# **Technical Report**

# Bird Species Diversity and Reducing Emissions from Deforestation and Degradation in Berbak Peat Swamp Forest Jambi Province Indonesia

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## 1. Background

The United Nations Framework Convention on Climate Change (UNFCCC) mechanism for Reducing Emissions from Deforestation and Degradation in developing countries (REDD+) represents an unprecedented opportunity for the conservation of forest biodiversity. Nevertheless, there are widespread concerns surrounding the possibility of negative environmental outcomes if biodiversity is not given adequate consideration throughout the REDD+ process.

One of the most significant developments arising from the 2010 16th Conference of the Parties (COP 16) of the UNFCCC, was the adoption of a set of policy approaches and positive incentives to reduce greenhouse gas emissions through the conservation and management of forests in developing countries (the Cancun Agreements; Decision 1; Paragraphs 68-79 of COP 16, and associated annex). Commonly known as REDD+, this mechanism includes five sets of activities or interventions, namely; reducing emissions from deforestation, reducing emissions from forest degradation, conservation of (existing) forest carbon stocks, sustainable management of forests, and enhancement of forest carbon stocks (e.g. through regeneration and planting in previously forest land). Taken together this set of recommendations represents a major and positive shift in the attention given to the potential role of forests in the developing world (non-Annex 1 countries, UNFCCC) in helping to stabilize the global climate, and offers the prospect of unprecedented levels of funding for forest conservation. REDD+ also has the potential to deliver enormous benefits for biodiversity conservation because forests in the developing world harbor much of the world's terrestrial and freshwater biota, and are also threatened by ongoing forest clearance and degradation. As a result, REDD+ has generated significant attention in the conservation science community as well as within the Convention on Biological Diversity (CBD) itself (CBD, 2011a). However, despite this considerable potential, concerns have been raised about possible negative environmental outcomes of REDD+ if key safeguards are not observed and integrated into the design and implementation of REDD+ activities (Ghazoul et al., 2010; Harvey 2010, CBD, 2011a; Epple et al., 2011; Pistorius et al., 2011, Gardner et al. 2011). These concerns were formally recognized in the Cancun Agreements through the adoption of guidance and safeguards for policy approaches and positive incentives (Appendix 1 Decision 1/CP.16) which state that REDD+ activities should "Be consistent with the objective of environmental integrity and take into account the multiple functions of forests and other ecosystems" and, further "That actions are consistent with the conservation of natural forests and biological diversity, ensuring that [REDD+ activities] are not used for the conversion of natural forests, but are instead used to incentivize the protection and conservation of natural forests and their ecosystem services, and to enhance other social and environmental benefits". Consideration of biodiversity can be incorporated into both sets of decisions using information on the spatial distribution of biodiversity and its threats, as well as known responses of species (or species group) to different forms of forest disturbance and management.

A key step in the initial planning and design of the REDD+ program is to decide upon priority regions for investment in emissions reductions through forest conservation and management, and the types of REDD+ activities that should be implemented in such regions (Meridian Institute, 2011). To maximize emissions reductions this task is guided by an assessment of historical emissions from deforestation and degradation and information on the distribution of existing carbon stocks, in addition to considerations of the effectiveness, cost, social implications and the feasibility of REDD+ implementation. In addition to such a strategic planning exercise, a carbon Monitoring, Reporting and Verification (MRV) system is needed to assess and verify greenhouse gas (GHG) emissions reductions and removals from the atmosphere due to human activities.

Berbak is one of two RAMSAR-listed sites in Indonesia. This swamp area is recognized as an extensive peat-swamp forest in the Pacific Realm (Mijn & Rahman 1992), although the northern and eastern parts of this area were cleared (along the Batang Hari River and as section of the coastal area). A prolonged drought in 1997 caused fires, mainly at the edges of Berbak peat-swamp forest around 18000 to 24000 ha. The fires which occurred in the middle part of the area were caused by Jelutung sap collectors. By the end of 1997, more than 32,000 ha of forest on the northwest edge of the area had been cleared or damaged through forest clearance and illegal logging in the buffer zone, irrigation systems surrounding the area and forest fire. The boundary area on the coastal side of Berbak has been converted into coconut plantation and settlement.

This area is important for swamp bird species, although more research is still needed. Storm's Stork *Ciconia stormi* has been recorded in Air Hitam Dalam (Silvius & Verheugt 1986), Jerdon's Baza *Aviceda jerdoni*, Wallace's Hawk-eagle *Spizaetus nanus*, Black Partridge *Melanoperdix nigra* and other hornbill species also exist in this area. Follow-up research for Air Hitam Dalam by Burn & Brickle (1992) confirmed the presence of Storm's Stork *Ciconia stormi*, Milky Stork *Mycterea cinerea*, and White-winged Duck *Cairina scutulata*.

The main purpose of this technical report is to assess the relationship between bird species diversity and REDD+, to create a bird species list, to assess species richness across forest classes and to assess the conservation importance of the area. The report also provides some suggestions on why bird biodiversity is an important consideration for inclusion in the planning, preparation, implementation, reporting, monitoring and verification of REDD+ activities, particularly their impact on bird biodiversity.

## 2. Methods

Bird surveys were conducted between the February - July 2011 in Berbak National Park and surroundings areas.

The Point Count method was used to observe, listen to and record the bird species that were found, either directly through bird sightings or indirectly through sound only. Observations were made at each of 5 sampling points for 30 minutes in the morning and afternoon. Bird species identification was confirmed using the "Birdlife Guide Book" published by Birdlife International.

## 3. Results

## 3.1. Species Diversity and Richness

During six months of observations, 36 bird family species were identified covering 201 bird species. Bird families found included Ardeidae, Ciconiidae, Anatidae, Anhingidae, Rallidae, Accipitridae, Scolopacidae, Sternidae,Columbidaae, Psittacidae, Cuculidae, Strigidae, Caprimulgidae,Apodidae, Hemiprocnidae, Hirundinidae, Meroppidae, Trogonidae, Alcedinidae,Eurylaimidae, Bucerotidae, Megalaimidae,Coracidae, Picidae, Dicruridae, Pycnonotidae, Chloropseidae, Turdidae, Corvidae, Timaliidae, Silvidae, Muscicapidae, Sturmiidae, Nectarinidae and Ploceidae, The number of bird species found to cover only 57% of the total 355 bird species thought to inhabit or pass through Berbak National Park. See Appendix 1 for detail.

The highest mean number of bird species was found in primary forest with 80 species, 19 species in secondary forest, 53 species in coastal areas and 56 species in swamp bush habitat (ex forest fire in 1997). These findings indicate a decline in species richness due to deforestation and forest degradation resulting from forest fires. See Tables 1 and 2 for more detail.

**Table 1**: Species richness per land class is the total number of species counted in each land class.

Forest Class	Number of Species
Primary forest	161
Secondary forest	62
Swamp bush	42
Coastal Areas	51

**Table 2:** Mean species richness is the sum of the total number of species per plot divided by number of plots in each class.

Forest Class	Number of Species
Primary	80
Coastal Areas	53
Secondary	19
Swamp Bush	56

**Table 3:** Number of birds recorded at each individual sampling point.

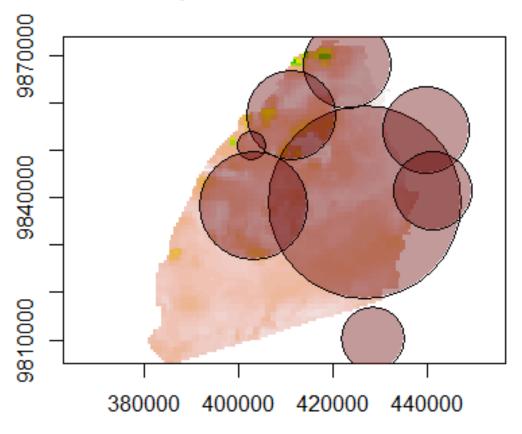
Forest Class	Х	Y	Species Number
Primary	425808	9839085	125
Primary	422378	9868128	57
Primary	411110	9857549	58
<b>Coastal Areas</b>	438023	9854256	56
<b>Coastal Areas</b>	439339	9841597	51
Secondary	403186	9850930	19
Swamp Bush	403481	9838533	70
Swamp Bush	427469	9810152	42

Survey results show that the core area of Berbak National Park is the most important area for establishing bird species diversity in Berbak. Figure 1 shows the number of bird species counted at each individual location, represented graphically. The size of the circle represents the number of species counted. The background layer is a rasterised vegetation index, serving as a base layer for the map.

## 3.2. Bird Conservation Status

The Berbak area was designated by Birdlife International as an Important Bird Area (IBA) in 2004. IBA recognition confirms Berbak as an area of international significance for bird conservation and confirmation of IBA status is used globally as a practical tool for conservation.

This research has recorded 8 species of birds which , following IBA classification guidelines, confirm Berbak as an A1 category area. These species are: Black Partridge *Melanoperdix niger*, White-winged Duck *Cairina scutulata*, Milky Stork *Mycteria cinerea*, Storm's Stork *Ciconia stormi*, Lesser Adjutant *Leptoptilos javanicus*, Spotted Greenshank *Tringa guttifer*, Silvery Wood-pigeon *Columba argentina*, Blue-banded Kingfisher *Alcedo euryzona*. An A1 rating is applied to regions which contain globally threatened species and are known, or thought regularly to host, significant numbers of a globally threatened species, or other species of global conservation concern. All species mentioned above are included in the IUCN Red List categorized as either vulnerable, endangered or critically endangered. See Table 4 and Appendix 1 for more detail Figure 1: Bird species richness in Berbak Peat Swamp Forest.



# **Bird Species Richness at BCI**

Among the bird species recorded in this study, 79 species are protected by Indonesia Government Regulation No. 7 Year 1999 concerning Flora and Fauna Species Conservation. Bird species that are protected include *Accipitridae, Alcedinidae, Anhinga melanogaster, Bucerotidae, Cairina scutulata, Egretta spp., Falconidae, Ibis cinereus, Anhinga melanogaster, Accipitridae and Sternidae.* 

Bird Species	IBA Criteria	IUCN Category
Black Partridge Melanoperdix niger	A1	Vulnerable
White-winged Duck Cairina scutulata	A1	Endangered
Milky Stork Mycteria cinerea	A1	Vulnerable
Storm's Stork Ciconia stormi	A1	Endangered
Lesser Adjutant Leptoptilos javanicus	A1	Vulnerable

### Table 4: IBA trigger bird species in the Berbak area

Spotted Greenshank Tringa guttifer	A1	Endangered
Silvery Wood-pigeon Columba argentina	A1	Critically Endangered
Blue-banded Kingfisher Alcedo euryzona	A1	Vulnerable

Based on the IUCN (International Union for Conservation of Nature ) Red List of Threatened Species, of the total number of bird species known in Berbak National Park, 4 species are classified Endangered (EN), 1 species is Critically Endangered (CR), 8 species are Vulnerable (V), 55 species are Less Concern (LC) and 5 species are Near Threatened (NT).

Furthermore, based on CITES classification (Convention on International Trade in Endangered Species of Wild Fauna and Flora), 5 bird species are includied in Appendix 1 - species which are threatened with extinction and for which CITES prohibits international trade except when the purpose of the import is not commercial, for instance for scientific research. In these exceptional cases, trade may take place provided it is authorized by the granting of both an export permit and an import permit. Additionally, 36 species are listed as CITES Appendix 2 - species that are not necessarily currently threatened with extinction but that may become so unless trade is closely controlled. It also includes so-called "look-alike species", i.e. species of which the specimens in trade look like those of species listed for conservation reasons.

## 3.3. Bird Diversity and REDD+

This research concludes that Berbak swamp forests contain a high richness of bird species which are globally threatened and have a high conservation value. These results support the contention that the preparation and monitoring of REDD+ should consider bird species diversity factors in its design and implementation otherwise it will not provide the co-benefits for biodiversity as stipulated under REDD+.

We propose that bird biodiversity considerations can be readily incorporated into national REDD+ programs using a similar logic and framework to cover both planning and assessment. Moreover, we argue that some level of integration is essential if biodiversity considerations are to be viable within REDD+ planning for and assessment of both carbon and biodiversity. This would include preparatory "status" data (analyses of historical changes in forest area and condition, distribution of existing carbon stocks and the distribution of biodiversity and biodiversity threats), activity (land-use) data, and response factors (emissions factors or biodiversity disturbance responses). These inputs, together with a combined satellite and forest plot-based monitoring system can deliver integrated guidance on spatial land-use planning (i.e. which REDD+ activities to implement and where) and performance assessments (GHG emission assessment and estimates of change in the status of forest biodiversity). In an analogous way to carbon MRV, it is possible to identify different tiers of data requirement and analytical complexity for biodiversity assessments.

In spite of their recognized importance, there is an urgent need for clear operational guidance on how the biodiversity safeguards adopted by the Cancun Agreements can be integrated into REDD+ activities (as well as voluntary carbon projects) in practice. Both the UNFCCC and the CBD have made formal requests (through the Subsidiary Body for Scientific and Technical Advice; SBSTA, and COP 10 (Decision X/33 paragraph 9)) for advice on implementing biodiversity safeguards ahead of the UNFCCC COP 17 and CBD COP 11 in Durban (2011) and Hyderabad (2012) respectively.

In the context of considering the impacts of different REDD+ activities on biodiversity, for both planning and assessment it is important to understand how different REDD+ activities may impact (positively or negatively) on forest biodiversity, and their consequences for the long-term integrity and conservation of forest ecosystems. The best available data should be used to assess the biodiversity impacts (positive or negative) of implementing different combinations of REDD+ activities. Many studies have compared changes in biodiversity following different types of tropical forest modification or conservation.

# **BERBAK BIRD SPECIES LIST**

### **REMARKS**:

**IUCN (International Union for Conservation of Nature) RED LIST OF THREATENED SPECIES** : LC : Less Concern, NT : Near Threatened, VU : Vulnerable, CR: Critically Endangered, EN Endangered, EW Extinct in the Wild, EX Extinct , DD : Data Deficient

#### CITES ( Convention on International Trade in Endangered Species of Wild Fauna and Flora)

Appendix I lists species that are the most endangered among CITES-listed animals and plants (see <u>Article II. paragraph 1</u> of the Convention). They are threatened with extinction and CITES prohibits international trade in specimens of these species except when the purpose of the import is not commercial (see <u>Article III</u>), for instance for scientific research. In these exceptional cases, trade may take place provided it is authorized by the granting of both an import permit and an export permit (or re-export certificate). <u>Article VII</u> of the Convention provides for a number of exemptions to this general prohibition. **Appendix II** lists species that are not necessarily now threatened with extinction but that may become so unless trade is closely controlled. It also includes so-called "look-alike species", i.e. species of which the specimens in trade look like those of species listed for conservation reasons (see <u>Article III</u>, paragraph 2 of the Convention). International trade in specimens of Appendix-II species may be authorized by the granting of an export permit is necessary for these species under CITES (although a permit is needed in some countries that have taken stricter measures than CITES requires). Permits or certificates should only be granted if the relevant authorities are satisfied that certain conditions are met, above all that trade will not be detrimental to the survival of the species in the wild. (See <u>Article IV</u> of the Convention)

**Appendix III** is a list of species included at the request of a Party that already regulates trade in the species and that needs the cooperation of other countries to prevent unsustainable or illegal exploitation (see <u>Article II, paragraph 3</u>, of the Convention). International trade in specimens of species listed in this Appendix is allowed only on presentation of the appropriate permits or certificates. (See <u>Article V</u> of the Convention)

**ENDEMIC BIRD AREAS (EBAs):** Of the world's restricted-range bird species, only 7% of restricted-range species do not overlap with other such species and therefore do not occur in EBAs.

**IMPORTANT BIRD AREAS (IBAs) :** - Places of international significance for the conservation of birds and other biodiversity. - Recognised world-wide as practical tools for conservation - Distinct areas amenable to practical conservation action - Identified using standardised, agreed <u>criteria</u> - Sites that together form part of a wider, integrated approach to the conservation and sustainable use of the natural environment

AI. Globally threatened species: The site is known or thought regularly to hold significant numbers of a globally threatened species, or other species of global conservation concern.

*A2. Restricted-range species:* The site is known or thought to hold a significant component of a group of species whose breeding distributions define an Endemic Bird Area (EBA) or Secondary Area (SA). *A3. Biome-restricted species:* The site is known or thought to hold a significant component of the group of species whose distributions are largely or wholly confined to one biome.

*A4. Congregations :* A site may qualify on any one or more of the four criteria listed i). Site known or thought to hold, on a regular basis,  $\geq 1\%$  of a bio-geographic population of a congregatory waterbird species, ii). Site known or thought to hold, on a regular basis,  $\geq 1\%$  of the global population of a congregator seabird or terrestrial species. iii). Site known or thought to hold, on a regular basis,  $\geq 20,000$  waterbirds or  $\geq 10,000$  pairs of seabirds of one or more species. iv). Site known or thought to exceed thresholds set for migratory species at bottleneck sites.

**P**: Protected by Indonesia Law (Government Regulation No. 7 / 1999)

### **REFERENCES :**

1 :Recent ZSL Survey (2011), 2 : Berbak Natioanal Park Bird List, Departement of Forestry (2001), 3. Bird Life International Important Bird Areas : Berbak, Bird Life International : Indonesia Country Profile . (2012)

		LY NAME COMMON NAME	SCEINTIFIC NAME	CE	CONSERVATION STATUS			
NO	FAMILY NAME			REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Important Bird Area (IBA) / Endemic Bird Area (EBA)
1	Phalacrocoracidae	Little cormorant	Phalacrocorax niger	2		LC		
2	Anhingidae	Oriental darter	Anhinga melanogaster	1,2,3			Р	
3	Fregatidae	Lesser frigatebird	Fregata ariel	2		LC		
4		Great frigatebird	Fregata minor	3		LC		
5	Ardeidae	Grey heron	Ardea cinerea	1,2,3		LC		
6		Great billed heron	Ardea Sumatrana	1,2,3				
7		Purple heron	Ardea purpurea	1,2,3		LC		
8		Striated herron	Butorides striatus	1,2,3				
9		Japan pond heron	Ardeola speciosa	2				
10		Cattle egret	Bubulcus ibis	1,2,3			Р	
11		Great alba	Egretta alba	1,2,3			Р	
12		Intermediate egret	Egretta intermedia	1,2,3			Р	
13		Little egret	Egretta garzetta	1,2,3			Р	
14		Chinese egret	Egretta eulophotes	2			Р	
15		Pasific reef egret	Egretta sacra	2		LC	Р	
16		Black crowned night heron	Nycticorax nycticorac	2				
17		Cinnamon bittern	Ixobrhychus cinnammomeus	1,2,3				
18		Black bittern	Dupetor flavicollis	1,2,3				
19		Yellow bittern	Ixobrychus sinensis	2		V		A1

		FAMILY NAME COMMON NAME SCEINTIFIC NAME		CE	CONSERVATION STATUS			
NO	FAMILY NAME		REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Important Bird Area (IBA) / Endemic Bird Area (EBA)	
20	Ciconiidae	Lesser adjutant	Leptoptilos javanicus	1	App I	V		A1
21		Milky stork	Mycteria cinerea	1		V		A1
22		Strom's strork	Ciconia stormi	1		EN		
23		Black necked stork	Ephippiorhynchus asiaticus	1				
24		Woolly necked stork	Ciconia episcopus	1	App II	LC	Р	
25			Ibis cinereus	1	App II		Р	
26	Anatidae	Sunda teal	Anas gibberifrons	1,2,3				
27		Lesser whisting duck	Dendrocygna javanica	1,2,3	App I	EN		A1
28		White winged wood- duck	Cairina scutulata	1,2,3	App II	EN	Р	
29	Pandionidae	Osprey	Pandion haliaetus	2	App II			
30	Accipitridae	Brahminy kite	Halistur indus	1,2,3	App II		Р	
31		Black eagle	Ictinaetus malayensis	1,2,3	App II		Р	
32		Crested serpent eagle	Spilornis cheela	1,2,3	App II		Р	
33		Bat hawk	Macheiramphus alcinus	1,2,3	App II		Р	
34		Black winged kite	Elanus caeruleus	1,2,3	App II		Р	
35		White billiedfish- eagle	Haliaetus leucogaster	1,2,3			Р	
36		Lesser fish-eagle	Ichthyopagha humilis	1,2,3	App II		Р	
37		Changeable hawk- eagle	Spizaetus cirrhatus	1,2,3	App II	V	Р	
38		Wallace's hawk-eagle	Spizaetus nanus	1,2,3	App II	LC	Р	

				CE	CONSERVATION STATUS			
NO	FAMILY NAME	COMMON NAME	SCEINTIFIC NAME	REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Important Bird Area (IBA) / Endemic Bird Area (EBA)
39		Grey headed fish eagle	Ichthyophaga ichthyaetus	1,2,3	App II		Р	
40		Crested goshawk	Accipiter trivigatus	1,2,3	App II		Р	
41		Besra	Accipiter virgatus	2	App II	LC	Р	
42		Jerdons baza	Aviceda jerdoni	2	App II		Р	
43		Black baza	Aviceda leuphotes	2	App II		Р	
44		Common buzzard	Buteo buteo	2			Р	
45		Oriental honey buzzard	Pernis ptiolorhynchus	2	App II		Р	
46		Blyths Hawk eagle	Spizaetus alboniger	2	App II		Р	
47	Falconidae	Spotted kestrel	Folco molucensis	2	App II		Р	
48		Orienta; hobbey	Folco severus	1			Р	
49			Microhierax fringillarius	1			Р	
50	Phasianidae	Great argus	Argusianus argus	2		NT	Р	
51		Blue breasted quail	Cotumix chinensis	1				
52		Red jungle fool	Gallus gallus	1		LC	Р	
53		Balck partridge	Melanoperdix nigra	1		V		
54	Rallidae	White breasted waterhen	Amaurornis phaenicurus	1,2,3				
55		Baillons crake	Porzana pusilla	1,2,3				
56		White browed crake	Porzana cinerea	2				
57		Ruddy breasted crake	Porzana fusca	2		LC		

				CE	CONSERVATION STATUS			
NO	FAMILY NAME		SCEINTIFIC NAME	REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Important Bird Area (IBA) / Endemic Bird Area (EBA)
58		Band bellied crake	Porzana paykullii	2				
59		Red legged crake	Rallina fasciata	2				
60		Water cock	Gallicrex cinerea	2				
61		Common moorhern	Galiinula chloropus	2				
62		Purple swamphen	Porphyrio porphyrio	2				
63	Jacanidae	Pheasant taailed jacana	Hydrophasianus chirurgus	2				
64	Charadriidae	Pasific golden plower	Pluvialis fulva	1,2,3				
65		Kentish plover	Charadrius alexandrinus	1,2,3				
66		Malaysian plover	Charadrius peronii	1,2,3				
67		Lesser sand plover	Charadius mongolus	1,2,3				
68		Greate sand plover	Charadrius leschenaultii	1,2,3				
69		Oriental plover	Charadrius veredus	1,2,3				
70		Little ringed Plower	Charadrius dubius	2				
71			Pluvalis dominica	2				
72		Grey plower	Pluvalis squatarola	2				
73	Scolopacidae	Eurasian curlew	Numenius arquata	1,2,3		NT		
74		Whimbrel	Numenius phaeopus	1,2,3		LC		
75		Black-tailed godwit	Limosa limosa	1,2,3		NT		
76		Bar-tailed godwid	Limosa lapponica	1,2,3		LC		
77		Asian dowitcher	Limnodromus semipalmatus	1,2,3				
78		Common redshank	Tringa totanus	1,2,3		LC		

				CONSERVATION STATUS				
NO	FAMILY NAME	COMMON NAME	SCEINTIFIC NAME	REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Important Bird Area (IBA) / Endemic Bird Area (EBA)
79		Marsh sandpiper	Tringa stagnatilis	1,2,3		LC		
80		Wood sandpiper	Tringa glareola	1,2,3		LC		
81		Green sandpiper	Tringa flavipes	1,2,3	App I			A1
82		Nordmann's Greenshank	Tringa guttifer	1,2,3		EN	Р	
83		Terek sandpiper	Xenus cinereus	1,2,3		LC		
84		Common sandpiper	Actitis hypoleucos	1,2,3		LC		
85		Ruddy turnstone	Arenari interpres	2		LC		
86		Rufous necked stint	Calidris ruficollis	2		LC		
87		Curlew sandpiper	Calidris feruginea	2		LC		
88		Great knot	Calidris tenuirostris	2		V		
89			Heteroscelus brevipes	2		LC		
90		Broad billed sandpiper	Limicola falcinellus	2		LC		
91		Black tailed godwit	Limosa limosa	2		LC		
92		Far eastern curlew	Numenius madagascariensis	2				
93			Tringa nebularia	2				
94	Stercorariidae	Pomarine jaeger	Stercorarius pomarinus	1,2,3				
95		Whiskered tern	Chidonias hybridus	1,2,3				
96		White winged tern	Chidonias leucopterus	1,2,3				
97		Gull billed tern	Gelochelidon nilotica	1,2,3				

				CONSERVATION STATUS				
NO	FAMILY NAME	COMMON NAME	SCEINTIFIC NAME	REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Important Bird Area (IBA) / Endemic Bird Area (EBA)
98		Bridled tern	Stema anaethetus	1,2,3				
99		Lesser crested tern	Stema bengalensus	1,2,3		LC		
100		Roseate tern	Stema dougallii	1,2,3				
101		Scooty tern	Stema fuscata	1,2,3				
102		Black naped tern	Stema sumatrana	1,2,3		LC		
103	Laridae	Common black headed gull	Larus ridibundus	2				
104	Glareolidae	Oriental pratiacole	Glareola maldivarum	2				
105	Sternidae	Gull-billed tern	Sterna nilotica	1,2,3		LC	Р	
106		Caspian tern	Sterna caspia	1,2,3		LC	Р	
107		Common tern	Sterna hirundo	1,2,3		LC	Р	
108		Swift tren	Sterna bergii	1,2,3		LC	Р	
109		Little tern	Sterna albifrons	1,2,3		LC	Р	
110	Columbidae	Spotted Dove	Streptopelia chinensis	1,2,3				
111		Zebra-dove	Geopelia striata	1,2,3				
112		Green-pigeon species	Treron spp.	1,2,3				
113		Little green pigeon	Treron olax	1,2,3				
114		Thick billed green pigeon	Treron curvirostra	1,2,3		LC		
115		Pink-necked green pigeon	Treron vernans	1,2,3		LC		
116		Cinnamon-headed green pigeon	Treron fulvicollis	1,2,3				

				CE		CONSERVATION STATUS			
NO	FAMILY NAME	COMMON NAME	SCEINTIFIC NAME	REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Important Bird Area (IBA) / Endemic Bird Area (EBA)	
117		Mountain impereal pigeon	Ducula badia	1,2,3		LC			
118		Green imperial- pigeon	Ducula aenea	1,2,3		LC		A1	
119		Silverywood pigeon	Columba argentina	1,2,3		CR		EBA	
120		Emerald dove	Chalophaps indica	1,2,3					
121		Pied imperial pigeon	Ducula bicolor	2		LC			
122		Barred cuckoo dove	Macropygia unchall	2					
123		Island collared dove	Streptopelia bitorquata	2	App II				
124	Psittacidae	Blue-crowned hanging parrot	Loriculus galgulus	1,2,3	App II	LC			
125		Blue-rumped parrot	Psittinus cyanurus	1,2,3	App II				
126		Red breasted parakeet	Psittacula alexandri	1,2,3	App II				
127		Long-tailed parakeet	Psittacula longicauda	1,2,3					
128	Cuculidae	Greater coucal	Centropus sinnensis	1,2,3					
129		Lesser coucal	Centropus bengalensis	1,2,3					
130		Black bellied malkoha	Phaenicophaeus diardi	1,2,3					
131		Asian koel	Eudynamys scolapacea	1,2,3					
132		Chestnut winged cuckoo	Clamator coromandus	2					
133		Hodgsons hawk cuckoo	Cuculus fugax	2					
134		Indian cuckoo	Cuculus micropterus	2					

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135		Plaintive Cuckoo	Cocomantis merulinus	2				
136		Violet cuckoo	Chrysococcyx xanthorhynchus	2				
137		Drongo cuckoo	Surniculus lugubris	2				
138		Chestnut bellied malkoha	Phaenicophaeus sumatranus	2				
139		Raffles's malkoha	Phaenicophaeus chlorophaeus	2				
140		Chestnut breasted malkoha	Phaenicophaeus curvirostris	2	App II			
141	Strigidae	Barn owl	Tyto alba	1,2,3	App II			
142		Brown Hawk owl	Ninox scutulata	1,2,3				
143		Stresemann's scops owl	Otus stresemanni	1,2,3	App II			
144		Reddishscops-owl	Otus rufescens	1,2,3				
145		Barred eagle owl	Bubo sumatranus	2	App II			
146		Buffy fish owl	Ketupa ketupu	2	App II			
147		Ottus bakkamoena	Ottus bakkamoena	2				
148	Caprimulgidae	Malaysian eared nightjar	Eurostopodus temminckii	1,2,3				
149		Great eared nighjar	Eurostopodus macrotis	1,2,3				
150		Savanah nighjar	Caprimulgus affinis	2				
151		Large tailed nightjar	Caprimulgus macrurus	2				
152	Apodidae	Edible-nest swiftlet	Collocalia fuciphaga	1,2,3		LC		

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NO	FAMILY NAME	COMMON NAME	SCEINTIFIC NAME	REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Important Bird Area (IBA) / Endemic Bird Area (EBA)
153		Black-nest swiftlet	Collocalia maxima	1,2,3		LC		
154		Glossy swiftlet	Collocalia esculenta	1,2,3		LC		
155		Giant Swiftlet	Hydrochous gigas	1,2,3				
156		Asian palm-swift	Cypsiurus balasiensis	1,2,3				
157		Silver-backed Needletail	Hyrundapus cochinhinensis	1,2,3				
158		Brown backed netletail	Hirundapus giganteus	2				
159		Fork tailed swift	Apus pacificus	2		LC		
160		Little swift	Apus affinis	2				
161	Hemiprocnidae	Whiskered treeswift	Hemiprocne comate	1,2,3				
162		Grey rumped treeswift	Hemiprocne longipennis	2				
163	Trogonidae	Scarlet-rumped trogon	Harpacted duvaucelii	1,2,3			Р	
164		Diards trogon	Harpactes diardii	2			Р	
165	Alcedinidae	Blue-eared kingfisher	Alcedo meninting	1,2,3			Р	
166		Stork billed kingfisher	Pelargopis capensis	1,2,3			Р	
167		White throated Kingfisher	Halcyon smynensis	1,2,3			Р	
168		Black capped Kingfisher	Halcyon pileata	1,2,3			Р	
169		Collared Kingfisher	Todirhamphus chloris	1,2,3			Р	

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170		Rufous collared kingfisher	Actenoides concretus	1,2,3			Р	
171		Common kingfisher	Alcedo atthis	2		V	Р	
172		Blue banded kingfisher	Alcedo euryzonia	2		V	Р	
173		Black backed kingfisher	Ceyx erithacus	2			Р	
174		Rufous backed kingfisher	Ceyx rufidorsa	2			Р	
175			Halcyon chloris	2			Р	
176			Halcyon concreata	2			Р	
177		Ruddy kingfisher	Halcyon coromanda	2			Р	
178	Meroppidae	Blue tailed bee-eater	Merops philippinus	1,2,3				
179		Blue throated bee- eater	Merops viridis	1,2,3				
180	Coraciidae	Dollarbird	Eurystomus orientalis	1,2,3	App II	LC		
181	Bucerotidae	Black hornbill	Anthrococeros malayanus	1,2,3	App II	LC	Р	
182		Oriental pied hornbill	Anthrococeros albirostris	1,2,3	App II		Р	
183		Rhinoceros hornbill	Buceros rhinoceros	2	App I	NT	Р	
184		Helmeted hornbill	Rhinoplax vigil	1,2,3			Р	
185		Bushy crested hornbill	Anorrhinus galeritus	2	App II		Р	

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NO	FAMILY NAME	COMMON NAME	SCEINTIFIC NAME	REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Important Bird Area (IBA) / Endemic Bird Area (EBA)
186			Anthracoceros convexus	2	App II		Р	
187			Anthracoceros coronatus	2			Р	
188			Berenicomis comatus	2	App I		Р	
189		Great hornbill	Buceros bicornis	2		NT	Р	
190			Rhyticeros corrugatus	2			Р	
191			Rhyticeros undulatus	2			Р	
192	Capitonidae	Lineated barbet	Megalaima lineate	2				
193		Red throated barbet	Megalaima mystacophanos	1				
194	Megalaimidae	Coppersmith barbet	Megalaima haemacephala	1,2,3				
195		Gold wiskered barbet	Megalaima chrisopogon	1,2,3				
196		Blue eared Barbet	Megalaima australis	1,2,3		LC		
197		Red-crowned barbet	Megalaima raflesii	1,2,3				
198		Brown barbet	Calorhampus fuliginosus	1,2,3				
199	Picidae	Common goldenback	Dinopium javanense	1,2,3				
200		Rufous woodpecker	Celeus brachyurus	1,2,3				
201		White-bellied woodpecker	Dryacapus javensis	1,2,3				

			pulverulentus2Picoides macei2Picoides canicapillus22				
NO	FAMILY NAME	COMMON NAME	SCEINTIFIC NAME	REFEREN	CITES	by Indonesia	Area (IBA) / Endemic Bird
202		Crimson winged woodpecker	Picus puniceus	1,2,3			
203		Buff necked woodpecker	Meiglyptes tukki	1,2,3			
204		Orange backed woodpecker	Reinwardtipicus validus	1,2,3			
205		Speckled piculet	Picumnus innominatus	2			
206		Checker throated woodpecker	Picus mentalis	2			
207		Banded woodpecker	Picus miniaceus	2			
208		Great slaty woodpecker	Mulleripicus pulverulentus	2			
209		Fulvous breasted woodpeckers	Picoides macei	2			
210		Grey capped woodpecker	Picoides canicapillus	2			
211		Sunda woodpeckers	Picoides moluccensis	2			
212		Grey and buff woodpecker	Hemicircus concretus	2			
213		Maroon woodpecker	Blythipicus rubiginosus	2			
214		Greater goldenback	Chrysocolaptes lucidus	2			
215			Blythipicus pyrrhotis	2			
216	Eurylaimidae	Dusky broadbill	Corydon sumatranus	1,2,3			

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NO	FAMILY NAME	COMMON NAME	SCEINTIFIC NAME	REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Important Bird Area (IBA) / Endemic Bird Area (EBA)
217		Black and red broadbill	Cymbirhynchus macrorhynchos	1,2,3				
218		Banded broadbill	Eurylaimus javanicus	2				
219		Black and yellow broadbill	Eurylaimus ochromalus	2				
220	Hirundinidae	Barn swallow	Hirundo rustica	1,2,3				
221		Pasific swallow	Hirundo tahitica	1,2,3				
222	Campephagidae	Bar winged flycatcher shrike	Hemipus hirundinaceus	3				
223		Pied triller	Lalage nigra	1				
224		Small minivet	Pericrocotus cinnamomeus	1				
225		Scarlet minivet	Pericrocotus flammeus	1				
226		Tiery minivet	Pericrocotus igneus	1				
227	Chloropseidae	Common lora	Aegithina tiphia	2				
228		Lesser green leafbird	Chloropsis cyanopogon	1,2,3				
229		Greater green leafbird	Chloropsis sonnerati	1,2,3				
230		Blue winged leafbird	Chloropsis cochinchinensis	1				
231		Aegithina lafresnayei	Aegithina lafresnayei	2				
232	Pycnonotidae	Yellow-vented bulbul	Pycnonotus goiavier	1,2,3				
233		Scooty-headed Bulbul	Pycnonotus aurigaster	1,2,3		LC		
234		Black-headed bulbul	Pycnonotus atriceps	1,2,3				

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NO	FAMILY NAME	COMMON NAME	SCEINTIFIC NAME	REFERENCE	CITES	IUCN RED LIST	Protected by Indonesia Law	Área (IBA) / Endemic Bird
235		Cream vanted bulbul	Pycnanotus simplex	1,2,3		LC		
236		Red-eyed bulbul	Pycnonotus brunneus	1,2,3		LC		
237		Olive-winged bulbul	Pycnonotus plumosus	1,2,3		LC		
238		Spectacted bulbul	Pycnonotus erhythropthalmos	1,2,3		LC		
239		Yellow billied bulbul	Alophoixus phaeocephalus	1,2,3		LC		
240			Criniger phaeocephalus	1				
241			Hypsipetes charlottae	1				
242			Tricholestes cniniger	1		LC		
243		Puff backed bulbul	Pycnonotus eotilotus	2				
244	Dicruridae	Sumatran drongo	Dicrurus sumatranus	1,2,3				
245		Greater racket tailed drongo	Dicrurus paradiseus	1,2,3				
246		Bronzed drongo	Dicrurus aeneus	2				
247		Crow billed drongo	Dicrurus annectans	2				
248		Lesser racket tailed drongo	Dicrurus remifer	2				
249	Oriolidae	Black naped oriole	Oriolus chinensis	1,2,3				
250	Irenidae	Asian fairy bluebird	Irena puella	2				
251	Corvidae	Large-billedcrow	Corvus macrorhynchos	1,2,3				
252		Slender billedcrow	Corvus enca	1,2,3	App II			

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253		Platysmurus leucopterus ?	Platysmurus leucopterus	1				
254	Sittidae	Velvet fronted nuthatch	Sitta frontalis	2				
255	Timaliidae	Strippedtit-babler	Macronous gularis	1,2,3				
256		Chesnust wnd babbler	Stachyris erythroptera	1,2,3				
257		Sooty capped babbler	Malacopteron affine	1,2,3		LC		
258		White chested babbler	Trichastoma rostratum	1,2,3				
259		Black capped babbler	Pellomeum capistratum	2		LC		
260			Trichastoma bicolor	2				
261			Trichastoma malaccense	2		LC		
262		Grey breasted babbler	Malacopteron albogulare	2				
263		Chestnut rumped babbler	Stachyris maculate	2				
264		Fluffy baacked tit babler	Macronous ptilosus	2				
265		White crested laughingthrush	Garrulax leucolophus	2				
266			Erithacus cyane	2				
267	Turdidae	Magpie robin	Copsychus saularis pluto	1,2,3				
268		White rumped shama	Copsychus malabericus	1,2,3				

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269		Rufous tailed shama	Trichixos pyrhopygus	1,2,3				
270	Sylviidae	Rufous tale tailorbir	Orthotomus sericeus	1,2,3				
271		Ashy tailorbird	Orthotomus ruficeps	1,2,3				
272		Dark necked tailorbird	Orthotomus atrogularis	1,2,3				
273		Yellow bellied Prinia	Prinia flaviventris	1,2,3				
274		Bar winged prinia	Prinia familiaris	1,2,3				
275		Sunda warbler	Seicercus grammiceps	2				
276		Olive backed tailorbird	Orthotomus sepium	2				
277		Rufous tailed tailorbird	Orthotomus sericeus	2				
278		Zitting cisticola	Cristicola juncidis	2				
279			Ficedula werstermanni	2				
280			Prinia subflava	2				
281			Rhynomyias umbratilis	2				
282			Acrocephalus arundinaceus	2				
283	Muscicapidae	Yellow rumped flycatcher	Ficedula zanthopygia	1,2,3				
284		Mangrove flycatcher	Cyornis rufigastra	1,2,3				
285		Grey chested flycatcher	Rhinomyias umbratilis	1,2,3				

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286		Mugimaki flycatcher	Ficedula mugimaki	1,2,3				
287		Pied fantail	Rhipidura javanica	1,2,3				
288		Black naped monarch	Hypothymis azurea	1,2,3				
289		Asian paradise flycatcher	Tersiphone paradise	1,2,3				
290		Malaysian blue flycatcher	Cyornis turcosa	2				
291	Rhipiduridae	White troated fantail	Rhipidura albicollis	2				
292		Sported fantail	Rhipidura perlata	1				
293	Monarchidae		Hypothymis azurea	2				
294		Rufous winged	Philentoma pyrrhoptera	1				
295			Terpsiphone paradisi	1				
296	Motacillidae	Grey wagtail	Motacilla cinerea	1,2,3				
297		Forest wagtail	Dendronanthus indicus	1,2,3				
298		Common pipit	Anthus novaeseelandiae	1,2,3				
299	Artamidae	White breasted wood swallow	Artamus leucorhynchus	1,2,3				
300	Laniidae	Long tailed shrike	Lanius schach	1,2,3				
301		Tiger shrike	Lanius triginus	2				
302	Sturniidae	Asian glosssy starling	Aplonis panayensis	1,2,3	App II			
303		Common hill myna	Gracula religiosa	1,2,3				
304		Javan myna	Acridotheres javanicus	1,2,3				

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305		Crested myna	Acridotheres cristatellus	1,2,3				
306		Common myna	Acridotheres tristis	2				
307	Nectariniidae	Plain Sunbird	Anthreptes simplex	1,2,3			Р	
308		Ruby-cheeked Sunbird	Anthreptes singalensis	1,2,3			Р	
309		Brown-throated Sunbird	Anthreptes malacensis	1,2,3			Р	
310		Olive-backed Sunbird	Nectarinia jugularis	1,2,3			Р	
311		Purple throated sunbird	Necterinia sperata	1,2,3			Р	
312		Copper throated sunbird	Nectarinia calostecha	1,2,3			Р	
313		Purple naped sunbird	Hypogramma hypogrammicium	1,2,3			Р	
314		Little spiderhunter	Rachnothera longirostra	1,2,3			Р	
315		Long billed spiderhunter	Arachnothera robusta	1,2,3			Р	
316		Red throated sunbird	Anthreptes rhodolaena	2			Р	
317		Crimson sunbird	Aethopyga siparaja	2			Р	
318		Thick billed spiderhunter	Arachnothera crassirostris	2			Р	
319		Spectacled spiderhunter	Arachnothera flavigaster	2			Р	

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320		Yellow eared spiderhunter	Arachnothera chrysogenys	2			Р	
321		Grey breasted spiderhunter	Arachnothera affinis	2			Р	
322	Dicaedae	Orange belliedflowerpecker	Dicaeum trigonostigma	1,2,3			Р	
323		Yellow brested flowerpecker	Prionochilus maculates	2				
324		Crimson brested flowerpecker	Prionochilus percussus	2				
325		Scalet backed flowerpecker	Dicaeum cruentatum	2				
326	Zosteropidae	Oriental white eye	Zosterops palpebrosus	1,2,3				
327	Passeridae	Eurasian tree sparrow	Passer montanus	1,2,3				
328	Ploceidae	Eurasian tree sparrow	Passer montanus	1,2,3				
329		Baya weaver	Ploceus philipinus	1,2,3				
330		Scaly breasted munia	Lonchura punctulata	1,2,3				
331		White breasted munia	Lonchura maja	1,2,3				
332		Streaked weaver	Ploceus manyar	2				
333	Aegithinidae		Aegithina tiphia	1				
334	Pachycephalidae		Pachycephala cinerea	2		LC		
335	Threskiornithidae		Threskiomis melanocephalus	2				