

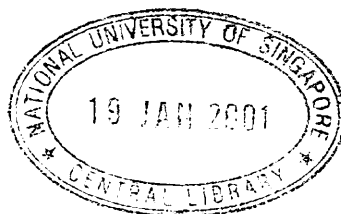
# MALIAU BASIN

## SCIENTIFIC EXPEDITION

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# MALIAU BASIN SCIENTIFIC EXPEDITION MAY 1996: MAMMAL SURVEY

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## ABSTRACT

A total of 480 trap-nights for small mammals were carried out in the heath forest of Maliau Basin from 14th–25th May, 1996. Eleven small mammals from four species were collected and *Maxomys whiteheadi* was the most abundant. No sighting of ungulates or hoofed animals in the heath forest. Tracks of wild pigs were recorded along the river within the dipterocarp forest.

## ABSTRAK

Sejumlah 480 'trap-night' telah dijalankan di hutan kerangas di Lembangan Maliau daripada 14 hingga 25 Mei 1996. Sebelas ekor mamalia kecil yang terdiri daripada empat spesies telah berjaya dikumpulkan. *Maxomys whiteheadi* adalah spesies yang mempunyai kelimpahan tertinggi. Tiada kesan haiwan ungulata di hutan kerangas. Kesan tapak kaki babi hutan dijumpai di sepanjang sungai di kawasan hutan kerangas.

## 1.0 INTRODUCTION

The Maliau Basin, also known as "The Lost World", is located within the Sabah Foundation forest concession in the Tawau district. The basin is elevated at more than 950 m a.s.l. The highest peak in the basin is Gunung Lutong lurking over 1900 m a.s.l. over the Inarad villages to the Northwest. The basin is covered with mosaics of vegetation,

such as hill dipterocarp forest, riverine forest, heath forest and moss-covered rock faces around the highest peak.

A scientific expedition was conducted between May 14–25, 1996 by the Sabah Foundation, Universiti Malaysia Sabah and several other Sabah government agencies. The objectives of the expedition were described in the expedition's booklet. Among others, they included attempts to further determine the diversity of flora and fauna in the basin. These were required for a conservation management plan for the unique habitat.

The first scientific expedition to the basin was carried out in 1988. Surveys were conducted mostly within the dipterocarp forest habitat, along the Maliau River. The mammal study then had established a 8-km line transect to census mammal populations. Trappings of small mammals were conducted in the dipterocarp forest near the Maliau River. Report of the previous expedition described the density of the mammal communities in the dipterocarp forest along the river.

The objectives of this survey were to determine the abundance and diversity of mammal species of the basin with special reference to the habitat in the heath forest (Whitmore 1984). There are three major areas of heath forest within the basin: the Southern heath forest, the Northeast heath forest and the Northern heath forest. This particular survey was conducted in the Southern heath forest. The area was about 4 km in length and about 3 km wide. The area stretched from the North and spread between Southeast and Southwest rim. To the North the Southern heath forest was abruptly replaced by a riverine forest dominated by commercial trees species of the Family Dipterocarpaceae. The river known to some of the expedition participants as Sungai Bahab disrupted the heath forest towards further Northwest.

## 2.0 MATERIALS AND METHODS

Forty-eight wire-mesh traps were flown into Maliau Basin for trapping small mammals. Bananas, known locally as *Pisang Sabah* and coconut flesh which were used as bait as they were preferred by most rodents (Stuebing & Gasis 1989). Besides trappings, general observations of signs which indicated the presence of other mammals were recorded while exploring the heath forest area.

### 2.1 TRAPPING

Twenty-eight traps were set on a 10 m × 10 m grid which continued to 140 m to the west of the Jalan Babi trail and twenty traps were laid in the Tibow trail. The traps were laid on the ground on animal trails, near crevices of roots or near thickets of *Nepenthes* plants. A total of 480 trap-nights were conducted. The traps were checked every day in the early morning to avoid any trapped animals being preyed upon by predators, or succumbing to the heat of the afternoon sun. The trapped animal were taken out of the trap into a cotton bag and taken back to the base camp to be measured, weighted and preserved as zoological specimens. The number of traps set in each localities are as shown in Table 1.

**Table 1.** Number of traps set at different location and number of trapping nights during the expedition (14th–25th May, 1996).

TRAPPING PERIOD	TRAP ARRANGEMENT	TOTAL NUMBER OF TRAP SET
May 14	20 traps along west Jalan Babi	48
	28 traps sets in montane heath forest	
May 15–20	20 traps along West Jalan Babi	240
	28 traps in montane heath forest	
May 21	20 traps along West of Jalan Babi	28
	28 traps moved to Fauna Traili	
May 22–25	20 traps along Jalan Babi	144
	20 traps along Fauna Trail	
<b>TOTAL</b>		<b>480 trap-nights</b>

## 2.2. GENERAL OBSERVATIONS

Signs of mammals such as spoors, orang-utan nests, direct sightings or calls of any animals were recorded. Areas explored were Adlin's Trail (from the Camel Trophy Field Station (CTFS) towards the Bahab Fall), Mempesona Fall, Dompok Fall (also known as Dahn's Fall) and Abel's Trail. These locations were located to the West end of the South heath forest of the Maliau Basin, except for Abel's Trail which was located to the Southeast rim.

## 3.0 RESULTS

### 3.1 SMALL MAMMALS TRAPPING

The trapping results are as shown in Table 2.

**Table 2.** Number and species of small mammals trapped between 15th–21st of May, 1996 in a heath forest habitat in Maliau Basin.

SPECIES	NO.	MEAN WEIGHT (G)	EST. DENSITY, IND/HA.
<i>Tupaia tana</i>	1	215	0.833
<i>Tupaia montana</i>	1	110	0.833
<i>Niviventer rapit</i>	3	66.33	2.5
<i>Maxomys whiteheadi</i>	6	49.33	5.0
<b>TOTAL</b>	<b>11</b>		

### 3.2 PRIMATES

There were two sightings of primate in the heath forest habitat. One group of red leaf monkey (*Presbystis rubicunda*) was seen along the Tibow trail (trail leading back to the road back to Tibow). Calls of Bornean gibbon (*Hylobates muelleri*) were heard from the far Southeast of the base camp for three mornings. Two old orang-utan nests were seen in

the riverine forest around Mempesona Fall; this area was located at the periphery of the heath forest habitat.

### 3.3 UNGULATES

Signs of wild pigs (*Sus barbatus*) were rare; four old nests were seen in various locations within the heath forest towards the Hammer Head Creek. There were several wild Mango trees (*Mangifera* sp.) (local name: *Bahab*) fruiting near the Dompok Fall. The ripe fallen fruits were not eaten by animals. Mouse deer (*Tragulid* sp.) tracks were seen in two locations along the unnamed stream of the Dompok Fall.

No tracks of Sumatran rhinoceros (*Dicerorhinus sumatrensis*) were seen in the heath forest area or elsewhere. In previous expedition at least one series of Sumatran rhinoceros hoof prints were seen along one of the creek to the Southeast of Jalan Babi. One series of sambar deer tracks (*Cervus unicolor*) were seen along a stream bank behind the Camel Trophy building. No Banteng (*Bos javanicus*) has ever been recorded in Maliau Basin.

## 4.0 DISCUSSIONS

The total number of rodents trapped during the 1988 expedition was six out of 251 trap-nights, with a total of three species. All the traps were set in dipterocarp forest habitat. In this survey, 11 rats were caught out of 480 trap-nights, comprised of four species. It appears that the trapping success from both expedition is almost equally the same. Putting aside all other factors such as bait, weather, locality and chances (Marsh 1989), the species diversity of small mammals in Maliau Basin is indeed low. Several factors could be related to these possibilities; climaxed community, lack of food sources or heavy predation by predators such as snakes, owls and other carnivores. The highest density of Whitehead's rat was noteworthy, as this species also thrives very well in tree plantations (Stuebing & Gasis 1989) but not in other crops. The insectivorous larger treeshrew, *Tupaia tana* (Fig. 1, left) was undoubtedly to be expected in that habitat, which has a high population of insects, evident from the enormous trapping success by the entomology team in this expedition. The diurnal treeshrew feed mostly on moths, crickets, arthropods or occasionally fallen fruits (Payne *et al.* 1985).

The lack of sightings of other larger mammals was expected. Wild pigs have not wandered into the heath forest for quite a long time. This was evident from the absence of new tracks or mud wallows in the area. The nests were old and far apart. The month of May is not the time of year when there are many fruiting trees, especially in the heath forest where key fruiting trees such as figs, are scarce. Most of the wild pig tracks were seen along river beds, where the animals probably dig for worms or tubers in the wet ground. Food sources seemed very low for pigs at that time. It was also reported elsewhere that the wild pigs which frequented the common animal route, popularly known as Jalan Babi, were not resident but a wave of migratory groups from Inarad to the west of the basin moving to Kuamut, located to the far Northeast of the basin, especially during fruiting season.

Tracks of larger herbivores such as Sumatran rhinoceros and Banteng were not seen in the

heath forest as most likely these animals may not wander into this type of habitat. In 1994, it was noticed that there were tracks of elephant which were seemingly stranded on a steep slope near the 1988 Expedition camp site. The elephants seemed to have stayed in the area for several days before they decided to track back to the ridges toward the Kuala Maliau further downstream. It was not certain where the elephants ascended into the basin, as most of the escarpment were too steep, even for humans. Further exploration to look for the elephant's routes would be useful to locate the access used by the elephant to enter the basin. The routes could be useful for future easier access into the basin.



Martubat Jamian

Fig. 1. *Tupaia tana* (left) and *Tupaia montana* (right), caught in the Maliau heath forest.

## 5.0 SUMMARY

The objectives of this survey were to determine the abundance and density of mammals in the heath forest habitat of the Maliau Basin. Survey plots were established in the heath forest in the Southern sector of the basin. A total of 480 trap-nights' trapping was conducted to trap small mammals, and five man-days of general wildlife observations (especially for mammals) were made.

Six species of rodents were collected. Whitehead's rat was dominant in term of biomass and individuals, relative to all the other species. The rats captured in the heath forest habitat were mostly insectivores, feeding mostly on insects as their preferred diet.

There was no sighting of ungulates or hoofed animals in the heath forest. Tracks of wild pigs were mostly found along river edges and closer to the dipterocarp forest further to the Northwest. There was no sighting of larger herbivores such as elephant, Sumatran rhinoceros, Banteng and Sambar deer.

Based on this brief survey, the diversity of mammals species in the heath forest is low compared to tree plantations (Stuebing & Gasis 1989), riverine forest, and hill dipterocarp forest in the Maliau Basin (Marsh 1989). This is no surprise as the resources in the heath forest is naturally poor (Whitmore 1984).

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