

Bat survey in Alto Peak area, Leyte, Philippines

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ABSTRACT

A 40 net nights bat survey in Alto Peak, Leyte, Philippines yielded 52 specimens representing eight species. Habitat requirements of these species are discussed.

Keywords: *Bats, community structure, conservation, Philippines*

INTRODUCTION

In the course of the assessment of biodiversity in Leyte, Philippines a bat survey was conducted in Alto Peak area for five nights, July 4 to 9, 1994.

STUDY AREA

The study site is situated approximately 18 kilometers northeast of Ormoc in Leyte. The area was developed by the Philippine National Oil Company which uses geothermal energy for electricity production. It comprises a mosaic of pristine forest, secondary forest, grasslands and kaingins.

The netting site is situated in undisturbed forest in a hill slope about 620 to 700 m above sea level. The vegetation can be characterized as "Lower Montane Dipterocarp Forest" (Balzer, pers.

comm.). The canopy height is about 18 to 21 m with single trees reaching more than 30 m. The ground is densely covered mainly by ferns. The layer of leaf litter exceeds 0.3 m in thickness. Mosses on tree trunks are moderately common. Epiphytes especially ferns and orchids, and semi-epiphytes especially *Freycinetia* and *Bambusa* are abundant. Tree ferns (*Cyathea*) occur in more open situations. *Ficus* are scarce (1 fruiting tree per 500 m transect).

MATERIALS AND METHODS

Bats were caught using mist nets set across flyways in heights from 0.5 to 3 m. Six nets were set and regularly controlled until midnight and again at dawn. Two nets which were established in very inaccessible sites were only controlled at dawn. Captured animals were weighed and their forearm, tail, ear, foot and fingers were meas-

ured. Sex and age were also determined. For species identification, the key of Ingle and Heaney (1992) was used. The bats were released the following evening.

Droppings of bats were collected by placing a plastic sheet below each net. Flowers of possibly bat pollinated plants were collected for later identification of food sources of fruit bats.

RESULTS AND DISCUSSION

Forty net nights (number of nights x number of nets) yielded 52 specimens representing eight species (see Table 1 for frequency of single species). Fifty fruit bats (*Megachiroptera*) and two microbats (*Megaderma spasma* and *Harpiocephalus harpia*) were caught. The low capture rate of microbats may be because they are more efficient in avoiding mist nets, due to their echolocation orientation.

Table 1. Frequencies of bat species in the Alto Peak area.

Bat Species	Frequency
<i>Ptenochirus minor</i>	26
<i>Haplonycteris fischeri</i>	11
<i>Cynopterus brachyotis</i>	7
<i>Macroglossus minimus</i>	3
<i>Rousettus amplexicaudatus</i>	2
<i>Ptenochirus jagori</i>	1
<i>Megaderma spasma</i>	1
<i>Harpiocephalus harpia</i>	1

The two most abundant species, *Ptenochirus minor* and *Haplonycteris fischeri* are restricted to virgin forest. The latter species is listed as "vulnerable" by the IUCN/SSC Chiroptera Specialist Group (Mickleburgh et al., 1992). Its number has possibly declined sharply due to habitat destruction all over its range in the Philippines (Mickleburgh et al., 1992). *Ptenochirus minor* apparently can persist in good secondary forests in the vicinity of virgin forests only in reduced numbers in Leyte (Widmann, in print).



Portrait of *Harpiocephalus harpia*.

Cynopterus brachyotis, *Macroglossus minimus* and *Rousettus amplexicaudatus* are most abundant in cultivated areas and are not endangered yet (Utzurum, 1992).

Ptenochirus jagori occurs in all types of forests and also in cultivated areas but in reduced numbers (Mickleburgh et al., 1992).

Megaderma spasma is common in both primary and secondary forests (Widmann, unpubl. data).

The biology of *Harpiocephalus harpia* in the Philippines is poorly known. This specimen was the fourth recorded for the Philippines and the second one for Leyte (Rickart et al., 1993). It seems to be confined to primary forest.

No *Harpionycteris whiteheadi* was taken during the survey. This fruit bat is restricted to undisturbed forests. Heaney et al. (1989) caught it once during 10 net nights on average. One individual of this species was observed once at an altitude of about 650 m.

ACKNOWLEDGEMENTS

The author wishes to thank the Philippine National Oil Company, especially Mr. Aconcilliada for permission to work in their area and their support.

He is also indebted to Dr. Paciencia P. Milan and Dr. Josef Margraf of the ViSCA-GTZ Ecol-

ogy Program for facilitating our stay in their quick and efficient manner and to Messrs. Peter Balzer, Rolito Dumalag, Peter Schütz and Josefo Tuyor for their assistance and company especially during rainy and foggy nights.

This survey is part of a work financed by the Flanking Program of Tropical Ecology of the German Agency for Technical Cooperation.

BIBLIOGRAPHY

HEANEY, L.R., P.D. HEIDEMAN, E.A. RICKART, R.B. UTZURRUM, J. KLOMPEN (1989)

Elevational zonation of mammals in the central Philippines. *J. Trop. Ecol.* 5: 259-280.

INGLE, N.R., L.R. HEANEY (1992)

A key to the bats of the Philippine Islands. *Fieldiana: Zoology*, n.s., 69: 1-44.

MICKLEBURGH, S.P., A.M. HUTSON, P.A. RACEY (1992)

Old world fruit bats - An action plan for their conservation. IUCN, Gland, Switzerland 252 pp.

RICKART, E.A., L.R. HEANEY, P.D. HEIDEMAN, R.C.B. UTZURRUM (1993)

The distribution and ecology of mammals on Leyte, Biliran and Maripipi Islands, Philippines. *Fieldiana: Zoology*, n.s., 72: 1-62.

UTZURRUM, R.C.B. (1992)

Conservation status of Philippine fruit bats (Pteropodidae). *Siliman Journal* 36(1): 27-45

WIDMANN, P. (in print)

Fruit bats (Chiroptera, Pteropodidae) in seminatural forest systems in Leyte, Philippines.