

New and significant bird records for Solor, Adonara, and Lembata (Lomblen) islands, Lesser Sundas

MARK SCHELLEKENS¹, COLIN R. TRAINOR² AND GAUDENSIVS U.U.B. DUHAN³

¹ Woloara-Ende-Kelimutu, Flores, NTT, 86372, Indonesia; corresponding address: Besterdring 27-07, 5014 HG, Tilburg, The Netherlands. Email: ljm.schellekens@yahoo.com

² School of Environmental & Life Sciences, Charles Darwin University, Darwin, NT 0800, Australia

³ Jalan Bajawa, Kupang, Timor Barat, NTT, 85111, Indonesia

Summary: The birds of the island of Solor were last investigated about 150 years ago when Charles Allen, an assistant of Lord Alfred Wallace, collected four species. During a one-day visit in 2005 the first author recorded an additional 47 species, including 33 resident land birds. A total of 37 species, including ten new island records, were observed on Adonara over a 2-day period in January 2005 and a brief visit in 2009. The second author recorded 33 species over four days on Lembata, including seven new island records. Few of the new island records for these three islands involved resident forest birds. A notable exception was the Oriental Dwarf Kingfisher *Ceyx erythacus* on Lembata, extending its easterly limits. The avifaunas of Solor, Adonara and Lembata are species-poor subsets of the Flores mainland avifauna; only three species - Olive-headed Lorikeet *Trichoglossus euteles* (Adonara, Lembata), Common Cicadabird *Coracina tenuirostris* (Lembata) and Broad-billed Flycatcher *Myiagra ruficollis* (Lembata) - are absent from Flores. The forest avifauna of these islands remains poorly known and deserves further attention.

Ringkasan. Burung di pulau Solor terakhir diteliti sekitar 150 tahun yang lalu ketika Charles Allen, asisten Lord Alfred Wallace mengoleksi empat spesies. Pada kunjungan sehari tahun 2005 penulis pertama melaporkan 47 spesies tambahan, termasuk 33 burung darat penempat. Total 37 spesies, termasuk 10 laporan baru untuk pulau tersebut, teramati di Adonara dalam 2 periode bulan Januari 2005 dan suatu kunjungan singkat tahun 2009. Penulis kedua melaporkan 33 spesies selama empat hari di Lembata, termasuk tujuh laporan baru untuk pulau tersebut. Sedikit laporan dari tiga pulau tersebut menyebutkan spesies burung hutan penempat. Kekecualian untuk spesies Udang Api *Ceyx erythacus* di Lembata, batas penyebaran paling timurnya. Avifaunanya Solor, Adonara, dan Lembata merupakan perwakilan yang miskin-jenis dari daratan Flores; hanya tiga spesies, yaitu Perkici Timor *Trichoglossus euteles* (Adonara, Lembata), lalu jenis Kepudangsungu Miniak *Coracina tenuirostris* (Lembata), dan Sikatan Paruh-lebar *Myiagra ruficollis* (Lembata) yang tidak ada di Flores. Burung-burung hutan dari pulau-pulau ini masih sedikit diketahui dan layak mendapatkan perhatian lebih jauh.

Introduction

Solor (222 km²), Adonara (497 km²) and Lembata (1,269 km²) are medium to large volcanic islands located off the eastern tip of Flores, and between Pantar and Alor in East Nusa Tenggara (Lesser Sundas), Indonesia. They are weakly

isolated from Flores: Solor lies less than 4 km off Flores, while Adonara is only 1 km off Flores. Both islands would have been connected to Flores during Pleistocene ice ages (Voris 2000). The avifauna of these islands are either known (Adonara and Lembata), or suspected (Solor), to be species-poor subsets of the Flores avifauna.

The birds of Adonara and Lembata were poorly known until visited in 2000 by Trainor (2002a,b; 2003). Two interesting Flores-group endemics were reported from Adonara (Trainor 2002a) – the White-rumped Kingfisher *Caridonax fulgidus* and Russet-capped Tesia *Tesia everetti*. Other notable birds included the Common Cicadabird *Coracina tenuirostris* (Lembata), which regionally is known only from Timor (Coates & Bishop 1997), while the Olive-headed Lorikeet *Trichoglossus euteles* is a widespread Timor-group bird that has been reported from Adonara and Lembata, as well as Pantar and Alor (and is presumably ecologically replaced on Flores by the Leaf (Flores) Lorikeet *Trichoglossus weberi*).



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Plate 1. View towards Ili Api, Lembata, January 2001.

sulphurea. Verhoeve & Holmes (1998) omitted Island Collared Dove for Solor, but did list Flores Green Pigeon, Barred Dove, Collared Kingfisher *Todiramphus chloris* (marked ‘?’, as uncertain), and Golden-bellied Gerygone. The two additional species are Greater Sand-plover *Charadrius leschenaultii* and Collared Kingfisher (White & Bruce 1986; Coates & Bishop 1997).

Solor is relatively heavily populated (124 people/km²: BPS 2008) and much of the coastal lowlands have been converted to grassland and savanna. The island, with Adonara, is included in the East Flores district, whereas Lembata now comprises an independent district. Three inactive strato-volcanoes on Solor still retain some tropical forest cover, and natural habitat is more intact in the south of the island (from GoogleEarth views). Habitat and general introductions to Adonara and Lembata are given in other publications (Trainor 2002a,b, 2003).

In this paper we report recent ornithological surveys of all three islands. We used Jaccard’s index of similarity ($S = c/[a+b+c]$), to determine the similarity

In contrast, the birds of Solor were last documented following a visit by Charles Allen, an assistant of Alfred Wallace, some time between 1854 and 1856. Six birds only are listed for the island (White & Bruce 1986). Allen collected four species: Flores Green Pigeon *Treron floris*, Island Collared Dove *Streptopelia bitorquata*, Barred Dove *Geopelia maugei* and Golden-bellied Gerygone *Gerygone*

between the three pairs of islands in the composition of their resident land avifauna.

Methods

On 7 January 2005, MS accessed Solor by ferry (c. 8 km, 1 hr) from Wairwerang on Adonara to Lamakera on Solor. Only the rugged north coast (0 to c. 100 m asl) was visited. Here large boulders are embedded in grassland. Natural savannas, including those dominated by Lontar palm *Borassus flabellifer*, grassland, mangroves and remnant patches of tropical forest were surveyed opportunistically from the back of a motorcycle, making frequent stops to identify birds along the way, and longer stops at several bird rich locations. However the volcanic hills in the west of the island, which appear to support primary tropical forest, were not accessed due to time constraints. During 6-7 January 2005, MS also made a brief visit to Adonara. On 6 January 2005, a 4-h motorbike trip was made along the south coast starting in Wairwerang and proceeding about 40 km along the coast, never exceeding c.300m asl. This method was repeated on the 7 January 2005 for about 25 km northwest of Wairwerang.

Lembata was accessed by CRT by ferry from Larantuka, Flores, via Adonara during 27-30 September 2009. Although this period corresponded with the late dry season, there were regular heavy downpours due to the influence of 'La Nina' in that year. The previous survey of Lembata was in December 2000 during the early wet season (see Trainor 2003). In 2009, pre-dawn, early morning and early evening visits were made specifically to target the Moluccan Scops-Owl *Otus magicus*. The survey was restricted to a small area near the Lewoleba harbour mostly around a remnant patch of evergreen swamp forest. Recordings were made for many bird species with an Olympus LS-10 recorder and Sennheiser microphone, and a few birds were photographed with a Canon D7 camera with 100-400 mm lens. Sonograms were prepared using RavenLite software (www.birds.cornell.edu/brp/raven/raven.html).

GD surveyed birds on Adonara from 4 to 23 February 2008, and 28 July to 3 September 2008, as part of an undergraduate research program at Universitas Atma Jaya Yogyakarta, Jogjakarta.

Results

The following annotated list provides brief details for records of significance – 14 species recorded on Solor, all nine new island records from Adonara and the seven new island and other notable records from Lembata. The appendix lists all species now known for Solor, Adonara and Lembata with the sources of data.

Of the 64 new island records presented, 38 are of resident land birds, but only eight of these are resident forest birds (Table 1). Avifaunal similarity between pairs of islands was highest for Adonara and Lembata (Jaccard's Index = 54.9; 39 resident land birds shared), lowest for Solor and Adonara (similarity =

0.42; 25 resident land birds shared) and relatively low also for Solor and Lembata (similarity = 0.46; 32 resident land birds shared).

Table 1. Summary of avian composition on Solor, Adonara and Lembata. The number of new island records is given in parentheses.

	Solor	Adonara	Lembata
No. resident landbirds (new)	38(33)	46(4)	65(1)
[No. forest birds]	[7(6)]	[22(1)]	[33(1)]
No. waterbirds and seabirds	10(9)	9(5)	25(4)
No. migrant landbirds	4(4)	3(1)	7(0)
No. introduced	1(1)	2(0)	1(1)
Total birds	53(47)	60(10)	98(7)

Annotated list of birds of interest

GREAT FRIGATEBIRD *Fregata minor*

Adonara: An adult male bird was observed on both 6 and 7 January, off Wairwerang.

Lembata: Five adult birds were seen and photographed along the coast at Lewoleba on 29 September 2009. Previously two female Lesser Frigatebird *Fregata ariel* had been seen along the coast of Lembata (Trainor 2003). Frigatebirds are frequent in the region (Trainor and Soares 2004, Trainor 2005).

GREAT CRESTED TERN *Sterna bergii*

Adonara: A total of 37 birds were seen perched on buoys at the Japanese-run pearl farm at Bani Ona, c.15 kilometers West of Waiwerang, on 6 January 2005. On 7 January 2005 a flock of 17 was observed off Wairwerang hunting over the sea during the return trip from Solor.

ORIENTAL HONEY-BUZZARD *Pernis ptilorhyncus*

Adonara: A single bird was seen soaring at c.250m asl, just north of Wailebe on the west coast and a pair was observed soaring at sea-level just North of Wureh on the west coast, both on 6 January 2005. There are few historical records of this species (White & Bruce 1986), but recent observations suggest that it is a regular and common migrant to the Lesser Sundas (Germi *et al.* 2009; CRT unpubl. data.)

CHINESE GOSHAWK *Accipiter soloensis*

Solor: An adult bird of this migratory species was seen flying into woodland fringing mangroves at 1 km west of Gorang (4 km). There are very few historical



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Plate 2. Green Junglefowl on Adonara.

data on this species from the region. Verhoeve & Holmes (1999) mention only a single specimen collected by E. Schmutz, however a series of eight birds were collected in the far west of Flores during October to January (Mees 2006). More recent observations confirm that it is a common and regular winter visitor to Flores (Germi *et al.* 2009) and West Timor (MS unpubl. data.).

BROWN QUAIL *Coturnix ypsilophora*

Adonara: This species was recorded by GD in gardens, coconut plantations and in tropical forest. One bird was caught and photographed during February 2008.



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Plate 3. A White-breasted Waterhen in tall grassland at the edge of Lewoleba.

GREEN JUNGLEFOWL *Gallus varius*

Adonara: Frequently observed by GD on the slopes of Ile Boleng, including a pair of adults (once), a female with chicks (once), six immature birds (once), but adult female birds were most often seen and one male bird was photographed (Plate 2).

WHITE-BREADED WATERHEN

Amaurornis phoenicurus leucomelanus

Lembata: This species occurs widely in Wallacea, and recent increased survey effort during the wet season (when it is more vocal) shows that it is common on many islands (CRT unpubl. data). The subspecies through much of Wallacea is *leucomelanus*, but the populations in the central Lesser Sundas are distinctive and have greatly reduced white on the front (Plate 3). A single bird was heard clucking in tall Imperata grassland at the edge of Lewoleba town. The squabbling song was

not heard, but low pitched (940-1,640kHz) alarm notes were recorded for about 5 min (Fig. 1). These were 0.35 s in length, with 0.2 s between notes, and are different from alarm notes recorded elsewhere in Indonesia (Matthias Feuersenger, XC38333. Accessible at www.xeno-canto.org/38333), despite the squabbling song of birds in the Lesser Sundas being similar to birds recorded as far away as India (www.xeno-canto.org).

GREY-TAILED TATTLER *Heterosceles brevipes*

Lembata: A single bird observed on a beach at Lewoleba constitutes the first island record of this wide-ranging Palearctic winter migrant.

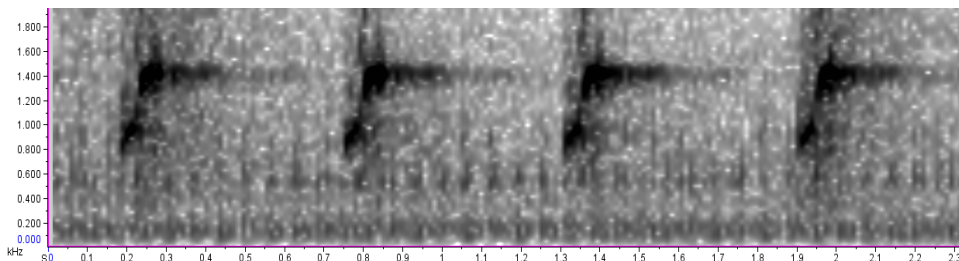


Figure 1. Audio sonogram showing low-pitched alarm notes by White-breasted Waterhen at Lewoleba. (CRT)

RED-NECKED STINT *Calidris ruficollis*

Lembata: Two birds observed on the beach constitute the first Lembata record of this wide-ranging migrant.

RED-NECKED PHALAROPE *Phalaropus lobatus*

Adonara: A total of 10 birds were observed off the coast of Adonara by CRT while en route to Lembata on 27 September 2009 – surprisingly this is the first record off the coast of the island.

Lembata: Four birds observed near Lewoleba harbour on 27 September 2009 add to previous records off the island.

JAEGER SP. *Stercorarius sp.*

Solor: A single jaeger was observed from the boat, about 1 km west of Lamakera and 600 m offshore. No definite identification could be made as the bird flew away from the boat. Jaegers appear to migrate regularly through the Lesser Sundas, but the lack of wet season observers and identification difficulties may have reduced the number of records. There have been two recent Timor and Flores records (Trainor *et al.* 2007, MS unpubl. data).

BRIDLED TERN *Sterna anaethetus*

Solor and Adonara: Three birds were observed off Lamakera during the return trip from Solor to Adonara.

BROWN NODDY *Anous stolidus*

Solor: Four birds off Lamakera were observed during the return voyage from Solor to Adonara.

Adonara: A total of 29 birds were seen perched on buoys at the Japanese-operated pearl farm at Bani Ona, c.15 km west of Waiwerang, on 6 January 2005 while on the Larantuka (Flores) to Wairwerang ferry.

FLORES GREEN PIGEON *Treron floris*

Lembata: Small groups were heard calling – but not sound recorded - from the canopy of swamp forest, and isolated small evergreen trees adjacent to swamp forest. This habitat is threatened by ongoing development about the rapidly growing Lewoleba town, but it does confirm that Lembata retains populations of this green pigeon. They were recorded widely in 2000 (Trainor 2003), with flocks of 10-15 birds recorded at the edge of the harbor swamp forest, and presumably the island maintains an important population of this globally Vulnerable pigeon.

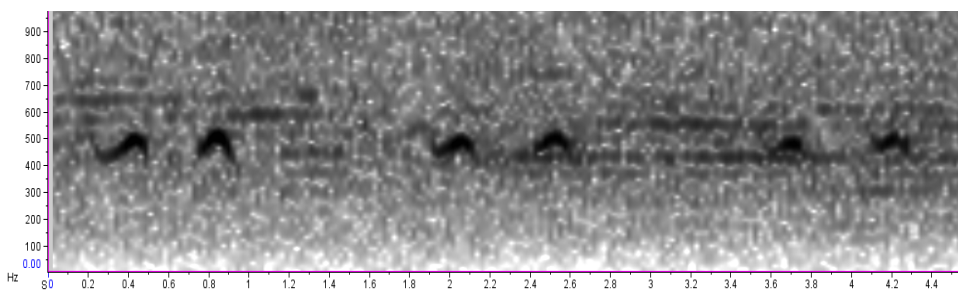


Figure 2. Audio sonogram of the very low-pitched contact notes of Black-naped Fruit-dove at Lewoleba. (CRT)

BLACK-NAPED FRUIT-DOVE *Ptilinopus melanospila melanauchen*

Lembata: The Black-naped Fruit-dove occurs widely through much of Wallacea, but more locally in Maluku (Coates & Bishop 1997). On Lembata it was commonly heard calling from swamp forest throughout the day, as well as pre-dawn and late afternoon, dusk and early evening. The song is a very low pitched (215-730kHz) two note “wook” with each note lasting 0.1 s, with 0.25 s between notes, and 1 s between bouts. Calls from nearby Flores are also composed of two notes and of a similar pitch, but have a longer introductory note (or series of quiet introductory notes with variable frequency) with a moaning quality, a longer gap between notes (c. 1 s) and between bouts (c. 1.5 s) (Fig. 2). The second note increases in speed and is louder (Allen T. Chartier, XC31434. Accessible at www.xeno-canto.org/31434), whereas on Lembata both notes are given at equal speed and volume.

METALLIC PIGEON *Columba metallica*

Adonara: Seen twice by GD, both times involving single birds in tall evergreen forest on the slopes of Ile Boleng. This large forest pigeon occurs widely through the Lesser Sundas, especially in the hills, and was expected for Adonara. It is a

notably shy species, rarely recorded, and typically overlooked during short surveys.

ISLAND COLLARED DOVE *Streptopelia bitorquata bitorquata*

Solor: Two birds were seen in the top of a Lontar Palm *Borassus flabellifer*, 2 km west of Lamakera. Although also recorded by Allen on Solor, there are relatively few recent Lesser Sunda records, and this dove is also uncommon and local on nearby Flores (locally common about Lake Tiwu Bowu and mangrove south of Labuhan Bajo), but there no recent records from Timor as far as we are aware.

BARN OWL *Tyto alba sumbaensis*

Lembata: One was seen and heard calling by the owner of Lile Ile homestay on the edge of Lewoleba town on 29 September 2009. Another was observed on Adonara (Trainor 2002a), and they are common on Timor, Alor and Wetar (CRT unpubl. data).

MOLUCCAN SCOPS-OWL *Otus magicus albiventris*

Lembata: The Moluccan Scops-owl was collected on Lembata during the 19th century, with several records during 2000 (Trainor 2003). The call was described as ‘growlk’ and on neighboring Flores has been described as a raven like quack,

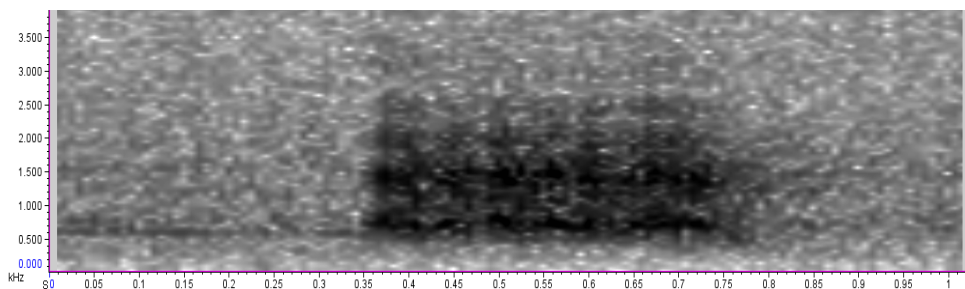


Figure 3. Audio sonogram of single note by Moluccan Scops-owl near Lewoleba. (CRT)

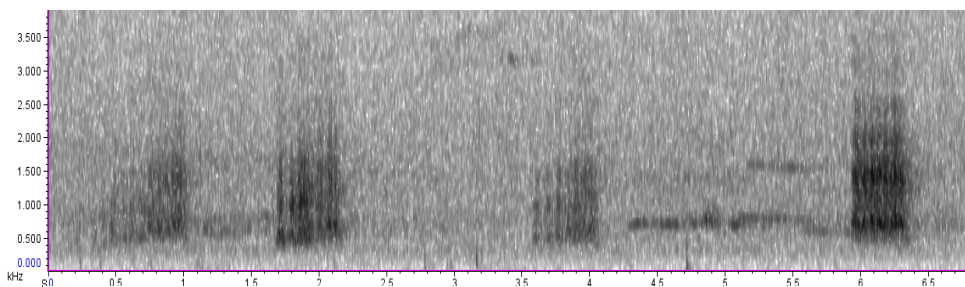


Figure 4. Audio sonogram of faster croaking notes by Moluccan Scops-owl near Lewoleba. (CRT)

or ‘wrrraw’ (MS unpubl. data). The call of the Lembata bird is similar to the Flores bird (see: Allen T. Chartier, XC31406. Accessible at (www.xeno-canto.org/31406) – low pitched (300-2,000 kHz) notes of 0.25-0.40 s, with 0.7-2 s between notes (Fig. 3). When agitated they gave faster higher pitched (to 2,680 kHz) croaking notes (Fig. 4). Some birds were also heard duetting as described in Coates and Bishop (1997). Locally, this species was common in swamp forest with up to six birds heard in less than 1 ha. It is presumably present on Adonara and Solor, but little nocturnal survey has been conducted on those islands to date.

SAVANNA NIGHTJAR *Caprimulgus affinis* ?subspecies

Adonara: A single bird was observed hunting over coastal grassland at dusk, c.12 km west of Wairwerang on 6 January 2005, and a further 3-4 birds were observed at Waiwerang between 21:17 to 22:15 hrs on the same night.

HOUSE SWIFT *Apus nipalensis*

Solor: A single bird was seen feeding over a small village, 4 km west of Lohayong. It is unclear whether this species breeds on Solor, but it has been recorded breeding on nearby Flores (Verhoeve & Holmes 1999) and Timor (CRT unpubl.data).

ORIENTAL DWARF KINGFISHER *Ceyx erithacus rufidorsum*

Lembata: The Oriental Dwarf Kingfisher occurs widely in Southeast Asia, but in Wallacea it is restricted to the large islands of Lombok, Sumbawa, Flores and Sumba, mostly in forest near water. There are few recent Lesser Sunda records, with the most recent observations, as far as we are aware, being those by Butchart *et al.* (1994) on Flores. On Lembata it was locally common in the swamp forest (covering less than 2 ha). This small kingfisher is inconspicuous and has a high-pitched 5,600-7,322kHz, with inaudible mirrored sounds at 12,000-14,350kHz call, over 0.32 s with c. 2.5-3.0 s between notes (Fig. 5). This call is similar or nearly identical to a recording/video taken of this species in Thailand (www.ibc.lynxeds.com).

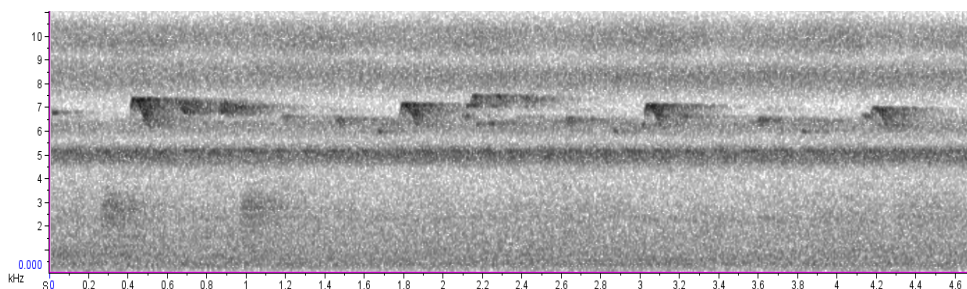


Figure 5. Audio sonogram of three high pitched contact notes of Oriental Dwarf Kingfisher. (CRT)

RAINBOW BEE-EATER *Merops ornatus*

Adonara: A total of 22 birds were observed by GD during February 2008, on the mid-slopes (850-950 m) of Ile Boleng, where one was photographed on the dead branches of a *Eucalyptus urophylla* tree at the edge of gardens. This species is a wide-ranging visitor from Australia that is recorded during all months (Coates and Bishop 1997), though it may be resident on some islands.

ELEGANT PITTA *Pitta elegans concinna*

Lembata: The species was recorded calling from swamp forest at dusk each night. The call is a low pitched (c. 2,000kHz) two note whistle “wuuu-whi” lasting about 0.7 s (Fig. 6), as described for Flores (Coates and Bishop 1997), the recordings being identical to those from nearby Pantar and Alor islands (Colin Trainor, XC47914 and XC47915. Accessible at (www.xeno-canto.org).

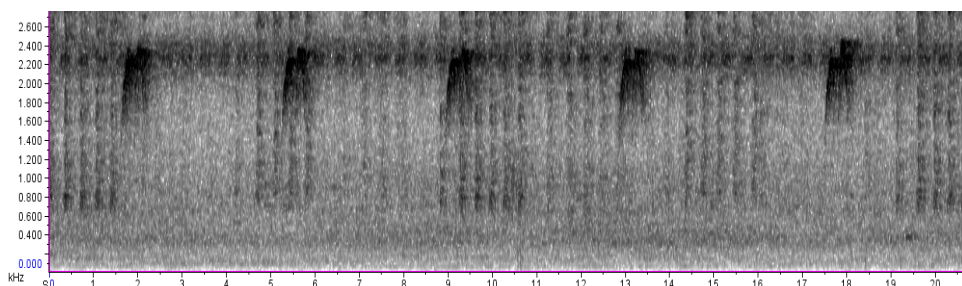


Figure 6. Audio sonogram of two whistled notes by Elegant Pitta near Lewoleba. (CRT)

HORSFIELD’S (AUSTRALASIAN) BUSH-LARK *Mirafra javanica parva*

Solor: Two birds were observed displaying in coastal grassland 2 km west of Lamakera. A single bird was also seen in grassland about 1 km west of Gorang (4 km from Lamakera). In the Lesser Sundas this species occurs mostly on larger islands (Plate 4), except arid ones about Komodo, but it has recently been recorded on Atauro (Trainor & Soares 2004). It occurs very locally on Flores (Verhoeye & Holmes 1999, MS unpubl. data).



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Plate 4. A Horsfield’s Bushlark at Assalaino, Timor-Leste (subspecies *parva*).

RUSSET-CAPPED TESIA*Tesia everetti* ?*everetti*

Adonara: This Flores-group endemic was first reported for Adonara during the 2000 survey (Trainor 2002). In 2005 MS heard it calling four times in the edge of degraded forest along the south coast and several

times in the far west directly opposite Flores island.

ARCTIC WARBLER *Phylloscopus borealis*

Solor: This tiny Palearctic migrant was common in all locations and habitats. On Flores it is common and regular at most altitudes, from sea-level (Maumere and Ende) to c.1625m asl on Mount Kelimutu (MS unpubl. data). Curiously this species has very rarely been recorded in West Timor, and there appear to be no records from East Timor (CRT pers. obs.). One factor contributing to the lack of records may be the lower frequency of observers during the northern winter period. This species was also frequent on Adonara during December (Trainor 2002a).

Lembata: A single bird was seen and sound-recorded at the edge of swamp forest (Fig. 7). The call is a rapid high-pitched single buzz note (2,585-7,150 kHz) over 0.1 s, repeated at 1 s intervals for at least several minutes. Trainor (2003) found them ‘patchily common’ on the island during December.

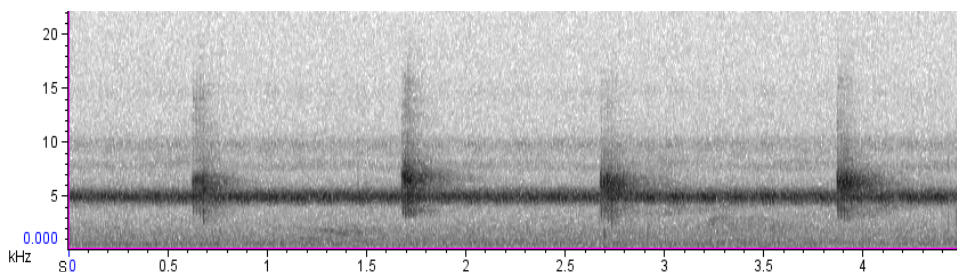


Figure 7. Audio sonogram of buzzing contact notes of Arctic Warbler near Lewoleba.

GOLDEN-BELLIED GERYGONE *Gerygone sulphurea sulphurea*

Solor: This species occurs widely in Southeast Asia, but records east of Flores are at the extreme southeast of its distribution. It was heard singing widely on Solor, including at Lamakera, Menanga, Lohayong and Balaweling.

SPECTACLED MONARCH *Monarcha trivirgatus trivirgatus*

Solor: A single individual of this forest bird was observed in trees bordering mangroves 2 km west of Kawuta. This species is uncommon and local on Flores (MS unpubl. data).

ARAFURA FANTAIL *Rhipidura dryas semicollaris*

“Ed’s note” (RN): This species was recently resurrected for the north Australian and eastern Indonesian populations of the Rufous Fantail *R. rufifrons*, but note that the latter occurs in North Maluku (see Boles 2006).

Adonara: The subspecies *semicollaris* occurs widely through the Lesser Sundas from Flores through to Timor, Alor and Wetar, and is generally common in a

wide range of wooded habitats (Coates & Bishop 1997). Two birds were observed in mangroves c.15 kilometers west of Wairwerang on 7 January 2005.

BLACK-FRONTED FLOWERPECKER *Dicaeum igniferum*

Solor: This restricted-range species was common to abundant in all locations and habitats, as is typical throughout much of its range from Sumbawa through Alor (Coates & Bishop 1997).

FLAME-BREASTED SUNBIRD *Nectarina solaris solaris*

Solor: This restricted-range species is frequent throughout its range in forest and non-forest habitats. A pair was observed in the mangroves, 1 km west of Kawuta.

YELLOW-SPECTACLED WHITE-EYE *Zosterops wallacei*

Solor: This restricted-range white-eye is known from Sumbawa, Komodo, Rinca, Flores, Besar, Lembata, Adonara and Sumba so it was expected to occur on Solor. At least seven birds were observed in degraded forest 4 km west of Lohayong. Lemon-bellied White-eyes *Z. chloris* were also heard but not seen in mangroves near Kawuta.

BROWN HONEYEATER *Lichmera indistincta limbata*

Adonara: A single bird was observed feeding in a Lontar palm in the village of Tanah Mera, on the northwest coast, on the 6 January 2005. On nearby Flores this species is surprisingly local, with only a few site records, but on Lembata it occurs widely in mangroves and *Eucalyptus* woodlands (Trainor 2003).

SCALY-BREASTED MUNIA *Lonchura punctulata nisoria*

Adonara: This bird is one of the most common finch species in the Lesser Sundas. Two birds were seen in a flock with five Black-faced Munias *L. molucca* in the village of Tanah Merah on 6 January 2005.

TREE SPARROW *Passer montanus*

Lembata: This widespread introduced species was unrecorded from Lembata in 2000 (Trainor 2003), but was abundant in Lewoleba town in 2009. It was recorded on Adonara (Trainor 2002) but not on Solor (MS unpubl. data).

HILL MYNA *Gracula religiosa*

Adonara: This species was subject to specific survey by Mochtar (1989) and was listed in Trainor (2002a). There had been no recent records until GD recorded two birds (possibly a pair) in coconut plantations near the border of the villages of Nisakarang Dua yang and Karing Lamalouk. It was not recorded on the upper slopes of Ile Boleng.

WALLACEAN DRONGO *Dicrurus densus bimaensis*

Solor: This was one of the few forest species recorded during the recent visit. A single bird was observed in secondary forest 1km west of Kawuta and 4-5 birds were also seen in trees behind mangroves at Balaweling.

Adonara: Following the taxonomy of Inskipp *et al.* (1996), this species was listed as Spangled Drongo *D. hottentottus* in Trainor (2002a). Up to 20 individuals were recorded at 850-950 m on the slopes of Ile Boleng.



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Plate 5. Olive-headed Lorikeet on Adonara Island, December 2000.

Discussion

Our records fill in some of the substantial biogeographic gaps for the poorly known Solor avifauna, with smaller additions to the avifaunas of Adonara and Lembata. All of the species recorded on Solor are also known from Flores, confirming that these islands are subsets of the Flores avifauna. A large proportion of the open country birds of Solor were probably recorded during the single day visit. However, an analysis of the species lists for these islands (Appendix 1) suggests that our knowledge of the avifaunas of these islands, especially for Solor, is still fragmentary. Barely any forest specialised birds have been recorded on Solor, so additional surveys in some of the remaining forest patches are likely to add resident raptors, pigeons and doves, owls and nightjars, cuckooshrikes, and munias, as well as

the Olive-headed Lorikeet, Brown Honeyeater and Black-naped Oriole *Oriolus chinensis*. The two Flores-group endemics (Russet-capped Tesia and White-rumped Kingfisher) that were recently added to the avifauna of Adonara might also be expected to occur on Solor, as well as the Mees Nightjar *Caprimulgus meesii*, recently split from the Large-tailed Nightjar *C. macrurus* (Sangster & Rozendaal 2004).

Apart from Olive-headed Lorikeet (Plate 5), none of the Timor-group birds has been recorded from Adonara or Solor, but this might be because of low survey effort. The Common Cicadabird for example, typically belies its common name, and is often very rare. It is listed for Lembata, but there are no recent records. In contrast to Solor, the open country birds of Adonara are still relatively poorly known, in spite of the much greater survey effort and the fact that the

island is three times larger than Solor. Bird species accumulation appears to be slow for this island (CRT & MS pers. obs) but we are unsure of the likely cause of this. Surveys in 2000 covered tropical forest up to an elevation of 900 m on Adonara (Trainor 2002), but more forest birds must be expected for this island as well.

Not only are the avifaunas of many Lesser Sunda islands still poorly known, but the extent of intraspecific morphological and vocal variation between island populations is poorly documented. The field guide by Coates and Bishop (1997) does a good job of describing calls of subspecies on different islands, but for many Lesser Sunda islands there are no recent observations. Analysis of genetic, morphological and or vocal differences between isolated populations of many species found throughout South-East Asia, including Wallacea, is leading to a revolution in species-level taxonomy. None of the birds covered in this report are obvious species-level 'splits', but in the future, some of the subspecies considered here may well be split (e.g. drongos and cuckooshrikes). It is also of interest that the calls or songs of several species (White-breasted Waterhen and Black-naped Fruit-dove) differ slightly from those of conspecifics from the neighboring islands of Bali and Flores, respectively, for which recordings were available for comparison.

Acknowledgments

MS wishes to thank Gregg Wyncoll for keeping up with the pace of birding in East Nusa Tenggara.

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Appendix 1. Checklist of birds of Solor, Adonara and Lembata.

N, new island record; X, reported by Trainor (2002a, 2003); C&B, reported in Coates & Bishop (1997); W&B, White & Bruce (1986).

Status: R, resident; v, visitor; Pv, Palearctic visitor; rr, restricted-range; f, forest-dependent; VU, Vulnerable; CR, Critically endangered; i, introduced.

English Name	Scientific Name	Status	Solor	Adonara	Lembata
Great Frigatebird	<i>Fregata minor</i>	v	N	N	N
Lesser Frigatebird	<i>Fregata ariel</i>	v			X
Little Pied Cormorant	<i>Phalacrocorax melanoleucos</i>	R			X
Great-billed Heron	<i>Ardea sumatrana</i>	R			X
Purple Heron	<i>Ardea purpurea</i>	R	N		
Little Egret	<i>Egretta garzetta</i>	R		X	
Pacific Reef Egret	<i>Egretta sacra</i>	R	N	X	X
Striated Heron	<i>Butorides striatus</i>	R			X
Osprey	<i>Pandion haliaetus</i>	R			X
Brahminy Kite	<i>Haliastur indus</i>	R	N	X	X
Oriental Honey-buzzard	<i>Pernis ptylorhynchus</i>	Pv		N	
White-bellied Sea-eagle	<i>Haliaeetus leucogaster</i>	R	N	X	X
Short-toed Eagle	<i>Circaetus gallicus</i>	R,f			X
Bonelli's Eagle	<i>Hieraetus fasciatus</i>	R,f		X	
Brown Goshawk	<i>Accipiter fasciatus</i>	R,f			X
Japanese Sparrowhawk	<i>Accipiter gularis</i>	Pv			X
Chinese Goshawk	<i>Accipiter soloensis</i>	Pv	N		
Spotted Kestrel	<i>Falco moluccensis</i>	R	N		X
Sunda Teal	<i>Anas gibberifrons</i>	R			X
Orange-footed Scrubfowl	<i>Megapodius reinwardt</i>	R,f			X
Brown Quail	<i>Coturnix ypsilophora</i>	R	?	N	X
Green Junglefowl	<i>Gallus gallus</i>	R,f		N	X
Red-backed Buttonquail	<i>Turnix maculosa</i>	R			X
Barred Buttonquail	<i>Turnix suscitator</i>	R	N		X
White-breasted Waterhen	<i>Amauornis phoenicurus</i>	R			N
Grey Plover	<i>Pluvialis squatarola</i>	Pv			X
Pacific Golden Plover	<i>Pluvialis fulva</i>	Pv			X
Little Ringed Plover	<i>Charadrius dubius</i>	Pv			X

Malaysian Plover	<i>Charadrius peronii</i>	Pv			X
Lesser Sand-plover	<i>Charadrius mongolus</i>	Pv			X
Greater Sand-plover	<i>Charadrius leschenaulti</i>	Pv	W&B		
Whimbrel	<i>Numenius phaeopus</i>	Pv	N		X
Common Greenshank	<i>Tringa nebularia</i>	Pv			X
Wood Sandpiper	<i>Tringa glareola</i>	Pv			X
Grey-tailed Tattler	<i>Heterosceles brevipes</i>	Pv			N
Red-necked Stint	<i>Calidris ruficollis</i>	Pv			N
Common Sandpiper	<i>Actitis hypoleucos</i>	Pv	N	X	X
Ruddy Turnstone	<i>Arenaria interpres</i>	Pv		X	X
Snipe sp	<i>Gallinago sp.</i>	Pv			X
Red-necked Phalarope	<i>Phalaropus lobatus</i>	Pv		N	X
Jaeger sp.	<i>Stercorarius sp.</i>	Pv	N		
Bridled Tern	<i>Sterna anaethetus</i>	v	N	N	
Greater Crested Tern	<i>Sterna bergii</i>	v	N	N	X
Brown Noddy	<i>Anous stolidus</i>	v	N	N	
Flores Green Pigeon	<i>Treeron floriss</i>	R,f,rr,VU	C&B		X
Rock Pigeon (feral)	<i>Columba livia</i>	R,i	N	X	
Island Collared Dove	<i>Streptopelia bitorquata</i>	R	X, C&B		
Spotted Dove	<i>Streptopelia chinensis</i>	R	N	X	X
Barred Dove	<i>Geopelia maugei</i>	R	X, C&B	X	X
Brown Cuckoo-dove	<i>Macropygia amboinensis</i>	R,f		X	
Little Cuckoo-dove	<i>Macropygia ruficeps</i>	R,f			X
Emerald Dove	<i>Chalcophaps indica</i>	R,f		X	X
Black-backed Fruit-dove	<i>Ptilinopus cinctus</i>	R,f		X	X
Black-naped Fruit-dove	<i>Ptilinopus melanospila</i>	R,f		X	X
Green Imperial Pigeon	<i>Ducula aenea</i>	R,f			X
Olive-headed Lorikeet	<i>Trichoglossus euteles</i>	R,f,rr		X	X
Yellow-crested Cockatoo	<i>Cacatua sulphurea</i>	R,f,CR		X	X
Asian Koel	<i>Eudyamys scolopacea</i>	R,f		X	X
Lesser Coucal	<i>Centropus bengalensis</i>	R	N	X	X
Moluccan Scops Owl	<i>Otus magicus</i>	R,f			X
Barn Owl	<i>Tyto alba</i>	R		X	N
Savanna Nightjar	<i>Caprimulgus affinis</i>	R		N	
Edible-nest Swiftlet	<i>Collocalia fuciphagus</i>	R			X

Glossy Swiftlet	<i>Collocalia esculenta</i>	R	N	X	X
White-throated Needletail	<i>Hirundapus caudacutus</i>	Pv			X
House Swift	<i>Apus nipalensis</i>	?R	N		
Common Kingfisher	<i>Alcedo atthis</i>	R	N		X
Stork-billed Kingfisher	<i>Pelargopsis capensis</i>	R,f			X
Oriental Dwarf Kingfisher	<i>Ceyx erithacus</i>	R,f			N
Collared Kingfisher	<i>Todiramphus chloris</i>	R	X, C&B	X	X
White-rumped Kingfisher	<i>Caridonax fulgidus</i>	R,f,rr		X	
Blue-tailed Bee-eater	<i>Merops philippinus</i>		N	X	X
Rainbow Bee-eater	<i>Merops ornatus</i>	Av			X
Sunday Pygmy Woodpecker	<i>Dendrocopos moluccensis</i>	R,f		X	X
Elegant Pitta	<i>Pitta elegans</i>	R,f		X	X
Horsfield's Bushlark	<i>Mirafra javanica</i>	R	N		X
Barn Swallow	<i>Hirundo rustica</i>	Pv	N		X
Pacific Swallow	<i>Hirundo tahitica</i>	R	N	X	X
Striated Swallow	<i>Hirundo striolata</i>	R?			X
Black-faced Cuckoo-shrike	<i>Coracina novaehollandiae</i>	Av			X
Common Cicadabird	<i>Coracina tenuirostris</i>	R,f			X
Wallacean Cuckoo-shrike	<i>Coracina personata</i>	R,f		X	X
White-shouldered Triller	<i>Lalage sueurii</i>	R	N		X
Pied Chat	<i>Saxicola caprata</i>	R	N	X	X
Zitting Cisticola	<i>Cisticola juncidis</i>	R	N	X	X
Golden-headed Cisticola	<i>Cisticola exilis</i>	R	N		
Russet-capped Tesia	<i>Tesia everetti</i>	R,f		X	
Arctic Leaf-warbler	<i>Phylloscopus borealis</i>	Pv	N	X	X
Grey-headed Canary-Flycatcher	<i>Culicicapa ceylonensis</i>	R,f			X
Golden-bellied Gerygone	<i>Gerygone sulphurea</i>	R	X, C&B	X	X
Black-naped Monarch	<i>Hypothymis azurea</i>	R,f	N	X	X
Spectacled Monarch	<i>Monarcha trivirgatus</i>	R,f	N		X
Asian Paradise Flycatcher	<i>Tersiphone paradisi</i>	R,f		X	X
Brown-capped Fantail	<i>Rhipidura diluta</i>	R,f,rr			X
Arafura (Rufous) Fantail	<i>Rhipidura dryas</i>	R,f	N	N	X
Broad-billed Flycatcher	<i>Myiagra ruficollis</i>	R,f			X
Common Golden Whistler	<i>Pachycephala pectoralis</i>	R,f	N	X	X

Great Tit	<i>Parus major</i>	R	N	X	X
Thick-billed Flowerpecker	<i>Dicaeum agile</i>	R,f			X
Black-fronted Flowerpecker	<i>Dicaeum igniferum</i>	R,rr	N	X	X
Brown-throated Sunbird	<i>Anthreptes malacensis</i>	R	N	X	X
Olive-backed Sunbird	<i>Nectarina jugularis</i>	R	N	X	X
Flame-breasted Sunbird	<i>Nectarina solaris</i>	R,rr	N	X	X
Oriental White-eye	<i>Zosterops palpebrosus</i>	R,f		X	
Yellow-spectacled White-eye	<i>Zosterops wallacei</i>	R,rr	N	X	X
Ashy-bellied White-eye	<i>Zosterops citrinellus</i>	R			X
Lemon-bellied White-eye	<i>Zosterops chloris</i>	R	N		
Brown Honeyeater	<i>Lichmera indistincta</i>	R		N	X
Helmeted Friarbird	<i>Philemon buceroides</i>	R,f	N	X	X
Tree Sparrow	<i>Passer montanus</i>	R,i		X	N
Zebra Finch	<i>Taeniopygia guttata</i>	R	N	X	X
Scaly-breasted Munia	<i>Lonchura punctulata</i>	R		N	X
Black-faced Munia	<i>Lonchura molucca</i>	R	N	X	
Hill Myna	<i>Gracula religiosa</i>	R,f		X	X
Black-naped Oriole	<i>Oriolus chinensis</i>	R,f		X	X
Wallacean Drongo	<i>Dicurus densus</i>	R,f	N	X	X
White-breasted Woodswallow	<i>Artamus leucorhynchus</i>	R	N		X
Large-billed Crow	<i>Corvus macrorhynchos</i>	R	N	X	X

