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■ collate and publish
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Contents



Cover image:

Crested Auklet *Aethia cristatella*, Yankicha, Kuril Islands, Far East Russia, 18th June 2018, by James A. Eaton

- 3 **Chairman's letter**
- 4 **BirdingASIA briefings**
- 6 **OBC in action**
- 8 **Letters to the Editors**
- 10 **NEWSFLASH Serious pollution incident in Dibru-Saikhowa National Park, Assam, north-east India**
COMPILED BY THE EDITORS
- 13 **CONSERVATION ALERT Notes on a visit to Enggano Island, Sumatra, Indonesia, in early 2020**
MUHAMMAD IQBAL, ADI KUSWANTO, JARULIS & ISTIYA RIFKI
- 17 **CONSERVATION ALERT Is the endemic Enggano Thrush *Geokichla leucolaema* now under serious threat of extinction?**
MUHAMMAD IQBAL, ADI KUSWANTO, ISTIYA RIFKI & JARULIS
- 19 **CONSERVATION ALERT Now you see them, now you don't: how representative are field surveys when most birds are caged? A case study from the lower montane forests of southern Sumatra, Indonesia**
MUHAMMAD IQBAL, PORMANSYAH, ARUM SETIAWAN, INDRA YUSTIAN & HILDA ZULKIFLI
- 25 **CONSERVATION ALERT Is the COVID-19 pandemic boosting the hunting of Phasianidae in western Indonesia?**
- 27 **LITTLE-KNOWN AREA The avifauna of the Mekongga Mountains, Southeast Sulawesi, Indonesia, and notes on a vocally distinct *Locustella* grasshopper warbler**
ALEX J. BERRYMAN & JAMES A. EATON
- 36 **LITTLE-KNOWN AREA Visiting Nam Et-Phou Louey National Park, Lao PDR**
JAMES A. EATON, DAN BROWN, BEN SWANEPOEL & COLIN M. POOLE
- 46 **CONSERVATION UPDATE Asian vulture crisis update: populations respond to effective removal of diclofenac but the threat from non-steroidal anti-inflammatory drugs remains**
CHRISTOPHER G. R. BOWDEN
- 51 **CONSERVATION UPDATE The Spoon-billed Sandpiper *Calidris pygmaea* conservation project in 2019 and 2020: population trends continue to be negative**
CHRISTOPH ZÖCKLER, SAYAM U. CHOWDHURY, LILI SUN, CHEN QING, PYAE PHYO AUNG, JODIE CLEMENTS, KONSTANTIN KHLOKOV, ELENA G. LAPPO & EVGENY SYROECHKOVSKIY
- 58 **FIELD STUDY The ecology of nestlings of Javan Kingfisher *Halcyon cyanoventris* observed in Jatimulyo village, Yogyakarta province, Java, Indonesia**
IMAM TAUFIQURRAHMAN, KELIK SUPARNO, KIRYONO, IGNAS SETA DWIWARDHANA, NOORMAN HENDRY, FAUZY & AFRIZAL NURHIDAYAT FIELD STUDY
- 65 **LITTLE-KNOWN ASIAN BIRD Observations of juvenile Mongolian Accentor *Prunella koslowi*, Gobi Gurvan Saikhan National Park, Mongolia**
OSCAR CAMPBELL & GILLIAN ENSOR
- 68 **PROJECT REPORT Safeguarding the last breeding population of River Tern *Sterna aurantia* in China**
XI ZHENG, CHANG-SHENG ZUO, JIAN-HUAN YANG, DING-CAN ZHANG, ZHENG-HUA YANG & BOSCO PUI LOK CHAN
- 74 **COUNTRY FOCUS Pakistan's birds and birdwatching today**
BIRDS OF PAKISTAN FACEBOOK GROUP
- 89 **BIRD TO WATCH Some observations of the Xinjiang Ground Jay *Podoces biddulphi* in the Taklimakan Desert, Xinjiang, China**
ANDREW SHEPPERD
- 94 **PHOTOSPOT Three for the price of one!**
- 95 **NOTEBOOK Iris marks and pupil shape in the Ashy Woodpecker *Mulleripicus fulvus* of Sulawesi, Indonesia**
GERARD GORMAN
- 98 **NOTEBOOK New altitudinal record for Indian Peafowl *Pavo cristatus* from Nepal**
CHIRANJEEVI KHANAL, MADAN SAPKOTA, PRABHAT KIRAN BHATTRAJ & BHUWAN SINGH BIST

- 100 **NOTEBOOK** **Notes on the occurrence of White Wagtail *Motacilla alba* in Indonesia**
BAS VAN BALEN, ERIK MEJAARD, ICHLAS AL ZAQIE, WOUTER PLOMP & JAMES A. EATON
- 103 **NOTEBOOK** **If you go, I'll stay: nest use interaction between Asian Woollyneck *Ciconia episcopus* and Black Kite *Milvus migrans* in Nepal**
PRASHANT GHIMIRE, NABIN PANDEY, BIBEK BELBASE, ROJINA GHIMIRE, CHIRANJEEVI KHANAL, BHUWAN SINGH BIST & KRISHNA PRASAD BHUSAL
- 106 **NOTEBOOK** **High altitude records of Ruddy-breasted Crake *Zapornia fusca* and Shikra *Accipiter badius* from the Spiti valley, Trans-Himalaya region, Himachal Pradesh, India**
C. ABHINAV & JAINY KURIAKOSE
- 109 **NOTEBOOK** **Sightings of Mandarin Duck *Aix galericulata* in Nepal go back 30 years**
KAMAL THAPA, VIMAL KUMAR THAPA, PURNA BAHADUR ALE & BIRKHA (LALU) GURUNG
- 111 **BREEDING RECORD** **Second breeding record of the little-known Sumatran Green Pigeon *Trepon oxyurus* from Sumatra, Indonesia**
CHAIRUNAS ADHA PUTRA, DING LI YONG, CAROLINE HO, SWEE SENG KHOO & DEDI ARFIANTO
- 114 **BREEDING RECORD** **Little Cormorant *Microcarbo niger* nesting in Peninsular Malaysia**
AMAR-SINGH HSS
- 118 **NEW RECORDS** **New and interesting avifaunal records for Myanmar, 2005–2019**
THET ZAW NAING, CHRISTOPH ZÖCKLER, KYAW ZIN TUN, LAY WIN, MYINT KYAW, NAING LIN, NGWE LWIN, NYO NYO AUNG, ROBERT TIZARD, SAW MOSES, SOE NAING AYE, THAN ZAW & THIRI DA WEI AUNG
- 128 **COUNTRY FIRSTS** **First record of European Honey Buzzard *Pernis apivorus* for India**
DHAVAL VARGIYA, PRASAD GANPULE, NAYAN THANKI & PARESH PITRODA
- 131 **COUNTRY FIRSTS** **The first record of European Honey Buzzard *Pernis apivorus* for Sri Lanka**
MODITHA KODIKARA ARACHCHI & SAMPATH S. SENEVIRATNE
- 134 **COUNTRY FIRSTS** **First record of Emperor Goose *Anser canagicus* for China**
IDERBAT DAMBA
- 135 **COUNTRY FIRSTS** **First record of Fairy Pitta *Pitta nympha* for Cambodia**
THOMAS N. E. GRAY & OLIVER ROBERTS
- 137 **COUNTRY FIRSTS** **First record of Lapland Longspur *Calcarius lapponicus* for Thailand and South-East Asia**
ZACHARY POHLEN & CALLIE GESMUNDO
- 138 **COUNTRY FIRSTS** **First record of Oriental Plover *Charadrius veredus* for Bangladesh**
SULTAN AHMED & KHATUNE JANNAT
- 140 **COUNTRY FIRSTS** **First record of Glossy Ibis *Plegadis falcinellus* for Mongolia**
BATMUNKH DAVAASUREN, ANDREAS GARPEBRING, ANNA HALLMÉN, JULIA PETTERSSON & MARIA NILSSON
- 142 **FROM THE FIELD EXTRA** **An unprecedented influx of vagrants into Malaysia and Singapore during the 2019–2020 winter period**
YONG CHEE KEITA SIN, DILLEN NG & MARTIN KENNEWELL
- 148 **From the field**

CONSERVATION ALERT

Now you see them, now you don't: how representative are field surveys when most birds are caged? A case study from the lower montane forests of southern Sumatra, Indonesia

MUHAMMAD IQBAL, PORMANSYAH, ARUM SETIAWAN, INDRA YUSTIAN & HILDA ZULKIFLI

In the twenty-first century, the major overwhelming force that threatens to drive an increasing number of avian species to extinction is the trade in birds for human entertainment, whether it is a bird's ability to sing or simply because it has attractive attributes or beautiful plumage (Sykes 2017). The ubiquitous sight of countless caged songbirds across much of South-East Asia is dwarfed by the massive number of birds trapped daily to sustain this trade (Chng *et al.* 2019). In Indonesia, keeping birds as pets is a very well accepted and widespread hobby (Jepson & Ladle 2005, Iqbal 2016) and the rampant, largely unregulated bird trade has pushed several species to the brink of extinction, including some Sumatran endemic birds (Shepherd 2006, Iqbal 2015).

In early February 2020, we visited the lower montane forest of Pagar Alam district, South Sumatra province, and carried out two field surveys using the transect technique to penetrate the forest for a distance of about 1 km. The first

transect, carried out on 4 February from 10h00 to 13h00, covered a forested area near Rimba Candi village, hereafter referred to as Rimba Candi Forest (RCF) (Plate 1); the weather was fair and fine. The second, covering forest on the lower slopes of Dempo mountain, hereafter Dempo Mountain Forest (DMF), near Pagar Alam city (Plate 2), was carried out on 5 February from 13h30 to 15h30. Initially the weather was fair and fine but during the last 30 minutes we experienced light to heavy rain. We also visited the villages of Jokoh, Semidang Alas and Rimba Candi as well as Pagar Alam city and confirmed that many households had caged birds as pets; in particular we noted some endemic Sumatran species and subspecies (Plates 4–17). Villagers said that many birds were not on display outside because their owners were at work in their fields and coffee gardens and did not risk displaying their birds when no-one was at home, consequently the true number of caged pet birds was significantly higher than those that we counted.

Plate 1. Remaining lower mountain forest near Rimba Candi village, Pagar Alam district, South Sumatra province, Indonesia, 4 February 2020.





Plate 2. Remaining lower mountain forest at the foot of Dempo mountain, Pagar Alam district, 5 February 2020.

Table 1. Birds observed during visit in February 2020 to lower montane forest, Pagar Alam district, South Sumatra province, Indonesia, including pet birds recorded in homes of local people.

Key: RCF = Rimba Candi Forest; DMF = Dempo Mountain Forest; VIL = Jokoh, Rimba Candi, Semidang Alas villages; PAC = Pagar Alam city. P = protected by Indonesian law (Ministry of Forestry and Environment 2018); ES = endemic to Sumatra; ESS = subspecies endemic to Sumatra; EJ = endemic to Java.

CR = Critically Endangered; **EN** = Endangered; **VU** = Vulnerable; **NT** = Near Threatened.

Species and threat status	RCF	DMF	VIL	PAC	Notes
Sooty-headed Bulbul <i>Pycnonotus aurigaster</i>	+	+	+	+	
Yellow-vented Bulbul <i>Pycnonotus goiavier</i>	+	+	+	+	
Ochraceous Bulbul <i>Alophoixus ochraceus</i>	+	+	+	+	ESS
Spot-necked Bulbul <i>Pycnonotus tympanistrigus</i> NT			+	+	ES
Ruby-throated Bulbul <i>Rubigula dispar</i> VU				+	
Sumatran Leafbird <i>Chloropsis media</i> EN			+	+	P,ES
Blue-masked Leafbird <i>Chloropsis venusta</i> NT			+	+	P,ES
White-rumped Shama <i>Kittacincla malabarica</i>			+	+	
Oriental Magpie Robin <i>Copsychus saularis</i>			+	+	
Fulvous-chested Jungle Flycatcher <i>Cyornis olivaceus</i>			+		
Common Green Magpie <i>Cissa chinensis</i>			+	+	
Sumatran Laughingthrush <i>Garrulax bicolor</i> EN			+	+	ES
Chestnut-capped Laughingthrush <i>Garrulax mitratus</i> NT			+	+	
Sunda Laughingthrush <i>Garrulax palliatus</i> NT			+	+	
Long-tailed Shrike <i>Lanius schach</i>	+	+	+	+	
Black-winged Starling <i>Acridotheres melanopterus</i> CR				+	EJ
Javan Pied Starling <i>Gracupica jalla</i> CR				+	EJ
Bar-winged Prinia <i>Prinia familiaris</i> NT	+	+	+	+	
White-eye <i>Zosterops</i> sp.			+	+	
Spiderhunter <i>Arachnothera</i> sp.	+				
Ruby-cheeked Sunbird <i>Chalcoparia singalensis</i>	+	+	+	+	
Brown-throated Sunbird <i>Anthreptes malacensis</i>			+	+	ESS

Evidently, quite extensive patches of forest remain in the Pagar Alam lower montane zone (Plates 1 & 2), although many formerly forested areas have been converted to coffee plantations. Bird hunting was reported to be common in both the RCF and DMF, and we were not surprised that birds were very hard to find there. We noted passerine species observed during the field surveys and those that we encountered held captive in cages as pets by local people (Table 1). The numbers of the formerly common birds found in the wild were as follows: Sooty-headed Bulbul *Pycnonotus aurigaster*, about 10 birds in RCF, near the village and gardens, and about 5 in DMF, also near village and gardens; Yellow-vented Bulbul *P. goiavier*, about 16 birds in RCF, near village and gardens, with 6 to 8 in DMF, also near village and gardens; Ochraceous Bulbul *Alophoixus ochraceus*, 4 to 6 birds in RCF and 2 or 3 birds in DMF; Long-tailed Shrike *Lanius schach*, about 6 birds in RCF, near village and gardens, with 3 or 4 birds in DMF, near village and tea plantation; Bar-winged Prinia *Prinia familiaris*, about 6 birds in RCF, near village and gardens, with 2 or 3 birds in DMF, near village and tea plantation; spiderhunter *Arachnothera* sp., about 3 birds in RCF (based on calls); and Ruby-cheeked Sunbird *Chalcoparia singalensis*, about 2 birds in RCF and about 6 birds in DMF.

Our discussions with the villagers in these areas indicated that local hunters were continuing to trap birds locally, but with diminishing returns. An informant from Jokoh village said that three or four years ago, he could collect 10 Oriental Magpie Robin *Copsychus saularis* and up to 80 white-eye *Zosterops* sp. daily, but Oriental Magpie Robin might now be locally extinct and white-eyes were becoming very hard to find. Bird hunting is seasonal and peaks between September and March, during the low season for coffee production. Although villagers use airguns relatively frequently to deter and expel animals regarded as garden pests, they do not hunt birds with guns. Local hunters sometimes make surveys to monitor where target species breed and, when their eggs hatch, they harvest the chicks immediately. They advised that chicks command higher prices than adult birds, because when birds grow to adulthood in cages, they become acclimatised to this environment and are more docile, easier to care for and survive longer. Most hunters use birdlime to trap the birds, with glue made from local plants or, if this is not available, commercial glue may be purchased; hunting using mist-nets is not common in this area. In winter (December and January), hunting of large numbers of the migratory Eyebrowed Thrush *Turdus obscurus*—up 300–500 birds per night—was also reported by residents of



Plate 3. The Critically Endangered Javan endemic Black-winged Starling *Acridotheres melanopterus*, Pagar Alam city, 5 February 2020.

Rimba Candi village, a practice previously reported as widespread in Sumatra (Iqbal *et al.* 2018).

Local hunters sell their birds for between IDR 300,000 and IDR 500,000 (US\$22 to US\$37). Massive hunting of passerine songbirds in the lower mountains of southern Sumatra should be a matter of special concern. Only seven passerine species were observed during the two field surveys, but 18 species were recorded as caged birds in village houses.

In Pagar Alam city, we also found two Critically Endangered Javan endemics—Black-winged Starling *Acridotheres melanopterus* and Javan Pied Starling *Gracupica jalla*—in the home of a wealthy local resident (Plate 3). The owner said that he purchased the birds from a seller from Palembang city, capital of South Sumatra province. We assume that information exchange between sellers, buyers and hunters is excellent because social media platforms such as WhatsApp and Facebook are well developed in most parts of South Sumatra province. In addition, although many birds are kept quite commonly as pets in local people's homes, we did not find endemic forest songbirds on sale in Pagar Alam city bird market on 7 February 2020. The birds displayed for sale were Sooty-headed Bulbul, Yellow-vented Bulbul, lovebird *Agapornis* sp., Budgerigar *Melopsittacus undulatus*, Rock Dove/Feral Pigeon *Columba livia*, Eastern Spotted Dove *Spilopelia chinensis* and buttonquail *Turnix* sp.. The Pagar Alam bird market is very close to a residential police office, so the traders are more likely to know about species protection and the implications of selling protected or exotic species.

Sumatra's lower montane forests lie between 1,200–2,100 m (Whitten *et al.* 2000). This area, designated as part of the Sumatra and Peninsular Malaysia Endemic Bird Area (EBA), comprises the Bukit Barisan mountain range, which runs the entire length of western Sumatra from Aceh province in the north to Lampung province in the



Plate 4. Male Sumatran Leafbird *Chloropsis media*, Jokoh village, Pagar Alam district, 4 February 2020.



Plate 5. Female Sumatran Leafbird, Jokoh village, 4 February 2020.



Plate 6. Sumatran Laughingthrush *Garrulax bicolor*, Rimba Candi village, 4 February 2020.



Plate 7. Male Blue-masked Leafbird *Chloropsis venusta*, Rimba Candi village, 4 February 2020.



Plate 8. Common Green Magpie *Cissa chinensis* dead in its cage, Rimba Candi village, 4 February 2020.



Plate 9. White-eye *Zosterops* sp., Rimba Candi village, 4 February 2020.

Plate 10. Spot-necked Bulbul *Pycnonotus tympanistrigus*, Rimba Candi village, 4 February 2020.



Plate 11. Ochraceous Bulbul *Alophoxus ochraceus sumatranus* (endemic Sumatran subspecies), Rimba Candi village, 4 February 2020.





Plate 12. Ruby-cheeked Sunbird *Chalcoparia singalensis sumatrana* (endemic Sumatran subspecies), Jokoh village, 4 February 2020.



Plate 13. Bar-winged Prinia *Prinia familiaris*, Jokoh village, 4 February 2020.



Plate 14. Brown-throated Sunbird *Anthreptes malacensis*, Jokoh village, 4 February 2020.



Plate 15. Chestnut-capped Laughingthrush *Garrulax mitratus*, Rimba Candi village, 4 February 2020.



Plate 16. Sunda Laughingthrush *Garrulax palliatus*, Rimba Candi village, 4 February 2020.



Plate 17. Ruby-throated Bulbul *Rubigula dispar*, Pagar Alam city, 5 February 2020.

south (Sujatnika *et al.* 1995), and is home to many endemic bird species. According to BirdLife International (2020), the main threat to the birds of the EBA is deforestation; however, our findings and information from local people living around the lower slopes of Dempo mountain suggest that hunting must be considered as the main threat rather than deforestation, at least in the area we visited. When our 1 km transect surveys in the forest found only seven passerine species, whilst our observations in local homes found 18 species, it is clear that finding lower montane forest birds in South Sumatra is easier in local homes than in

the forest itself. If a comprehensive survey of all village homes were to be made, the number of individuals and species found would increase. As already proposed by Rentschlar *et al.* (2018) for Kalimantan, we recommend that government authorities and conservationists focus on conserving Sumatra's remaining forest and reducing demand through education and behavioural change programmes, particularly in areas where there is heavy hunting of birds and conservation programmes are limited, as is the case in the lower mountains of South Sumatra province.

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Now you see them, now you don't: how representative are field surveys when most birds are caged? A case study from the lower montane forests of southern Sumatra, Indonesia

By Arum Setiawan

CONSERVATION ALERT

Now you see them, now you don't: how representative are field surveys when most birds are caged? A case study from the lower montane forests of southern Sumatra, Indonesia

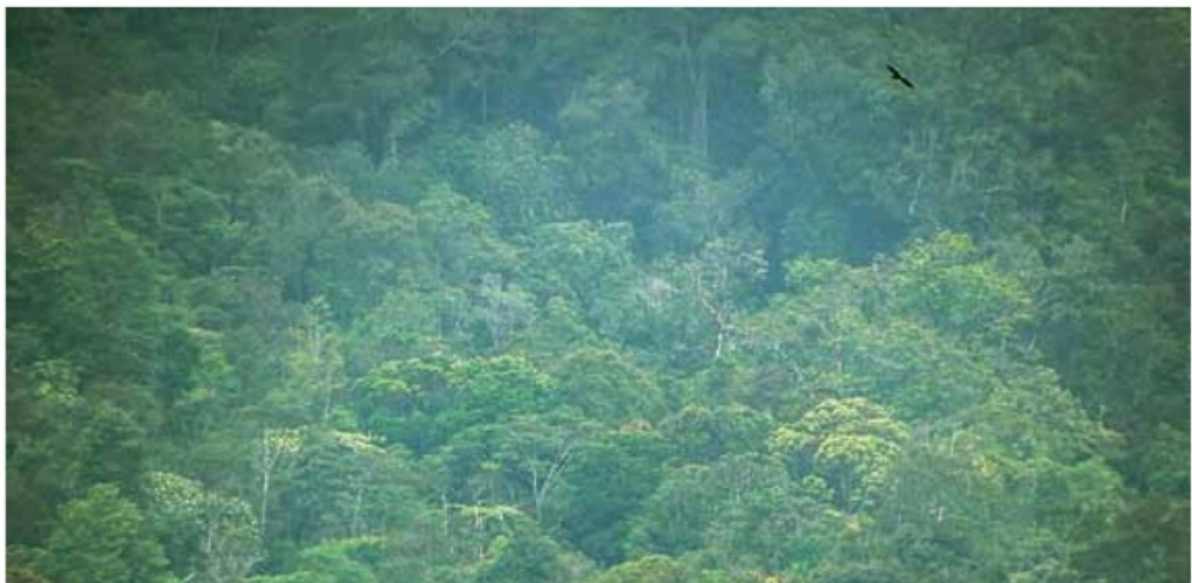
MUHAMMAD IQBAL, PORMANSYAH, ARUM SETIAWAN, INDRA YUSTIAN & HILDA ZULKIFLI

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Plate 1. Remaining lower mountain forest near Rimba Candi village, Pagar Alam district, South Sumatra province, Indonesia, 4 February 2020.



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Plate 2. Remaining lower mountain forest at the foot of Dempo mountain, Pagar Alam district, 5 February 2020.

Table 1. Birds observed during visit in February 2020 to lower montane forest, Pagar Alam district, South Sumatra province, Indonesia, including pet birds recorded in homes of local people.

Key: RCF = Rimba Candi Forest; DMF = Dempo Mountain Forest; VIL = Jokoh, Rimba Candi, Semidang Alas villages; PAC = Pagar Alam city. P = protected by Indonesian law (Ministry of Forestry and Environment 2018); ES = endemic to Sumatra; ESS = subspecies endemic to Sumatra; J = endemic to Java.

CR = Critically Endangered; **EN** = Endangered; **VU** = Vulnerable; **NT** = Near Threatened.

Species and threat status	RCF	DMF	VIL	PAC	Notes
Sooty-headed Bulbul <i>Pycnonotus aurigaster</i>	+	+	+	+	
Yellow-vented Bulbul <i>Pycnonotus goiavier</i>	+	+	+	+	
Ochraceous Bulbul <i>Alophoixus ochraceus</i>	+	+	+	+	ESS
Spot-necked Bulbul <i>Pycnonotus tympanistrigus</i> NT			+	+	ES
Ruby-throated Bulbul <i>Rubigula dispar</i> VU				+	
Sumatran Leafbird <i>Chloropsis media</i> EN			+	+	P,ES
Blue-masked Leafbird <i>Chloropsis venusta</i> NT			+	+	P,ES
White-rumped Shama <i>Kittacincla malabarica</i>			+	+	
Oriental Magpie Robin <i>Copsychus saularis</i>			+	+	
Fulvous-chested Jungle Flycatcher <i>Cyornis olivaceus</i>			+		
Common Green Magpie <i>Cissa chinensis</i>			+	+	
Sumatran Laughingthrush <i>Garrulax bicolor</i> EN			+	+	ES
Chestnut-capped Laughingthrush <i>Garrulax mitratus</i> NT			+	+	
Sunda Laughingthrush <i>Garrulax palliatus</i> NT			+	+	
Long-tailed Shrike <i>Lanius schach</i>	+	+	+	+	
Black-winged Starling <i>Acridotheres melanopterus</i> CR				+	EJ
Javan Pied Starling <i>Gracupica jalla</i> CR				+	EJ
Bar-winged Prinia <i>Prinia familiaris</i> NT	+	+	+	+	
White-eye <i>Zosterops</i> sp.			+	+	
Spiderhunter <i>Arachnothera</i> sp.	+				
Ruby-cheeked Sunbird <i>Chalcoparia singalensis</i>	+	+	+	+	
Brown-throated Sunbird <i>Anthreptes malacensis</i>			+	+	ESS

Evidently, quite extensive patches of forest remain in the Pagar Alam lower montane zone (Plates 1 & 2), although many formerly forested areas have been converted to coffee plantations. Bird hunting was reported to be common in both the RCF and DMF, and we were not surprised that birds were very hard to find there. We noted passerine species observed during the field surveys and those that we encountered held captive in cages as pets by local people (Table 1). The numbers of the formerly common birds found in the wild were as follows: Sooty-headed Bulbul *Pycnonotus aurigaster*, about 10 birds in RCF, near the village and gardens, and about 5 in DMF, also near village and gardens; Yellow-vented Bulbul *P. goiavier*, about 16 birds in RCF, near village and gardens, with 6 to 8 in DMF, also near village and gardens; Ochraceous Bulbul *Alophoixus ochraceus*, 4 to 6 birds in RCF and 2 or 3 birds in DMF; Long-tailed Shrike *Lanius schach*, about 6 birds in RCF, near village and gardens, with 3 or 4 birds in DMF, near village and tea plantation; Bar-winged Prinia *Prinia familiaris*, about 6 birds in RCF, near village and gardens, with 2 or 3 birds in DMF, near village and tea plantation; spiderhunter *Arachnothera* sp., about 3 birds in RCF (based on calls); and Ruby-cheeked Sunbird *Chalcoparia singalensis*, about 2 birds in RCF and about 6 birds in DMF.

Our discussions with the villagers in these areas indicated that local hunters were continuing to trap birds locally, but with diminishing returns. An informant from Jokoh village said that three or four years ago, he could collect 10 Oriental Magpie Robin *Copsychus saularis* and up to 80 white-eye *Zosterops* sp. daily, but Oriental Magpie Robin might now be locally extinct and white-eyes were becoming very hard to find. Bird hunting is seasonal and peaks between September and March, during the low season for coffee production. Although villagers use airguns relatively frequently to deter and expel animals regarded as garden pests, they do not hunt birds with guns. Local hunters sometimes make surveys to monitor where target species breed and, when their eggs hatch, they harvest the chicks immediately. They advised that chicks command higher prices than adult birds, because when birds grow to adulthood in cages, they become acclimatised to this environment and are more docile, easier to care for and survive longer. Most hunters use birdlime to trap the birds, with glue made from local plants or, if this is not available, commercial glue may be purchased; hunting using mist-nets is not common in this area. In winter (December and January), hunting of large numbers of the migratory Eyebrowed Thrush *Turdus obscurus*—up 300–500 birds per night—was also reported by residents of



Plate 3. The Critically Endangered Javan endemic Black-winged Starling *Acridotheres melanopterus*, Pagar Alam city, 5 February 2020.

Timba Candi village, a practice previously reported as widespread in Sumatra (Iqbal *et al.* 2018).

Local hunters sell their birds for between IDR 300,000 and IDR 500,000 (US\$22 to US\$37). Massive hunting of passerine songbirds in the lower mountains of southern Sumatra should be a matter of special concern. Only seven passerine species were observed during the two field surveys, but 18 species were recorded as caged birds in village houses.

In Pagar Alam city, we also found two Critically Endangered Javan endemics—Black-winged Starling *Acridotheres melanopterus* and Javan Pied Starling *Gracupica jalla*—in the home of a wealthy local resident (Plate 3). The owner said that he purchased the birds from a seller from Palembang city, capital of South Sumatra province. We assume that information exchange between sellers, buyers and hunters is excellent because social media platforms such as WhatsApp and Facebook are well developed in most parts of South Sumatra province. In addition, although many birds are kept quite commonly as pets in local people's homes, we did not find endemic forest songbirds on sale in Pagar Alam city bird market on 7 February 2020. The birds displayed for sale were Sooty-headed Bulbul, Yellow-vented Bulbul, lovebird *Agapornis* sp., Budgerigar *Melopsittacus undulatus*, Rock Dove/Feral Pigeon *Columba livia*, Eastern Spotted Dove *Spilopelia chinensis* and buttonquail *Turnix* sp.. The Pagar Alam bird market is very close to a residential police office, so the traders are more likely to know about species protection and the implications of selling protected or exotic species.

Sumatra's lower montane forests lie between 1,200–2,100 m (Whitten *et al.* 2000). This area, designated as part of the Sumatra and Peninsular Malaysia Endemic Bird Area (EBA), comprises the Bukit Barisan mountain range, which runs the entire length of western Sumatra from Aceh province in the north to Lampung province in the



Plate 4. Male Sumatran Leafbird *Chloropsis media*, Jokoh village, Pagar Alam district, 4 February 2020.



Plate 5. Female Sumatran Leafbird, Jokoh village, 4 February 2020.



Plate 6. Sumatran Laughingthrush *Garrulax bicolor*, Rimba Candi village, 4 February 2020.



Plate 7. Male Blue-masked Leafbird *Chloropsis venusta*, Rimba Candi village, 4 February 2020.



Plate 8. Common Green Magpie *Cissa chinensis* dead in its cage, Rimba Candi village, 4 February 2020.



Plate 9. White-eye *Zosterops* sp., Rimba Candi village, 4 February 2020.

Plate 10. Spot-necked Bulbul *Pycnonotus tympanistrigus*, Rimba Candi village, 4 February 2020.



Plate 11. Ochraceous Bulbul *Alophoixus ochraceus sumatranus* (endemic Sumatran subspecies), Rimba Candi village, 4 February 2020.





Plate 12. Ruby-cheeked Sunbird *Chakoparia singalensis sumatrana* (endemic Sumatran subspecies), Jokoh village, 4 February 2020.



Plate 13. Bar-winged Prinia *Prinia familiaris*, Jokoh village, 4 February 2020.



Plate 14. Brown-throated Sunbird *Anthreptes malacensis*, Jokoh village, 4 February 2020.



Plate 15. Chestnut-capped Laughingthrush *Garrulax mitratus*, Rimba Candi village, 4 February 2020.



Plate 16. Sunda Laughingthrush *Garrulax palliatus*, Rimba Candi village, 4 February 2020.



Plate 17. Ruby-throated Bulbul *Rubigula dispar*, Pagar Alam city, 5 February 2020.

south (Sujatnika *et al.* 1995), and is home to many endemic bird species. According to BirdLife International (2020), the main threat to the birds of the EBA is deforestation; however, our findings and information from local people living around the lower slopes of Dempo mountain suggest that hunting must be considered as the main threat rather than deforestation, at least in the area we visited. When our 1 km transect surveys in the forest found only seven passerine species, whilst our observations in local homes found 18 species, it is clear that finding lower montane forest birds in South Sumatra is easier in local homes than in

the forest itself. If a comprehensive survey of all village homes were to be made, the number of individuals and species found would increase. As already proposed by Rentschlar *et al.* (2018) for Kalimantan, we recommend that government authorities and conservationists focus on conserving Sumatra's remaining forest and reducing demand through education and behavioural change programmes, particularly in areas where there is heavy hunting of birds and conservation programmes are limited, as is the case in the lower mountains of South Sumatra province.

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