Lanius tigrinus*	Tiger Shrike	-	W	-	-	2	-
Lanius cristatus	Brown Shrike	-	W	-	-	1	-
Lanius schach	Long-tailed Shrike	-	R	-	1	-	2
Copsychus saularis	Oriental Magpie-Robin	-	R	-	B	B	2
Copsychus malabaricus	White-rumped Shama	-	R	-	B	B	2
**Copsychus pyrrhopygus*	Rufous-tailed Shama	NT	R	AS14	-	-	2
**Enicurus ruficapillus*	Chestnut-naped Forktail	NT	R	AS14	2	-	2
Enicurus leschenaulti	White-crowned Forktail	-	R	-	1	2	2
**Zoothera interpres*	Chestnut-capped Thrush	-	R	AS14	-	2	-
Pellorneum capistratum	Black-capped Babbler	-	R	AS14	B	B	2
Trichastoma rostratum	White-chested Babbler	NT	R	AS14	2	1	-
Trichastoma bicolor	Ferruginous Babbler	-	R	AS14	B	B	2
Malacocincla malaccense	Short-tailed Babbler	NT	R	AS14	B	B	2
**Malacopteron magnirostre*	Moustached Babbler	-	R	AS14	-	2	2
Malacopteron affine	Sooty-capped Babbler	NT	R	AS14	B	1	2
Malacopteron cinereum	Scaly-crowned Babbler	-	R	-	B	2	2

Scientific name	Common name	IUCN	Status	Biome	PJ	M	S
Malacopteron magnum	Rufous-crowned Babbler	NT	R	AS14	B	B	2
Pomatorhinus montanus	Chestnut-backed Scimitar-Babbler	-	R	AS14	2	B	2
Napothera atrigularis	Black-throated Wren-Babbler	NT	B	AS14	2	1	2
Stachyris poliocephala	Grey-headed Babbler	-	R	AS14	-	B	2
Stachyris maculata	Chestnut-rumped Babbler	NT	R	AS14	B	1	2
Stachyris nigricollis	Black-throated Babbler	NT	R	AS14	B	B	2
Stachyris erythroptera	Chestnut-winged Babbler	-	R	AS14	B	B	2
Macronous gularis	Striped Tit-Babbler	-	R	-	B	B	2
Macronous ptilosus	Fluffy-backed Tit-Babbler	NT	R	AS14	B	B	-
Alcippe brunneicauda	Brown Fulvetta	NT	R	AS14	2	B	2
**Yuhina zantholeuca*	White-bellied Yuhina	-	R	-	-	-	2
Prinia flaviventris	Yellow-bellied Prinia	-	R	-	B	B	2
Orthotomus atrogularis	Dark-necked Tailorbird	-	R	-	B	2	2
Orthotomus sericeus	Rufous-tailed Tailorbird	-	R	-	B	B	2
Orthotomus ruficeps	Ashy Tailorbird	-	R	-	B	B	2
Phylloscopus borealis	Arctic Warbler	-	W	-	-	B	-
Abroscopus superciliaris	Yellow-bellied Warbler	-	R	-	2	B	-
Rhinomyias umbratilis	Grey-chested Jungle Flycatcher	NT	R	AS14	B	-	2
Muscicapa sibirica	Dark-sided Flycatcher	-	W	-	-	1?	-
Muscicapa dauurica	Asian Brown Flycatcher	-	R W	-	1	B	-
Eumyias thalassina	Verditer Flycatcher	-	R	-	-	B	2
Ficedula narcissina	Narcissus Flycatcher	-	W	-	-	B	-
**Ficedula mugimaki*	Mugimaki Flycatcher	-	W	-	2	-	-
**Ficedula dumetoria*	Rufous-chested Flycatcher	NT	R	AS14	2	-	-
Cyanoptila cyanomelana	Blue-and-white Flycatcher	-	W	-	-	1	-
**Cyornis concretus*	White-tailed Flycatcher	-	R	-	2	1?	-
Cyornis superbus	Bornean Blue Flycatcher	-	B	AS15	1?	2?	-
**Cyornis caerulatus*	Sunda Blue Flycatcher	VU	R	AS14	-	2	-
Cyornis turcosus	Malaysian Blue Flycatcher	NT	R	AS14	1	2?	-
**Culicicapa ceylonensis*	Grey-headed Canary-Flycatcher	-	R	-	2	2	2
Gerygone sulphurea	Golden-bellied Gerygone	-	R	-	1	-	-
Philentoma pyrhopterum	Rufous-winged Philentoma	-	R	AS14	B	B	2
**Philentoma velatum*	Maroon-breasted Philentoma	NT	R	AS14	2	2	2
Hypothymis azurea	Black-naped Monarch	-	R	-	B	B	2
Terpsiphone paradisi	Asian Paradise Flycatcher	-	R	-	B	B	2
Rhipidura javanica	Pied Fantail	-	R	-	B	-	2
Rhipidura perlata	Spotted Fantail	-	R	AS14	2	B	2
Sitta frontalis	Velvet-fronted Nuthatch	-	R	-	1	-	2
Prionochilus maculatus	Yellow-breasted Flowerpecker	-	R	AS14	1	B	-
Prionochilus xanthopygius	Yellow-rumped Flowerpecker	-	B	AS14	B	B	2
**Dicaeum chrysorrheum*	Yellow-vented Flowerpecker	-	R	-	-	2	-
Dicaeum trigonostigma	Orange-bellied Flowerpecker	-	R	-	B	B	2
Anthreptes simplex	Plain Sunbird	-	R	AS14	1	B	2

Scientific name	Common name	IUCN	Status	Biome	PJ	M	S
Anthreptes malacensis	Brown-throated Sunbird	-	R	-	B	B	2
**Anthreptes rhodolaema*	Red-throated Sunbird	NT	R	AS14	-	2	2
Anthreptes singalensis	Ruby-cheeked Sunbird	-	R	-	B	B	2
Hypogramma hypogrammicum	Purple-naped Sunbird	-	R	-	B	B	2
Nectarinia sperata	Purple-throated Sunbird	-	R	-	B	2	2
Aethopyga siparaja	Crimson Sunbird	-	R	-	B	-	2
Arachnothera longirostra	Little Spiderhunter	-	R	-	B	B	2
Arachnothera flavigaster	Spectacled Spiderhunter	-	R	AS14	B	B	-
Arachnothera chrysogenys	Yellow-eared Spiderhunter	-	R	AS14	1?	1	2
Arachnothera modesta	Grey-breasted Spiderhunter	-	R	AS14	2	B	-
Zosterops sp.	White-eye sp.	-	R	-	1?	2?	-
Erythrura prasina	Pin-tailed Parrot-Finch	-	R	-	2	B	-
Lonchura fuscans	Dusky Munia	-	B	-	B	B	2
Lonchura leucogastra	White-bellied Munia	-	R	-	B	-	-
Lonchura malacca	Black-headed Munia	-	R	-	B	B	2
Aplonis panayensis	Asian Glossy Starling	-	R	-	B	-	-
Gracula religiosa	Common Hill Myna	-	R	-	B	B	2
Oriolus xanthonotus	Dark-throated Oriole	NT	R	AS14	B	B	2
Dicrurus aeneus	Bronzed Drongo	-	R	-	2	B	2
Dicrurus paradiseus	Greater Racquet-tailed Drongo	-	R	-	B	B	2
Platylophus galericulatus	Crested Jay	NT	R	AS14	-	B	-
Platysmurus leucopterus	Black Magpie	NT	R	AS14	B	2	2
Corvus enca	Slender-billed Crow	-	R	-	B	B	2