

**A Comparison of Vertebrates Recorded in
1990–1991 and 1999–2004
from the Sukau Region of the
Lower Kinabatangan Floodplain, Sabah**

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ABSTRACT

This paper presents a list of 356 vertebrate species recorded in the Sukau area of the lower Kinabatangan Floodplain, Sabah in 1990–91 and 1999–2004. Two hundred and seventy-five species were recorded in 1990–91 while two hundred and fifty-eight species were recorded from 1999 through 2004. This includes a new record for Sabah, the Clamorous Reed-warbler, *Acrocephalus stentoreus*. The area still supports a large number of vertebrate species in spite of the incursion of agricultural activities as well as tourist activities in the area. However, 10 survey trips were made both in 1990–1991 and 2002–2003. The number of species recorded in 2002–03 (209) was approximately 25% lower than that recorded in 1990–91 (275). This is at least partially due to the different survey methods used in the two biennial time periods.

INTRODUCTION

A checklist of wildlife species recorded from 1999 through 2004 on the Lower Kinabatangan Floodplain in eastern Sabah is compared with a checklist recorded in the same region in 1990–91 (Boonratana and Sharma, 1997). Sabah is one of the two East Malaysian states in Borneo. Both checklists are byproducts of other activities. The 1990–91 check-list was

compiled during a study of the proboscis monkey *Nasalis larvatus*. The more recent checklist was produced on wildlife excursions offered by Borneo Eco Tours, an ecotourism operator. The present effort is the result of the personal interest of the authors in wildlife in the Sukau area including the Menanggul River. The earlier studies were conducted both near Sukau including the Menanggul River, and Abai which is located down river from Sukau. This paper concentrates on a comparison of species lists from the Kinabatangan floodplain in the Sukau area including the Tenegang Besar River and Menanggul River.

METHODS

In 1999–2004, most of the species were sighted from small boats in the Kinabatangan River, the Menanggul River, the Tenegang Besar River, and the Kelenanap Oxbow Lake. Some species were recorded on jungle walks between the Kelenanap Oxbow Lake and the Kelandaun Oxbow Lake and in the grounds of the Sukau Rainforest Lodge. The boat trips were undertaken in the early morning (0600–0900), middle of the day (1100–1300), late afternoon (1600–1830), and night (2030–2230). These observations were made in February, April, July, September–October, and November 2002, and in February, April, July, September, and November–December 2003. In addition, some species were recorded in October 1999, April 2000, April 2001, September 2001 as well as February, April, July and November 2004. Several surveys were conducted along the Resang River downriver from Sukau (one in November 2003, two in July 2004, and two in November, 2004).

The distances traveled on these surveys were measured using a Garmin Etrex Personal Navigator using Global Positioning Satellites. However, the length of the boat trips varied due to a number of reasons including blockage of the river by fallen trees (Menanggul River), blockage of river by water hyacinth rafts (Tenegang Besar River), and variations in boat routing in the wide (approximately 150 m) Kinabatangan River (Fig. 1).

The maximum length of these boat trips is as follows:

- Menanggul River from the river mouth upstream for 8 km.
- Kinabatangan River from the Sukau Rainforest Lodge (N 5° 29.873' E 118° 16.821') to the mouth of the Tenegang Besar River, a distance of approximately 9 km.
- Tenegang Besar River from the river mouth upstream to the first bridge, a distance of approximately 9 km.
- Resang River from the river mouth upstream for 2 km.

- A circuit of approximately 6 km in the Kelenanap Oxbow Lake commencing and finishing at the Kinabatangan River.

All identified species that were sighted by us, were recorded. We also noted the presence of other species that were identified by sound or other observed activity (e.g. footprints or smell).

STUDY AREA

The lower Kinabatangan region that was originally rainforest growing on flat land, is now subjected to increasing disturbance. While logging officially ended in December of 1999, both legal and illegal logging programs continue within the area surveyed. The legal logging was approved prior to 2000 for the expansion of oil palm plantations. Illegal logging occurs in small areas where the culprits believe they will not be detected. One can no longer claim that these plantations are sparsely scattered throughout the area. "In 1996 more than half the dipterocarp forest in the lower Kinabatangan had been converted by timber and oil plantations" (Teoh Cheng Hai, 2000).

The Kinabatangan River remains Sabah's largest river with a length of 560 km and a catchment area of 16,800 sq km (Boonratana and Sharma, 1997). The Kinabatangan floodplain, measures approximately 280,000 ha. There are many oxbow lakes in the area. These lakes are at various stages of infilling. In the most recent study, Kelandaun Oxbow Lake was covered by vegetation, while Kelenanap Oxbow Lake was the least vegetated of the lakes visited.

The area has a humid tropical climate with an average annual rainfall of approximately 2,600 mm. In some recent years, the area was subjected to both extremes of flood (1996, 2000, and 2004) and drought (1997–98). Environmental conditions were worsened by high levels of haze during El Nino drought years. Flooding increased when natural forests were cleared and there was an increased rate of water and sediment runoff from the land.

The Sukau area has a complex mixture of natural vegetation. The principal types in the flood-prone areas are riverine forest and freshwater swamp forest. There are also open reed swamps such as those developing in the Kelandaun Oxbow Lake. Remnants of pristine lowland dipterocarp forest, logged-over swamp forest, burnt lowland dipterocarp forest, and oil palm plantations are also present.

Another habitat has become established since the surveys in the early 1990s. There are areas cleared for oil palm plantations, that were later inundated by flood waters, and the palms died. These areas as well as other areas that were

illegally logged are now being replanted with local forest tree species under a number of sponsorships including World Wildlife Fund (Malaysia). Opportunistic native vegetation as well as weeds is growing among the young trees.

RESULTS

A comparative checklist of vertebrates compiled during 2002 and 2003 from the Sukau area is presented in Table 1. In addition, species recorded only in 1999, 2000, 2001, and 2004 are listed with the year recorded in brackets. This table also indicates which of these species were recorded from Sukau on the 1990-91 surveys (Boonratana and Sharma, 1997). Species recorded from the Resang River only are designated R.

The 1990-91 survey included observations at Abai, which is located downriver from Sukau. Only two species, the Yellow-crowned Barbet and the Copper-throated Sunbird, were recorded from Abai and not in the Sukau area during either survey period. Their absence from the Sukau area is not surprising because the former species is "An uncommon bird of lowland forests" and "Typical barbet of upper canopy in primary and swamp forests" while the latter species is "A bird of mangrove forests, coastal coconut groves, and Casuarina stands" (Mackinnon and Phillipps, 1997). This indicated that even if the barbet is present, the numbers are low and it is difficult to see while the habitat at Sukau is not suitable for the copper-throated sunbird.

A total of 356 species were recorded on the Kinabatangan River floodplain in these two surveys (Table 2). Approximately one third of the species recorded in 1990-91 were not recorded in 2002-03, while approximately one quarter of the species recorded in 2002-03 were not recorded in 1990-91. There are a number of possible explanations for this including the fact that all of these species are mobile and encounters are to a certain extent chance occurrences.

In examining these data, one should note the differences between methods used to compile the two species lists. The first surveys (1990-91) concentrated on land observations, while the second surveys (1999-2004) concentrated on water-borne observations. Hence some groups of terrestrial species such as tree shrews and babblers are under-represented in the second study in comparison to the first study. Therefore it is not surprising that while 49 mammalian species were sighted in the Sukau area during 1990-91, only 27 species were sighted during 1999-2004.

Banded Civet	<i>Hemigalus derbyanus</i>	+	
Short-tailed Mongoose	<i>Herpestes brachyurus</i>	+	
Collared Mongoose	<i>Herpestes semitorquatus</i>	+	
Marbled Cat	<i>Felis marmorata</i>	+	
Flat-headed Cat	<i>Felis planiceps</i>	+	+
Clouded Leopard	<i>Neofelis nebulosa</i>	+	+
Leopard Cat	<i>Felis bengalensis</i>	+	+
Asian Elephant	<i>Elephas maximus</i>	+	+
Sumatran Rhinoceros	<i>Dicerorhinus sumatrensis</i>	+**	
Bearded Pig	<i>Sus barbatus</i>	+	+
Lesser Mouse-Deer	<i>Tragulus javanicus</i>	+	+
Greater Mouse-Deer	<i>Tragulus napu</i>	+	
Sambar Deer	<i>Cervus unicolor</i>	+	calling(2001)
Banteng	<i>Bos javanicus</i>	+**	
Common Barking Deer	<i>Muntiacus muntjak</i>	+	
Irrawaddy Dolphin	<i>Orcaella brevirostris</i>		**

*Recorded at Abai but not at Sukau in 1990–1991.

**Tracks only seen.

***Actually seen in Sandakan Harbour.

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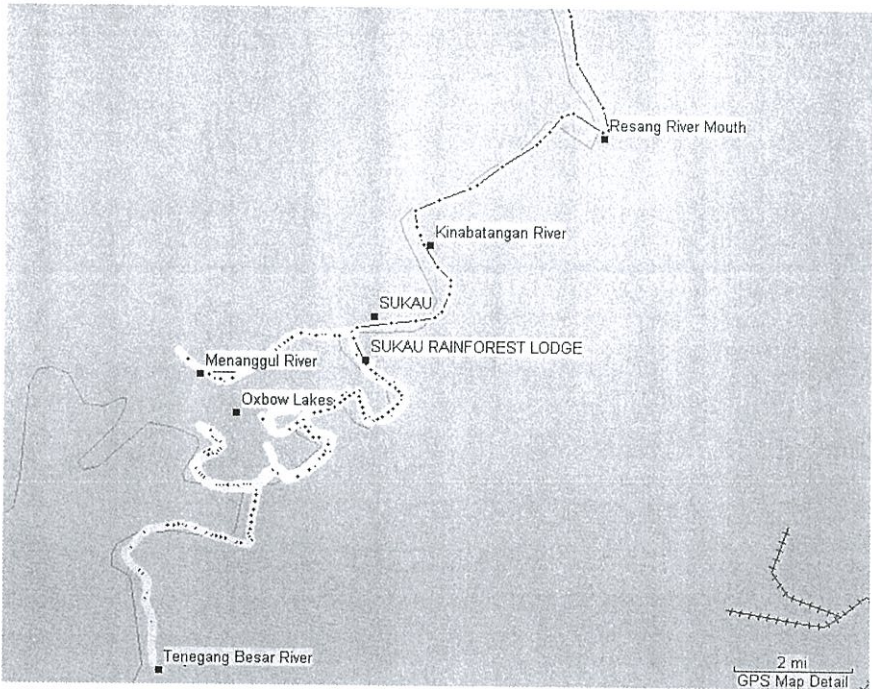


Fig. 1. Map of survey routes by boat along the lower Kinabatangan River and its tributaries.

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