Rec. zool. Surv. India, **89**(1-4) : 35-41, 1991.

DISTRIBUTIONAL AND BREEDING RECORDS OF SOME SPECIES OF MAMMALS FROM WEST BENGAL

V C. AGRAWAL, S. CHAKRABORTY, R. K. GHOSE,
AJOY KUMAR MANDAL, T K. CHAKRABORTY, A. K. PODDAR,
J. P. LAL & M. K. GHOSH

Zoological Survey of India,
Calcutta

INTRODUCTION

In connection with the preparation of a document on the fauna of West Bengal, a programme of district-wise survey of the State was undertaken by the Zoological Survey of India in the year 1984. Since then, surveys were conducted in different districts of West Bengal, and a large number of mammal specimens were collected, along with their ecological data. During the course of identification of the material, it was observed that a number of species were yet unrecorded from this State and the distributional range of a few was noted to be more extensive than known through extant literature. A few of these species were subsequently recorded by some of the present authors (Mandal and Ghosh 1980, Mandal and Dey Sarkar 1984, Mandal 1986, Agrawal and Bhattacharyya 1987). Since the finalisation of detailed faunal account of mammals of West Bengal will take some more time, it was thought worthwhile to publish the remaining new distributional records hereunder. Many of the species of mammals collected from Koch Behar in April, 1986 were in breeding phases. Those breeding data have also been incorporated here.

All measurements are given in millimetres.

Following abbreviations have been used in the text

apf	=Length of palatal foraman
bl	=Length of bulla
cb	=Condylobasal length
c—c	=Canine width
c—m	=Maxillary tooth row
cr	=Cranial rostrum
cw	=Cranial width
d	=Diastema
E	=Ear
F & Cl	=Foot and Claw
Fa	=Forearm

H & B =Head and Body
Hf =Hindfoot
iw =Interorbital width
I =Greatest length of the skull
m =Length of lower first molar
m—m =Molar width
mtr =Length of upper molar tooth row
ml =Mandibular length
mw =Maxillary width
n =Length of nasal
on =Occipitonasal length
pl =Palatal lenth
po =Post orbital width
pm^4 =Length of upper fourth premolar
Tb =Tibia
Tl =Tail
Tr =Tragus
zw =Zygomatic width

SYSTEMATIC ACCOUNT

Order INSECTIVORA

Family SORICIDAE

Crocidura (pachyura) stoliczkana Anderson,

Suncus stoliczkanus (Anderson)

1877. *J. Asiat. Soc. Beng.*, **46** : 270 (Bombay, Maharashtra, India).

Material examined : 1 ♂ , 1 ♀ ; Raniband, Bankura district ; 10 & 11. i. 1985 ; coll. V. C. Agrawal.

Measurements : External : 1 ♂ , 1 ♀ : *H & B* 59, 75 ; *Tl* 45, 54 ; *Hf* 12, 14 ; *E* 10, 10. Cranial : 1 ♂ , 1 ♀ : *on* 17.5 18.5 ; *cb* 19.2, 20.4 ; *cw* 8.3, 10.5 ; *pl* 8.8. 9.6 ; *m*—m 5.5, *c—m* 8, 8.9 ; *ml* 10.4, 12.1

Remarks : As per extant literature (Anderson 1881, Blanford 1888, Lindsay 1929, Ellerman & Morrison-Scott 1951, Roberts 1977, Honacki *35 al.*, 1982) this species occurs in Pakistan, India (Punjab, Rajasthan, Gujarat, Maharashtra and Madhya Pradesh), Nepal and Bangladesh. The present specimens, however, constitute the first record of this species from West Bengal as also fill the lacuna to some extent in its distribution between India and Bangladesh.

Order CHIROPTERA

Family PTEROPODIDAE

Macroglossus minimum sobrinus Andersen

Macroglossus minimus sobrimus Andersen, 1911, *Ann. Mag. nat. Hist.*, 7 : 642. (Gunong Igari, Perak, Malayasia).

Material examined : 1 ♂, 1 ♀ ; Atiamochor, *c* 12 km. S.E. of Alipur Duar, Koch Behar district ; 3.iv. 1986 ; coll. S. Chakraborty.

Measurements : External : 1 ♂, 1 ♀ : *Fa* 37.7, 40 ; *E* 15, 15 ; *Tb* 17, 18 ; *F & Cl* 12, 13.3. Cranial : 1 ♂, 1 ♀ : *l* 30.3, 30.5 ; *cb* 26.6, 27.5 ; *Cr* 11.9, 11.6 ; *cw* 12.2, 11.7 ; *zw* 15.5, 15.3.

Remarks : This species, as per extant literature (Dobson 1876, Anderson 1881, Blanford 1891, Andersen 1912, Tate 1942, Ellerman & Morrison-Scott 1951, Hill and Thonglongya 1972, Lekagul and McNeely 1977), occurs in India (Darjeeling), Burma, Thailand, Indonesia, Malayasia and north Australia. However, its Indian range was based on a single young specimen collected from Darjeeling by F. Stoliczka. The specimen was donated by him to the Indian Museum in the year 1871, and subsequently recorded by Dobson (1876) and Anderson (1881). The same was finally incorporated in the National Zoological Collections of India. It is a dry skin (skull *in situ*) of a young specimen. The specimen was examined, but extraction and study of skull was not possible due to fragile condition of the skin. The present pair of specimens, however, constitute the second record of the species from India after the lapse of more than a century. Here, it is worthwhile to mention that recently Lekagul and McNeely (1977) regarded *sobrinus* as a distinct species.

Both the present specimens were netted at about 22.00 hours from the compound of Atiamochor Forest Rest House, located at the fringe of a secondary *Sal* forest.

Both testes of the male specimen were moderately enlarged ; female had two foetuses in an advanced stage of development, measuring 22.3 and 23 mm. in vertex-coccyx length.

Cynopterus sphinx sphinx (Vahl)

1797. *Vespertilio sphinx* Vahl., *Skr. Nat. Selsk Conpenhaqen,* 4, 1 : 123. (Transquebar, Tanjavur district, Tamil Nadu, India).

Material examined : 2 ♂, 8 ♀ ; Atiamochor, *c* 12 km. S.E. of Alipur Duar, Koch Behar district ; 3 & 5. iv. 1986 ; coll. S. Chakraborty. 1 ♂, 2 ♀ ; Sitalkhuchi, Koch Behar district ; 10. iv. 1986 ; coll. S. Chakraborty.

Measurements : External : 3 ♀ : *Fa* 65.5-69.8(67.4) ; *E* 15.3-18 (17.8). 10 ♀ ; *Fa* 61.8-71.5(65.7) ; *E* 15.1-21.5(17.1). Cranial : 2 : *l* 32.0, 32.3 ; *cb* 30.4, 31.0 ; *cw* 13.3, 13.4 ; m^3-m^3 9.6, 10.0 ; c^1-c^1 6.5, 7.0 ; *c*-m^3 10.1, 10.5 ; *zw* 19.9, 20.3 ; *ml* 24.2, 20.5.

Remarks : All the females were pregnant, each carrying one foetus. Foetuses were found to be in various stages of development, measuring 30-36 mm (mean 33.8 mm) in vertex-coccyx length. Testes in all the males were very prominent.

In the collected sample, ratio of female to male is very high (3 : 1).

Family MEGADERMATIDAE

Megaderma lyra lyra Geoffroy

1810. *Megadermalyra Geoffroy, Ann. Mus. Hist. nat., Paris,* **15** : 190 (India).

Material examined : 3 ♂, 6 ♀ ; Atiamochor, *c* 12 km. S.E. of Alipur Duar, Koch

Behar district ; 2 & 3, iv. 1986 ; coll. S. Chakraborty. 1 ♀ ; Mathabhanga, Koch Behar district ; 17.iv. 1986 ; coll. S. Chakraborty.

Measurements : External : 3 ♂ : Fa 64-65.5 (64.6) ; E 34.5-35.5 (34.9) ; Tb 33.7-34.0 (33.8) ; F & Cl 17.8-19.2 (18.6) ; tr 12.3-13.5 (12.4). 7 ♀ : Fa 65-69.3 (66.9) ; E 32.2-37.4 (34) ; Tb 32.9-34.7 (33.3) ; F & Cl 17.2-19.6 (18.2) ; Tr 13.0-17.4 (15.2). Cranial : 1 : *l* 27.6 ; *cw* 12.2 ; *zw* 16.5 ; *m*—*m* 10 ; *c*—*m* 11.2 ; *ml* 20.2. 1 ♀ : *l* 27.7 ; *c2w* 12.4 ; *zw* 16.8 ; *m*—*m* 10.1 ; *c*—*m* 11.1 ; *ml* 20.0.

Remarks : The specimen at Mathabhanga was netted at night, whereas the specimens from Atiamochor were bagged from a deserted room during the day time.

All the seven females were pregnant, each carrying one foetus. Except one, all the foetuses were in advanced stage of development, measuring 32-33 mm. (mena 35.4 mm.) in vertex-cocoyx length. Testes were well developed in all the male specimens.

In the collected sample, ratio of female to male is high (2 : 1).

Family VESPERTILIONIDAE

Scotophilus heathi heathi (Horsfield)

1831. *Nycticejus heathii* Horsfield, *Proc. zool. Soc. Lond.*, 113 (Madras, Tamil Nadu, India).

Material examined : 1 ♂, 6 ♀ ; Sitalkhuchi, Koch Behar district ; 9. iv. 1986 : coll. S. Chakraborty 1 ♂, 1 ♀ ; Mathabhanga, Koch Behar district ; 17 & 18. iv. 1986 ; coll. S. Chakraborty.

Measurements : External : 7 ♀ : *Fa* 56.4-59.8 (58.1) ; *E* 12.9-14.4 (13.2) ; *Tb* 21.3-25.0 (23.1) ; *tr* 6.7-7.4 (6.9) ; *F & Cl* 9.7-11.3 (10.3).2 ♂ : *Fa* 56.1, 59 ; *E* 12.3, 13.2 ; *Tb* 23.0, 23.8 ; *Tr* 6.5, 7.3 ; *F & Cl* 10, 11.2. Cranial : 2 ♀ : *l* 22.1, 22.2 ; *c*—m^3 7.7, 8.2; *c*—c^1 7.4, 7.6 ; *cw* 10.3, 10.7 ; *zw* 15.7, — ; *ml* 15.7, 16.3.1 ♂ : *l* 22.4 ; *c*—m^3 7.3 ; c^1—c^1 7.6 ; *cw* 11.4 ; *zw* 16.0 ; *ml* 15.2.

Remarks : The bats were observed roosting on trees and in the false ceiling of a house. These were collected with the help of a mist net.

All the females were pregnant, carrying foetuses in various stages of development. However, out of seven females, two had single foetus and the rest two each. Vertex-coccyx length varied from 21 to 24 mm. (mean 22.8). Both the males had well developed testes.

The ratio of female and male in the collected sample is. 3.5 : 1.

Order CARNIVORA

Family VIVERRIDAE

Herpestes edwardsi nyula (Hodgson)

1836, *Mangusta (Herpestes) nyula* Hodgson, *J. Asiat. Soc. Beng.*, 5 : 236 (Nepal, Lowlands).

Material examined : 1 ♀ ; Mathabhanga, Koch Behar district ; 18. iv. 1986 ; coll. S. Chakraborty.

Measurements : External : 1 ♀ ; *H & B* 340 ; *Tl* 342 ; *Hf* 69 ; *E* 15. Cranial : 1 ♀ : *l* 72.7 ; *cb* 71. 4 ; *iw* 13.3 ; *po* 11. 2 ; *zw* 38 ; *pm* 6.4 ; m_1 6.3 ; *mw* 13.7 ; *ml* 50.0.

Remarks : The mongoose had two foetuses in its uterus in an advanced stage of development, measuring 112 and 115 mm. The dorsum of the foetus was covered with fine pale brown hairs but venter was almost naked.

Order RODENTIA

Family MURIDAE

Nesokia indica indica (Gray)

1932, *Arvicola indica* Gray , 111. *Indian Zool.*, 1, pl. 11 (India).

Material examined : 2 ♂ ♂ ; Plassey, Nadia district ; 21. x. 1987 ; coll. S. Chakraborty.

Measurements : External : 2 ♂ : *H & B* 145, 177 ; *Tl* 84, 98 ; *Hf* 30, 31 ; *E* 20, 19. Cranial : 2 ♂ : *on* 37.6, 39.8 ; *cb* 38.6, 40.2 ; *n* 11.7, 12 ; *pl* 24.5, 25 ; *mtr* 6.9, 7.2 ; *apf* 4.5, 5 ; *bl* 7, 8.5 ; *zw* 25.6, 26.3 ; *d* 14.9, 14.9.

Remarks : This species was reported from Punjab, Rajasthan, Haryana, Delhi and Uttar Pradesh in India (Blanford 1891, Ellerman & Morrison-Scott 1951, Ellerman 1961, Biswas & Tiwari 1969, Roberts 1977, Honacki *et al.* 1982). Recently, it has been reported from Nepal (Agrawal and Chakraborty 1971), Bihar (Sinha 1981) and Kushtia and Jessore in Bangladesh (Brooks 1987). Hence, the present report from Nadia district not only constitutes its first record from West Bengal but also makes its distribution continuous, practically throughout northern India including Nepal and Bangladesh.

Both the specimens were collected by digging the burrows located on '*bunds*' adjacent to a sugarcane field on the bank of the river Ganga. A litter of six was found in one of the burrows.

DISCUSSION

Many of the species of mammals especially bats collected from Koch Behar in early April were pregnant. The foetuses were in advance stages of development. It shows that March and April (premonsoon period) are the breeding months of these mammals in northern West Bengal. Another feature to be marked is the uneven sex ratio of all the breeding bats collected, with the females outnumbering the males. Such a phenomenon has been reported in most of the Indian bats so far studied (Gopalkrishna and Madhavan 1970, Gopalkrishna *et al.* 1985, Madhavan 1971) except in *Taphozous melanopogon* and *Hipposideros lankadiva* (Abdulali 1949). Evidently, there is a preferential mortality of the males during the growth period and this is probably an adaptation to increase the potential reproductive population of the species (Gopalkrishna and Sakpal 1987).

On the basis of the past distributional records of *Nesokia indica* this species was understood to be mainly an inhabitant of arid region. Asia Minor, Egypt to Pakistan, Turkmenia, Uzbekistan, Tadzhikistan (USSR) and India Punjab, Haryana,

Rajasthan and Delhi in India. Now, it appears that it has established itself in relatively humid areas too, similar to another arid species, namely *Tatera indica (vide* Wroughton 1915, Parrack 1966, Mandal and Dey Sarkar. 1984).

SUMMARY

In this paper *Suncus stoliczkanus* (Anderson) and *Nesokia indica indica* (Gray) have been recorded for the first time from West Bengal. Further, the occurrence of *Macroglossus minimus sobrinus* Andersen in West Bengal is authenticated with the collection of two adult specimens from Koch Behar district. This paper also incorporates breeding data on four species of mammals, namely, *Cynopterus sphinx sphinx* (Vahl), *Megaderma lyra lyra* Geoffroy, *Scotophilus heathi heathi* (Horsfield) and *Herpestes edwardsi nyula* (Hodgson).

ACKNOWLEDGMENTS

Authors are thankful to the Director, Zoological Survey of India, for providing facilities of survey work. We are also thankful to Dr. A. K. Ghosh, Scientist 'SF' for his encouragement. Thanks are also due to Shri P. K. Das, Scientist 'SE' for his constructive suggestions.

REFERENCES

Abdulali, H. 1949 Sex ratio in Indian bats. *J. Bombay nat. Hist. Soc.*, **43** : 423-428.

Agrawal, V C. & Bhattacharyya, T P. 1987. New mammal records from West Bengal. *Bull zool. Surv. India*, **8** : 221-223.

Agrawal, V C. & Chakraborty, S. 1971. Taxonomic notes on a collection of mammals from Nepal with the description of a new Mouse Hare (Lagomorpha: Ochotonidae). *Proc. zool. Soc., Calcutta*, **24** : 41-46.

Andersen, K. 1912. *Catalogue of the Chiroptera in the collection of British Museum*, 1, *Megachiroptera.* British Museum, London.

Anderson, J. 1881. *Catalogue of Mammalia in the Indian Museum, Calcutta.* Calcutta.

Biswas, B. & Tiwari, K.K. 1969. Taxonomy and distribution of India rodents. *Proc. Indian Rodent Symp.* (1966), *Calcutta*, pp. 9-45.

Blanford, W. T 1881-91. *The fauna of British India including Ceylon and Burma. Mammalia.* Taylor and Francis, London.

Brooks, J. E. 1987 (Pers. comm.) *Nesokia indica* from Bangladesh.

Dobson, G. E. 1876. *Monograph of the Asiatic Chiroptera and catalogue of the species of bats in the collection of Indian Museum, London.*

Ellerman, J. R. 1961. *The Fauna of India including Pakistan, Burma and Ceylon, Mammalia, 3. (rodentia). Govt. of India, Delhi.*

Ellerman, J.R. & Morrison-Scott, T.C.S. 1951. *Checklist of Palaearctic and Indian mammals.* British Museum (Natural History), London.

Gopalkrishna, A. & Madhavan, A. 1970. Sex-ratio in some Indian bats. *J. Bombay nat. Hist. Soc.*, **67** : 171-175.

Gopalkrishna, A. & Sapkal, V M. 1987. Breeding biology of some Indian bats—A Review. *J. Bombay nat. Hist. Soc.*, **83** : 78-101.

Gopalkrishna, A. & Vartute, A. T., Sapkal, V.M., Unune, A.R. & Chari, G.C. 1985. Breeding habits and associated phenomena in some Indian bats—Part XI—*Miniopterus schreibersii fuliginosus* (Hodgson)—Vespertilionidae. *J. Bombay nat. Hist. Soc.*, **82** : 594-601.

Hill, J.E. & Thonglongya, K. 1972. Bats from Thailand and Cambodia. *Bull. Br. Mus. nat. Hist.* **22** : 171-196.

Honacki, J. H., Kinman, K. E. & Koeppl. J. W 1982. *Mammal species of the World.* Allen Press, Inc. and Assoc. Syst. Collns, Kansas, USA.

Lekagul, B. & McNeely, J.A. 1977. *Mammals of Thailand.* Assoc. Cons. Wildl., Bangkok.

Lindsay, H. M. 1929. Scientific results from the mammal survey, No. XLVIII. Indian Shrews. *J. Bombay nat. Hist. Soc.*, **33** : 326-340.

Madhavan, A. 1971. Breeding habits in the Indian Vespertilionid bat, *Pipistrellus coylonicus chrysothrix* (Wroughton). *Mammalis,* **35** : 283-306.

Mandal, A. K. 1936. The occurrence of the Brown Spiny Mouse, *Mus platythrix* Bennett, in West Bengal. *J. Bombay nat. Hist. Soc.*, **82** : 643-644.

Mandal, A.K. & Ghosh, S. 1980. Report of the occurrence of the Metad in West Bengal. *J. Bombay nat. Hist. Soc.*, **77** : 133.

Mandal, A. K. & Dey Sarkar, S. R. 1984. Further specimens of the Indian Gerbil, *tatera indica* (Hardwicke), from West Bengal. *Rodent Newsl.*, **8** : 13.

Parrack, D. W. 1966. The Indian Gerbil, *Tatera indica* (Hardwicke), in West Bengal. *J. Bombay nat. Hist. Soc.*, **63** : 197-198.

Roberts, T J. 1977. *The mammals of Pakistan,* Ernest Benn, London.

Sinha, Y P. 1981. New record of the Short-tailed Bandicoot Rat, *Nesokia indica* Gray (Rodentia : Muridae) from Bihar. *Bull. zool. Surv. India,* **3** : 267-268.

Tate, G. H. H. 1942. Results of the Archbold expeditions No. 48. Pteropodidae (Chiroptera) of the Archbold collections. *Bull. Am. Mus. nat. Hist.*, **80** : 331-347.

Wroughton, R. C. 1915. Bombay Natural History Society's Mammal Survey of India, Burma and Ceylon. Report No. 19. Bengal, Behar and Orissa. *J. Bombay nat. Hist. Socm.*, **24** : 96-110.