Status of the Pied Imperial Pigeon *Ducula bicolor* and Pink-necked Green-Pigeon *Treron vernans* on Flores, Nusa Tenggara

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Summary. The status of the Pied Imperial Pigeon *Ducula bicolor* in Nusa Tenggara (Lesser Sundas) is unclear, whilst the Pink-necked Green-Pigeon *Treron vernans* is unknown east of Sumbawa. We document observations of these two species on Flores and surrounding islands, and conclude that the Pied Imperial Pigeon is probably resident in western Flores and the Komodo area, whereas the Pink-necked Green-Pigeon has probably colonised Flores within the last 5-10 years. Green-Pigeons in the region should be carefully examined in the future.

Ringkasan. Status Pergam Laut *Ducula bicolor* di Nusa Tenggara belum jelas, sementara itu Punai Gading *Treron vernans* juga tidak tercatat ada di Sumbawa bagian timur. Kami mendokumentasikan beberapa catatan untuk dua spesies ini yang berasal dari Flores dan kawasan sekitarnya. Kami menyimpulkan bahwa Pergam Laut kemungkinan adalah penetap di Flores bagian barat dan kawasan Komodo sedangkan Punai Gading kemungkinan telah mulai berkoloni di Flores sejak 5-10 tahun yang lalu. Dimasa datang kelompok spesies ini harus diteliti dengan hati-hati, terutama di kawasan ini.

Introduction

The birds of the large Nusa Tenggara islands are becoming increasingly well known with most new island records comprising migrants and highly mobile non-passerine birds (e.g. Trainor *et al.* 2006). Recent records of Superb Fruit-dove *Ptilinopus superbus* on Sumba (P. Benstead in Trainor *et al.* 2006), and Small Blue Kingfisher *Alcedo coerulescens* on Flores (Pilgrim *et al.* 2000) are apparently the result of recent colonisation, indicating the dynamic nature of the avifauna on the islands of Nusa Tenggara.

The Pied Imperial Pigeon *Ducula bicolor* is a highly mobile 'small-island' species found from western Myanmar and the Malay Peninsula through the Greater Sundas, Sulawesi and the Moluccas, but allegedly almost entirely absent from the Lesser Sundas (Coates & Bishop 1997). Similarly, the Pink-necked Green-Pigeon *Treron vernans* is widely distributed from southern Myanmar

through the Greater Sundas to Sulawesi and the North Moluccas, but within the Lesser Sundas (Nusa Tenggara) is known only from Lombok, Sumbawa, Moyo and Sangeang, where it is often a common lowland species (e.g. Johnstone *et al.* 1996; Trainor 2002). This paper clarifies the status of these two species in Nusa Tenggara by documenting the first records for Flores, which are based on our observations and other recent unpublished observations by visiting ornithologists and conservation workers.

During 2001-2006, MS made annual extended visits mostly to the Moni-Keli Mutu area of central Flores, but also occasionally visited other sites of significance on the island, including Labuan Bajo (4 visits; 8°28'S, 119°52'E), Riung (2 visits; 8°28'S, 121°01'E), and Tiwu Bowu (17 visits, 8°30'S, 122°00'E). Komodo Island lies between Flores and Sumbawa and its avifauna is typically considered together with Flores (*cf.* Mees 2006). JMI surveyed birds at 16 sites in the northern part of Komodo from 14 July to 17 August 2002 on behalf of the Centre for Conservation and Research of Endangered Species, the Zoological Society of San Diego. Two bird observers surveyed parallel transects set 50 m apart (Imansyah *et al.* 2003). JJRE visited the Labuan Bajo area for three days in August 2004.

Results and Discussion

PIED IMPERIAL PIGEON *Ducula bicolor*

The status of the Pied Imperial Pigeon in Nusa Tenggara has hitherto been unclear. The only verified record is of two birds seen by Nash & Nash (1986) on Gili Air (1.5 km^2), off northwest Lombok, on 30-31 October 1985. The species is also listed with a question mark for Komodo Island (330 km^2) by White and Bruce (1986), based on information in Pfeffer (1958) suggesting that the bird was observed by Hoogerwerf (apparently sourced from Hoogerwerf 1954). However, as Mees (2006) determined, the observation was actually made by the photographer F. Huysmans, who saw a flock of white birds with black wing tips fly from the sea and disappear into a valley. Hoogerwerf did not directly observe the birds but presumably made the identification based on the description (Mees 2006). The first confirmed records for Komodo are those of Butchart *et al.* (1994), who observed groups of 3-7 birds on 4-5 September 1993. On the basis of a single observation, Coates & Bishop (1997) listed the species for Flores, but did not provide details. Verhoeye and Holmes (1998) referred to a record of a single bird at Riung on 10 January 1995, and cited "Cox (in prep)", which remains unpublished. This may have been the record considered by Coates & Bishop (1997).

The first Pied Imperial Pigeon record by MS on Flores was of a single bird seen flying in and out of mangroves (a mature patch to 15 m tall which covered several hectares) at Riung on 14 November 2002. There are no other species that could readily be confused with the Pied Imperial Pigeon, and certainly no similar-looking columbids to cause confusion. On 3 August 2004 JJRE observed

two individuals flying from the direction of the sea and perching in palm trees about 2 km north of Labuan Bajo. On 23 October 2004 MS observed at least five individuals in woodland just south of Labuan Bajo, and another two individuals in mangroves close to the river estuary (c. 2 km south of the town). MS also recorded two birds in mangroves in the village of Koborea (*c.* 8°29'S, 121°51'E; 40 km east of Riung) on 20 August 2005. According to local Riung fishermen, the Pied Imperial Pigeon is a common species in the mangroves, and is sometimes captured for food.

On Komodo Island, Pied Imperial Pigeons were encountered at three (19%) of 16 study sites during July-August 2002. They were observed on three occasions (one, eight and 50 individuals) in mangroves at Loh Sebita on 14 July, twice (one and four individuals) in Tamarind *Tamarindus indica* woodland at Loh Lawi on 23 July; and once (a single bird) in Tamarind woodland at Loh Liang on 14 August (Imansyah *et al.* 2003). The flock of 50 birds was also observed to perch in Lontar palms *Borassus flabellifer* in Tamarind woodland, but at night they roosted communally in mangroves. Erdmann & Bason (2004) also list Pied Imperial Pigeon for Komodo Island, but without supporting details.

Other recent records of Pied Imperial Pigeons include two individuals seen (whilst aboard a boat) on an islet c. 5 km north of Rinca Island on 28 March 2005 (N. Brickle, pers. comm.), and two individuals observed on Kalong (also Kalung and Kaaba) Island, a popular tourist destination near Komodo, on 1 September 2003 (G. Sangster, pers. comm.). On Moyo Island, off Sumbawa, several flocks were observed by R. Lees at Labuan Aji between 1992 and 1995 (Johnstone *et al.* 1996).

With records from five contiguous months (July through November), but also January, and March, it is not clear whether the Pied Imperial Pigeon is a seasonal visitor to the Flores and Komodo area or if it visits opportunistically, depending on fruit availability. Given the paucity of records prior to the turn of the century, this species is probably not resident in the area, but conceivably it might occasionally breed on offshore islets or along the coast of Flores. In West Java, this species apparently flies from the island of Trouwer (=Tinjil) to the mainland to forage, particularly on Gebang *Corypha hutan* fruits, and then fly back to the island (Bartels 1938).

On mainland Flores, the Pied Imperial Pigeon appears to be associated with relatively complex coastal habitats, including extensive mangroves, which according to satellite images (www.maps.google.com) are mostly limited to the Riung area and especially the north coast of Manggarai district (west Flores). Given the frequency of observations of the species in Riung and the Komodo area by observers typically visiting for short periods, the unconfirmed records associated with Hoogerwerf and Huysmans, and also Cox, are probably valid.

PINK-NECKED GREEN-PIGEON *Treron vernans*

In Nusa Tenggara, the Pink-necked Green-Pigeon is known to occur east to Sumbawa and its satellite islands, Moyo and Sangeang (e.g. Johnstone *et al.*

1996, Trainor 2002), but is unknown further eastwards. On a visit to the Tiwu Bowu lake (*c.* 42 km west of Maumere, central Flores), on 16 October 2006, MS observed a flock of 15 green pigeons sitting in the tops of trees in a small patch of swamp forest between the sea and the lake at about 40 m asl. The flock consisted of six male and nine female birds that were immediately identified as Pink-necked Green-Pigeons. A second flock of at least 25 Green-Pigeons was observed 250 m from the first flock on the same day, but their identity could not be confirmed. Three birds (two males and a female) observed by MS on 1 December 2006, however, were confirmed to be Pink-necked Green-Pigeons.

The following description was made of males on the first occasion: a small Green-Pigeon with grey head, pink neck extending to the lower nape, orange breast patch, green lower breast and belly with a yellow patch on the vent and lower belly; upperparts green, wings dark-blackish with a yellow bar on the greater wing coverts; upper tail dark with dark red or maroon under tail coverts; bill tipped white; iris and feet red. The females differed mainly in having the head and neck green, and lacking orange on the breast. Confusion with males of the resident Flores Green-Pigeon *T. floris* could be discounted because the latter species is largely green with a grey crown, lacks pink on the neck, and has non orange on the breast or yellow on the vent. The Flores Green-Pigeon also has cream coloured undertail coverts, and its bill is stouter. The sexes of this species are similar, although the area of grey on the female's crown is smaller (MS pers. obs.). In contrast, the female Pink-necked Green-Pigeon lacks any grey on the crown (Coates & Bishop 1997).

The Pink-necked Green-Pigeon has apparently colonised Flores during the past 5-10 years and presumably is now resident. This pigeon is not as inconspicuous as many other *Treron* green pigeons and is unlikely to have been overlooked in the past. The closest known populations are on Salayar (193 km to the north) and Sumbawa (69 km west). Coates & Bishop (1997) mention the possibility that the species has expanded its range into the north Moluccas from northeast Sulawesi, and it has also recently colonized the relatively recently emerged island of Krakatau off west Java (Bas van Balen, pers. comm.). It is likely to occur in less well-wooded areas such as savannas and agricultural land on Flores, but our observations prove that it also occurs in forest, which is the typical habitat of the Flores Green-Pigeon (Coates and Bishop 1997). Green-Pigeons on Flores, and neighbouring islands such as Komodo, should be carefully examined in the future.

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