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The Birds of Lembata (Lomblen), Lesser Sundas

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Summary Ornithological observations were made on the island of Lembata (Lomblen) over a 13 day period in December 2000, to increase knowledge of its poorly known avifauna. Only 58 species were known from previously published sources. Thirty-three additional species were recorded (a 70% increase), with a current total of 91 species (53 non-passerines and 38 passerines), including 73 residents, 15 Palearctic migrants and three austral migrants. The 33 new species for Lembata includes, among others, one raptor, 10 Palearctic passage migrants and four forest birds. Four globally Threatened and Near Threatened species are present on Lembata (following BirdLife International 2001): the Critically Endangered Yellow-crested Cockatoo *Cacatua sulphurea*, the Vulnerable Flores Green Pigeon *Treron floris*, and the Near Threatened Great-billed Heron *Ardea sumatrana* and Malaysian Plover *Charadrius peronii*. There are six Restricted-range species, all Lesser Sundas endemics, two additional Wallacean endemics and a total of 17 forest bird species. Biologically, Lembata is closely associated with Flores and other volcanic islands of the Inner Banda Arc; its avifauna is but a species poor subset of Flores with every species recorded to date known also from that island.

Burung-burung di Lembata, Sunda Kecil

Ringkasan Beberapa pengamatan ornitologis dilaksanakan di Pulau Lembata selama 13 hari pada bulan Desember tahun 2000, untuk meningkatkan pengetahuan mengenai fauna-burung yang masih kurang. Hanya 57 spesies yang diketahui sebelumnya dari berbagai sumber yang dipublikasikan. Dilaporkan juga tiga puluh dua spesies tambahan (meningkat 72%), hingga jumlah total saat ini 91 spesies (53 spesies tidak-bertengger atau non-passerines) dan 38 spesies bertengger atau passerines, termasuk 73 penetap, 15 pengembara Palearktik dan tiga pengembara dari Australia. Tiga puluh dua spesies baru di Lembata (28 spesies tidak-bertengger dan 5 spesies bertengger hutan) termasuk di antaranya satu burung pemangsa, 10 burung perancah Palearktik dan empat burung hutan. Empat spesies yang secara global Terancam Punah dan Mendekati Terancam Punah terdapat di Lembata (menurut BirdLife International 2001): spesies dengan katagori keterancaman Kritis: Kakatua-kecil jambul-kuning *Cacatua sulphurea*, spesies Rentan: Punai flores *Treron floris*, spesies Mendekati Terancam Punah: Cangak laut *Ardea sumatrana* dan Cerek melayu *Charadrius peronii*. Ada enam spesies burung dengan sebaran terbatas, semua endemik Sunda Kecil, dua spesies tambahan merupakan endemik kawasan Wallacea dan 17 spesies burung hutan. Secara biologis, Lembata hubungannnya sangat erat dengan Flores dan pulau-pulau vulkanik lainnya di kepulauan Banda dalam, juga fauna burungnya yang merupakan contoh kecil kekayaan species burung di Flores yang didasarkan pada data spesies yang tercatat hingga saat ini termasuk data dari pulau Lembata.

Ornithological history

Scientists and ornithologists have paid little attention to the avifauna of Lembata (also known as Lomblen Island), the seventh largest island in Nusa Tenggara. In 1897 Alfred Everett visited the island for about 4 days and collected 23 species (reported in Hartert 1898). William Doherty visited in 1897 and 1898, and van Plessen, from 1927. Following these early visits White & Bruce (1986) were able to produce a list of only 28 bird species for the island. In 1989 Djodi Mochtar undertook a brief two-day survey of Yellow-crested

Cockatoo *C. sulphurea* and Hill Myna *Gracula religiosa* at two sites (Mochtar 1989). Following two short visits by Victor Mason in 1990 and 1991 an additional 27 species were added to the list, with a total of 55 species listed in a recent review of the islands of Flores, including Lembata, by Verhoeye & Holmes (1999). Additionally, Ron Johnstone of the Western Australian Museum in collaboration with LIPI spent about two weeks in the Lembata area from 15 October to 25 November 1989, but apart from limited observations on seabirds, which surprisingly include no records for Lembata (Johnstone 1994), these data remain unpublished.

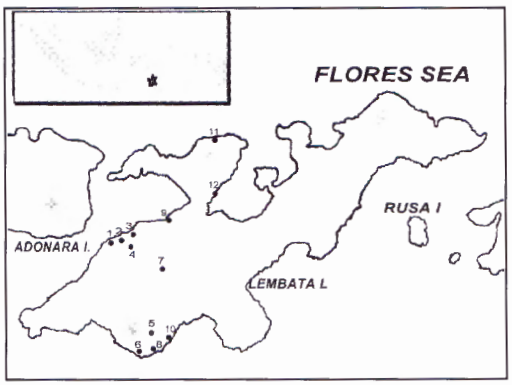
Methods

The author collected data from 19 to 31 December 2000, at eight main sites, mostly between 0530-1100 hrs and 1600-1800 hrs, totalling about 57 observation hours (Table 1, Fig. 1). Additional opportunistic observations, for example, whilst travelling between localities, were noted; this included travelling by traditional whaling canoe along the entire southwest coastline from Lamalera to Waiwerang, Adonara Island. Survey effort was greatest in coastal lowlands dominated by habitats other than closed forest. Given the low species richness of the avifauna, survey effort was probably adequate to record the majority of common resident species at each of the localities. Methods included systematic 10-species lists (adapted from the 20-species list surveys of MacKinnon & Philips 1993), to assess species frequency of occurrence and survey effectiveness (Trainor 2002a). In addition to personal observations, the author collated local ornithological of local community members. The aim of this short survey was to list additional bird species on Lembata as baseline data for future surveys and land-use decision-making and to determine the conservation status of key species. Details of the habitat use, biogeography and status of the birds of Lembata, and proposals for protected areas are presented elsewhere (Trainor 2002a).

Table 1. A summary of survey sites, habitat and survey effort, 20-31 December 2000

Habitats: 1 village; 2 mangroves; 3 coastal grassland; 4 swamp forest; 5 coastal estuary; 6 coastal scrub; 7 plantations; 8 *E. alba*/mixed savanna; 9 dry tropical forest; 10 moist deciduous forest; 11 *E. urophylla* forest. (Refer also to Figure 1).

Sites	Coordinates	Elevation (m asl)	Effort (h)	Habitats
Ile Api	8°15'S, 123°30' E	0-100	4	1,6,8
Jontona	8°20' S, 123°30' E	0-100	3	1,2,6
Lewoleba airfield	8°23' S, 123°26' E	0	4	2,3
Lewoleba town	8°23' S, 123°22' E	0-100	4	1,9
Lewoleba (Telkom)	8°23' S, 123°24' E	50-300	4	8,9
Lewoleba harbor	8°23' S, 123°22' E	0	6	2,3,4
Lewoleba, 3km S	8°23' S, 123°21' E	0	4	5,6,7
Kalikasa road	8°27' S, 123°25' E	400	2	10
Labelekang (Puor)	8°33' S, 123°24' E	600-900	10	7,10,11
Lamalera	8°36' S, 123°25' E	0-100	6	1,6,7,8,9
Lelata	8°36' S, 123°24' E	0-100	5	9
3km E of Lamalera	8°36' S, 123°27' E	0	5	9



1. Lewoleba 2 km; 2. Lewoleba harbour; 3. Lewoleba town; 4. Lewolera (Telkom); 5. Labelekang (Puor); 6. Lelata; 7. Kalikasa road; 8. Lamalera; 9. Lewoleba airfield; 10. 10.3 km east of Lamalera; 11. Ile Api; 12. Jontona

Figure 1. Map of Lembata and survey sites.

Regional setting

The irregularly shaped island of Lembata (roughly 80 km x 8-20 km, 1,269 km^2) is one of numerous volcanic islands in the inner Nusa Tenggara (= Banda) volcanic arc, a collection of islands from Lombok in the west, to Alor and beyond in the east (Monk *et al.* 1997). The topography is mostly hilly with limited coastal plains that include limestone terraces to 200 m asl. Large bays fringed by extensive mangroves, and rugged cliffs along the south are a feature of Lembata's coastline. Three mountains rise to a height of 1,000 m asl or more, with the stunning and active Ile Api volcano (1,450 m asl) and Gunung Labelekang probably the most prominent natural features on the island (Noya & Koesoemadinata 1990).

Nusa Tenggara islands (km^2)

Timor	31280
Sumbawa	14386
Flores	13500
Sumba	10710
Lombok	4625
Alor	2119
Lembata	**1269**
Roti	1226
Pantar	720
Adonara	509
Sabu	380
Komodo	330
Moyo	329

The climate is dry tropical with 90% of the rainfall (*c.* 1,000-2,000 mm) falling from November to March, and a long rainless dry season from April to October (RePPProT 1989). The island of Flores is 30 km to the west; Adonara is 5-10 km to the west, Pantar is 5-10 km to the east and Alor is 50 km to the east. The human population density of about 66 people per km^2 is slightly below the Nusa Tenggara (*c.* 75 people per km^2) and national averages (Monk *et al.* 1997). Lembata lies in the province of East Nusa Tenggara and in 1999 became an independent regency (*kabupaten*). Formerly it was administered through Larantuka, the major town of the East Flores *kabupaten*. Dryland agriculture using slash-and-burn techniques is used throughout Lembata, with coconut and other cash crops, such as candlenut and cashew, introduced more recently (Trainor *pers. obs.*).

Habitats on Lembata show a strong Australian flavour. *Eucalyptus alba* savanna woodlands are extensive but are being degraded by dryland agriculture. Seasonal montane forest dominated by *E. urophylla* is restricted to the tops of hills and mountains, and its timber is exploited for house construction. Lontar palm savanna is present but not extensive. The majority of closed canopy tropical forest types such as tropical dry deciduous forest and moist deciduous forest have been converted for agriculture (Trainor *pers. obs.*).

All islands east of Flores (Adonara, Solor, Lembata, Pantar and Alor) have received limited ornithological attention. The relative isolation of Lembata, its small size and knowledge of the lack of endemic birds (from Hartert 1898) have probably discouraged visits by birdwatchers.

Species accounts

Brief accounts concentrating on habitat use and distinctive biological observations are provided below for the known birds of Lembata. Observations of notable and low-density species are given in full (e.g. raptors, shorebirds, fruit doves, parrots, and forest-dependent passerines). Referencing has been kept to a minimum, and is concentrated on the less accessible papers by Hartert (1898) and Mason (1991, 1993). For additional, yet limited, published information on the birds of Lembata refer to White & Bruce (1986), Coates & Bishop (1997) and Verhoeye & Holmes (1999).

The following abbreviations are used: R, resident; M, migrant; EN, Endangered; VU, Vulnerable; NT, Near threatened; RR, Restricted-range; F, forest-dependent; * new record for Lembata; [ ] not recorded by the author.

*** Lesser Frigatebird *Fregata ariel* R?**
Two females were seen flying and gliding over the coast at Lewoleba Harbour on 22 December. The white upper breast and 'spur' on axillaries were clearly seen, though in hindsight I could not dismiss the less likely and larger, Christmas Island Frigatebird *Fregata andrewsi*.

*** Little Pied Cormorant *Phalacrocorax melanoleucos* R**
A total of five cormorants were observed as they landed in the canopy of mangroves north of Lewoleba airfield and alighted twice after being disturbed by an Osprey.

Great-billed Heron *Ardea sumatrana* R, NT
Two individuals observed foraging on mudflats at the mangrove estuary north of the airstrip. Mason (1991, 1993) observed several Great-billed Herons at Teluk Lewaling on 7 October 1990 and at Leba Leba Bay on 18 May 1991.

Reef Egret *Egretta sacra* R
Occasional along the coast, with a single on beach near the harbour; a group of three observed several times along coast 2-3 km E of Lamalera. All were dark phase. Recorded also by Mason (1991, 1993) at Wayhinga Bay/Teluk Lelawang, and at Leba Leba Bay.

*** Striated Heron *Butorides striatus* R**
Three singles observed skulking in mangroves or on adjacent mudflats at Jontona and Lewoleba harbour, and at the airport mangroves.

*** Osprey *Pandion haliaetus* R**
A single bird was observed flying past the harbour with a large fish in its talons, and

another (possibly same bird) over mangroves at the airport; another observed on the coast 2 km E of Lamalera.

Brahminy Kite *Haliastur indus* R
Occasional along the coast: one observed near Mawa (8°16' S, 123°30' E); single birds observed near Lamalera, 1 km S of Lewoleba harbour, at airport mangroves, and at Jontona mangroves and near Lelata. Recorded also by Mason (1991) over Teluk Lewaling.

White-bellied Sea-eagle *Haliaeetus leucogaster* R
A pair observed on two separate dates at the airport (one juvenile); another pair observed along the coast 1 km W of Lelata; and a single roosting above a rocky coastline at Tanjung Soeba or Suba (8°30' S, 123°13' E). Listed also by Mason (1991).

Short-toed Eagle *Circaetus gallicus* R
One flying low over Lamalera village. Mason (1991) also recorded the species at Lamalera (17 October 1990)

Brown Goshawk *Accipiter fasciatus* R, F
A single bird was observed flying into dry deciduous forest 1km E of Lewoleba on 19 December. Mason (1991) observed a single bird at Batanglolo, and a pair of *Accipiter* near Jontona, was most likely this species.

*** Japanese Sparrowhawk *Accipiter gularis* M**
A single bird was observed in the subcanopy of a tree in dry deciduous coastal forest (2 km E of Lamalera, 26 December). A Wallacean Drongo *Dicrurus densus* aggressively pursued the sparrowhawk.

Spotted Kestrel *Falco moluccensis* R
Common in small numbers, especially near the coast: below Ili Api, in Lewoleba, Lamalera and near Lewoleba; in the harbour swamp forest, and 2 km S of harbour; a pair observed below Puor (300 m asl); at least 3 observed over rocky gullies near Lelata.

*** Sunda Teal *Anas gibberifrons* R**
A pair of Sunda Teal was observed on a small pool of water in degraded mangrove forest behind the harbour on 21 December (the prominent forehead bulge of the male was clearly seen indicating *gibberifrons* rather than Grey Teal *Anas gracilis*).

*** [Orange-footed Scrubfowl *Megapodius reinwardt* R, F**
Unrecorded. Informants indicated that a single individual was trapped by leg snare at Puor (700-900 m asl); apparently the only individual they had ever seen.]

*** Brown Quail *Coturnix ypsilophora* R**
Two single birds and a pair flushed from grassland at the airport, 1 km E of Lewoleba , and in *E. alba* savanna (100 m asl) near Lamalera.

*** Red Junglefowl *Gallus gallus* R, F**
Uncommon in moist deciduous forest with an individual observed in flight near Puor (640 m asl) and a second individual heard in a forested valley at 800 m asl (within 400 m of the first record). Informants indicated that the species is intensively hunted for food using leg snares and guns. Junglefowl are haphazardly distributed in Nusa Tenggara, related to their historical introduction by humans.

[Red-backed Button-quail *Turnix maculosa* R
Listed by Hartert (1898) but not recorded recently.]

[Barred Button-quail *Turnix suscitator* R
Listed by Hartert (1898) but there are no recent records.]

*** Grey Plover *Pluvialis squatarola* M**
One observed in a mixed flock with Pacific Golden Plover at an estuary 3 km S of the harbour.

*** Pacific Golden Plover *Pluvialis fulva* M**
Frequently recorded in moderate numbers along the coast from 21 to 30 December. One pair observed on the beach near the harbour; about six in short grass behind the harbour; 30-40 individuals on the pebbly shoreline at the estuary; at least 30 in short grass at the airfield on, and several pairs on mudflats nearby.

*** Little Ringed Plover *Charadrius dubius* M**
Several observed on beach at an estuary on 22 December.

*** Malaysian Plover *Charadrius peronii* R, NT**
Six to eight were identified from a mixed flock of shorebirds at the estuary south of the harbour on 22 December. These birds were characterized a white hindneck collar, and male birds by the long black strip from hindneck to chest excluding both Red-capped Plover *Charadrius ruficapillus* (which might reasonably be expected for Lembata) and Kentish Plover *Charadrius alexandrinus*. The nearest known population of the latter species occurs on Sumbawa 600 km to the West (Coates & Bishop 1997).

*** Lesser Sand-plover *Charadrius mongolus* M**
Two were observed on the beach and several in short grass behind the beach near the harbour.

Whimbrel *Numenius phaeopus* M
One individual on the beach 1 km S of the harbour; two individuals in a mixed flock of shorebirds at the estuary, and one on mudflats at the airfield. Listed also by Mason (1991).

*** Common Greenshank *Tringa nebularia* M**
About eight individuals were observed feeding in a mangrove-lined stream near the airfield.

*** Wood Sandpiper *Tringa glareola* M**
Several were observed on the beach in a mixed flock of Palearctic waders 3 km S of the harbour on 22 December.

Common Sandpiper *Actitis hypoleucos* M
One to two birds at the harbour; several at the estuary; several on beach 2 km E of Lamalera, and five on mudflats at the airfield. Listed also by Mason (1991).

*** Ruddy Turnstone *Arenaria interpres* M**
Four individuals in breeding plumage observed in a mixed flock of migrants at the estuary south of the harbour.

[Swinhoe's Snipe/Pintail Snipe *Gallinago megala/stenura* M
Two snipe were flushed from wet grass behind the harbour on 22 December. Both were silent, flew 20-30 m, in 1-2 sec, and then dropped into more grassland. These two species apparently cannot be reliably distinguished in the field (Forstmeier 1998 in Gönner 2000).]

Red-necked Phalarope *Phalaropus lobatus* M
Single birds and pairs were observed 1-2 km off the coast near Minggar (8°30' S, 123°15' E), southwest Lembata on 30 December. Listed also by Mason (1991).

Great Crested Tern *Sterna bergii* R
A flock of about 40 were roosting on a sand bar at the estuary. Recorded also by Mason (1991) in Teluk Lewaling.

Flores Green Pigeon *Treron floris* R, VU, RR, F
A flock of 12-15 *Treron* was observed from 1400 to 1430 hrs in a small (11 m) fruiting fig tree on the edge of a 2 ha patch of swamp forest, 200 m from Lewoleba harbour (21 December). Several individuals were observed feeding, including some seen hanging upside down by their feet to extract isolated fruit. Three to 4 pairs were involved in courtship, with at least two pairs attempting to mate. Several individuals were observed taking short and noisy flights (audible for *c.* 40 m) to be close to (potential) mates. On several occasions, following flights of 1-3 m, individuals landed on the back of a mate and attempted to copulate for 1-2 sec, and were chased off, or the mate flew to another part of the canopy. Individuals were also observed waving their tails up and down. At least one individual gave presumed courtship-associated calls several times, (the first vocalisations recorded for this species) consisting of a guttural '*rawk-rawk, rawk-rawk, rawk rawk*', again audible up to about 40 m. Individuals were observed taking fruit in the lower canopy, at 3-6 m above ground in the outer foliage. The tree was located only 12 m from the busy, sealed road to the harbour. During the 30 min, about 40 pedestrians, *c.* 10 cars and several noisy trucks passed the tree, but the pigeons were obviously quite habituated to such traffic. On the following day, at least 4-5 birds were seen feeding in the same tree. Attempts at copulation were again observed.

On 25 December a flock of at least 15 *Treron* were observed feeding in the canopy of several contiguous trees (the largest was a fig) in the village of Lamalera on the south coast of Lembata (1730-1800 hrs). The fig tree was *c.* 14 m high and was only 20 m from village huts. One individual was observed passively perched on an exposed branch at about 12 m. Several silent pairs and trios were observed courting and chasing one another through the canopy. Others were observed eating red figs. At 0600 hrs on the following morning, a single pair (male and female) was observed feeding in the tree. Local people indicated that the feeding tree was protected under local *adat*, and could not be cut down. The tree was on a slope above houses in the village, so possibly this related to erosion control.
In addition, a single female *Treron* was observed in the canopy of a tall (20 m) fig tree 300 m west of the previous observation, also within Lamalera village. A man tending corn directly below the tree indicated that up to 20 'green pigeons' were often in the tree, especially in the afternoon.

There appears to be good quality habitat available for fruit-eating pigeons along the south coast of Lembata. Although they are hunted with guns and catapults, hunting pressure is apparently low. In addition, a travelling salesman interviewed in Sape, east Sumbawa, during 1999, indicated that *Treron* were common on Lembata, and were frequently hunted, after identifying *T. floris* from a BirdLife International poster.

[Black-backed Fruit-dove *Ptilinopus cinctus* R, F
Not directly recorded, but local people, from the village of Puor, confidently identified this species from plates in Coates & Bishop (1997).]

Black-naped Fruit-dove *Ptilinopus melanospila* R
A loose flock of at least 20 individuals was observed at the harbour swamp forest. At Puor