BAT NET -- Bits about Bats

Newsletter of the Chiroptera Conservation and Information Network of South Asia
for Bangaladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka

Welcome to BatNet, Newsletter of the Chiroptera Conservation and Information Network of South Asia. This newsletter is to introduce you to CCINSA, the network has been initiated by interested conservation specialists and will be assisted by (Z.O.O.), (W.I.L.D.) and CBSG, India & South Asian networks.

The inspiration for this network has its roots in the Conservation Assessment and Management Plan (C.A.M.P.) Workshop for Indian Mammals which was conducted in 1997 at the Indian Institute of Science and Centre for Ecological Studies, Bangalore, under the auspices of the Biodiversity Conservation Prioritisation Project (BCPP) coordinated by WWF, India and SACON. During this workshop field biologists from all parts of India assessed the conservation status of more than 400 species of Indian mammals (102 of which were bats) using the new IUCN Red List Criteria, 1994. The results of the bat assessment are below.

In our letter to potential members, an explanation of the new IUCN Red List categories and criteria were enclosed, as well as a list of Bats of South Asia (essentially Paul Bate's list) with the IUCN status given to the species which have a range in India and were assessed nationally. If you live in a non-Indian country you may like to compare this result with the ground situation in your country for the same species if it occurs there. Since that time Rikki Krishnan has contributed more species, which will be added to the list after consultation with Dr. G. Marimuthu and Dr. Paul Bates.

Table: Summary of Status of Bats in India, 1997 (BCPP CAMP Workshop, Bangalore)

CR --	Critically endangered	2
EN --	Endangered	3
VU --	Vulnerable	11
LR-nt --	Lower risk near threatened	25
LR-lc --	Lower risk least concern	9
DD --	Data deficient	52
	Total	102

There are two aspects of this CAMP workshop information that we would like to stress:

i.) Chiroptera make up 25% of the mammalian diversity of India and probably a similar percentage of the mammalian diversity of the South Asian region, and

ii.) 50% of the Chiroptera assessed at the workshop had to be classified as Data Deficient !

Considering the ecological and economic importance of bats it is clear that much work needs to be done on the field aspects, population, distribution and status of this group of mammals.

If this is the case in India, the situation in all of South Asia may be as crucial or more crucial.

The purpose of this network, then, is to link together bat field researchers and their field knowledge throughout South Asia (Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka) so that a clearer picture can emerge, and lead to conservation action. Some things this network itself can and will do with the help and cooperation of South Asian bat researchers are:

1. encourage and promote the study of all bats, prioritising species assessed as Data Deficient in India for upcoming field work,

2. maintain a current and dynamic database on bats of South Asia, providing local, national and regional information to be shared with important national agencies and institutions as well as international organisations such as the Chiroptera Specialist Group, SSC, IUCN, World Conservation Monitoring Centre, Bat Conservation International etc.

3. catalyse and help organise conservation assessment and other workshops and training exercises of bat specialists of South Asia as appropriate, nationally or regionally.

4. follow up such workshops with recommendations to local, state, national and regional wildlife authorities for protection of threatened species of bats and promotion of further studies of Data Deficient species

5. undertake a set of specific "tasks" utilising the information from the 1997 BCPP CAMP workshop to further enhance our knowledge of bat status in South Asia

6. research funding sources for field surveys

7. bring out a newsletter of current bat research news for network members and other interested persons

8. prepare a Directory of chiroptera specialists of South Asia for distribution to all network members

9. encourage non-traditional researchers -- NGO's such as nature clubs, conservation societies, bio-control agents, youngsters, enthusiasts, etc. to assist with this massive task.

We would like to enlist every bat field researcher in South Asia. There is a form in this newsletter for you to send us after which we will send you:
1. a more detailed form requesting more information about you and
2. your suggestions of other researchers and enthusiasts.

When we get your detailed form back, we will send you a "task", at least two newsletters per year, a Directory of Bat Researchers of South Asia, and sets of lists, forms and a notebook which will help us gather information about the population and distribution of all bats of South Asia. We will also encourage you to join ZOO so you can get ZOOS' PRINT in addition to the Newsletter but that is not a requirement.

The role of ZOO/WILD/CBSG,SA is purely administrative and coordinating.

ZOO & WILD do not conduct field or laboratory research on bats although we may coordinate funding for future field studies. ZOO/WILD/CBSG,SA takes on the burden of administration and coordination towards networking taxon and subject area specialty groups because researchers and scientists who need to be linked do not have time or (often) infrastructure for this type of administrative work. ZOO/WILD/CBSG,SA can also provide technical expertise and objective organisation and facilitation for conducting special conservation workshops (PHVA's and CAMPs). ZOO has been running networks for zoo and veterinary specialists, zoo educators of Asia, invertebrate, amphibian, and reptile specialists, and now bat specialists in South Asia.

So far we have very few members of this network compared to invertebrate, amphibian, reptile, educator, etc. Either there are not so many bat researchers in this region or they are not so quick to come out of their cave ! The amount of work that has to be done to maintain an ongoing assessment of the status of chiroptera of this region is immense. Funds for field surveys are limited. It is doubtful that academics and field biologists can do it all, even if they number in the hundreds. It may be useful to encourage enthusiasts and students who are interested, give them training and direct them to preliminary sightings and observations to be checked by senior biologists. There may also be zoologists who are new to field surveys of bats which require a specialised type of expertise. We would like field biologists and academics to consider this and organise volunteers in their area. We can help by developing teaching materials and forms and providing them to volunteers who will share their information for a common data base.

In this spirit of encouraging enthusiastic non-specialists we are publishing the letter and information from members of ATREE who responded to our announcement by conducting a survey of bats of Assam. If senior researchers find things to correct, please send these to both the researcher and us so that we can publish it in the next newsletter. This type of activity can lead to much information and it is an advantage of a newsletter as opposed to a peer-reviewed publication.

Interested bat researchers should fill out the enclosed questionnaire to become a member of the Network. Network administrators look forward to interacting and pulling together bat specialists from this region. We are targeting very specific informational products which will be of help to all conservation workers in monitoring, protecting, and conserving bats for the future. We welcome you to this initiative.

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Profiles, Projects and Problems of some CCINSA Members

Riki Krishnan

Riki Krishnan is a Project Assistant at the Centre for Ecological Science,Indian Institute of Science Bangalore. Riki has sent some corrections and additions to our list of bats which was sent to propective members along with our invitation. These are reproduced elsewhere in this newsletter.

Riki's recent projects are as follows:

1. Mammals and birds (including bats) at Neyveli Lignite coperution, Tamil Nadu
2. Bats of Bangalore city.
3. Evaluation of bats at the University of Ag. Sc. Library under Dr. K. Srihari, Department of Zoology, UAS in 1997
4. Damage caused by bats in Puttur and South Kannara district on cashew by Megachiropteran at Crop Plantation Research Institute, from 1998-1999 (one year).
5. Damage of crops in the field station of Indian Council for Horticultural Research in 1998 for three months.
6. Survey of bats at Yedukumari region in railway tunnels and caves in Saklespura (Mangalore) for one month in 1999.

Riki has assisted three students on a small project related to bat survey at the University of Agricultural Sciences, Bangalore, under guidance of Prof. S. Srihari (Department of Zoology). Riki maintains a collection of bat specimen, *Pipistrellus ceylonus*, *P. mimus*, *Rouselteus leschaulti*, *Cynopterus sphena*, *Pteropus giganteus* and a broken skull of megaderma. He has published several scientific and popular articles, including a book review of Dr. Paul Bates definitive book on Bats of South Asia which will be reproduced elsewhere in this newsletter.

Dr. S. Anil Kumar

Dr. Kumar is a research scholar with the Conservation Biology Section of Tropical Botanical Gardens Research Institute in Trivandrum. His research interests are plant-animal interactions such as pollination and seed dispersal. It is nice to have a botanist in the network.

Dr. A. Madhavan

Dr. Madhavan is a retired Professor of Zoology now living in Trissur. His research interests are the food habits and breeding of chiroptera. His Ph.D. was obtained at Nagpur University under Prof. Dr. A. Gopalkrishnan and entitled "Sex cycle and breeding habits of a vespertilionoid bat, *Pipistrellus ceylonicus chrysothrix* (Wroughton)", 1969. He has conducted several minor research projected on breeding habits of bats, funded by UGC during his tenure of service; a major project on bats of Kerala funded by UGC in 1990-93 and a project funded by the State Committee on Science, Technology, and Environment, Government of Kerala in 1987-89. He has maintained several species of bats in captivity, e.g. *Cynopterus sphinx*; *Rousetius leschenaulti*; *Pipistrellus ceylonicus indicus*; *Tylonycteris pachypus*; *Taphozous melanopogon*; *Megaderma lyra*. Dr. Madhavan comments "I have to speak about bats and bats only, and I continue "batting".

Dr. Ganapathy Marimuthu,

Dr. Marimuthu is practically the "bat man" of India, which is why he was asked to Convene and serve as Scientific Chair of CCINSA. Dr. Marimuthu is a researcher and teacher at the Department of Animal Behaviour and Physiology, School of Biological Sciences, Madurai Kamaraj University in Tamil Nadu. His primary research interests are foraging behaviour, prey detection and capture, breeding behaviour, postnatal gorwth and age estimation in bats. The species of special interest to him are *Hipposideros speoris*, *H. fulvus*, *H. ater*, *Pipistrellus mimus*, and *Megaderma lyra*.

His Ph.D. thesis was Socal Behaviour and Social timing of the Biological Clock of a micro-chiropteran bat, *Hipposideros speoris* in 1982. This was at M.K. university itself under Dr. M.K. Chandrashekaran. He was the research guide for several students from 1993 to present.

Dr. Marimuthu has conducted several research projects, e.g,

1. Behavioural ecology and measures for conservation of bats in Madurai from 1990-93
2. Study on cave environment and cave fauna in Madurai, 1994-1998
3. Foraging behaviour of a frugivorous bat (*Cynopterus sphinx*) in Madurai, 1995-97
4. Strategies of prey detection and capture in the Indian false vampire bat (*Megaderma lyra* in Madurai, 1996-98.

He has maintained bats in captivity including *Hipposideros speoris* (30); *H. Fulvus* (20), *H. ater* (15), *Megaderma lyra* (35) and *Taphizous nudiveutris kachhensis* (5).

Dr. Marimuthu has published numerous articles in scientific journals and several popular articles as well.

Dr. Marimuthu attended the Conservation Assessment and Management Plan Workshop for indian mammals, playing the leading role in the Chiroptera Working Group. Members of this Working Group agreed that a Chiroptera network would help in drawing bat researchers out into the open and facilitate communication and cooperation among them.

Dr. Padmanabhan Patiath

Dr. Patiath is a Scientist in the Division of Wildlife Biology at Kerala Forest Research Institute, Peechi, Trichur. His research interests are documentatio and conservation of bats in Western ghats and small mammals in general. He is interested in both bats and rodents.

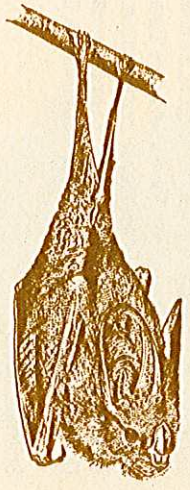
A recent project was a survey of small mammals in Kerala with special reference to endangered species throughout Kerala state with special reference to Western Ghats, from 1993 - 98. He is interested to undertake field studies if required particularly relating to pollination of forestry crops.

Dr. Yadunath Prasad Sinha

Dr. Y.P. Sinha, another real "bat man" of India is a Scientist in the Zoological Survey of India, Gangetic Plains Regional Station in Patna. His research interests are taxonomy, ecology, and behaviour of Indian bats. His Ph.D. was on "Studies on Taxonomy, distribution, zoogeography, osteology and field ecology of bats of Rajasthan especially the Indian Desert," in 1980 from Jodphur University. His is interested in all bats of India.

Currently he is studying bats of Bihar but previously has done some work on bats of Rajasthan, Gujarat, Bihar and N.E. Hills and collections were studied also from other parts of India, Myanmar, Sri Lanka and Bangladesh. He has done taxonomic sutdies of bats from all over India as well as Myanmar, Nepal and Sri Lanka and also some species of Pakistan and Bangladesh since 1966.

He has maintained some species in captivity, e.g. *Taphogous melanopogon melanopogon* Temminck at Patna. In the laboratory seven numbers of this bat were kept in a cage covered with moist towels. They took water from the towels but would not take killed insects so did not survive.



Status of Bats of Bangladesh
from the Red List of Threatened Animals of Bangladesh (under press)

Dr. A. W. Akonda and Dr. M.M.H. Khan of IUCN Bangladesh (address below) have sent some information on bats in Bangladesh. The information is the output of the IUCN Bangladesh project to prepare the Red List Books of Threatened Animals. These books are now under press. According to Akonda and Khan reporting on the Red List, there are 29 species of bats in Bangladesh. Only five of the 29 species are Lower risk or out of immediate danger. The remainder are "Data Deficient" due to lack of information to meet the IUCN national criteria for endangerment. There is a fear, as with our many species of Data Deficient species of Indian bats that some of these may be threatened (i.e., Critically Endangered, Endangered or Vulnerable) if data were available to derive a category. They have emailed us the whole checklist of Bats of Bangladesh and their respective status. If any of our readers have questions the address of IUCN Bangladesh is IUCN - Bangladesh
Dr. Ainun Nishat House, No. 3A, Road 15, Dhanmondi, Dhaka 1209, Ph: 880 822577, Fax: 880 822577, e.mail: iucnbd@citechco.net.

Scientific Name	English Name	Local Name	Local Status	Global Status	Distribution
Family Pteropodidae					
1. *Cynopterus sphinx* (Vahl, 1797)	Short-nosed Fruit Bat	Bocha / Koia Badur	DD	--	?
2. *Pteropus giganteus* (Brunnich, 1782)	Flying Fox/Indian Fly Fox	Badur	NO	--	W
3. *Rousettus leschenaulti* (Desmarest, 1820)	Fulvous Fruit Bat/Leschenault's Rousette	Kola Badur	DD	--	W
Family Rhinopomatidae					
4. *Rhinopoma hardwickii* Gray, 1831	Lesser rat-tailed Bat/Lesser Mouse-tailed Bat	--	DD	--	SW ?
5. *Rhinopoma microphyllum* (Brunnich, 1782)	Greater Mouse-tailed Bat	--	DD	--	?
Family Emballonuridae					
6. *Taphozous longimanus* Hardwicke, 1825	Sheath-tailed Bat/Long-winged Tomb Bat	--	DD	--	W
7. *Taphozous melanopogon* Temminck, 1841	Bearded Sheath-tailed Bat/Black-bearded Tomb Bat	--	DD	--	W
8. *Taphozous saccolaimus* Temminck, 1838	Pouch-bearing Sheath-tailed Bat/Pouch-bearing Bat/Tomb Bat	--	DD	--	W
Family Megadermatidae					
9. *Megaderma lyra* Geoffroy, 1810	False Vampire/Indian False Vampire/Greater False Vampire	Badur/Daini Badur	NO	--	W
Family Rhinolophidae					
10. *Rhinolophus lepidus* Blyth, 1844	Horseshoe Bat/ Blyth's Horseshoe Bat	--	DD	--	?
11. *Rhinolophus pearsoni* Horsfield, 1851	Horseshoe Bat	--	DD	--	?
12. *Rhinolophus subbadius* Blyth, 1844	Horseshoe Bat	--	DD	--	NE
Family Hipposideridae					
13. *Coelops frithii* Blyth, 1848	Tailless Leaf-nosed Bat	--	DD	--	SB
14. *Hipposideros galeritus*, Cantor, 1846	Leaf-nosed Bat/Cantor's Leaf-nosed Bat	--	DD	--	
15. *Hipposideros larvatus* (Horsfield, 1823)	Leaf-nosed Bat/Horsfield's Leaf-nosed Bat	--	DD	--	NE
Family Vespertilionidae					
16. *Eptesicus pachyotis* (Dobson, 1871)	Thick-eared Bat	--	DD	--	Sylhet, Comilla
17. *Hesperoptenus tickelli* (Blyth, 1851)	Tickell's Bat	--	DD	--	W
18. *Kerivoula papillosa* (Temminck, 1840)	Painted Bat/Papillose Bat	--	DD	--	?
19. *Kerivoula picta* (Pallas, 1767)	Painted Bat	--	DD	--	?
20. *Myotis formosus* (Hodgson, 1835)	Hodgson's Bat	--	DD	--	N
21. *Pipistrellus ceylonicus* (Kelaart, 1852)	Kelaart's Pipistrelle	--	DD	--	W
22. *Pipistrellus coromandra* (Gray, 1838)	Indian Pipistrelle	--	NO	--	W
23. *Pipistrellus mimus* Wroughton, 1899	Indian Pigmy Pipistrelle	--	NO	--	SW
24. *Pipistrellus savii* (Bonaparte, 1837)	Savi's Pipistrelle	--	DD	--	NE
25. *Scotomanes ornatus* Blyth, 1851	Harlequin Bat	--	DD	--	?
26. *Scotophilus heathii* Horsfield, 1831	Greater Yellow Bat/Asiatic Greater Yellow Bat	--	DD	--	?
27. *Scotophilus kuhlii* J. Allen, 1906	Asiatic Lesser Yellow Bat	--	NO	--	W
28. *Scotozous dormeri* Dobson, 1875	Dormer's Bat	--	DD	--	?
Family Molossidae					
29. *Tadarida aegyptiaca* (E. Geoffroy, 1818)	Egyptian Free-tailed Bat		DD	--	?

Book Review:

Bats of the Indian Sub-continent

Bats of the Indian Sub-continent. P. J.J. Bates and David L. Harrison. Harrison Zoological Museum, Bowerwood House, St. Botolphs Road, Sevenoaks, Kent TN 13 3AQ. 1997. Price: $55. 258 pp.

An element of mystery has surrounded bats from times immemorial. People have often found it difficult to relate their movements to the terra firma, the unconscious reference point of human experiences. While they are in flight, the structure of their limbs embodies a sense of spatial freedom that is almost inconceivable to us. Thus, I have often felt humbled and awed by what Wordsworth called 'blank misgiving of a creature moving about in Worlds not realized'. Studying bats is not a mean affair and the recent book by Bates and Harrison will be considered important in this endeavour, being the first exhaustive treatise on the bats in the Indian Subcontinent.

Renowned taxonomists, in particular, Corbet and Hill[1] and Honaki et al.[2] had systematically catalogued various mammalian species, including bats, from various parts of the world, covering the Indian subcontinent as well. The book by Bates and Harrison is a welcome addition, in terms of recent taxonomy and finer details of geographical distribution of bats. The book also provides a fairly comprehensive review of all the earlier works by various bat researchers in India.

The book has a very impressive cover adorned by an extremely absorbing photograph of the Indian false vampire bat (*Megaderma lyra*). The first few pages take us through exhaustive lists of museums and individuals who have contributed in publishing this book. A list of external measurements meant for an easier identification of bats in field is provided. This is followed by a very lucid description of how bats have evolved. A note on species diversity of bats in the globe has also been provided. What field biologists would find most useful is a matrix of distinguishing field morphological characters within each family. The species descriptions include the geographical location based on museum records that accompany the specimens collected. Amateur naturalists would be delighted to find towards the end of the book, a comprehensive glossary of terms, written in a simple fashion. A geographical gazetteer has also been provided.

The book describes 119 species from 37 genera and 8 families, with eight colour pages beautifully illustrating 47 species. Besides, 271 neatly drawn sketches cover all the species. Nearly 200 maps project the known geographical distribution of the species. The geographical gazetteer lists about 1150 localities, with a list of technical terminology.

The authors have surprisingly missed out certain people who have made a landmark in the Indian Chiropteran scenario, in particular Charles McCann[3] and P.A. Ramakrishna Iyer[4]. While McCann exhaustively studied the feeding and breeding behaviour of Roussettus leshaultii (Fulvus-fruit bat), Iyer was the first to record, as early as 1947, a post partum cycle and a quick succession of two pregnancies in *Cynopterus sphinx*. His famous paper described four adult specimens collected from Malleswaram and Hoskote in Karnataka, all of them pregnant, while still lactating phase and in fact, carrying their young ones still clinging to the nipples. The authors also seem to have overlooked some recent literature on geographical distribution of other fruit bats, such as the list of common fruit bats found at the Kanha Tiger Reserve by Ghose and Bhatacharyya. Also conspicuous is the absence of the fruit bat *Megaroph*s *niphane* which was sighted at Meghalaya by Mandal *et* al.
In the case of insect-eating bats, a further review of their distribution is needed. In the case of the insectivorous bats, genus Rhinopoma from family Rhinopomatidae, the specimens collected from Kanha Tiger Reserve (Ghose and Bhattacharyya) have not been cited. Also ignored is Rueben's citation of this species at Vellore in Tamil Nadu. Faunistic surveys conducted in various parts of karnataka, which were published in Mammalia[8] also do not figure in the book. Crucial distribution records by Nath from Chota Nagpur area and Mandal et al. from mizoram and Manipur are aslo missing. It would have been exciting if the authors had mentioned the possbile indentification of hairs and gut length in bats.

Disappointingly, the authors have not discussed about echo-location, the most faschinating aspect of bat biology, the technique that enables insect-eating bats to locate their prey. It would have been apt for the authors to acknowledge the commendable contribution to this topic for nearly two decades by the researchers at the Madurai Kamaraj University, Tamil Nadu. As M.K. Chandrashekaran aptly remarks, the Madurai group are the first people to give a voice to these insectivorus bats'.

This book provides the most comprehensive bibliography available till date, including some of the classical works in the last century. It is essential for those willing to explore the mystery of Indian bats, researchers on bat habitats and those who need quick references. The book is priced rather high placing it beyond the buying power of any Indian naturalist. But looking at the wonderful pictures and the information content the cost is justified. I would strongly recommend this book for libraries in institutions and natural history museums.

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Paul Bates on Bats

Editors' Note: Paul Bates is one of the foremost experts on South Asian bats. Bates and Harrison have brought out the first complete exposition on S. Asian bats. We wrote to Dr. Bates informing him of the network and also asking some questions regarding what constitutes South Asia as opposed to South East Asia and other regions with particular emphasis on bat distribution as well as some suggestions for adding to the S. Asian list. His compounded replies are below. We also asked him to serve as an advisor to CCINSA. He has agreed to be CCINSA's External Advisor. We couldn't get a better batter!

Editor :

Many thanks for your e-mail - it sounds a great project and I am very happy to help, albeit with the confines of virtually no spare time!! Yes, I think South Asia should be promoted more as a unit - there seems to be relatively little interaction between the constituent countries at the moment - partly based on politics I suppose. But the conservationists, zoologists etc should be able to rise above such things - here's hoping!

The border between south and south-east Asia is a difficult one. At one stage, a PhD student we had at the Museum was going to look at this very problem - trying to define if there was a 'boundary' or not - we were going to look not only at the distribution patterns of different taxa but also at the molecular systematics of particular bat species that occurred in forest habitats from India through to Vietnam. My gut feeling is that 'Upper Burma' eg. northern Myanmar is essentially part of the Indian subcontinent and that southern Burma is part of South-east Asia. The areas I visited certainly felt more Indian than Vietnamese (my only experience of S-E Asia proper). However, I think Burma can be treated as part of either geographical area.

From a bat perspective at least, I think you can exclude Afghanistan. Most of the species found there would appear to either of Palaearctic origin or Saharo-Sindian. The real southern Asian taxa are missing - like the fruit bats, the tropical species of the Horseshoe and Leaf-nosed bats and the tropical Vespertilionids - *Tylonycteris*, *Hesperotenus*, *Kerivoula* .... But as I say this is from a bat viewpoint, I am not sure what the situation is like from say a snake or botanical perspective.

I think you should treat any amendments/additions with GREAT caution. One problem is that there is a misunderstanding about the geographical phrase 'Indo-China'. Here it has been taken to mean India through to China when it actually means Indo-China as in Vietnam, Loas and Cambodia.

Therefore at this stage do not include these new taxa in the faunal lists - not without proper references in reputable publications. In my opinion once lists become filled with species that might be present - it would be nice if they were present - or they are present just across the border so they must be present here as well - they cease to be scientific and becomes valueless! If in any doubt, omit rather than include.

Your suggestion of a taxonomic workshop sounds great.

I would be delighted to be included as an advisor. Why not have a suggestions and answer section to the newsletter?

Paul Bates, Harrison Zool. Museum, UK

Short Report -- Bats and bat-research in Madurai (Southern India)

About 900 species of bats exist in the world today. The only mammals more diverse are rodents with approximately 1700 species. Bats live nearly everywhere on the earth except Antarctica, the coldest parts of Arctic and some oceanic islands. About 100 species live in India, out of which 14 are available in Madurai ($9^{o}58'N; 78^{o}10'E$). They are *Pteropus giganteus, Rousettus leschenaulti, Cynopterus sphinx, Hipposideros speoris, H. fulvus, H. ater, Pipistrellus mimus, P. dormeri, Scotophilus heathi, Taphozour melanopogon, T. nudiventris kachhensis, Megaderma lyra, Rhinopoma hardwickei* and *Tadarida aegyptiaca.*

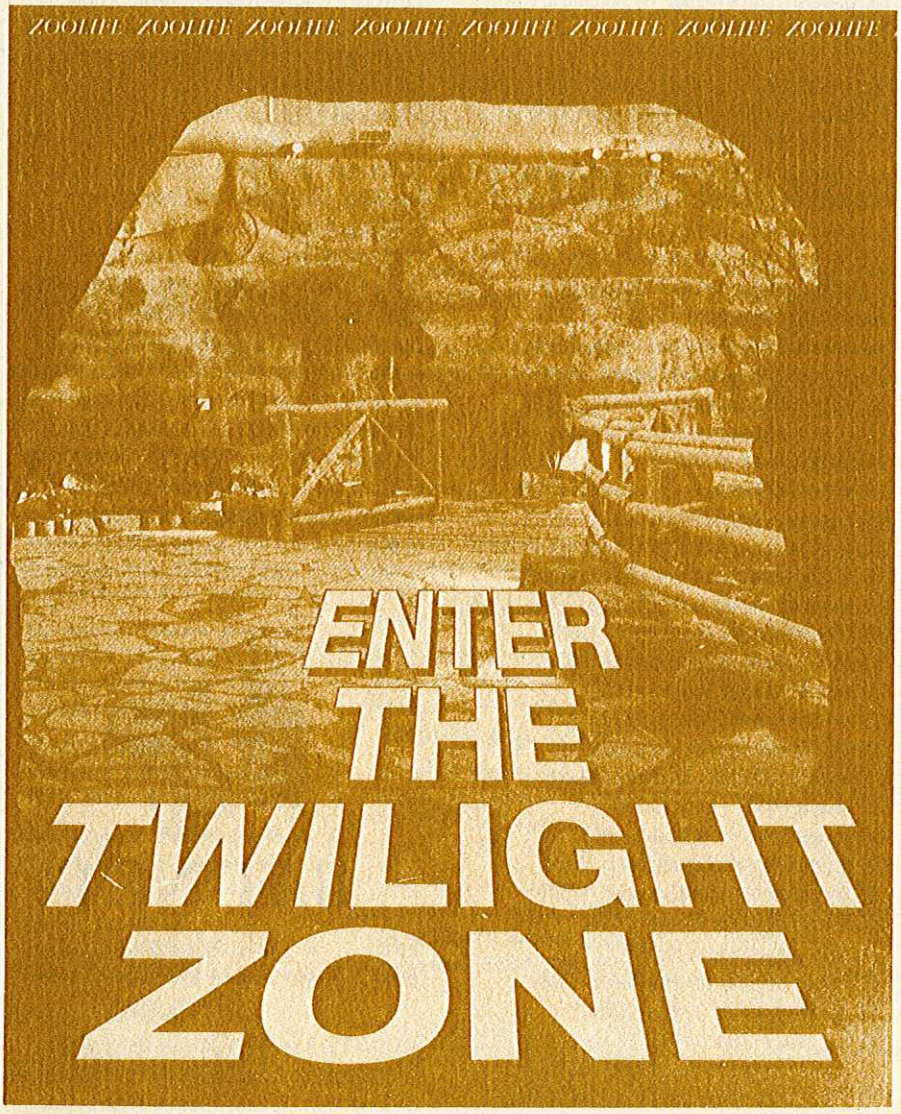
Bat-research in the School of Biological Sciences, Madurai Kamaraj University at Madurai was initiated by M.K. Chandrashekaran during the year 1975. He handled an Indo-German project by having collaboration with G. Neuweiler, University of Munich at Germany. The research is being continued by R. Subbaraj, G. Marimuthu and K. Sripathi. Mainly three areas are being covered. 1. Behavioural aspects (roosting, foraging, prey detection, breeding and mother-young relations and post natal growth and age estimation); 2. Circadian rhythms (entrainment, freerunning, phase response curves, and action spectrum) and 3. Neurobiology (audiogram, electroretinogram and tonotopy). So far nearly 85 papers have been published and 11 Ph.D. thesis have been produced on bats. The Ninth International Bat Research Conference was conducted here during the year 1992. The research is being supported by UGC, DST, CSIR and MOEF.

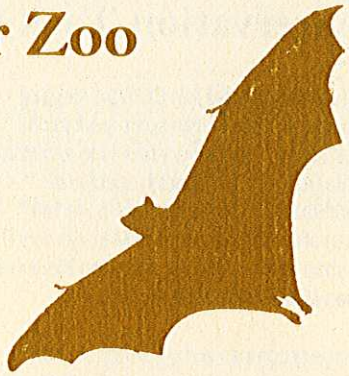
Submitted by Dr. G. Marimuthu -- Dr. Marimuthu is a Reader in the Dept. of Animal Behaviour & Physiology, School of Biological Sciences, Madurai Kamaraj University, Madurai and Scientific and Technical Chair of CCINSA.

Question: How many of you bat researchers would be interested in a taxonomy and/or field techniques training workshop? Let us know your thoughts on this.

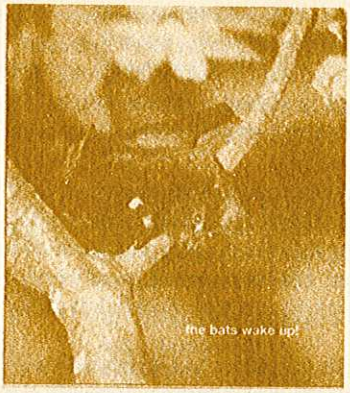
CCINSA

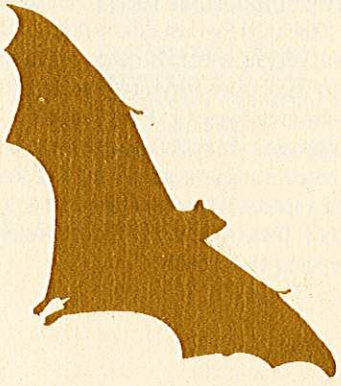
Twilight Zone Bat Cave at Chester Zoo





CHESTER ZOO





The sponsor for CCINSA for its first year and a half of operation will be the North of England Zoological Society which is the associate of Chester Zoo in U.K. Chester Zoo sponsors a variety of field conservation projects all over the world, including field research on endangered bats.

Recently, Chester Zoo opened an avante guarde exhibit for bats called the "Twilight Zone" which provided the inspiration to ask Chester for funding. For 15 years Chester Zoo has been involved in the breeding programme for Rodrigues Fruit Bats, a highly threatened species from Rodrigues Idland in the Indian Ocean. The quarters for the bats were outdated so the Chester Zoo decided to construct a new exhibit which would give the bats full freedom of movement and allow visitors a near to natural experience of bats.

The enclosure is enormous and dimly lighted to simulate twilight. The bat's "night" begins about 10:30 a.m.! Thirty-seven Rodrigues Fruit Bats and 140 Seba's Short-tailed Bats inhabit the enclosure and are breeding. They can fly freely around visitors who can feel the wind from the bat's wings when the animal fly close. Zoo visitors, who are ususally seperated from the animals, are happy to have such an unusual contact with these animals. Even "bat-shy" visitors get used to their presence and probably leave the enclosure with a completely different attitude towards these "lesser loved creatures".

In India very few zoos exhibit bats because they are difficult to see and appreciate without a nocturnal house. Yet, in India there are many species which are threatened in the wild which should be backed up with a captive breeding programme.

Conservation Task for CCINSA members -- Data Deficient species

When bat researchers join CCINSA they are "rewarded" by being given some work to do immediately ! The network task is to review a list of "Data Deficient" (Nationally) species of Chiroptera which were assessed in the 1997 Conservation Assessment and Management Plan Workshop which was done under the Biodiversity Conservation Prioritisation Project.

The list is accompanied by a series of short questions which can be answered by ticking a box under the queries : 1) Know it; 2) Seen it; 3) Surveyed it ; 4) Planning to survey it; 5) Sending Biol Info Sheet on it; 6) Don't know anything about it; 7) Know people who are working on it. If the researcher knows it, has seen it or has surveyed it, he can fill out a Biological Information Sheet on it and send it to us. This information will be entered into a data base we are maintaining on bats and brought out for consideration at the Chiroptera CAMP Workshop Review which should take place later this year (2000) or early in 2001. If the researcher knows others who are likely to know some of these species he can write us and we will send them the same mailing and request.

For example Debojit Phukan, Honorary Wildlife Warden, Dhimaji District, Lakimpur, Assam has filled out Biological Information sheets for DD spp such as *Hesperoptenus tickelli*, *Eptesicus serotinus* and has filled the DD form for *Rhinolopus lectus*, for all three of which he says he knows them, seen them and is planning to study them.

After hearing from all bat researchers, we will have a list of species that nobody knows anything at all about and these should be prioritised for immediate study. This kind of information can be very useful in justifying grant applications for field studies.

This is a bit tedious but it is systematic and will eventually get the job done. It depends, of course, on our having a viable network. So please encourage your batty colleagues to join CCINSA.

The term "Data Deficient" refers to the categories in the 1994 IUCN Red List Criteria (IUCN, 1994). "Data Deficient" is the most dangerous category simply because we don't know enough about the species to categories it. Even Critically Endangered and other threatened species can be saved with management action but if we don't know a species is threatened, we can't do a thing about it. These species could be gone before we even know it is in trouble.

List of Data Deficient Bats -- according to BCPP CAMP Workshop, 1997

1. *Barbastella leucomelas* (Cretzschmar) - DD/N
2. *Chaerephon plicata* (Buchanan) - DD/N
3. *Coelops frithi* Blyth - DD/N
4. *Eptesicus nilssoni* (Keyserling & Blasius) - DD
5. *Eptesicus pachyotis* Dobson - DD/N
6. *Eptesicus serotinus* (Schreber) - DD/N
7. *Eptesicus tatei* (Ellerman & Morrison Scott) - DD
8. *Harpiocephalus harpia* Hodgson - DD
9. *Hesperoptenus tickelli* (Blyth) - DD/N
10. *Hipposideros cineraceus* Blyth - DD/N
11. *Hipposideros galeritus* Cantor - DD/N
12. *Hipposideros larvatus* Horsfield - DD/N
13. *Hipposideros pomona* K. Anderson - DD/N
14. *Hipposideros schistaceus* K. Anderson - DD
15. *Kerivoula papillosa* (Temminck) - DD/N
16. *Kerivoula hardwickii* (Horsfield) - DD/N
17. *Marcoglossus sobrinus* K. Anderson - DD/N
18. *Megaderma spasma* (Linnaeus) - DD/N
19. *Megarops niphanae* Yenbutra & Felten - DD/N
20. *Miniopterus pusillus* Dobson - DD/N
21. *Murina aurata* Milne-Edwards - DD/N
22. *Murina cyclotis* Dobson - DD/N
23. *Murina huttoni* (Peters) - DD/N
24. *Murina leucogaster* Milne-Edwards - DD/N
25. *Myotis annectans* (Dobson) - DD/N
26. *Myotis blythii* (Tomes) - DD/N
27. *Myotis daubentoni* (Kuhl) - DD/N
28. *Myotis hasseltii* (Temminck) - DD/N
29. *Myotis montivagus* (Dobson) - DD/N
30. *Myotis muricola* (Gray) - DD/N
31. *Myotis mystacinus* Kuhl - DD/N
32. *Myotis siligorensis* (Horsfield) - DD/N
33. *Nyctalus leisleri* (Kuhl) - DD/N
34. *Nyctalus montanus* (Barrett-Hamilton) - DD/N
35. *Nyctalus noctula* (Schreber) - DD/N
36. *Pipistrellus affinis* (Dobson) - DD/N
37. *Pipistrellus cadornae* Thomas - DD/N
38. *Pipistrellus kuhlii* (Kuhl) - DD/N
39. *Pipistrellus savii* (Bonaparte) - DD/N
40. *Plecotus auritus* Linnaeus - DD/N
41. *Plecotus austriacus* (J. Fischer) - DD/N
42. *Pteropus melanotus* Blyth - DD/N
43. *Pteropus vampyrus* (Linnaeus) - DD/N
44. *Rhinolophus cognatus* K. Anderson - DD
45. *Rhinolophus trifoliatus* Temminck - DD/N
46. *Rhinolophus yunanensis* Dobson - DD/N
47. *Rhinolopus luctus* Temminck - DD/N
48. *Saccolaimus saccolaimus* (Temminck) - DD/N
49. *Scotomanes ornates* (Blyth) - DD/N
50. *Sphaerias blanfordi* (Thomas) - DD/N
51. *Tadarida teniotis* (Refinesque) - DD/N
52. *Taphozous theobaldi* Dobson - DD/N

DD = Data Deficient globally - species is endemic
DD/N = Data deficient nationally - species is non-endemic and assessed for India only

DATA DEFICIENT (DD) - A taxon is Data Deficient when there is inadequate information to make a direct, or indirect, assessment of its risk of extinction based on its distribution and /or population status. A taxon in this category may be well studied, and its biology well known, but appropriate data on abundance and/or distribution is lacking. Data Deficient is therefore not a category of threat or Lower Risk. Listing of taxa in this category indicates that more information is required and acknowledges the possibility that future research will show that threatened classification is appropriate. It is important to make positive use of whatever data are available. In many cases great care should be exercised in choosing between DD and threatened status. If the range of taxon is suspected to be relatively circumscribed, if a considerable period of time has elapsed since the last record of the taxon, threatened status may well be justified.

BAT NET

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Wildlife Information Liason Division (WILD) is the administrative home of CCINSA and Zoo Outreach Organisation is the office of its publications. For communication write to CCINSA, c/o ZOO, Box 1683, Coimbatore 4.

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