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# On a collection of bats and rats from the Kangean Islands, Indonesia (Mammalia: Chiroptera and Rodentia)

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## Abstract

Studied and described is a recent collection of small mammals from the Kangean Islands. Ten bat species represent new records for the islands: *Rousettus amplexicaudatus*, *Nycteris javanica*, *Rhinolophus madurensis*, *Hipposideros bicolor*, *H. cervinus*, *H. canraceus*, *H. diadema*, *H. larvatus*, *H. macrobullatus* and *Myotis adersus*. The series of *Nycteris javanica* is described as a new subspecies, *N. j. bastani*. *Rhinolophus borneensis parvus* is considered a synonym of *Rh. madurensis*. *Hipposideros bicolor macrobullatus* is raised to specific rank. Two species of rats are recorded: *Rattus argentiventer* and *R. rattus diardii*.

## Introduction

In his recent survey of the literature on Indonesian mammals VAN DER ZON (1979) mentions the following Chiroptera from Kangean Island (Fig. 1): *Pteropus alecto aterrimus* Matschie, 1899; *Cynopterus brachyotis insularum* Andersen, 1910; *Macroglossus minimus murinus* (Geoffroy, 1810); *Macroglossus sobrinus* (Andersen, 1911); *Megaderma spasma trifolium* Geoffroy, 1810; *Pipistrellus imbricatus* (Horsfield, 1824); *Kerivoula hardwickii* (Horsfield, 1824).

According to Dr. N. J. VAN STRIEN (in verbis, 4-IX-1985) the following species should be added to this list: *Rhinolophus affinis affinis* Horsfield, 1823. In the course of an investigation of the alleged occurrence of a large cat species on Kangean Island, Ir. H. H. DE LONGH and Ir. B. E. VAN HELVOORT visited the island in June 1982; they also made a short stop on the small island of Saubi.

They used this opportunity to study and collect some of the smaller mammal species too. As their first evidence for the cat's presence was both promising and insufficient, VAN HELVOORT, working on Bali at the time, embarked on a second trip to Kangean in January 1984 upon receiving a message that a large cat had been caught and killed there. The cat appeared to represent *Panthera pardus* (L., 1758) and has been reported elsewhere (VAN HELVOORT et al. 1985). During this second trip, VAN HELVOORT again collected a number of small mammals, mainly Chiroptera, not only on Kangean but also on Sepanjang Island, the southeastern and second largest island of the Kangean archipelago (see Fig.).

Altogether 80 bats were collected, representing 13 species, ten of which apparently new records for the islands. The seven species collected on Sepanjang Island and the one from Saubi Island are the first bats ever reported from there. Apart from bats, ten rats were taken, representing two widespread species. The present paper contains a report on the taxonomy and zoogeography of the bats, and some notes on the rats and some other mammals which were observed on the islands. One old sample of bats from Kangean present in the Zoologisch Museum in Amsterdam but never reported before has also been included.

the largest of the group, measuring about 40 km from west to east and about 25 km from north to south. The greater part of central Kangean exists of a hilly ridge attaining a maximum height of 400 m, covered with forest and with many smaller and larger stalactitic caves. Despite the considerable human population – near 60,000 on Kangean and near 3,000 on the remaining islands including Saubi and Sepanjang – the caves apparently still harbour a rich and varied community of Microchiroptera and a population of *Rousettus amplexicaudatus*. They also serve as shelter for panthers (DE IONGH et al. 1982). On Sepanjang there would be only one additional cave, besides the two that were visited, according to local people (VAN HELVOORT, in lit., 6th Sept. 1985).

Of the earlier reported bat species from Kangean, several are also contained in the present collection by DE IONGH and VAN HELVOORT. Not collected were *Pteropus alecto*, *Macroglossus minimus* and *M. sobrinus*, *Pipistrellus imbricatus* and *Kerivoula hardwickii*. Only relatively little time could be devoted to the collecting of bats, there is no reason to assume that all species inhabiting any of the caves visited have been sampled. Nor is it at all likely that the species which were not collected would not occur on the islands any more, with the possible exception of *Pteropus alecto*. Flying foxes of the genus *Pteropus* are not only threatened by deforestation in many parts of Indonesia, they are also hunted locally for human consumption. On the nearby island of Bali, where they are eaten, they seem to have become very rare already and it is not unlikely that the Balinese people have also affected the Kangean *Pteropus* population (if the Kangean people themselves do not eat them, for which there is no prove). VAN HELVOORT and DE IONGH do not recall having seen *Pteropus* on Kangean, Saubi or Sepanjang, neither in the wild nor in captivity (VAN HELVOORT, in lit., 6th Sept. 1985). The only natural cause for their absence one could think of is some yearly migratory movement.

Geologically, the Kangean Islands form part of the Sunda shelf, and the apparent faunal relationships with Java and Madura offer no surprise. For bats, even today the islands between Madura and Kangean, such as Sapudi and Raas and some smaller ones, might act as stepping stones for wandering species. The supposed Sulawesi or even Moluccan affinities of some species is more spectacular; *Megaderma spasma* and *Hipposideros diadema* are represented by specimens with leanings towards Sulawesi rather than Balinese subspecies, and *Hipposideros macrobullatus*, originally described from Sulawesi, is not known from islands west of Sulawesi or Kangean. On the other hand, it should be kept in mind that it may still be found there.

*Hipposideros bicolor* offers an illustrative example: described in 1834 from specimens collected on West Java in 1820 or 1821, the species appears never to have been collected on that island again. Reports on some other bat species in the present paper also show that relatively little is known of their distribution and taxonomy over large parts of Southeast Asia, including Java, despite the many zoologists who have visited that island.

The two rat species are, according to MUSSEY and NEWCOMB (1983), most probably introduced to the islands on the Sunda Shelf, as they are mostly found near human habitations and in rice fields, grassland, scrub and plantations. The only observed mammal species are typical for the Sunda Shelf area, although it is known that Long-tailed Macaques, Common Palm Civets, Barking Deer and Rusa Deer are often transported from one island to another.

The occurrence of the Panther on Kangean is, however, an enigma, just as its occurrence on Java. This species is not found on Sumatra and Kalimantan (Borneo) and no fossil remains have been found either on the two islands. An explanation might be that this large species was brought to Java during the Middle Ages when there was a close cultural, commercial and religious contact between the people of Java and the inhabitants of India. It was the time that the Hindu/Buddhist religion came to Indonesia where it has been replaced, except on the Island of Bali, by Mohammedanism. It is known that large mammals were used for socio-religious reasons in former times.

On Java there were till the beginning of this century a kind of sacrificial festivities (called "rampok matjan"), whereby captive tigers and panthers were killed.

And it is also known that in the summer of 1839 the Rajah of Klungkung on Bali (at that time the island was still independent) requested the Dutch colonial authorities on Java to bring him a live Javan Rhinoceros, which happened. And as the Kangean Archipelago was formerly both a penal colony and a hunting area for the rulers of the Islands of Madura and Java, it is conceivable that Panthers were liberated on Kangean, where they found sufficient prey animals to stay alive till today.

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#### Zusammenfassung

##### Über eine Sammlung von Fledermäusen und Ratten von den Kangean-Inseln, Indonesien (Mammalia: Chiroptera und Rodentia)

Eine neue Sammlung kleiner Säugetiere von den Kangean-Inseln wird untersucht und beschrieben. Zehn Fledermausarten repräsentieren neue Nachweise für diese Inseln: *Rousettus amplexicaudatus*, *Nycteris javanica*, *Rhinolophus madurensis*, *Hipposideros bicolor*, *H. cervinus*, *H. cinereus*, *H. diadema*, *H. larvatus*, *H. macrobullatus* und *Myotis adversus*. Die Serie von *Nycteris javanica* wird als neue Subspezies *N. J. bastiani* beschrieben. *Rhinolophus borneensis parvus* wird als Synonym von *Rh. madurensis* angesehen. *Hipposideros bicolor macrobullatus* wird zur Species erhoben. Zwei Arten von Ratten werden nachgewiesen: *Rattus argentiventer* und *Rattus rattus diardii*.

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