

## CHAPTER THREE

### BATS

#### 3.1 The bat fauna of south central Seram

In a region where the vertebrate fauna is notoriously depauperate, and mammal fauna more depauperate than that of most classes, bats (with birds) represent something of an exception. This is largely due to their diffusion not being subject to the same geographical constraints as other groups.

Prior to 1969, 19 certain species of *CHIROPTERA* were known from Seram. There were also three probables: *Rousettus amplexicaudatus* (the rousette or dog bat), *Nyctimene minutus* (a tube nosed bat) and *Rhinolophus keyensis* (a horseshoe bat). Ten of these were observed and collected during fieldwork in the Nuaulu area between 1970 and 1975, including a specimen of *Rhinolophus keyensis* - probably of the subspecies *truncatus*. The collection also included specimens of *Emballonura nigrescens nigrescens*, previously only recorded in the Central Moluccas from Ambon and Buru. The specimens of *Macroglossus minimus* from Seram have been attributed to the subspecies *lagochilus*.

The difference between the number of species collected and those known zoologically from the entire island may be accounted for by relative geographical distribution, particularly differences between the highlands and the coast. A checklist of bats reported from south central Seram is presented in table 4. Species identifications compared with Nuaulu categories applied to actual specimens are set out in table 5.

#### 3.2 Nuaulu categories applied to bats

##### 3.2.1 nota sapane

**Sapane** is also the term elicited for the tree *Trema* sp. prob. *cannabina*, widely associated by the Nuaulu with secondary regrowth in swiddens. All specimens of *Pteropus melanopogon melanopogon* were given this name. This large tree-living fruit bat is extremely common. On the basis of evidence from one informant (Sorita), the term is also employed to refer to fruit bats in general, of which two kinds are distinguished: **nota sapane** in its specific sense (i.e. *P. melanopogon melanopogon*) and **nota maka paluwe**.

TABLE 4 Checklist of bats (CHIROPTERA) recorded in the Nuauulu region of south central Seram.

Species	Ecological Zones				Nuauulu glosses
	1	2	3	4	
<b>MEGACHIROPTERA</b>					
Pteropodidae					
Pteropodinae - flying foxes					
<i>Pteropus melanopogon melanopogon</i> bare-backed fruit bats	?	+	+	?	nota sapane
<i>Dobsonia viridis viridis</i>	?	+	+	?	
<i>Dobsonia moluccensis moluccensis</i>	?	+	+	+	nota hatu nohue nota maka paluwe
Macroglossinae - long tongued fruit bats					
<i>Macroglossus minimus</i>	+	+	+	-	nota muni munte, nota kiniku putie
<i>Syconycteris crassa major</i>	?	+	+	-	nota muni munte, nota kiniku putie
Nyctimeninae - tube nosed bats					
<i>Nyctimene</i> sp.	?	+	+	-	nota muni munte, nota kiniku putie
<b>MICROCHIROPTERA</b>					
Emballonuridae					
Emballonurinae - sheath-tailed bats					
<i>Emballonura nigrescens nigrescens</i>	?	+	+	-	notane
<i>Emballonura raffrayana</i> <i>stresemanni</i>	?	+	+	-	nota mana waute,  nota muni munte, nota kiniku putie, nota maka paluwe
Rhinolophidae					

Rhinolophinae - horseshoe bats

*Rhinolophus keyensis* (?) *truncatus* ? + + -

Hipposiderinae - leaf nosed bats

*Hipposideros ater saevus* ? + + - **nota muni munte,**  
**nota kiniku putie,**  
**nota hatu nohue**

Notes: : Key: Zone 1 = above 1000 metres, principally montane rain forest; Zone 2 = tropical lowland rain forest; Zone 3 = secondary forest, garden and village areas; Zone 4 = freshwater and swamp forest.

3.2.2 **nota maka paluwe (baluwe, paloi)**

As large as **nota sapane**, but white band with rufous tinge round back of neck to head; brown head, blackish body. This term was consistently applied to specimens of *Dobsonia moluccensis moluccensis*. Large numbers of this bat are visible in the extensive sago swamp forests towards the mouth of the river Ruatan. The Nuaulu associate large flocks of this species on the wing with heavy rain. In the evening clouds of them can sometimes be seen swarming from these swamplands to feed in the fruit-rich forests to the north.

3.2.3 **nota hata nohue**

**Hata nohue**, meaning 'cavernous rock outcrop', 'cave', indicates the habitat of this bat. It is found particularly in the extensive limestone caverns of the Lahati area. All informants regarded **nota hatu nohue** as smaller than **nota sapane**, and indeed the overwhelming number of specimens described in this way were *Emballonura raffrayana stresemanni*. However, nine specimens of *Dobsonia moluccensis moluccensis*, three of *Dobsonia viridis viridis* and two of *Hipposideros ater* were also given this term. In view of this diversity of content, and since other terms were also applied to all of these species, I am inclined to treat **nota hatu nohue** as a generic term for all cave-dwelling bats. On the other hand, it is clear that in some contexts it may contrast with terms applied to the same species. For example, informants might remark, with reference to a specimen of *Emballonura raffrayana stresemanni*, that it was not **nota muni munte** but **nota hatu nohue**. Thus, although it may apply to a number of species which are also described in other ways, I feel that it must be considered to indicate a valid terminal category.

Table 5 Species identifications compared with Nuaulu categories applied to 81 bat specimens

Species	Nuaulu categories										Number of specimens		
	nota sapane	nota hatu nohue	nota maka paluwe	nota suite	nota waru anae	nota mana waule	nota muni munte	nota kiniku putie	notane	Unknown		Informant responses	No responses available
<i>Pteropus melanopogon melanopogon</i>	3	-	-	-	-	-	-	-	-	-	3	-	1
<i>Dobsonia viridis viridis</i>	-	3	-	-	-	-	-	-	-	-	3	-	1
<i>Dobsonia moluccensis moluccensis</i>	-	9	4	-	-	-	-	-	-	-	13	4	9
<i>Macroglossus minimus</i>	-	-	-	5	4	-	5	16	-	1	31	-	14
<i>Synconycteris crassa major</i>	-	-	-	-	-	-	6	6	-	3	15	-	3
<i>Nyctimene sp.</i>	-	-	-	-	-	-	1	3	-	-	4	-	1
<i>Emballonura nigrescens nigrescens</i>	-	-	-	-	-	-	-	-	9	-	9	-	9
<i>Emballonura raffrayana stresemanni</i>	-	108	-	-	-	7	54	54	-	-	223	-	34
<i>Rhinolophus keyensis (?) truncatus</i>	-	-	-	-	-	-	-	-	-	-	-	1	1
<i>Hipposideros ater</i>	-	12	-	-	-	-	36	16	-	-	64	-	8
Totals	3	132	4	5	4	7	102	95	9	4	365	5	81

### 3.2.4 nota suite

This term, perhaps an allusion to the bird of the same name (Chapter 4.2.51), was consistently applied to specimens of *Macroglossus minimus*, to which three other terms were also applied.

### 3.2.5 nota wanu anae

**Wanu anae** seems to mean 'younger brother's son' or perhaps more generally 'brother's child' (**wanim panui**) or 'sister's child' (**wanim hotam**); **waniku** = 'my younger brother'. **Wanunui** is the title of an **ahinae**, a form of chant which accompanies the **kahuae** circle dance. This term was consistently applied to specimens of *Macroglossus minimus*, to which three other terms were also applied.

### 3.2.6 nota mana waute

The term for this bat is possibly an allusion to a beard (**manapesi**) as a distinguishing feature. The term was consistently applied to *Emballonura raffrayana stresemanni*, to which three other terms were also applied. The possible reference to a beard is odd. *E. r. stresemanni* does not possess one, although *Tophozous melanopogon* does. This latter species is known from Savu and Sumbawa, but not Seram.

### 3.2.7 nota muni munte

This term for a small cave bat was applied to *Macroglossus minimus*, *Syconycteris crassa major*, *Nyctimene* sp., *Emballonura raffrayana stresemanni* and *Hipposideros ater*. One informant was emphatic in its identification with *Nyctimene* (emphasizing its tube nose) (Sorita Matoke). Konane Nepane-tomoien described it as having long ears with a 'horseshoe' shape over the nose, although Sorita stressed that the male (identified as *Nyctimene*) did not have long ears, although the female did. In this he agreed with the opinion of Sekanima Nepane-tomoien.

### 3.2.8 nota kiniku putie

Literally, the 'white sago palm bark bat'. This was said by Naupati Matoke to be common, occurring singly rather than in groups. It has a white head, is of medium size and forest-dwelling. According to Naupati it is difficult to catch. The term was applied to specimens of *Macroglossus minimus*, *Syconycteris crassa major*, *Nyctimene* sp. and *Emballonura raffrayana stresemanni*.



### 3.2.9 kupapa

Term elicited by Bolton; unrecorded by Ellen. Possibly a synonym motivated by gender or clan linked prohibitions.

### 3.5 Social uses of bats

There are no totemic or other prohibitions on eating bat meat which I have been able to discover. In the course of the four-month dietary survey conducted in 1970 approximately 75 grams of bat meat were consumed per adult head. Although this was only 0.5 percent of the total weight of animal protein consumed, it rated seventh in importance in terms of all food from terrestrial sources. All bats will be eaten if available; even the small specimens caught in mist nets by Menzies and myself were accepted. However, on the whole, only larger bats will be actively hunted. *Dobsonia moluccensis moluccensis* ( **nota maka paluwe** ) are a main source of food for men working sago palms in the swamp forests of the Ruatan-Nua confluence, where they are shot with a bow-and-arrow. *Pteropus melanopogon melanopogon* ( **nota sapane** ) is hunted in the same way in forest nearer the village, where it may occasionally damage cultivated trees.

*Dobsonia*, and perhaps also other species, are hunted in lofty limestone caves in the Lahati and Lihuru areas, and possibly elsewhere. The bats are located and disturbed using noise and firebrands of dried coconut fronds which have to be brought to the caves from garden areas. Makeshift ladders are erected and strong branches used to reach otherwise inaccessible recesses in the cave wall and roof. Throwing-sticks and bow-and-arrows are used to immobilize the bats, although arrows quickly become blunted when used in this way. Cave floors are littered with the charred remains of torches and sticks, and are also covered in deep deposits of accumulated bat dung in which are embedded the shells of thousands of terrestrial molluscs.

Apart from food, the only use recorded for bats is in the making of smoking-pipes ( **suparko** ) from the hollow long bones of the larger fruit bats [Ellen 1993: plate 1.6f].

### 3.6 Variation in the identification and classification of bats

The only species unambiguously and consistently linked to Nuaulu categories are *Pteropus melanopogon* ( **nota sapane** ) and *Dobsonia viridis* ( **nota hatu nohue** ). One species, *Emballonura nigrescens* was identified only as **notane**. *Dobsonia moluccensis moluccensis* was identified as both **nota hatu nohue** and **nota maka paluwe**, and it seems that **nota hatu nohue** is used generically to cover a number of species found in caves (see section 3.2.3, above). In view of this I assume the conflicting identifications

to be based on habitat associations, and suspect that specimens of *D. viridis viridis* not found in caves would be identified as **nota maka paluwe**.

Of the remainder, there are five terms and six species. Of these, **nota suite**, **nota wanu anae** and **nota waute** appear to have a one-to-one correspondence with phylogenetic species, though Rosemary Bolton has suggested that the terms **nota wanu anae**, **nota waute** and **nota kiniku putie** might sometimes be used synonymously.

The two terms employed most frequently are **nota muni munte** and **nota kiniku putie**. This suggests that these are -in general- the most widely known and used terms. This is supported by their more frequent appearance in lists of the total numbers of terms elicited from individuals. Given that they seem to be employed virtually interchangeably for at least five species, neither seems to be indissolubly linked with definite criteria of distinction. However, since they are frequently contrasted, they cannot be treated as synonyms. The species and sub-species most frequently identified as either **nota muni munte** or **nota kiniku putie** are *Emballonura raffrayana stresemanni* and *Hipposideros ater*, and on crude statistical grounds it is possible that **nota kiniku putie** is focally the first and **nota muni munte** focally the second.

No terminal term was elicited for *Rhinolophus keyensis* (?) *truncatus*.

A taxonomic representation seems particularly unsuitable for Nuaulu classification of bats. The main contrasts are between fruit bats and residual categories, and between cave bats and residual categories; although fruit bats and cave bats may overlap inasmuch as specimens of *Dobsonia* (identified as **nota hatu nohue**) were obtained from caves in the Lahati area. The remaining bat species are generally assigned either to the category **nota kiniku putie** or **nota muni munte**. As we have seen, there is some evidence for the focality of these categories, but while some individuals may assert firm identities between specimens and named categories, some of the terms appear to be used as relatively 'loose labels'.