

(600-900 m asl) single birds and small groups were heard calling in candlenut plantation and in moist deciduous closed canopy forest. A single bird in a fig at Lamalera; several at Lelata and environs; and heard in moist deciduous forest on the Kalikasa road. Mason (1991) also observed this species in Lamalera.

Green Imperial Pigeon *Ducula aenea* R

A flock of 10 individuals in the canopy of a fruiting fig and adjacent dead stag in degraded coastal forest 2 km E of Lamalera. Vocalisations of this pigeon were heard in dry tropical forest 3 km E of Lamalera (100 m asl); along the Kalikasa road and at Puor (500-900 m asl). Mason (1991) recorded Green Imperial Pigeon in a fruiting fig at Batanglolo.

Little Cuckoo-dove *Macropygia ruficeps* R, F

Three individuals were observed in the canopy of mixed candlenut plantation and moist deciduous forest near Puor, and another pair was recorded from the canopy of tree overlooking a forested valley nearby (both at 800 m asl).

Spotted Dove *Streptopelia chinensis* R

Common in a range of habitats from sea level to 900+ m asl; especially common in mangroves and coastal savanna, including *E. alba* savanna. Noted also by Mason (1991).

*** Barred Dove *Geopelia maugei* R**

Singly, in pairs and small flocks, especially near the coast where recorded in all habitat types. This species is endemic to Wallacea.

*** Emerald Dove *Chalcophaps indica* R**

Heard in candlenut plantation near Puor on (800 m asl); at least three observed in dry coastal forest 1-3 km E of Lamalera; and three foraging on the ground in degraded mangroves behind the harbour.

Olive-headed Lorikeet *Trichoglossus euteles* R, RR

In pairs and small flocks from sea level to at least 900 m asl, with about 50 records over the 13 day survey period. A flock of 20 was observed feeding in a flowering Tamarind *Tamarindus indica* tree 8 km NE of Lewoleba; small groups of 2-6 birds in flight over Puor (900 m asl), 3 km E of Lewoleba, Jontona, along the Kalikasa road and near Lelata (where a pair also observed in a Tamarind). At least eight feeding in a *Mimosa* tree in dry scrub 2 km West of Lamalera.

At Puor (900 m asl) two mature *E. urophylla* trees had bamboo poles affixed to their trunks for local collectors to access Olive-headed Lorikeet nests; one was a dead stag (70 cm diameter at breast height) with a hollow at the end of the broken-off trunk. Six recent hatchlings (1-2 weeks old, photographed) were on sale at the market at Lewoleba (Rp 5,000 to 10,000). An adult bird kept by Chinese-Indonesian shopkeepers at Lewoleba was photographed and another recently fledged juvenile was observed. These data indicate that breeding takes place at the end of the dry season with eggs laid in November, and possibly October. Tree hollows are abundant in eucalypt trees on Lembata (in *E. alba* savanna and seasonal montane forest dominated by *E. urophylla*), and this species may depend on these habitats for nesting. Breeding localities are well known to local people.

[Yellow-crested Cockatoo *Cacatua sulphurea* R, EN, F

Not directly observed. The village head at Puor indicated that he had not observed cockatoos since about 1988 in that area. Several informants indicated that cockatoos were extinct or almost so on Lembata, through a combination of capture for the bird trade market and persecution as a crop pest (corn, rice and peanuts). They also mentioned that

during the 1980s and '90s, dealers and trappers from the Bima area of East Sumbawa, and from Java, had visited Lembata to capture cockatoos (assisted by local villagers). None were seen at the Lewoleba market, although it was not checked on the busy Monday market day. In September 1989, transects were walked during a survey for Yellow-crested Cockatoo on the slopes of Ili Api and behind Hadekewa, but no cockatoos were recorded (Mochtar 1989). Probably fewer than 50 wild Yellow-crested Cockatoos remain on Lembata, though there might be immigration from the adjacent islands of Pantar and Alor.]

Asian Koel *Eudynamys scolopacea* R

An abundant and highly vocal species in coastal dry deciduous forest, closed swamp forest, mangrove, *E. alba* savanna, moist deciduous forest, candlenut plantations from sea level to at least 900 m asl. Near Lewoleba as many as five individuals calling simultaneously (over 6 ha) in *E. alba* savanna and fringing dry gully forest. At Puor a male perched on a stag gave a soft "hmm" followed by a raucous "waaa", repeated at 5 s intervals, while it moved its body up and down (and forward). Mason (1991) recorded koels at Batanglolo on 16 October 1990, but considered that they might represent austral (winter) migrant Australian Koel *E. cyanocephala*. Derek Holmes, however, observed koels on Alor on 12 December 1994, and based on the date of observation, considered that they were most likely Asian Koels (Verhoeve & Holmes 1999).

*** Lesser Coucal *Centropus bengalensis* R**

Common in tall grass and shrubland throughout Lembata from sea level to at least 900 m.

Moluccan Scops owl *Otus magicus* R

At least four individuals were calling after dusk in the village of Puor (mixed candlenut and village garden at 600-700 m asl); also heard at 0200 and 0400 hrs. Vocalisations of this species ("growlk...growlk") were heard in dry deciduous forest at 200 m asl, 3 km south-east of Lewoleba. Two males were collected on Lembata by Everett (Hartert 1898). The Southern Boobook *Ninox novaeseelandiae* apparently replaces this species on nearby Alor, but no owls have been recorded from the neglected Pantar Island located between Lembata and Alor.

*** Edible-nest Swiftlet *Aerodramus fuciphagus* R**

A large sea cave below Lelata supports a small colony of this species, and these were observed in flight from the cave and along the coast (the south coast has numerous small sea caves that may provide habitat for swiftlets). Swiftlet nests are extracted from the cave.

*** Glossy Swiftlet *Collocalia esculenta* R**

Observed in flight (500-900 m asl) near Puor, along the coast 2 km East of Lamalera and at Lelata.

*** White-throated Needletail *Hirundapus caudacutus* M**

Four to six were observed in flight over coastal cliffs at Lelata for about 30 min.

*** Common Kingfisher *Alcedo atthis* R**

A single bird was observed in mangroves at Jontona, and another at the airfield mangroves. Probably common in mangroves; their high-pitched calls were often heard.

*** Stork-billed Kingfisher *Pelargopsis capensis* R**

A single bird landed and perched conspicuously in a large tree over water at the estuary. Coloration was as given for *P. c. floresiana* in Coates & Bishop (1997), except for the bill

which was red above and black below, though juveniles are known to have 'partly black bill [s]' (Coates & Bishop 1997). One or two individuals on several occasions in mangroves at the airstrip. Otherwise known only from Lombok, Sumbawa and Flores in Wallacea (Coates & Bishop 1997), though it might reasonably be expected for Pantar and Alor.

Collared Kingfisher *Halcyon chloris* R

Common, with numerous observations along the coast in mangroves and fringing dry forest, as well as in *E. alba* and other savanna in Lamalera and Lelata. Mason (1991, 1993) observed them in mangroves around Teluk Lewaling and Leba Leba Bay.

*** Blue-tailed Bee-eater *Merops philippinus* M**

About 10 observed in flight over the Harbour swamp forest on 31 December, and similar numbers observed in flight and perched at the estuary, 22 December.

[Rainbow Bee-eater *Merops ornatus* M

Suspected to be an austral winter migrant, though it may be resident. Recorded by Mason (1991) in coastal scrub near Jontona, 7 October 1990. Specimens were collected by Everett (Hartert 1898).]

Brown-capped Woodpecker *Dendrocopos moluccensis* R, F

Uncommon in closed canopy forest. The characteristic tapping on trees and call of this species was heard in moist deciduous forest at 700 m asl, and several were heard on *E. urophylla* trees at 900 m asl (near Puor). Also recorded in moist deciduous forest along the road to Kalikasa.

Elegant Pitta *Pitta elegans* R, F

Recorded only from closed canopy forest: several were calling at dusk in dry tropical forest, 3 km SE of Lewoleba on 19 December (100 m), and two called from moist deciduous (gully) forest near Puor (600-700 m) on 23 December. Collected by Everett (Hartert 1898).

*** Singing Bush-lark *Mirafra javanica* R**

About 5 individuals were flushed from short grass at the airfield.

Barn Swallow *Hirundo rustica* M

Four or five individuals were observed behind the Harbour on 20 December. Small numbers were also observed over cliffs at Lelata, and in Lamalera (27 December). Listed also by Mason (1991) from observations in October 1990.

Pacific Swallow *Hirundo tahitica* R

Commonly observed over coastal habitats, villages, cliffs and valleys between Lamalera and Lelata. Listed by Mason (1991).

*** Striated Swallow *Hirundo striolata* R**

Five to 10 observed in the valley below Lelata. They had distinctive rusty red rumps and ear coverts. Nearby sea caves were said by local people to contain nests of two bird species, one larger than the other - the Edible-nest Swiftlet and perhaps this species.

[Wallacean Cuckoo-shrike *Coracina personata* R, F

This Wallacean-endemic was unrecorded by author, but listed by Verhoeve & Holmes (1999).]

[Black-faced Cuckoo-shrike *Coracina novaehollandiae* M

An austral winter migrant, which Mason (1991) observed in a fruiting fig at Batanglolo in October.]

[Common Cicadabird *Coracina tenuirostris* R,F

Not recorded by author, but listed by Verhoeve & Holmes (1999).]

White-shouldered Triller *Lalage sueurii* R

Apparently local with the only observation being of several individuals in the village of Walpukang below Ili Ape (12 km from Lewoleba), and in surrounding *E. alba* savanna. Heard also in *E. alba* savanna 8 km north of Lewoleba. Listed also by Mason (1991).

Pied Bush-chat *Saxicola caprata* R

Widespread and common, especially in coastal shrublands and savannas to 400 m asl. Mason (1991) observed it at Jontona and elsewhere on Lembata, noting their ubiquity.

Zitting Cisticola *Cisticola juncidis* R

Widespread and common in grasslands, pasture and grass-dominated savannas throughout Lembata.

*** Arctic Leaf-warbler *Phylloscopus borealis* M**

Patchily common in scrub and forest from sea level to 900 m asl. Recorded 8 km NE of Lewoleba and in moist deciduous forests at Puor, but most frequently in coastal tropical dry forest (near Lamalera).

*** Grey-headed Flycatcher *Culicicapa ceylonensis* R, F**

Recorded only in moist deciduous forest on the Kalikasa road, and near Puor in a gully surrounded by candlenut plantation (800 m asl) as well as a fragment of moist deciduous forest (500 m asl). Plumage (grey head and undertail coverts; canary yellow cheek, breast and belly) differed from *C. c. ceylonensis*, as depicted in Coates & Bishop (1997: Plate 56), in having no white or grey on chin or cheek. These observations undoubtedly refer to the subspecies *C. c. sejuncta*, whose type locality is Flores (and probably also recently recorded from Sumbawa: Trainor *pers. obs.*).

Flyeater *Gerygone sulphurea* R

Occasional, especially in coastal habitats to 300 m asl, heard most frequently in the villages of Lewoleba and Lamalera. Recorded calling also from mangroves, fringing dry tropical scrub and forest and *E. alba* savanna. Presumably recorded by Mason (1991, 1993) in mangroves around Teluk Lewaling and Leba Leba Bay, though he believed they represented the Plain Flyeater *G. inornata* because of their pale chest.

*** Black-naped Monarch *Hypothymis azurea* R**

A common species in a wide range of habitats from sea level to above 900 m asl. Observed in dry tropical forest thickets, moist deciduous forest, swamp forest, degraded coastal scrub, candlenut and cashew plantations.

Asian Paradise-flycatcher *Terpsiphone paradisi* R

A single observation of a male in a gully fragment of moist deciduous forest at 500 m asl near Puor. Possibly more widespread as this distinctive species is well known to local people. A specimen was collected by Everett (Hartert 1898).

[Spectacled Monarch *Monarcha trivirgatus* R, F

Not recorded by author, but listed by Verhoeve & Holmes (1999).]

Broad-billed Flycatcher *Myiagra ruficollis* R

Common and apparently restricted mostly to mangrove with observations of several individuals at Jontona, and the airport. Recorded also by Mason (1991) in mangroves around Teluk Lewaling.

Brown-capped Fantail *Rhipidura diluta diluta* R, RR, F

Recorded only from closed canopy forest: one bird in a gully thicket with dry tropical forest 3 km SE of Lewoleba (200 m asl); several in gullies with moist deciduous forest near Puor (500-700 m asl), and two or more pairs in similar habitat on the road to Kalikasa. The sub species *diluta* is known only from Flores and Lembata (Coates & Bishop 1997), but presumably is present, at least, on Adonara. Everett collected a single female from Lembata (Hartert 1898).

Rufous Fantail *Rhipidura rufifrons* R, F

Observed in mangroves (Jontona and airfield) and in Harbour swamp forest. Mason (1991) recorded them in mangroves at Teluk Lewaling.

Common Golden Whistler *Pachycephala pectoralis* R

Commonly heard through all habitats from sea level to at least 900 m asl.

[Great Tit *Parus major* R

Listed by Mason (1991) without comment, but not recorded by author.]

[? Thick-billed Flowerpecker *Dicaeum agile* R

Listed by Coates & Bishop (1997), presumably because of its listing by Hartert (1898), but its presence on Lembata was questioned by Verhoeye & Holmes (1999).]

Black-fronted Flowerpecker *Dicaeum igniferum* R, RR

Widespread and common in all habitats from sea level to 900 m asl, including villages and degraded habitats, but most common in less disturbed coastal dry forest (e.g. Lamalera to Lelata) and moist deciduous forest (Puor and Kalikasa road). Listed by Mason (1991).

[Brown-throated Sunbird *Anthreptes malacensis* R

Not recorded by author but listed by Hartert (1898).]

Olive-backed Sunbird *Nectarinia jugularis* R

Common and widespread in a range of mostly non-forest habitats from sea level to 700 m asl, and especially abundant in coastal scrub and mangroves. Also recorded by Mason (1991).

Flame-breasted Sunbird *Nectarinia solaris* R, RR

Common and widespread from sea level to 900 m with little apparent ecological separation from *N. jugularis*. Often observed in the same habitats, and even in the same flowering or fruiting trees as the former species. The chest of male birds observed was much richer than that shown in Coates & Bishop (1997, Plate 62), being a crimson red (*cf.* chest of Crimson Sunbird *Aethopyga siparaja*) rather than deep orange as is generally described. Collected by Everett (Hartert 1898).

Yellow-spectacled White-eye *Zosterops wallacei* R, RR

Frequently heard singing and observed in small flocks of 3-20+ in dry coastal thickets to moist deciduous forest and thickets of siam weed *Chromalaena odorata* to at least 900 m asl. A flock of eight observed feeding in a fig tree at Lamalera.

[Ashy-bellied White-eye *Zosterops citrinellus* R

Not recorded by author, but Mason (1991) observed them in mangroves at Teluk Lewaling.]

Brown Honeyeater *Lichmera indistincta* R

Locally common to abundant, especially in mangroves and coastal savannas dominated by *E. alba*, for example on the western side of Ili Api volcano, and 8 km N of Lewoleba. Notably absent from the south coast (Lamalera and Lelata area). Recorded in mangroves around Teluk Lewaling by Mason (1991).

Helmeted Friarbird *Philemon buceroides* R

Abundant and present in all habitat types. Mason (1991) observed groups near Jontona, and Batanglolo.

Zebra Finch *Taeniopygia guttata* R

Recorded only twice: a pair in grassland with a flock of *Lonchura punctulata*, 1 km E of Lewoleba, and a single in a cashew tree at Lamalera. Noted also by Mason (1991) at Jontona.

Scaly-breasted Munia *Lonchura punctulata* R

Common in moderately large flocks of 10-50 + in coastal grasslands, villages, savannas, dry tropical forest and moist deciduous forest from sea level to at least 900 m asl.

Hill Myna *Gracula religiosa* R, F

Two observations only, both in closed canopy forest. Near Puor one was observed flying over a gully in a patch of moist deciduous forest (600 m asl), and a pair was observed in flight through remnant moist deciduous forest on the road to Kalikasa. Local informants consider that populations of this species have declined greatly in the past decade because of captures for the cage bird trade. Two individuals were observed for sale in the Lewoleba market, and a man was seen walking with a caged *G. religiosa* near the market. Two Chinese-Indonesian shopkeepers each had two captive *G. religiosa*, and small numbers were observed in several other shops in Lewoleba. Informants indicated that Hill Mynas from Lembata, like those from Nias Island, were in great demand because they are clever (*pintar*) at mimicking sounds. In 1989, two were recorded from Ile Api, and five near Hadekewa (Mochtar 1989). Mason (1991) recorded Hill Mynas in a fruiting fig at Batanglolo (at sea level).

Black-naped Oriole *Oriolus chinensis* R

Recorded only from closed canopy forest at sea level to 800 m asl, including the Harbour swamp forest and moist deciduous forest fragments at Puor and along the Kalikasa road. Mason (1991) observed them in fruiting figs at Batanglolo (Teluk Atoc); collected also by Everett (Hartert 1898).

Wallacean Drongo *Dicrurus densus* R

This Wallacean endemic was the second most frequently recorded species on Lembata, with records from all sites and all wooded habitats from sea level to 900 m asl. Two recently fledged juveniles were observed in Tamarind trees near Lelata. First recorded for Lembata by Mason (1993) in 1991 at Leba Leba Bay.

White-breasted Wood-swallow *Artamus leucorhynchus* R

Common in small flocks (up to 10 individuals) in coastal habitats (0-400 m asl), especially *E. alba* and Lontar palm savannas and coastal scrub. A flock of about 50 was observed at Lamalera. Listed by Mason (1991).

Large-billed Crow *Corvus macrorhynchos* R

In small numbers in all habitats. Single birds observed at the estuary, near Lelata and Lewoleba, near Puor; at least two in a candlenut plantation at Puor (700 m asl); and a group of three over mangroves at the airfield. Listed by Hartert (1898).

Discussion

Verhoeve and Holmes (1999) drew attention to the poor state of knowledge of avifaunas on islands east of Flores (Adonara, Lembata, Solor, Pantar and Alor). This paper and sister publications (Trainor 2002a,b) have increased knowledge of these islands with rapid assessments, however much remains to be done. With the addition of 33 bird species, including just five passerine species, Lembata's known avifauna includes 91 bird species. Based on species accumulation curves from systematic samples it has been suggested that the total avifauna might comprise about 103 species (Trainor 2002a), however with greater effort in habitats and sites poorly covered in this inventory (the north and east of the island above 900 m asl), and at different times of the year, perhaps another 20-30 bird species might reasonably be expected to occur. Roti has a similar island area, but its better-studied avifauna (119 species) is notably richer than that of Lembata.

On current knowledge, Lembata's avifauna is but a species poor subset of Flores, however the presence of species such as Common Cicadabird, Ashy-bellied White-eye and Broad-billed Flycatcher indicate that Timor has been a source area for a small part of the resident avifauna. The subspecific identity of at least seven species remains unknown, however these are probably referable to the races known from Flores. Low levels of isolation from surrounding islands have ensured very low levels of endemism.

The relatively high abundance of the Vulnerable Flores Green Pigeon on Lembata renders further study of this typically uncommon fruit nomad practical. Community interview may be a valuable method to increase knowledge of this species, as it is distinctive and well known to local community members (who probably often hunt and eat the species).

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