

New and Significant Bird Records from Bintan Island, Riau Archipelago, Indonesia

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Summary: Pulau Bintan is the largest island in the Riau Archipelago, Indonesia. During two brief visits in 2018, a total of eight species new to the island were recorded, increasing the island's bird checklist to 189 species. These new records are Grey Heron *Ardea cinerea*, Intermediate Egret *Ardea intermedia*, Red-wattled Lapwing *Vanellus indicus*, Horsfield's Bronze-cuckoo *Chalcites basalis*, Tiger Shrike *Lanius tigrinus*, White-headed Munia *Lonchura maja*, Sooty-headed Bulbul *Pycnonotus aurigaster* and Javan Myna *Acridotheres javanicus*. Three of our new records appear to be new for the Riau Archipelago, increasing the avifaunal checklist for the archipelago to 232 species. Following years of development, little primary vegetation remains on Bintan Island, and our failure to detect any woodpeckers during our visits is worrying in view of these birds being good indicators to ecosystem sustainability. Nonetheless, the island retains sizeable area of natural forests, including some swamp forest patches, and our new and significant records suggest its avifaunal diversity is still understudied and underestimated. We call for relevant Indonesian government agencies and the Bintan Resorts, which manage the northern portion of the island for tourism development, to strengthen efforts in biodiversity research and conservation, as well as habitat restoration, so as to attain the development goal of making Bintan a true "eco-island" for international tourism.

Ringkasan – Pulau Bintan adalah pulau terbesar di kepulauan Riau, Indonesia. Selama dua kunjungan singkat pada tahun 2018, total delapan spesies yang baru untuk pulau Bintan dilaporkan teramati, menambah jumlah daftar jenis burung menjadi 189 jenis untuk pulau tersebut. Spesies-spesies yang baru tersebut adalah Cangak Abu *Ardea cinerea*, *Ardea intermedia*, Trulek Gelambir-merah *Vanellus indicus*, Kedasi Australia *Chalcites basalis*, Bentet Loreng *Lanius tigrinus*, Bondol Haji *Lonchura maja*, Cucak Kutilang *Pycnonotus aurigaster* dan *Acridotheres javanicus*. Tiga dari laporan kami nampaknya juga merupakan jenis baru untuk kepulauan Riau, juga menambah jumlah daftar spesies untuk kepulauan ini menjadi 323. Mengikuti tahun-tahun pembangunan, hanya sedikit vegetasi primer yang tersisa di pulau Bintan dan kegagalan kami selama beberapa kali kunjungan dalam mendeteksi keberadaan jenis-jenis burung pelatuk baik melalui suara maupun pengamatan langsung mengkhawatirkan, terutama dalam hal pentingnya kelompok burung ini dalam keberlanjutan ekosistem. Meskipun begitu, pulau Bintan masih menyisakan kawasan hutan alami yang cukup luas termasuk sisa-sisa hutan rawa, dan laporan-laporan kami yang baru dan signifikan menunjukkan bahwa keragaman avifauna serta keragaman hayati lainnya di pulau tropis ini masih kurang diteliti dan masih kurang dianggap penting. Kami meminta institusi-institusi pemerintah terkait dan Bintan Resort yang mengelola bagian utara pulau tersebut untuk pengembangan wisata, untuk memperkuat upaya-upaya dan konservasi keragaman hayati, juga habitat restorasi untuk mewujudkan tujuan membuat pulau Bintan benar-benar sebagai "pulau ekowisata" untuk wisata internasional.

Introduction

Pulau Bintan is the largest island in the Riau Archipelago of Indonesia. It lies one degree north of the equator at the southern tip of the Malay Peninsula, less than 40 km southeast of Singapore. This 1,140 km² low-lying tropical island was once covered in lowland dipterocarp rainforests, swamp forests and mangroves, but agricultural and tourism development caused much forest degradation; subsequently national forest cover maps indicate no primary vegetation exists on the island (Whitten *et al.* 2000).

However, satellite imagery suggests that some original vegetation remains, including patches of tall dipterocarp forests on the low hills scattered throughout the island (e.g. Gunung Bintan Kecil, Gn Bintan Besar, Gn Kijang and Gn Lengkuas) and the undulating grounds around the resorts along the north coast, as well as mangrove forests around many of the estuaries such as that of Sungai Sebung near the Bandar Bentan Telani ferry terminal. The current forest cover of the island is reported to be 22%, with the occurrence of 10 dipterocarp tree species during a recent survey (Subiakto & Rachmat 2015). Bintan has a human population of c. 330,000 and most live near the capital town of Tanjung Pinang in the south of the island. The entire northern coastline has been designated for international tourism since the 1990s, with much emphasis on natural attractions such as beaches, coral reefs, jungle and mangroves. This 230 km² tourism zone is known as the “Bintan Resorts” and is managed and developed exclusively by a Singaporean company (<https://www.bintan-resorts.com/about-us/>). New tourism facilities and infrastructure are continuously being constructed throughout the island, putting much pressure on the already damaged ecosystems.

Little has been published on the biodiversity and conservation of Bintan Island. Dammerman (1926), Chasen (1931) and Gibson-Hill (1952) are among the few naturalists to have reported on the island’s bird fauna. No ornithological studies were conducted on the island for about four decades until visiting researchers and birders began publishing records in the 1990s (Rajathurai 1996; Lim 1997a, 1997b; Yong & Kasorndorkbua 2008; Sodhi *et al.* 2010; Crossland & Sinambela 2014). The most extensive survey on Bintan avifauna was conducted by a Singaporean group between 1991 and 1996, summarised by Rajathurai (1996), with a review of all historical records. Crossland & Sinambela (2014) conducted brief bird surveys along the coastline of north-eastern and south-western Bintan in the early 2000s, and prepared a complete bird list for Bintan Island with reference to all previous publications. Sodhi *et al.* (2010) surveyed Bintan between 2006 and 2008 as part of a wider study on forest biodiversity loss, but did not report additions to the island bird fauna. The latest bird list for Bintan Island stands at 181 species, and that of the Riau Archipelago at 229 species (Crossland & Sinambela 2014). The authors of these important publications called for more bird survey effort in the archipelago (Rajathurai 1996; Crossland & Sinambela 2014), which would facilitate the identification of key biodiversity areas. This is particularly important as the Riau Archipelago generally lacks a good system of protected areas.

Methods

The authors visited the Bintan Resorts twice during holidays, from 25 to 29 July 2018, and from 14 to 17 September 2018. There are two main seasons for Bintan Island, and both of our visits fell within the drier season between April and October. With the general impression that Bintan Island is devoid of good-quality forest, the authors were pleasantly surprised that the landscape around Bintan Resorts is still largely forested, with patches of old-growth dipterocarp forest (e.g. the headlands near ClubMed Bintan and Banyan Tree Bintan) and blackwater peat swamp forest (e.g. around Lake Lagoi), as well as extensive secondary forest

in various successional stages. Palms (Arecaceae) and pandans (Pandanaceae) are abundant and prominent components of the natural forests of the island.

We spent nine days birding in four areas: (1) Laguna Golf Bintan (clubhouse at 1°10'54" N, 104°20'24" E); (2) Lagoi Bay (Lake Lagoi at 1°10'24" N, 104°22'24" E); (3) Ria Bintan Golf Club (hereafter Ria Bintan GC; 1°11'22" N, 104°24'15" E) and (4) Bintan Lagoon Resort (main block at 1°11'29" N, 104°25'26" E) (Fig. 1). Our records were made mainly by walking along paved roads, though BC made further explorations in quiet ATV and foot trails of forested areas. Sampled habitats include old-growth rainforest, peat swamp forest, coastal forest, secondary forest, golf courses, natural and artificial ponds and waterways, resort grounds, degraded shrubland, mangrove and rocky shores. Our surveys covered elevations from sea level to c. 50 m at Ria Bintan Golf Club. We used 8x32 (BC) and 9x32 (VC) binoculars as optical aids. Nomenclature follows Gill & Donsker (2018).

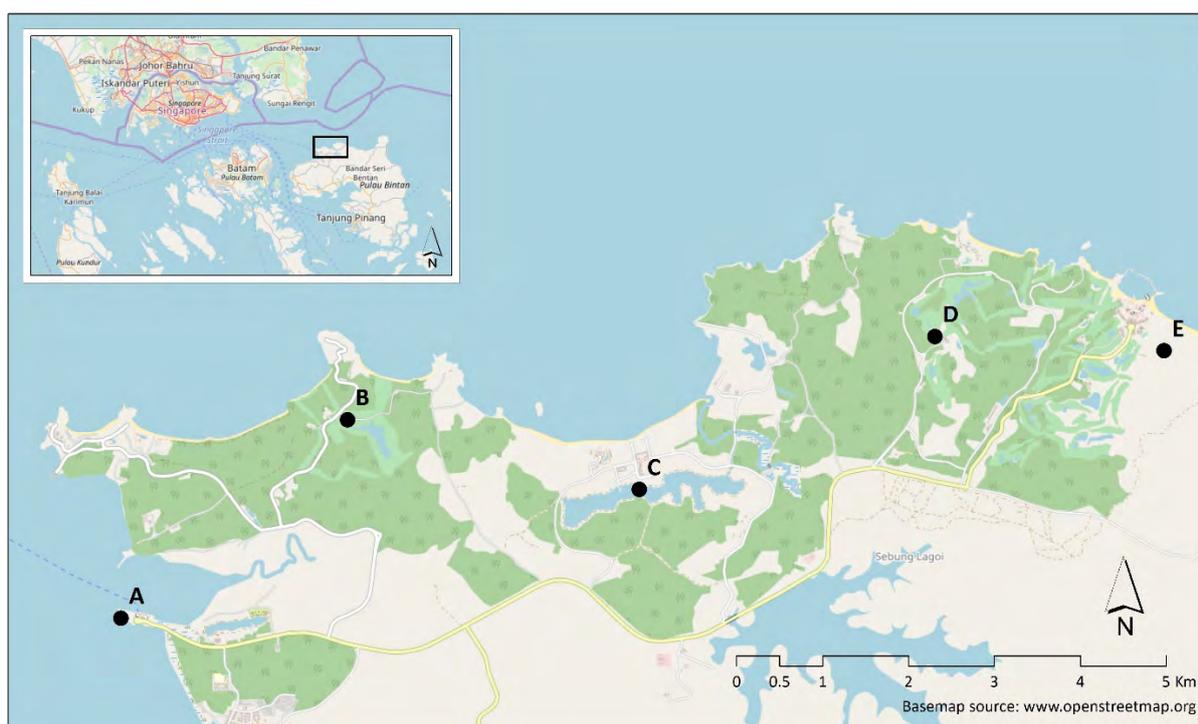


Figure 1. Survey areas on the northern coast of Bintan Island mentioned in text. A, Bandar Bentan Telani Ferry Terminal; B, Laguna Golf Bintan; C, Lagoi Bay; D, Ria Bintan Golf Club; E, Bintan Lagoon Resort. Inset shows location of Bintan Island in relation to Singapore and Peninsular Malaysia.

Results

During our two visits, we recorded 60 bird species, eight of which had not hitherto been reported from Bintan Island, and three of which are apparently new for the Riau Archipelago (*sensu* MacKinnon & Phillips 1993; Rajathurai 1996; Crossland & Sinambela 2014). The following species accounts provide details of our observations of species new to the island, notable species mentioned by Rajathurai (1996) and Crossland & Sinambela (2014), and species listed as threatened by the *IUCN Red List of Threatened Species* (<https://www.iucnredlist.org/>).

New species for Bintan Island

The following eight species were recorded on Bintan Island for the first time:

HORSFIELD'S BRONZE CUCKOO *Chrysococcyx basalis*

This Australian breeder is a rare, but increasingly regular winter visitor to Peninsular Malaysia and Singapore (Yong *et al.* 2017). One bird was photographed on 14 September (Plate 1) along roadside ornamental trees in Lagoi Bay. Our observation represents the first record for Riau Archipelago, and is consistent with the timing of records from Singapore and Malaysia.

GREY HERON *Ardea cinerea*

One bird photographed at the edge of the main pond in Laguna Golf Bintan on 27 July (Plate 2). This is the first record for Riau Archipelago.

INTERMEDIATE EGRET *Ardea intermedia*

One bird photographed at the edge of the main pond in Laguna Golf Bintan on 26 July (Plate 3). Although widespread and common throughout Southeast Asia including nearby Sumatra and the Malay Peninsula, this is a new record for Riau Archipelago.

RED-WATTLED LAPWING *Vanellus indicus*

The characteristic calls were heard at 22:30 in the Laguna Golf Bintan golf course on 28 July. Six birds seen at dusk on manicured lawn and open sandy grassland around Lake Lagoi on 14 September. The birds seen fit descriptions for the subspecies *V. i. atronuchalis* (Jerdon, 1864), with white ear-coverts isolated from the white breast (Lok & Subaraj 2009). The species is reported to be rare in Indonesia with "several records from Sumatra and Riau Archipelago, and single record from West Java" (Eaton *et al.* 2016: 100), but is increasing in Singapore (Yong 2012).

SOOTY-HEADED BULBUL *Pycnonotus aurigaster*

Not native to the Riau Archipelago, but feral populations have established on nearby Singapore and Sumatra (Fishpool & Tobias 2019). There is a record from neighbouring Batam Island (Lim 1997a), but it is not known if the species has established. One bird seen perched on ornamental tree in Bintan Lagoon Resort on 15 September.

TIGER SHRIKE *Lanius tigrinus*

A non-breeding migrant to Southeast Asia (Robson 2000; Eaton *et al.* 2016). A juvenile photographed at edge of secondary forest in Ria Bintan GC on 16 September (Plate 4), probably on passage, though peak passage in Singapore is October (Yong *et al.* 2017).

JAVAN MYNA *Acridotheres javanicus*

The native population in Java and Bali is listed as Vulnerable by IUCN Red List (BirdLife International 2016a). Non-native to the Riau Archipelago but has established feral populations in nearby Sumatra, Singapore and Peninsular Malaysia (Wells 2007; Craig & Feare 2019). It has been recorded on the nearby islands of Batam and Karimun Besar (Lim 1997a; Crossland & Sinambela 2014). One bird seen in Laguna Golf Bintan golf course on 28 July (Plate 5); two birds seen in the morning of 14 September in secondary forest of Ria Bintan GC.

WHITE-HEADED MUNIA *Lonchura maja*

Flocks with juveniles were seen in the environs of Laguna Golf Bintan in July: 8 birds in an ornamental tree near the Club House on 26 July (Plate 6); over 10 birds by forest edge on 28 July. This species, which favours grassy areas after forest clearance, has been reported from nearby Batam Island (Rajathurai 1996) and Singapore (Yong *et al.* 2017).

Additional records of notable species for Bintan Island

The following species observed during our visits are either reported to be rare or restricted on Bintan (Rajathurai 1996; Crossland & Sinambela 2014) or classified as threatened by the IUCN Red List.

PURPLE HERON *Ardea purpurea*

The only previous record for Bintan is of a single bird in 1991, which was also a new record for the Riau Archipelago (Rajathurai 1996). Recorded on nearby Batam Island in 2012 by Crossland & Sinambela (2014). One bird at the edge of the main pond in Laguna Golf Bintan on 26 July. One bird each in two separately golf course ponds of Ria Bintan GC on 16 September (Plate 7).



Plate 1. Horsfield's Bronze Cuckoo *Chrysococcyx basalis*, 14 September 2018, Lagoi Bay, Bintan Island. (All photos by Bosco Chan).



Plate 2. Grey Heron *Ardea cinerea*, 27 July 2018, Laguna Golf Bintan, Bintan Island.



Plate 3. Intermediate Egret *Ardea intermedia*, 26 July 2018, Laguna Golf Bintan, Bintan Island.



Plate 4. Tiger Shrike *Lanius tigrinus*, 16 September 2018, Ria Bintan Golf Club, Bintan Island.



Plate 5. Javan Myna *Acridotheres javanicus*, 28 July 2018, Laguna Golf Bintan, Bintan Island.



Plate 6. White-headed Munia *Lonchura maja*, 26 July 2018, Laguna Golf Bintan, Bintan Island.

WHITE-BELLIED SEA EAGLE *Haliaeetus leucogaster*

Reported to be uncommon by previous authors (Crossland & Sinambela 2014). One immature soared overhead at Lake Lagoi in the afternoon of 14 September; one adult soaring in the sea off Bintan Lagoon Resort on 16 September.

GREY-HEADED FISH-EAGLE *Ichthyophaga ichthyaeetus*

Listed as Near Threatened by IUCN Red List (Birdlife International 2017). One adult photographed at the edge of the main pond in Laguna Golf Bintan on 26 July (Plate 8). The bird was first seen perched on the ground by the pond then flew to perch on a nearby dead tree when our presence was detected. This is the first published record for Bintan since 1994 (Rajathurai 1996).

WHITE-BREASTED WATERHEN *Amaurornis phoenicurus*

Reported to be uncommon with few records (Rajathurai 1996; Crossland & Sinambela 2014). Two records on 26 July: one on the edge of golf course pond of Laguna Golf Bintan; another by the entrance of Banyan Tree Bintan (Plate 9). The characteristic calls were also occasionally heard in various wet habitats during the two visits.

LESSER SAND PLOVER *Charadrius mongolus*

Recorded for Bintan and a common migrant to Batam (Crossland & Sinambela 2014). Singles on 16 September along the coastline in Ria Bintan GC. Over 50 plovers were observed feeding in the mangrove-lined mudflat at low tide south of the Bandar Bentan Telani ferry terminal on 17 September, but they were too distant for positive identification.

WHIMBREL *Numenius phaeopus*

Nine birds in the mangrove-lined mudflat at low tide south of the Bandar Bentan Telani ferry terminal on 17 September.

THICK-BILLED GREEN PIGEON *Treron curvirostra*

Observed perched on dead trees in mature forest patches of Ria Bintan GC: 8 birds with Green Imperial Pigeon on 14 September (Plate 10) and two on 16 September. Last confirmed from Bintan in 2008 (Sodhi *et al.* 2010). *Treron* pigeons were seen daily during both visits but most sightings were poor views of birds in flight; only this and Pink-necked Green Pigeon *T. vernans* were positively identified.

GREEN IMPERIAL PIGEON *Ducula aenea*

Seen on both visits in better-preserved forest patches (Plate 11). Highest count was five birds at Ria Bintan GC on 17 September, suggesting the forest of Bintan Resorts can still support a population of this large forest pigeon.

LONG-TAILED PARAKEET *Psittacula longicauda*

Listed as Vulnerable by IUCN Red List (Birdlife International 2018). Chasen (1931) and Gibson-Hill (1952) suggested that the subspecies *defontainei* of the Natuna Islands is found on Bintan, rather than the geographically closer mainland subspecies *longicauda*. Crossland & Sinambela (2014) observed 5 birds on the east coast but were unable to verify subspecies. We observed the species four times: feeding on flower buds of *Dillenia suffruticosa* (Dilleniaceae) in Ria Bintan GC on 14 September (18 birds) and 17 September (seven birds) (Plate 12); and four and two birds separately flying over peat swamp forest of Lagoi Bay on 14 September. Photographed birds showed neither a yellowish tint on the crown, nor deep red on the head as described for the subspecies *defontainei*, suggesting they were the nominate subspecies *longicauda* (Collar *et al.* 2018).

CHESTNUT-BELLIED MALKOHA *Phaenicophaeus sumatranus*

Listed as Near Threatened by IUCN Red List (Birdlife International 2016b), and regarded as a forest specialist by Sodhi *et al.* (2010). Observed in better-preserved forest patches on both visits: two near clubhouse of Laguna Golf Bintan on 26 July (Plate 13); one along roadside forest at Nirwana Resort (1°10'18" N, 104°19'50" E) on 27 July; and one inside mature forest near clubhouse of Ria Bintan GC on both 15 and 16 September.

LARGE-TAILED NIGHTJAR *Caprimulgus macrurus*

One bird seen perched on a wooden pole in the Laguna Golf Bintan golf course at night on 28 July (Plate 14). This species has not been reported from Bintan since 1952 (Gibson-Hill 1952).



Plate 7. Purple Heron *Ardea purpurea*, 16 September 2018, Ria Bintan Golf Club, Bintan Island.



Plate 8. Grey-headed Fish-eagle *Ichthyophaga ichthyaetus*, 26 July 2018, Laguna Golf Bintan, Bintan Island.



Plate 9. White-breasted Waterhen *Amaurornis phoenicurus*, 26 July 2018, Banyan Tree Bintan, Bintan Island.



Plate 10. Thick-billed Green Pigeon *Treron curvirostra*, 14 September 2018, Ria Bintan Golf Club, Bintan Island.



Plate 11. Green Imperial Pigeon *Ducula aenea*, 17 September 2018, Ria Bintan Golf Club, Bintan Island.



Plate 12. Long-tailed Parakeet *Psittacula longicauda*, 17 September 2018, Ria Bintan Golf Club, Bintan Island.



Plate 13. Chestnut-bellied Malkoha *Phaenicophaeus sumatranus*, 26 July 2018, Laguna Golf Bintan, Bintan Island.



Plate 14. Large-tailed Nightjar *Caprimulgus macrurus*, 28 July 2018, Laguna Golf Bintan, Bintan Island.

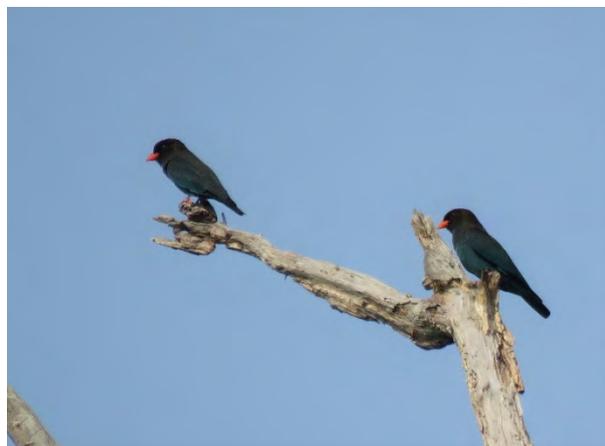


Plate 15. Oriental Dollarbird *Eurystomus orientalis*, 17 September 2018, Ria Bintan Golf Club, Bintan Island.



Plate 16. Black-naped Oriole *Oriolus chinensis*, 16 September 2018, Bintan Lagoon Resort, Bintan Island.



Plate 17. White-chested Babbler *Trichastoma rostratum*, 26 July 2018, Laguna Golf Bintan, Bintan Island.



Plate 18. Zitting Cisticola *Cisticola juncidis*, 14 September 2018, Lake Lagoi, Bintan Island.

ORIENTAL DOLLARBIRD *Eurystomus orientalis*

One bird perched on cable wire in degraded peat swamp forest on 26 July, and 2 perched on dead tree in mature forest of Ria Bintan GC on 17 September (Plate 15). Last recorded in 1994 (Rajathurai 1996).

BLACK-NAPED ORIOLE *Oriolus chinensis*

Seen on four occasions during our visits: 2 seen separately in the environs of Laguna Golf Bintan on 26 July, and one seen there on 28 July; 2 seen on the golf course of Ria Bintan GC on 14 September; and one seen in Bintan Lagoon Resort on 16 September (Plate 16). Abundance and subspecies present on Bintan disputed (Crossland & Sinambela 2014), but our photographed bird appears to be the resident subspecies *maculatus*.

GREATER RACKET-TAILED DRONGO *Dicrurus paradiseus*

Regarded as a forest specialist by Sodhi *et al.* (2010). Observed in better-preserved forest patches on both visits: one at Laguna Golf Bintan on 26 July; one along roadside forest at Nirwana Resort on 27 July; 4 inside mature forest around Ria Bintan GC on 16 September and one there on 17 September.

WHITE-CHESTED BABBLER *Trichastoma rostratum*

Listed as Near Threatened by IUCN Red List (Birdlife International 2016c), and regarded as a forest specialist by Sodhi *et al.* (2010). The characteristic calls were frequently heard and birds seen many times inside a mature forest patch near Laguna Golf Bintan on 26 July, when the species appeared to be breeding with much distraction displaying towards the first author (Plate 17).

ZITTING CISTICOLA *Cisticola juncidis*

One seen in manicured lawn surrounding Lake Lagoi on 14 September (Plate 18). First recorded from Bintan in 1993, with only a handful of subsequent records (Rajathurai 1996; Lim 1997a).

SCALY-BREASTED MUNIA *Lonchura punctulata*

Two were feeding on short grass in Bintan Lagoon Resort on 17 September. The only previous record for Bintan was in 1994 (Rajathurai 1996).

Discussion

The last formally published bird survey of Bintan was conducted over a decade ago (Sodhi *et al.* 2010), and we are not aware of any new published information on the islands' avifauna. Our brief survey resulted in the addition of eight species to the island, of which three are apparently new for the Riau Archipelago. These additions increased the Bintan Island bird checklist to a total of 189 species, and that of the Riau Archipelago to 232 species. As anticipated by Rajathurai (1996) and Crossland & Sinambela (2014), open-habitat species and migrants made up the bulk of our new records, and the two non-native species are spreading throughout Sundaic Southeast Asia so their occurrence on Bintan is expected. Seabirds were poorly represented in our survey results because little time was spent surveying coastal habitats.

While the continued survival of forest-dependent and/or globally threatened species on Bintan is encouraging, the lack or decline of some sensitive species and families is of great concern. For example, woodpeckers are known to be susceptible to forest disturbance, and as a group are good indicators of forest health (Vergara-Tabares *et al.* 2018). Although only four woodpecker species are known from Bintan (Crossland & Sinambela 2014), they include the Great Slaty Woodpecker *Mulleripicus pulverulentus*, the largest extant woodpecker in the world, and the White-bellied Woodpecker *Dryocopus javensis* which is also very large. This suggests that the forests of Bintan formerly had sufficient large trees to support an assemblage of large-bodied woodpeckers. However, we failed to detect any woodpeckers during our visits, suggesting that the number of these forest specialists is very low, and the population may be close to extirpation from the Bintan Resorts area.

Nonetheless, the Bintan Resorts area retains extensive area of natural forest of various types and successional stages, which is home to a number of globally threatened bird species. Our new records indicate that the avifaunal diversity of this island is still underestimated, and

doubtless other faunal groups are even less well studied. It is imperative that relevant Indonesian government agencies and the Bintan Resorts, which manage the northern portion of the island, work with local communities to curb further forest degradation, and to strengthen efforts in biodiversity conservation and habitat restoration, so as to attain the development goal of making Bintan a true “Eco-island” for international tourism. Important steps include protecting all remaining large trees, alive or dead, and mature forest patches on the island, restoring and preserving forest corridors in development plans, and conducting island-wide biodiversity surveys to search for the “missing species” in the few remaining forest blocks outside Bintan Resorts.

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