

STUDIES ON THE TAXONOMY AND GEOGRAPHICAL
DISTRIBUTION OF THE SPECIES OF BATS
OBTAINED BY THE SILENT VALLEY
(KERALA, INDIA) EXPEDITION, 1980.

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(With one text-figure)

INTRODUCTION

The Silent Valley Expedition of 1980, conducted by a team of zoologists of the Zoological Survey of India, Calcutta, headed by Dr. S. K. Bhattacharyya, Deputy Director, could obtain a small collection of mammals, chiefly bats. This collection contains 40 examples of bats belonging to three families, five genera and six species, one quill of the Indian Crested Porcupine, *Hystrix indica indica* Kerr, 1792, and one example of juvenile House Rat, *Rattus rattus* (Linnaeus, 1758) which could not be identified beyond the specific level, with certainty. In the following pages a brief account only of the bats has been given.

The specimens of bats could be procured only from two localities of the Silent Valley, Palghat district, Kerala, viz., Base Camp, 24 km. NW of Mukkali, and Baliaparathodu, 34 km. NW of Mukkali.

All the bats were collected with the help of nylon mist nets which were set up in the afternoon and the bats were recovered usually in the next morning. The fruit bats and the Rhinolophids were collected from the forests, mostly from those situated on the bank of a small river. All the specimens, except otherwise stated, are preserved in alcohol.

Only recent changes (after the publication of Ellerman and Morrison-Scott 1951) in synonymies have been included. All measurements are in millimetres. The figures in the parentheses, followed

by the range of measurements, indicate arithmetic means (for more than two specimens). Citations for earlier locality records for a species have been given only when such localities have been omitted from the geographical distribution of the species, both in the reports on the various collections of mammals obtained by the Bombay Natural History Society's Mammal Survey of India, Burma and Ceylon, and by Ellerman and Morrison-Scott (1951).

SYSTEMATIC ACCOUNT
Order CHIROPTERA
Suborder MEGACHIROPTERA
Family PTEROPODIDAE
Subfamily PTEROPODINAE

1 *Rousettus leschenaulti leschenaulti* (Desmarest, 1820)

Indian Fulvous Fruit Bat

Pteropus leschenaultii Desmarest, 1820. Encyclop. Method, Mamm, 1 : 110 (Environs de Pondichery = environments of Pondicherry, India).

Pteropus seminudus Kelaart, 1850. J. Ceylon Brch R. Asiat. Soc., 2 : 201 (*nomen nudum*).

Pteropus seminudus Kelaart, 1850. J. Ceylon Brch R. Asiat. Soc., 2 : 216 (Mount Laviana, Ceylon = Sri Lanka).

Xantharpyia seminuda Gray, 1870. Cat. Monkeys, Lemurs, & Fruit-eating Bats, Brit. Mus. : 115 (Ceylon = Sri Lanka).

Material : 2 ♂, 1 subad. ♂, 5 ♀, 8 subad. ♀ ; Baliaparathodu ; 23, 28, 29 Jan 1980.

Measurements :

External—

2 ♂ : Forearm 82.3, 82.6; tail 11.2, 20.3; ear 17.8, 18.4; tibia 36.3, 39.5 ; foot and claw 19.2, 21.6.

5 ♀ : Forearm 77.6—82.7 (80.4) ; tail 14.0 18.9 (16.6); ear 17.7 19.3 (18.5) ; tibia 35.0—36.6 (35.8) ; foot and claw 16.2—19.7 (18.2).

Cranial—

2 ♂ : Total length 37.6, 38.7 ; condylobasal length 35.4, 37.5 ; upper tooth-row (front of canine to back of last molar) 13.8, 15.5 ; cranial width 15.6, 15.7 ; zygomatic width 22.9, 23.0 ; canine width 7.2, 7.5 ; molar width 10.7, 11.3 ; mandibular length 27.9, 28.9.

- 5 ♀ : Total length 36.4—37.6 (37.0); condylobasal length 34.7—36.0 (35.4); upper tooth-row 13.7—14.5 (14.0); cranial width 14.7—15.5 (15.0); zygomatic width 20.7—23.0 (21.9); canine width 6.8—7.3 (7.0); molar width 10.5—11.3 (10.8); mandibular length 27.1—28.5 (27.6).

Remarks : It would not be quite out of place to discuss how the genus *Rousettus* is represented in the Indian Union and the distributional range of *Rousettus leschenaulti leschenaulti* (Desmarest). As per Ellerman and Morrison-Scott (1951), Prakash (1963), Agrawal and Sinha (1973) and Agrawal and Bhattacharyya (1977), though *Rousettus l. leschenaulti* is the only form of *Rousettus* which occurs in many parts of the Indian Union, two species of this genus also occur within the Indian limits, one near the western boundary and the other near the eastern border.

According to Prakash (1963), '..... *Rousettus arabicus* is Saharo-Rajasthani in distribution. *A. [sic] arabicus*, an Arabian species, finds suitable habitat in the Indian desert' However, all serious attempts to locate any previously collected material of this species from India as also attempts to collect fresh material from the locality specifically suggested by Dr. I. Prakash (personal communication, 4 Aug 1981), have miserably failed. Further, Sinha (1980) in his comprehensive study on the bats of Rajasthan, did not mention this species. It can, therefore, be stated with fair amount of certainty that Prakash's (*op. cit.*) conclusion is based merely on theoretical conjecture. *Rousettus arabicus* Anderson and de Winton, 1902, which is now called *Rousettus aegyptiacus arabicus* Anderson and de Winton (Eisentraut 1960), is known to undertake much local movements. It is also known to occur in southern Pakistan, east up to west of the Indus river (Roberts 1977). There is, therefore, every likelihood of its being obtained in the arid areas of Rajasthan and Gujarat. Till then, *Rousettus aegyptiacus arabicus* should be excluded from the Indian list.

Agrawal and Sinha (1973) have identified their single specimen from Tripura as *Rousettus amplexicaudatus amplexicaudatus* (E. Geoffroy, 1810) on comparison with material from Moulmein, Burma, present in the National Zoological collection of India (N.Z.C.I.) Calcutta, housed in the Zoological Survey of India (Z.S.I.), Calcutta, and labelled as *Rousettus amplexicaudatus*, with which their specimen

is similar in the structure of the baculum. Agrawal and Bhattacharyya (1977) consider the same specimen as *Rousettus amplexicaudatus* and observe that their specimen resembles *Rousettus leschenaulti* in the size of the third lower molar but resembles *R. amplexicaudatus* in the width of the ear and in the structure of the baculum. In a revisionary study, Rookmaaker and Bergmans (1931), who have also examined the specimen from Tripura mentioned above, have shown that the westernmost and northernmost limits of *Rousettus amplexicaudatus* are Tagoot, Tenasserim, southern Burma (*ex* Hill and Thonglongya 1972) and Thailand respectively, and the Tripura material is to be referred to *Rousettus l. leschenaulti*.

It would, therefore, stand that within the Indian Union the only *Rousettus* found is *R. l. leschenaulti* (Desmarest), which again is reported from the following different regions of this area :—Jammu and Kashmir (Chakraborty 1983), Uttar Pradesh, Sikkim (Ghose and Ghosal 1984), Assam (Blyth 1844), Arunachal Pradesh (Rookmaaker and Bergmans 1981), Tripura (Rookmaaker and Bergmans *op. cit.*), West Bengal, Bihar (Dobson 1876), Orissa (Das and Agrawal 1973), Andhra Pradesh and Tamil Nadu (Jerdon 1874), Kerala, Karnataka, Goa (Agrawal 1973), Maharashtra, Madhya Pradesh (Khajuria 1979) and Rajasthan. The fruit bats obtained from the Siju Cave, Garo Hills (Meghalaya) were reported as *Cynopterus sphinx gangeticus* Andersen, 1910, by Kemp (1924) on the basis of identification provided by H. C. Robinson of the Federated Malay States Museum. These specimens were later regarded as *Cynopterus sphinx sphinx* (Vahl, 1797) by Kurup (1968). But they are not at all *Cynopterus*, and excepting one example, are, in fact, *Rousettus l. leschenaulti*. These, therefore, confirm the occurrence of *Rousettus l. leschenaulti* in Meghalaya. Incidentally, N.Z.C.I. has specimens of this bat from all the localities mentioned here, besides those from others.

Sinha (1969), while synonymising *Rousettus seminudus* with *Rousettus leschenaulti*, follows Andersen (1912) who dates the former species from Gray's (1870) *Xantharpyia seminuda*. Andersen (*op. cit.*) states, 'The name *Xantharpyia seminuda* is commonly assigned to Kelaart, but Kelaart seems never to have published any description of the species; ' This, of course, is not correct. The name *Pteropus seminudus* appears for the first time on page 201 of the second volume of the journal cited before, but is not accompanied by any description, as Kelaart (1850*a*), the author, simply gives a list of

mammals of Sri Lanka. On page 216 of the same volume, under a separate article, however, this name appears again wherein the author (Kelaart 1850*b*) gives the description and mentions various measurements as well as the type-locality of his new species. This species should, therefore, be dated from this last-named source, as have been done by Ellerman and Morrison-Scott (1951), and not from Gray's (1870) *Xantharpyia seminuda*.

The known range of distribution of *Rousettus leschenaulti leschenaulti* (Desmarest) is, therefore, Pakistan (Mirza 1965); India (where it is widely distributed, details as above); Sri Lanka (Sinha *op. cit.*); Nepal; Bhutan (Chakraborty 1975); Burma; southern China including Xizang (=Tibet, Cai and Zhang 1980); Hong Kong; Vietnam, Laos (Phillips 1967), possibly Kampuchea (=Cambodia, Rookmaaker and Bergmans 1981) and Thailand.

2. *Cynopterus brachyotis ceylonensis* Gray, 1870

Lesser Shortnosed Fruit Bat

Cynopterus marginatus var. *ceylonensis* Gray, 1870. Cat. Monkeys, Lemurs, & Fruit-eating Bats, Brit. Mus. : 122 (Ceylon = Sri Lanka).

Material : 2 ♂, 1 ♀ ; Base Camp ; 17 Jan 1980. 5 ♂, 1 subad. ♂, 4 ♀, 2 subad. ♀ ; Baliaparathodu ; 23, 29 Jan 1980.

Measurements :

External—

7 ♂ Forearm 63.7—66.0 (64.8) ; tail 12.2—14.3 (13.9) ; ear 15.2—17.0 (16.0) ; tibia 20.8—25.2 (23.7) ; foot and claw 13.7—15.2 (14.6).

5 ♀ : Forearm 64.6—67.6 (65.5) ; tail 12.7—14.9 (14.0) ; ear 15.5—18.7 (16.9) ; tibia 22.2—24.4 (23.4) ; foot and claw 14.3—15.0 (14.7).

Cranial—

7 ♂ : Total length 30.5—31.5 (30.9) ; condylobasal length 29.0—30.0 (29.6) ; upper tooth-row 10.2—10.9 (10.5) ; cranial width 12.2—13.3 (12.7) ; zygomatic width 19.6—20.6 (20.0) ; canine width 6.5—7.6 (6.9) ; molar width 9.1—9.8 (9.4) ; mandibular length 22.0—23.0 (22.5).

3 ♀ : Total length 29.2—30.9 (30.4) ; condylobasal length 28.0—29.7 (28.8) ; upper tooth-row 9.5—

10.4 (10.0) ; cranial width 12.2—12.8 (12.6) ; zygomatic width 19.1—20.3 (19.8) ; canine width 6.1—6.4 (6.3) ; molar width 8.6—9.2 (8.9) ; mandibular length 20.9—22.5 (22.0).

Remarks Till recently, *Cynopterus brachyotis ceylonensis* Gray was known only from Sri Lanka. Agrawal (1973) recorded it from Goa on the west coast of the Indian mainland. The present specimens, obtained for the first time from Kerala, indicate that this subspecies might possibly occur all along the western part of India, north at least to Goa.

Family RHINOLOPHIDAE

3. *Rhinolophus rouxi rouxi* Temminck, 1835 Rufous Horseshoe Bat

Rhinolophus rouxi Temminck, 1835. Monogr. Mamm., 2 : 30b (Pondicherry and Calcutta, India).

Rhinolophus Petersii Dobson, 1872, *J. Asiat. Soc. Beng.*, 41, pt. 2 : 337 (Some part of India, precise locality not known).

Material : 4 ♀ ; Base Camp ; 17 Jan 1980.

Measurements :

External—

4 ♀ Forearm 49.3—51.5 (50.3) ; tail 22.3—27.6 (25.6) ; ear 16.0—18.6 (16.9) ; tibia 20.6—22.4 (21.3) ; foot and claw 9.7—10.5 (10.0).

Cranial—

4 ♀ : Total length 21.2—22.1 (21.7) ; condylocanine length 18.1—19.0 (18.6) ; upper tooth-row 8.1—8.5 (8.3) ; cranial width 8.8—9.1 (9.0) ; zygomatic width 11.0—11.4 (11.2) ; postorbital width 2.6—2.7 (2.6) ; canine width 5.2—5.6 (5.4) ; molar width 8.2—8.4 (8.2) ; mandibular length 14.0—14.4 (14.2) ; lower tooth-row 8.4—8.8 (8.7).

Remarks : Sinha (1973), after examining the two syntypes of *Rhinolophus petersi* Dobson, present in the N.Z.C.I., Calcutta, has synonymised that taxon with *Rhinolophus rouxi rouxi* Temminck, 1835.

So far as the Indian Union is concerned, *Rhinolophus rouxi* is known from Kerala (Jerdon 1874), Tamil Nadu, Pondicherry, Karnataka, Goa (Agrawal 1973), Maharashtra, Andhra Pradesh

(Sinha 1973), Orissa (Das and Agrawal 1973), Uttar Pradesh, West Bengal, and Arunachal Pradesh (Lal 1983). The N.Z.C.I., Calcutta, has specimens from these areas excepting Pondicherry. This species is hereby reported for the first time from Madhya Pradesh (unreported specimen from Bastar district, Madhya Pradesh, present in the N.Z.C.I., Calcutta), and from Himachal Pradesh (two unreported specimens from Solan, Solan district, Himachal Pradesh, present in the N.Z.C.I., Solan, housed in the High Altitude Zoology Field Station, Z.S.I., Solan, Himachal Pradesh). Incidentally, there is also an example of this species from the Ajodhya Hills, Puruliya district, West Bengal, just on the border of Bihar, in the N.Z.C.I., Calcutta. Brosset's (1962a) statement that '...the Decan, Gujarat, Madhya Pradesh, and all regions of the dry and continental central part of India seem out of the range of the distribution of *Rhinolophus rouxi*' is, therefore, not fully borne out.

Ellerman and Morrison-Scott (1951) consider the Indian population of *Rhinolophus rouxi* as belonging to the nominate subspecies, while the Chinese population, according to them, belongs to the only other subspecies, *Rhinolophus rouxi sinicus* Andersen, 1905. Topal (1975), mainly on the basis of the structure of the baculum, prefers to call his specimens from northern Vietnam as *Rhinolophus sinicus*. But the differences in the structure and measurements of the bacula of his specimens from those of the Indian material, also studied by him, can very well come within the range of individual variation. Even he himself has no explanation for the slight differences in the bacula of the two populations of his northern Vietnamese material. Topal's (*op. cit.*) specimens should, therefore, better be referred to *Rhinolophus rouxi* Temminck, at the moment. Again, Lal (1983) reports a specimen from Subansiri district of Arunachal Pradesh, India, as *Rhinolophus rouxi sinicus* Andersen. Further, the same author has reported a specimen of *Rhinolophus rouxi rouxi* Temminck from Toungoo, central Burma (Lal 1981).

Studies on further specimens, especially on those from the mountainous regions of northern India and Nepal, and from southern China, Burma and northern Vietnam are needed to delimitate precisely the limits (both taxonomic and geographical) of the two subspecies of *Rhinolophus rouxi* Temminck.

The distributional range of the species *Rhinolophus rouxi*, therefore, stands as Sri Lanka, peninsular India (where it is fairly widely distributed, details as above) north to Solan in Himachal Pradesh, east to Uttar Pradesh, Nepal, Arunachal Pradesh and southern China (Hupeh, Fujian (=Fukien), Sichuan (=Szechuan). Yunan (=Yunnan) and Chekiang) and Hong Kong (Romer 1966); also central Burma and northern Vietnam.

4. *Rhinolophus lepidus lepidus* Blyth, 1844

Blyth's Horseshoe Bat

Rhinolophus lepidus Blyth, 1844. *J. Asiat. Soc. Beng.*, 13: 486 (Vicinity of Calcutta, West Bengal, India).

Material: 1 ♂, 2 ♀; Baliaparathodu; 23, 24 Jan 1980.

Measurements:

External—

1 ♂: Forearm 40.0; tail 17.8; ear 15.0; tibia 14.9; foot and claw 7.4.

2 ♀: Forearm 39.5, 40.6; tail 17.5, 20.3; ear 15.5, 17.5; tibia 13.3, 15.0; foot and claw 7.5, 7.5

Cranial—

2 ♀: Total length 16.5, 16.6; condylocanine length 14.2, 14.2; upper tooth-row 6.0, 6.1; cranial width 6.6, 7.2; postorbital width 2.2, 2.4; canine width 3.6, 3.9; molar width 5.5, 6.2.

Remarks: In recent years, there have been much discussions regarding the limits of the species *Rhinolophus lepidus* Blyth, 1844, and the recognition of its various subspecies. Ellerman and Morrison-Scott (1951) consider that this species consists of two subspecies, the nominate subspecies in India and *Rhinolophus lepidus shortridgei* Andersen, 1918 (type locality: Pagan, Burma), in Burma and southern China. These authors also consider *Rhinolophus monticola* Andersen, 1905 (type-locality: Mussoorie, Dehra Dun district, Uttar Pradesh, India), and *Rhinolophus feae* Andersen, 1907* (type-locality Biapo, Karen Hills, Burma), as distinct species and, with some doubt, place them under the *lepidus* subgroup. Aellen (1959) places *Rh.*

*Though Ellerman and Morrison-Scott (1951), Sinha (1973) and Hill and Yoshiyuki (1980) give 1905 as the date of publication of *Rhinolophus feae* Andersen, but on the title page of the concerned volume of the journal in which the description appears for the first time and which is present in the library of the Zoological Survey of India, the date is printed as 1907.

monticola as a subspecies of *Rh. lepidus*, though he thinks that the former can as well be a synonym of the nominate subspecies of the latter. Gaisler (1971), on the basis of a brief examination of the type of *monticola*, is inclined to believe that the same represents a good subspecies. Sinha (1973) in his review of the Indian forms of the genus *Rhinolophus*, considers both *Rh. monticola* and *Rh. feae* as distinct species. Hill and Yoshiyuki (1980) consider *Rhinolophus monticola*, *Rhinolophus rufulgens* Andersen, 1905 (type-locality : Perak, Malay Peninsula, Malaysia), *Rhinolophus feae*, *Rhinolophus rufulgens cuneatus* Andersen, 1918 (typ-locality : Dali, northern Sumatra = Sumatera), and *Rhinolophus lepidus shortridgei* as conspecific with *Rhinolophus lepidus* and recognise the following subspecies under it :—

(1) *Rhinolophus lepidus moticola* Andersen, 1905, (2) *Rh. l. lepidus* Blyth, 1844, (3) *Rh. l. shortridgei* Andersen, 1818, (4) *Rh. l. feae* Andersen, 1907, (5) *Rh. l. rufulgens* Andersen, 1905, and (6) *Rh. l. cuneatus* Andersen, 1918.

Again, Lal (in press) considers *Rhinolophus monticola* as a synonym of *Rhinolophus l. lepidus* and *Rhinolophus feae* as a subspecies of *Rhinolophus lepidus*. Under the circumstances, Hill and Yoshiyuki's (*op. cit.*) conception regarding the specific limits of *Rhinolophus lepidus* Blyth, 1844, appears to be most convincing.

Hill and Yoshiyuki (1980) include only the northern part of India within the distributional range of *Rhinolophus lepidus*. But this species, so far as the Indian Union is concerned, is known from Kumaon in Uttar Pradesh, Delhi (Brosset 1962a), Rajasthan (Prakash 1956), Madhya Pradesh, Maharashtra, Karnataka, Kerala (Blanford 1891), Orissa (Das and Agrawal 1973), Bihar, West Bengal and Meghalaya. The N.Z.C.I., Calcutta, has specimens from all these places except Uttar Pradesh and Delhi. This species is reported here for the first time from Tamil Nadu and Andhra Pradesh based on unreported specimens present in the same collection from Salem district of Tamil Nadu (Mammal Survey Collection) and Vishakhapatnam district of Andhra Pradesh. The distributional range of *Rhinolophus lepidus*, as understood above, therefore, stands as follows :—

Afghanistan (Aellen 1959), Nepal (Mitchell 1980), India (where it is widely distributed, details as above), east to southern China

(Sichuan and possibly Yunan), south through Burma, peninsular Thailand, Malay Peninsula and adjoining islands, and Sumatera (=Sumatra).

The controversy regarding the status of *Rhinolophus monticola* Andersen, 1905, can be settled only after studying good series from Afghanistan, India and Nepal when the southeasternmost limits of *Rh. l. monticola*, if found valid as a subspecies, are precisely determined.

Following Blyth (1844), who says regarding the type-specimens, 'The specimen (in spirits) and an injured skin of apparently the same species, were both probably obtained in the vicinity of Calcutta.', there exists some element of doubt regarding the type-locality of *Rhinolophus lepidus* Blyth. Since this species is very common around Calcutta—vicinity of Calcutta (not simply Calcutta, as some authors give) should be accepted as the type-locality of *Rhinolophus lepidus* Blyth.

Family VESPERTILIONIDAE

Subfamily VESPERTILIONINAE

5. *Myotis peshwa* (Thomas, 1915)

Peshwa's Bat

(Text-figure 1)

Leucone peshwa Thomas, 1915. *J. Bombay nat. Hist. Soc.*, 23 : 610 (Poona, Bombay =Pune district, Maharashtra, India).

Material : 1 ♀ ; Baliaparathodu ; 28 Jan 1980.

Additional material : 1 ♂ (study skin and skull) ; Molem, Goa ; 18 Feb 1980 (collected by G. Topal and preserved in the Hungarian Natural History Museum, Budapest).

Measurements :

External—

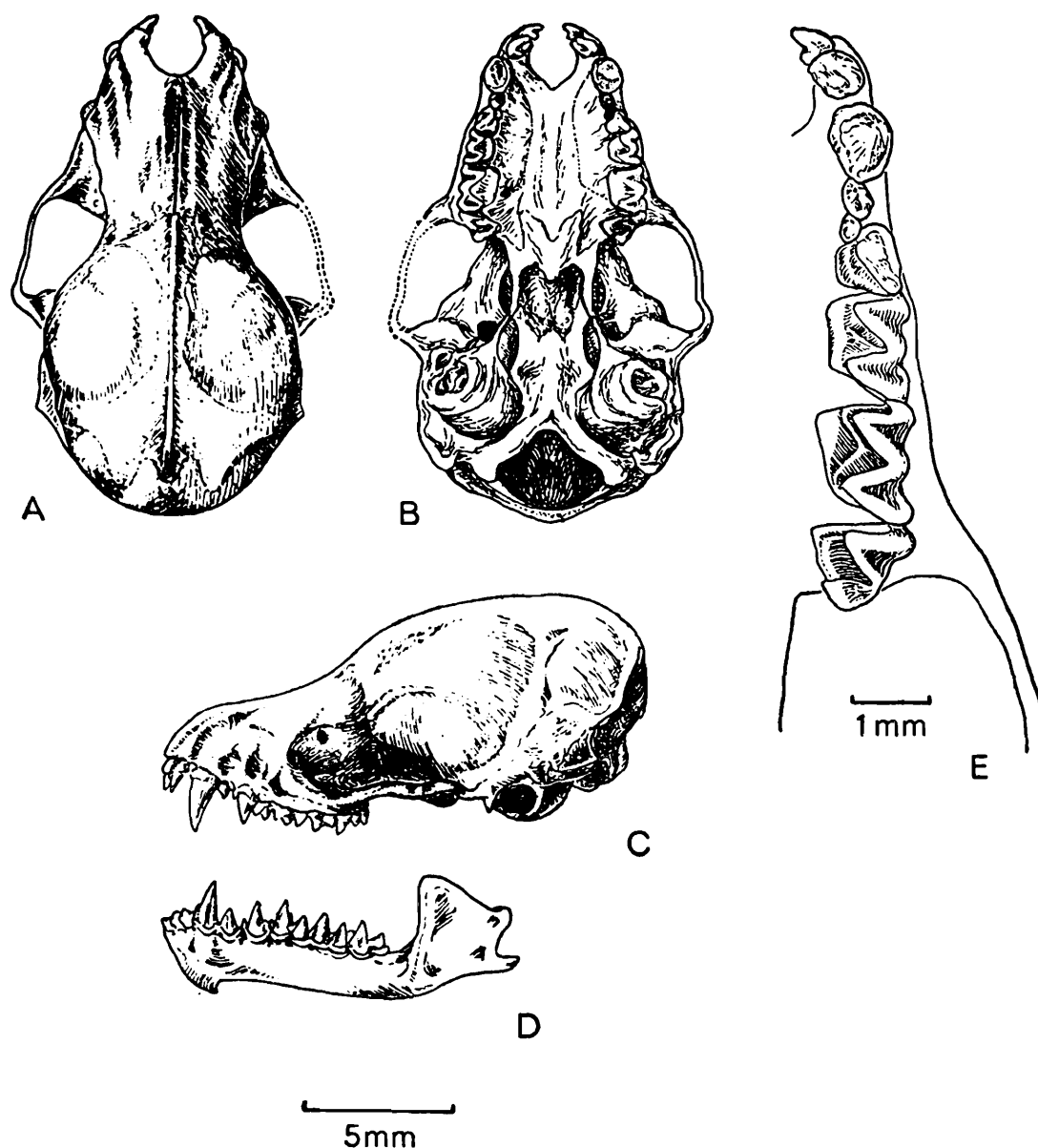
1 ♂, 1 ♀ : Forearm 38.7, 38.0 ; tail 38.9, 42.5 ; ear 15.6, 14.0 ; tragus 7.4, 6.5 ; tibia 17.0, 16.4 ; foot and claw 10.3, 10.0.

Cranial—

1 ♂, ♀ : Total length 15.9, 15.9 ; condylobasal length 14.5, 14.4 ; condylocanine length 13.7, 13.4 ; upper tooth-row 5.6, 5.8 ; cranial width 7.8, 7.5 ; zygomatic width 9.9, — ; mastoid width 8.0, 8.0 ;

postorbital width 3.7, 3.7 ; width across anterior orbital foramina 4.1, 4.0 ; canine width 4.3, 4.0 ; molar width 5.8, 6.0 ; mandibular length —, 10.7 ; length of right ramus of mandible 11.5, 10.6 ; lower tooth-row 6.1, 6.5.

Field notes : The male specimen was caught near water, at about 19.10 hours. It was entangled in the net at a height of about 1.2 metres from the ground. The female specimen was netted



Text-figure 1. Skull of *Myotis peshwa* (Thomas) from the Silent Valley, Kerala, India : A. dorsal view, B. ventral view, C. lateral view, D. lateral view of lower jaw, E. left upper tooth-row

near the edge of a hill-stream flowing through the forest. It was caught at about 19.15 hours when the twilight was fading and darkness coming in.

Remarks : The male specimen is slightly lighter than the female one.

Ellerman and Morrison-Scott (1951) place, with some doubt, *Leucone peshwa* Thomas, 1915, as a subspecies of *Myotis adversus* (Horsfield, 1824). Brosset (1962*b*) questions the suitability of such an arrangement and considers *Myotis peshwa* (Thomas) as a distinct species. Hill (1977) has concluded that *Myotis peshwa* is a species more closely related to *Myotis horsfieldi* (Temminck, 1840) than to *Myotis hasseltii* (Temminck, 1840) or to *Myotis adversus*.

Myotis peshwa (Thomas), one of the rarest Indian bats, has so far been reported only from Sabalgarh, Morena district, Madhya Pradesh (Hill 1977); Jabalpur district, Madhya Pradesh (Khajuria 1979); near Satara, Satara district, Maharashtra (Hill *op. cit.*); Elephanta Island, off Bombay, Maharashtra (Brosset 1962*b*); Pune, Pune district, Maharashtra (Thomas 1915) and Kodai, Kumrun, near Mangalore, Dakshina Kannada (=South Kanara) district, Karnataka (Hill *op. cit.*). Brosset (*op. cit.*) includes Thana (=Thane), Maharashtra, in the list of localities of this species, on the basis of Wroughton (? year). But I cannot trace this specimen. Khajuria (1980) mentions this species from Mandla district, Madhya Pradesh, on the basis of Hill (*op. cit.*), but the latter author never mentions any such specimen. The present specimens record *Myotis peshwa* for the first time from Goa and Kerala. The Kerala specimen extends the range of distribution of this species further southwards.

Subfamily MURININAE

6. *Harpiocephalus harpia lasyurus* (Hodgson, 1847)

Hairywinged Bat

Noctulinia lasyura Hodgson, 1847, *J. Asiat. Soc. Beng.*, 16 : 896 (Central Hills, sub-Himalayas = Darjiling, Darjiling district, West Bengal, India, according to Wroughton 1918).

Harpiocephalus harpia madrassius Thomas, 1923. *J. Bombay nat. Hist. Soc.*, 29 : 28 (Perumal, Palni Hills, South India = Perumal, Palni Hills, Madurai district, Tamil Nadu, India).

Material : 1 ♂ (study skin and skull); Baliaparathodu; 23 Jan 1980.

Measurements :

External—

1 ♂ : Forearm 44.7; tail 40.0; ear 15.7; tragus 10.6; tibia 20.5; foot and claw 11.4.

Cranial—

- 1 ♂ Total length 21.5 ; condylobasal length 19.0 ; condylocanine length 18.4 ; palatal length 8.8 ; upper tooth-row 6.7 ; cranial width 9.5 ; zygomatic width 13.1 ; postorbital width 5.5 ; canine width 6.1 ; molar width 7.2.

Field notes : The present specimen was caught at about 20.00 hours, near a pool of water in a clearing in the valley, either side of which was covered with tall trees.

Remarks Das (1986) has synonymised *Harpiocephalus harpia madrassius* Thomas, 1923, with *Harpiocephalus harpia lasyurus* (Hodgson, 1847). This species has also been reported from Sabah, northern Borneo (Medway 1965).

SUMMARY

A collection of bats consisting of six species, namely, *Rousettus leschenaulti leschenaulti* (Desmarest), *Cynopterus brachyotis ceylonensis* Gray, *Rhinolophus rouxi rouxi* Temminck, *Rhinolophus lepidus lepidus* Blyth, *Myotis peshwa* (Thomas) and *Harpiocephalus harpia lasyurus* (Hodgson), from the Silent Valley, Palghat district, Kerala, India, is reported. It has been concluded that the genus *Rousettus* is represented in the Indian Union by *Rousettus leschenaulti leschenaulti* whose geographical distribution has been discussed. Taxonomy of *Rhinolophus rouxi*, *Rhinolophus lepidus* and *Myotis peshwa* has been reviewed. For the first time, *Rousettus l. leschenaulti* is authentically recorded from Meghalaya ; *Cynopterus brachyotis ceylonensis* from Kerala ; *Rhinolophus r. rouxi* from Himachal Pradesh and Madhya Pradesh ; *Rhinolophus l. lepidus* from Andhra Pradesh and Tamil Nadu, and *Myotis peshwa* from Goa and Kerala. The skull of *Myotis peshwa* is figured.

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