

The Status of Three Northern Migrant Raptors Rarely Observed on Java

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Summary In the course of a study on raptor migration the central Java, Indonesia, during the periods September-January 1998 and September-October 1999, three species were recorded which have rarely, if ever, been recorded on the island: Common Buzzard *Buteo buteo*, Booted Eagle *Hieraetus pennatus* and Marsh Harrier *Circus aeruginosus*. Based on a study of the literature and museum skins, and previous experience with the respective species, their identification and status in the Indo-Malayan region is discussed. Raptors migrating through Java originate from northern Asia and might migrate further to Bali and possibly the Lesser Sunda Islands. All species are essentially open woodland species. The increase in the number of migrant species observed on Java and Bali is most likely due to an increase in focused research accompanied by better identification techniques but may also indicate an expansion of species' ranges due to changing land-use in western Indonesia, with closed canopy forest being increasingly replaced by more open types of forest and cultivated land.

Status Tiga Burung Pemangsa Migran dari Utara yang Jarang Teramati di Pulau Jawa

Ringkasan Dalam kajian burung pemangsa migran di Jawa Tengah, Indonesia, pada periode September - Januari 1998 dan September - Oktober 1999, tercatat tiga spesies yang jarang dijumpai, walaupun pernah, tercatat sebelum periode tersebut di pulau ini. Tiga spesies ini adalah Elang buteo *Buteo buteo*, Elang setiwe *Hieraetus pennatus* dan Elang rawa-belang *Circus aeruginosus*. Berdasarkan kajian literatur, spesimen museum, dan pengalaman sebelumnya dengan spesies tersebut, identifikasi dan statusnya di wilayah Indomalaya dibahas. Burung-burung pemangsa yang bermigrasi melalui Jawa berasal dari Asia bagian utara dan mungkin bermigrasi lebih jauh ke Bali serta ada kemungkinan juga hingga ke pulau-pulau di Sunda Kecil. Seluruh spesies pada dasarnya merupakan spesies yang menyukai hutan terbuka. Peningkatan jumlah spesies burung migran yang teramati di Pulau Jawa dan Bali sangat dimungkinkan akibat meningkatnya penelitian yang terfokus yang disertai dengan teknik-teknik identifikasi yang lebih baik, akan tetapi mungkin juga mengindikasikan adanya perluasan sebaran spesies akibat perubahan tata guna lahan di Indonesia bagian barat. Kanopi hutan yang rapat semakin berkurang digantikan oleh tipe hutan lahan terbuka dan kawasan padang terbuka.

Introduction

The island of Java, Indonesia harbours 18 resident species of birds of prey, three of which are augmented by conspecific populations from the mainland during the northern winter (viz. Osprey *Pandion haliaetus*, Oriental Honey Buzzard *Pernis ptilorhynchus*, and Peregrine Falcon *Falco peregrinus*). Additionally, seven species of raptors have been recorded as migrants on Java. Two of these species derive from localities east of Java. One (Australian Kestrel *Falco cenchroides*) is rare on Java (MacKinnon *et al.* 1998), while the other (Short-toed Eagle *Circaetus gallicus*), occurs at the easternmost part of Java, probably originating from the resident population in the Lesser Sunda Islands (van Balen & Compst 1989). The remaining five migratory species are migrants from the Northern Hemisphere, and four of these migrate further east to Bali (Grey-faced Buzzard *Butastur indicus* and Common Buzzard *Buteo buteo*) or the Lesser Sundas (Chinese Sparrowhawk *Accipiter*

soloensis and Japanese Sparrowhawk *A. gularis*) (Ash 1993; MacKinnon *et al.* 1998). The fifth (Black Baza *Aviceda leuphotes*) reaches West Java only (van Balen 1984).

As part of a long-term raptor study (from 1994 onwards), northern migrant raptors were studied from September 1998 to January 1999, and September to October 1999 (Nijman 2001a, b). Among the almost 5,000 migrants counted, single individuals of Common Buzzard, Booted Eagle *Hieraaetus pennatus* and Marsh Harrier *Circus aeruginosus* were recorded. These species are rarely, if ever, recorded on Java (MacKinnon *et al.* 1998). Given the scant data available regarding the movements of migratory raptors in the Asian-Pacific region (Zalles & Bildstein 2000), the recording of even single individuals may be significant. The present paper discusses the status and identification of the latter three species in the Indo-Malayan region.

Methods

The observations were made near the village of Linggo (7°06'S, 109°35'E), in the north-western foothills of the Dieng mountains, Central Java. The area consists of hilly terrain between 300 to 1,310 m asl, and is covered with a mixture of old secondary forest, wet rice fields and shrub land (for a full description of the study area see Nijman 2001a). Observations were made mostly from ridges and a watchtower, which was situated on a small hill. For observations, binoculars and occasionally a telescope were used.

The following accounts are based on descriptions in the literature, observations of raptors in other parts of the world, information solicited from other observers, and examinations of skins in the collections of Zoological Museum of the University of Amsterdam (ZMA) and Naturalis (RMNH), Leiden, both in the Netherlands.

Common Buzzard *Buteo buteo*

On 26 October 1998, at 0900 hrs, while on a ridge at 700 m asl, I sighted a buzzard flying at a fairly high altitude from a south-western direction. It flew towards a valley, where three Crested Serpent-eagles *Spilornis cheela* were soaring. The buzzard was attacked by one of the Serpent-eagles, after which it counter-attacked three times from above. Some five minutes later the bird flew off in an easterly direction. The observation was shared with F. Arga Narata and Sugihartono.

General appearance: relative stocky buzzard, slightly smaller than the Crested Serpent-eagle; when soaring, tail well-spread and wings held in shallow V. Head: short, buff from below, slightly darker above. Upperparts: dark brown, slightly paler than Crested Serpent-eagle. Underparts: breast slightly paler than head, belly and thighs dark buff to orange. Wing: Underwing coverts light brown, slightly darker than head and breast; primaries and secondaries paler; prominent blackish patch on carpal joint. Tail: relatively short and broad; base colour greyish-buff; and with a clear narrow, darker subterminal band. Bare parts: feet yellowish.

Identification: a Buzzard according to its size and general appearance, the clear dark subterminal band and prominent black patch on the carpal joint suggest Common Buzzard *B. buteo*. The buff to orange underparts are characteristic of the central-eastern Palearctic race *B. b. vulpinus*. Common Buzzard is the only Buteo known in the region. Other Buteos like *B. rufinus* are excluded by their larger size and lack of subterminal tail bands. Rufous-winged Buzzard *Butastur liventer* and Grey-faced Buzzard *B. indicus* differ by their smaller size, lack of clear subterminal tail band and lack of prominent dark patch on the carpal joint.

Common Buzzards are very variable in their plumage resulting in the description of a number of subspecies (del Hoyo *et al.* 1994). Although, the central-eastern Palearctic

populations (*B. b. vulpinus*) are characterized by their rufous plumage (e.g. Mees 1971), variation in plumage is considerable and both dark and pale phase birds occur (e.g. Wells 1986; skins ZMA). The Common Buzzard breeds in the Palearctic and winters south to Africa, India and South-east Asia. It is a rare migrant to the Thai-Malay Peninsula (Wells 1998) where it has been observed at Cape Rachado both during spring and autumn (Wells 1990, 1998). Cape Rachado is situated on the Malacca Strait and the birds observed here were either coming from or heading to Sumatra. On Sumatra the species is however not formally recorded (van Marle & Voous 1988; MacKinnon *et al.* 1998). For Java there seems to be only one previous record, being a specimen collected by the Bartels family between 1933 and 1941, most likely originating from West Java (Mees 1971). The species has been recorded in Borneo once (Rampayoh, Brunei: Smythies, 1999; *contra* MacKinnon *et al.* 1998). For Bali there are several records (e.g. Ash 1984; S. van Balen *pers. comm.*), but the species has not yet been recorded further east (Coates & Bishop 1998).

Booted Eagle *Hieraetus pennatus*

On 22 October 1999 at 1037 hrs a small eagle was seen soaring over an area of shrub and bush land adjacent to some tall forest. As it was soaring, good views of the bird's underside were obtained over approximately 2.5 min, before it flew off in an easterly direction.

General appearance: small eagle, similar in appearance and structure to Rufous-bellied Eagle *Hieraetus kienerii*. Soaring was low over the trees. Head: from below light brown, slightly darker than the body. Upperparts: not seen. Underparts: buff. Wing: underwing buff, same colour as the body, paler (whitish) at the base of the leading edge of the wing; primaries black; secondaries very dark brown. Tail: greyish; no barring apparent. Bare parts: not recorded.

Identification: size and general appearance similar to Rufous-bellied Eagle, a species recorded regularly in the adjacent forest patch. The bird showed the diagnostic white shoulder patches and buff underwing coverts contrasting with the dark primaries and secondaries, and unbarred tail (unless seen at very close range) of the pale morph of Booted Eagle. Both juvenile Rufous-bellied Eagle and Bonelli's Eagle *H. fasciatus* appear also rather pale from below, although the former never have dark primaries and secondaries, nor a greyish tail (del Hoyo *et al.* 1994; Clark & Smith 1993; skins ZMA). The pale wedge on the inner primaries, diagnostic for Booted Eagles, was not noted.

The Booted Eagle is a breeding resident in Africa, south-west Eurasia, North-west India and north China. During the northern winter it migrates south to Africa, India, and northern South-east Asia. It is a rare passage migrant or winter visitor to Thailand (Lekagul & Round 1991; Round 1993) and the Thai-Malay Peninsula (Wells 1998). Although single individuals have twice been recorded in the Riau Archipelago (Rajathurai 1996; Seng 1997), the species has not been recorded for mainland Sumatra (van Marle & Voous 1988; MacKinnon *et al.* 1998). Single birds have been observed on Bali (Ash 1984). The species is not recorded for Wallacea (Coates & Bishop 1998). There are no previously published records for Java (MacKinnon *et al.* 1998), but recent observations of unidentified raptors at a number of sites in West and Central Java may have been of this species (I. Setiawan & A. P. Setiadi *pers. comm.*).

Marsh Harrier *Circus aeruginosus*

On 11 October 1999 at 1110 hrs while on the watchtower, a large raptor was gliding in a straight line in an eastern direction at a slightly lower level towards the tower. The bird was flying steadily with a few shallow wing beats. When gliding the long wings were held in a shallow 'V'. As it approached the tower it made two and a half turns while gradually

gaining height, then left the area in south-easterly direction. The bird was watched for some 3 min.

General appearance: typical harrier, rather robust with relatively broad wings; while gliding the long wings were held in a shallow 'V'. Head and nape: buff. Upperparts: mostly uniform dark brown; on the rump a slightly paler patch was apparent. Underparts: uniformly brown, slightly lighter than upperparts. Wing: rather broad wings; upper-wing linings buff; primaries whitish at the base ending in broad dark tips; secondaries dark brown; greater wing coverts were mid-brown; lesser wing coverts buff and of the same colour as the head and nape; under-wing lining uniformly brown and of the same colour as the body. Tail: uniform brown, slightly paler than the body and ending in a faintly darker terminal bar. Bare parts: bill greyish; colour of eyes and legs not recorded.

Identification: Four (or five depending on the taxonomic position taken) species of harrier occur in the Sundaic and Wallacean regions, i.e. Spotted Harrier *Circus assimilis*, Marsh Harrier *C. aeruginosus* (the eastern form *C. a. spilnotus* is sometimes considered a separate species; Simmons 2000), Hen Harrier *C. cyaneus*, and Pied Harrier *C. melanoleucos* (MacKinnon *et al.* 1998; Coates & Bishop 1997). All are migrants from the Northern Hemisphere, apart from Spotted Harrier of which resident populations occur in the Lesser Sunda Islands and Sulawesi. Spotted harrier is readily excluded by its bluish grey colour, bold black bands on the tail, and underwing coverts which are heavily spotted with white (Marchant & Higgins 1993). The brownish coloration of the observed harrier indicates that it was either a female or juvenile bird. The combination of the following features exclude the possibility of Hen and Pied Harrier (see e.g. Porter *et al.* 1981; Blakewell *et al.* 1987; Morioka *et al.* 1995): the relatively broad, unbarred wings, uniform brown body, buff lesser wing coverts and the absence of clear barring on the tail. The darker terminal tail band and the slightly paler rump patch are a feature of the eastern Marsh Harrier *C. (a.) spilnotus*. The eastern locality further points to this individuals representing the latter race, although the western form *C. a. aeruginosus* has been collected in Perbaungan, Serdang, Northern Sumatra (Beaufort & de Bussy 1919; van Marle & Voous 1988; ZMA no. 13583; E. Nieboer *pers. comm.*).

Following Nieboer (1973), Andrew (1992), Wells (1998), Grimmett *et al.* (1999), and Ferguson-Lees & Christie (2001), I have not treated western and eastern Marsh Harriers as distinct species; hybrids have been found at non-breeding grounds in both the Thai-Malay region (Wells 1998) and populations in Russia show strong integration (Stepanyan 1990; Ferguson-Lees & Christie 2001). However, Simmons (2000) recently presented a phylogeny of the harriers based on mitochondrial cytochrome b gene in which western and eastern Marsh Harriers did not appear to be sister taxa, thus suggesting full species status.

In Asia, the Marsh Harrier is mostly found in the marshes and low-lying open country (del Hoyo *et al.* 1994). An isolated resident population is found in New Guinea (Beehler *et al.* 1986). Individuals from northern populations migrate to South-east Asia and the species is a common migrant to Thailand (Lekagul & Round 1991), and the Thai-Malay Peninsula (Wells 1998). It is an uncommon visitor to the Philippines (Dickinson *et al.* 1991), Sumatra (van Marle & Voous 1988) and North Borneo (MacKinnon *et al.* 1998; Smythies 1999), and has recently been added to the Kalimantan (van Balen & Nurwatha 1999) and Sulawesi lists (Wardhill & Katuuk 1999). No confirmed records are known from Java (MacKinnon *et al.* 1998) although the occurrence of harriers on Java has been noted (D. Watling in van Balen 1994; M. Silvius and S. van Balen in Wells 1998; S. van Balen *pers. comm.*; S. Henson *unpub. data*). Ash (1993) made a possible recording of an (eastern) Marsh Harrier on Bali in October 1991 but identification was not verified.

Discussion

Due to the large variation in plumage, often with different morphs and great differences in juvenile and adult plumages, mimicry between different species (e.g. van Balen *et al.*, 1999a), and, especially so for tropical taxa, lack of adequate descriptions, raptors often pose identification problems. For a number of species this is often exacerbated by the difficult observation conditions in their rainforest environment and their general timidity, so that identification sometimes depends on diagnostic vocalisations. Nevertheless, despite these difficulties, during the last decade more and more species of raptors, both residents and migrants, have been identified in western Indonesia, and rare species are being recorded more often. The reasons for this apparent increase might be (1) an increase in the number of raptor studies, (2) improved identification aids, and/or (3) expansion of species' ranges, as discussed below.

Increase in the number of studies that focus exclusively on raptors

Even though sometimes short in duration, these studies can greatly increase our knowledge of raptors in parts of Indonesia. This is well illustrated by a seven-day survey on the island of Nias, West Sumatra, by Thiollay (1996) during which he recorded one raptor species presumed to be extinct and another new to the island. Likewise, in the 1980's the endemic Javan Hawk-eagle *Spizaetus bartelsi* was thought to be confined to a handful of forest areas in the western and easternmost parts of the island (Thiollay & Meyburg 1985), whereas recent more intensive research shows it to be present in 22 forest areas spread out over the entire island (van Balen *et al.* 1999b). Especially for migrants, Ash's (1993) study still stands out as one of the few detailed and systematic studies conducted so far, although progress is being made in other parts of Indonesia (A. A. Supriatna, I. Setiawan & D. M Prawiradilaga *pers. comm.*; Nijman 2001a, b).

Improved identification aids

Over the last decade a number of important field guides and raptor identification guides and papers have been published, and high-quality equipment (lightweight telescopes, binoculars, tape-recorders) has become available. Previously, some of the more difficult species could only be identified after consulting skins in museums. With the publication of field guides with high quality illustrations, and especially after their translation into Indonesian, the study of raptors (and birds in general) has become more accessible. At the same time, this introduces the problem of an excessive eagerness to see those species that are depicted in field guides, and makes it increasingly necessary to critically evaluate all records. Despite increased identification techniques, certain raptor groups, most notably the harriers (in particular females and immatures) pose serious problems in identification and the relevant literature is often misleading. Likewise, field identification of *Accipiter* spp in South-east Asia, both resident and migrant, remains notoriously difficult (e.g. Leader & Carey 1994; *cf.* Nijman 2001a).

Expansion of species' ranges

All of the migrant raptors recorded on Java are essentially species of more open woodland areas, and none is a true forest raptor. Originally western Indonesia was covered in lush tropical rainforest, and the more recent deforestation may create niches in areas previously unavailable. Although large-scale deforestation on Java dates back to the mid 1800s and stabilized some 50 years ago (Whitten *et al.* 1996), it is a more recent phenomenon on Sumatra, Borneo and Sulawesi. The appearance of large deforested areas on these islands may facilitate the dispersal of migrants to more southern and eastern islands.

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