

- Madge, S. and Burn, H. (1988) *Wildfowl*. London: Christopher Helm.
- Medway, Lord and Wells, D. R. (1976) *Birds of the Malay Peninsula*, 5. London: Witherby.
- Milton, O. and Estes, R. D. (1963) *Burma Wildlife Survey 1959-1960*. Special publication No. 15. American Committee for International Wildlife Protection, New York.
- Mitra, S. N. (1957) *Banglar shikar prani*. Calcutta: Bengal Government Press. (In Bengali.)
- Mukherjee, A. K. (1961) A report on the investigation of the status of the White-winged Wood Duck in Assam and recommendations of a sanctuary for its protection. *Rec. Indian Mus.* 59: 471-478.
- Oates, E. W. (1899) *A manual of the game birds of India*, 2. Bombay.
- Ounsted, M. (1985) Report on White-winged Wood Duck *Cairina scutulata*. Unpublished Wildfowl Trust Report.
- Owen, M. and Black, J. M. (1990) *Waterfowl ecology*. Glasgow and London: Blackie.
- Parsons, R. E. (1940) Notes on wild duck and geese in the Sadiya Frontier Tract, Assam. *J. Bombay Nat. Hist. Soc.* 41: 422-426.
- Robinson, H. C. (1909) Notes on birds new to, or rare in, the Malay Peninsula. *J. Fed. Malay States Mus.* 4: 129-133.
- Robinson, H. C. (1915) On a collection of birds from the Siamese province of Bandon, N.E. Malay peninsula. *J. Fed. Malay States Mus.* 5: 83-110.
- Robinson, H. C. and Kloss, C. B. (1910-1911) On birds from the northern portion of the Malay peninsula including the islands of Langkawi and Teratau. *Ibis* 52: 659-675, 53: 10-79.
- Robson, C. (1988) Recent reports. *Oriental Bird Club Bulletin* 8: ?.
- Round, P. D. (1990) White-winged Duck. *Bangkok Bird Club Bull.* 7(11): 11.
- Salvadori, T. (1895) *Catalogue of the birds in the collection of the British Museum*, 27. London: British Museum.
- Scott, D. A. (1989) *A directory of Asian Wetlands*. IUCN.
- Smith, H. C. (1942) *Notes on birds of Burma*. Published Privately.
- Stanford, J. K. and Ticehurst, C. B. (1931) The birds of the Prome District of Lower Burma. *J. Bombay Nat. Hist. Soc.* 34: 666-672, 35: 32-50.
- Stanford, J. K. and Ticehurst, C. B. (1939) On the birds of northern Burma. Part VI. *Ibis* ? : 211-258.
- Stevens, H. (1914) Notes on the birds of Upper Assam. *J. Bombay Nat. Hist. Soc.* 23: 234-268, 721-736.
- Tim Ekspedisi CAIRINA SCUTULATA (1991) *Bebek Hutan Bersayap Putih (Cairina scutulata) di Taman Nasional Way Kambas Propinsi Lampung, Sumatera, Indonesia*. HIMBIO UNPAD. Jatininggar.

Andy J. Green, The Wildfowl and Wetlands Trust, Slimbridge, Gloucester, GL2 7BT, U.K.

## The decline of the Brahminy Kite *Haliastur indus* on Java

BAS VAN BALEN, ISMU S. SUWELo, DWI S. HADI, DJOKO SOEPOMO, REZE MARLON and MUTIARINA

Throughout the Indonesian archipelago by far the most commonly seen bird of prey and most successfully adapted to man is the Brahminy Kite *Haliastur indus*. In many harbour cities they are numerous, feeding on refuse and offal near abattoirs. This commensal relationship tends to theft when the occasional chicken is taken by this clever flyer. It is perhaps because of this, that the almost total disappearance of the species from the island of Java (in contrast to other Indonesian islands, where the species is still one of the most abundant raptors) during the last few decades, has not been regretted by farmers and remained unnoticed for a long time. Only a few years ago, van Balen (1984) noted the drastic decrease of the species in Bogor and its environs, and Erfteimeijer and Djuharsa (1988) reported a similar decline for the vicinity of Surabaya.

Despite its reputation as a chicken thief the species has been adopted as the city of Jakarta's regional avian symbol (Holmes 1990), as its neat appearance, fearless character and remarkable abilities shown in flight fully compensates for the loss of some fowls. To assess the species' status in the Indonesian capital and its environs, a short survey was made of its former haunts. Combined with observations over the last 10-12 years by the authors and others the results of this survey formed the data base for this paper. An attempt will be made to elucidate the causes for the decline.

### GENERAL HABITS AND BIOLOGY

The Brahminy Kite is the most catholic species of raptor in Java with regard to habitat as well as food. In former days the species was found throughout the island in open country up to 1500 m in West Java and to the highest altitudes in East Java (Hoogerwerf 1969-1971). Large harbour cities formed preferred places, in particular where refuse was dumped in the water (such as the Tanjung Priok harbour and canal, and near abattoirs, e.g. the Gunung Sahari canal in Jakarta, where often tens or more than 100 birds congregated (Hoogerwerf and Siccama 1937). Near fishponds and throughout the entire coastal area, including near villages, the bird was common. In more natural habitats i.e. riverine forest edges, mangroves, beaches, lakes etc, the birds are mostly encountered in pairs or singly rather than in large groups.

There appears to be some controversy about two of its least noble habits, i.e. scavenging and chicken robbery. Though often presented as a "great robber of chickens, and much detested by natives" (e.g. Whitehead in

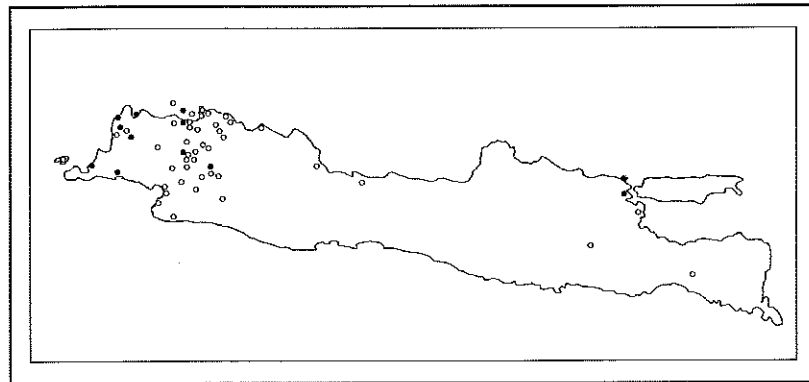
Smythies 1981), other sources mention this accusation as somewhat exaggerated and state that chickens are seized only very rarely (Koningsberger 1911-1915; Sody 1953). To its defence the possible consumption of pest insects of teak forests and coffee plantations, such as large grasshoppers and beetles was reported (Sody 1953). Other food items include flying termites, frogs, snakes, fishes (dead but also caught alive from the water), birds (mainly young and eggs) and bats (van Balen 1915; Hoogerwerf 1948a,b; Sody 1953). Its scavenging habits, too often exaggerated, are largely limited to an urban life (Hoogerwerf 1948b) and in more natural conditions scavenging is more or less restricted to food items washed up along the beach (Sody 1953; Koningsberger 1911-1915).

Its typical raptor nest is built in medium-sized to tall trees in mangroves, forest edges and in open country. Though once abundant in Jakarta and environs, Hoogerwerf and Siccama (1937) found only a few nests of the species in some inaccessibly tall trees. Nesting takes place during January-August, with peaks in May-June (Hellebrekers and Hoogerwerf 1967).

#### FORMER DISTRIBUTION ON JAVA

The first record of the Brahminy Kite on Java was by Baron F. von Wurmb (1779-1782). It featured as the "Chicken Thief" amongst eight other bird species, that the Baron encountered in Jakarta, and which were the first descriptions of Javan birds ever published. Figure 1 shows the localities where Brahminy Kites have been collected and observed. No quantitative

Figure 1. Former and present distribution of Brahminy Kite in Java.



○ = records before 1980;  
● = records after 1980.

Data from: Hoogerwerf 1948; Museum Zoologi Bogor; Nationaal Natuurhistorisch Museum Leiden; Mees, unpublished data 1946-1949; own observations; A. Lewis, pers. comm.; and publications mentioned in the text.

data are available, but indications of abundance can be found in a number of reports and publications. A summary is given below.

Bartels (1902): 'rather common Kediri; especially numerous near Surabaya'.

Koningsberger (1911-1915): 'by far the most common raptor in the coastal area; also far from rare in the interior' (Java).

Sody (1927): 'Most common raptor; several times found breeding' (Bogor).

Hoogerwerf (1936): 'extraordinary large number of Brahminy Kites; sometimes up to 30 birds circling in the sky' (Brantas delta).

Hoogerwerf and Siccama (1937): 'Occurs in large numbers near Jakarta and Tanjung Priok, like in all harbours of Java'.

Hoogerwerf (1950): 'almost daily being heard or seen' (Botanical Gardens Bogor).

Hoogerwerf (1969-1971): 'One of the most common raptors' (Java).

#### PRESENT DISTRIBUTION ON JAVA

Figure 1 shows the observations of Brahminy Kites during the last 12 years in Java (solid circles). During 1979-1990 the first author saw Brahminy Kites on only 15 occasions at 10 sites. The total was 20 individuals, including six juveniles, which stands in sharp contrast to the species' abundance in former days. The observations during this period were made in a large range of habitats (see Table 1). It is evident that the species disappeared from most of its former area of distribution. In the areas formerly densely populated by kites, e.g. Jakarta and Surabaya, only three individual birds respectively have been seen in the last six years. Also the other recent observations refer to single birds or pairs, and none of the aggregations, which are such a common sight in the outer islands, has been seen in Java. The present survey, conducted in two periods (19-21 March, and 20-23 May 1991), yielded only one pair of kites on an island in the Jakarta Bay.

HABITAT TYPE	BIRD NUMBERS	
	ADULT	JUVENILE/IMMATURE
Mangroves, fishponds	3	2
Open country inland	2	2
Coastal village	4	
Swamp forest inland	3	1
Forest edge inland, 1500 m		1
Forested islets	2	

Table 1. Habitats and numbers of Brahminy Kites *Haliastur indus* seen during 1979-1991.

## POSSIBLE CAUSES OF THE DECLINE

Erftemeijer and Djuharsa (1988) discussed some possible causes of the decreasing numbers of Brahminy Kites in the Brantas and Solo deltas in East Java. These included use of pesticides, hunting and destruction of nest sites, but it was concluded that no one of these factors could satisfactorily explain the decline. Since a more comprehensive picture of the status of the birds on Java has now been obtained, a new attempt is made below.

### *Pesticides*

The excessive use of pesticides on ricefields, which commenced in the 1960s, concurred with the decrease, and sometimes total disappearance, of many typical ricefield birds on Java, such as Pond Herons and Egrets. Moreover, the intensification of the fish pond cultures, where weed species of fish are commonly killed by pouring insecticides into the ponds (as the present survey team witnessed in the Tanjung Sedari area; the poisoned and dying fish were taken by the hundreds of numerous herons, egrets and terns, that gathered on the banks), forms another hazard, as fish and dead piscivorous birds killed by poison may readily be taken by kites.

Hoogerwerf (1969-1971) reported that the Brahminy Kite was common throughout Java. As his field ornithological data covered the period from the late 1930s up to the late 1950s the decrease may already have set in during the sixties, at the very earliest, which would coincide with the increasing use of pesticides. Unfortunately there are no data on the status of the kite in the period from 1960 until the early seventies when the species had already become a rarity (D. Holmes pers. comm.). Erftemeijer and Djuharsa (1988) countered the argument of the possible effect of insecticides by stating that crows *Corvus* and monitor lizards *Varanus* did not drop in numbers locally, as would be expected. The scavenging Large-billed Crow *C. macrorhynchos*, however, seriously decreased in numbers throughout Java (though perhaps not as drastically as the kite); the cold-blooded lizards may show different reactions towards insecticides than animals with a high metabolic rate.

### *Hunting pressure*

Stuffed birds, and especially birds of prey, form favoured objects at local souvenir shops. "Professional" and amateur hunters roam the rural areas in search of birds, and the Brahminy Kite's relative lack of shyness makes it an easy target. Live birds, taken from the nests as young, are very popular, despite the protected status of the species under Indonesian law. The 22 Brahminy Kites held in the Surabaya Zoo, are mostly confiscated birds from the local market.

### *Habitat loss*

The conversion of mangroves into fish and shrimp ponds and the intensification of shrimp ponds, especially along the north coast of Java, increased dramatically during the last decades. Most tall trees disappeared and it is now very hard to find any piece of forest that might be suitable breeding habitat for raptors. Four of the established or proposed nature reserves, that were known for their mangrove and swamp forest (Muara Angke/Kapuk, Mauk, Tanjung Sedari, Muara Gembong), the first of which was established as a nature reserve, the other three proposed as such, appeared to be completely devoid of closed forest and/or tall trees required for breeding. No Brahminy Kites were seen in these areas during the survey, and the only birds seen, were a pair on 22 May 1991 on Rambut Island, in the Jakarta Bay.

### *Food supplies*

Newton (1979) noted that the scavenging raptors, that abound in tropical towns, are sustained by the garbage and other human waste, and that with the improving of urban hygiene, they would disappear. This may explain the disappearance of Brahminy Kites near public slaughter houses in Jakarta in the first half of this century and also the disappearance of Large-billed Crows that were once abundant near similar places in the town.

## CONSERVATION

The small population size of Brahminy Kites in Java may become a problem, when the numbers continue to be low. The juveniles amongst the birds observed in the past decade suggests that there is considerable regeneration in the population, though the possibility of this being stragglers from populations outside Java must not be excluded. In the second case the effect of low numbers would be ameliorated by the influx of these unrelated birds. The first case would indicate the presence of refuges, from where the Javan population is supplemented. The existence of these would greatly enhance the chances for the restoration of the Javan population, when proper measures are taken.

Any measure aimed to conserve the Brahminy Kite should take into consideration each of the above-mentioned factors (especially pesticides, hunting and habitat), as none of them alone can fully account for the species decline. They should include the following:

1. The up-grading of the existing reserves along the coast, and establishment of new ones.

2. Identification and guarding of breeding sites.
3. Provision of artificial nests in (well-guarded) trees (see Meyburg 1981).
3. Law enforcement with regard to the hunting and trading of birds of prey.
4. Control on the use of pesticides.

But above all, rehabilitation of the Brahminy Kite, and actually of all other birds of prey, through extension programmes, would greatly assist to such measures. The appropriate choice of this raptor as Jakarta's symbol is the first important step.

#### REFERENCES

- Balen, J.H. van. (1915) *De dierenwereld van insulinde*, II. De vogels. Deventer: Van der Burgh.
- Balen, S. van. (1984) Comparison of bird counts and bird observations in the neighbourhood of Bogor (Indonesia). Student report. Unpublished.
- Bartels, M. E. G. (1902) Zur Ornithologie Javas. *Natuurk. Tijdschr. Ned. Ind.* 61:129-172.
- Erfteemeijer, P. and Djuharsa, E. (1988) A survey of coastal wetlands and waterbirds in the Brantas and Solo deltas, East Java, Indonesia. PHPA-AWB/Interwader Report 5. Bogor, Indonesia.
- Hellebrekers, W. P. J. and Hoogerwerf, A. (1967) A further contribution to our oological knowledge of the island of Java (Indonesia). *Zool. Verhand.* 88: 1-164.
- Holmes, D. A. (1990) In search of Jakarta bird. *Voice of Nature* 82: 44-45.
- Hoogerwerf, A. (1936) Nadere gegevens over de broedplaatsen in de Brantas-delta. Pp. 151-153 in: *Natuurbescherming in Indie gedurende het jaar 1935. Tiende verslag van de Nederlandsch Indische Vereeniging tot Natuurbescherming.*
- Hoogerwerf, A. and Siccama, G. F. H. W. R. H. (1937) De avifauna van Batavia en omstreken II. *Ardea* 26: 116-159.
- Hoogerwerf, A. (1948a) *Haliaeetus leucogaster* (Gm.) en *Haliastur indus intermedius* (Gurn.) als nestrovers. *Limosa* 21: 104-105.
- Hoogerwerf, A. (1948b) Op levende prooi jagende *Haliastur indus intermedius* Gurney. *Limosa* 21: 142-144.
- Hoogerwerf, A. (1950) De avifauna van de plantentuin te Buitenzorg (Java). *Limosa* 23: 159-280.
- Hoogerwerf, A. (1969-1970) On the ornithology of the rhino sanctuary Ujung Kulon in West-Java (Indonesia). *Nat. Hist. Bull. Siam Soc.* 23: 447-500.
- Koningsberger, J. C. (1911-1915) *Java zoologisch en biologisch*. Buitenzorg.
- Meyburg, B.-U. (1981) Notwendigkeiten und Moeglichkeiten des Populationsmanagements bei Greifvoegeln. *Oekol. Voegel 3 (Spec. Issue)*: 317-334.
- Newton, I. (1979) *Population ecology of raptors*. Berkhamsted: Poyser.
- Smythies, B. E. (1981) *The birds of Borneo*. Third edition. The Sabah Society with the Malayan Nature Society.
- Sody, J. H. V. (1927) Lijst van Buitenzorg-vogels en -zoogdieren. *Natuurk. Tijdschr. Ned. Ind.* 87: 181-204.
- Sody, J. H. V. (1936) De broedtijden der Javaansche vogels. *Ardea*: 25: 200-205.
- Sody, J. H. V. (1953) Vogels van het Javaanse djabos. *Maj. Ilmu Alam Ind.* 109: 125-172.
- Wurmb, Baron F. von. (1779-1782) *Verhandelingen I-III*.

## The conservation status of the forest birds of Siquijor, Philippines

T. D. EVANS, P. MAGSALAY, G. C. L. DUTSON and T. M. BROOKS

Siquijor is a small island in the central or Visayan region of the Philippines. During a student expedition (the Cambridge Philippines Rainforest Project 1991) in 1991, three days were spent surveying the remnant forests there. The major ornithological interest of the island is its population of the threatened Streak-breasted Bulbul *Ixos siquijorensis*, and there are also several endemic bird subspecies.

#### FOREST STATUS ON SIQUIJOR

Siquijor is a hilly, coralline island, covering 344 km<sup>2</sup> and reaching 628 m altitude. Only four significant patches of forest remain (Figure 1), which cover a total of 781 ha, and are all in reserves controlled by the Department of Environment and Natural Resources. Three of these patches were visited by the expedition in the company of forest reserve staff and Perla Magsalay, a native Siquijorian and National Coordinator of Asian Wetland Bureau - Philippines, between 27 and 30 August 1991.

The last detailed report on Siquijor was by Rand and Rabor (1960), who presented a species list and a physical description of the island. They described only two patches of forest, both of the lowland evergreen dipterocarp-molave type, at Lilo-an (then 400 ha), and Bandila-an (then 500 ha). They observed logging and encroachment at both sites.

These two sites are now much smaller (Figure 1), and we noted signs of continuing degradation, which should be halted as soon as possible. Lilo-an is under particular pressure - the understorey has been replaced by maize over about 90% of the area, so the site is more like parkland than forest. This has happened in the last five years, since the visit of J. Hornskov and S. Jensen in 1987 (P. Magsalay pers. obs.). Forest species lost include Orange-bellied Flowerpecker *Dicaeum trigonostigma* and Yellow-bellied Whistler *Pachycephala philippinensis*, while the Streak-breasted Bulbul *Ixos siquijorensis* now occurs in comparatively low numbers (Figures 2 and 3). Bandila-an has the best remaining forest and retains a typical forest avifauna, but a few larger species are apparently extinct even there e.g. Red Junglefowl *Gallus gallus*, which was noted to be on the verge of extinction by Rand and Rabor (1960).

The two small forest patches not mentioned by Rand and Rabor are also currently under pressure from logging and encroachment (pers. obs.). Apart from a few parts of the Bandila-an site, no primary forest remains on Siquijor.