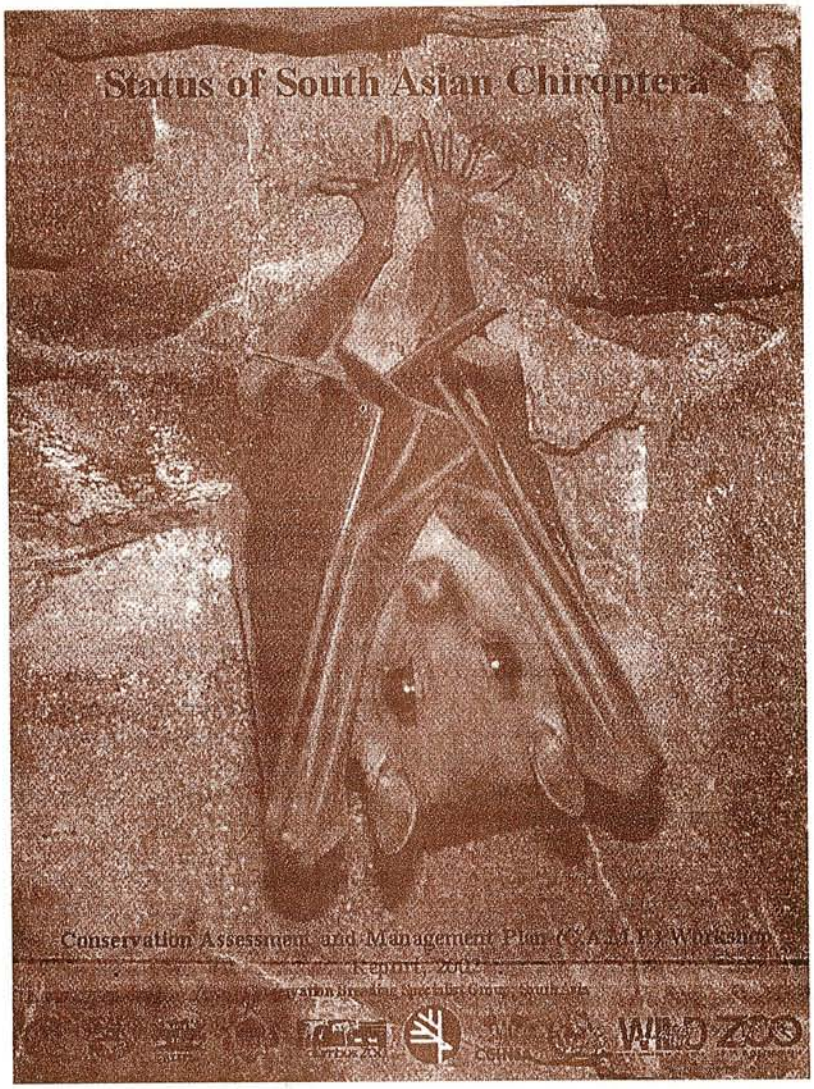
BAT NET - Bits about Bats

Newsletter of the Chiroptera Conservation and Information Network of South Asia, CCINSA (sin-sah!) . . . for Batters of Bangladesh, Bhutan, India, Nepal, Maldivse, & Sri Lanka

Vol. 4, No. 1, January 2003



The long-awaited workshop to assess the status of South Asian bats was held last January 2002 at the Department of Animal Behaviour & Physiology, School of Biological Sciences, Madurai Kamaraj University. About 40 bat field biologists attended with representation from Nepal, Sri Lanka, India in South Asia and other specialists on South Asian bats from United Kingdom, United States of America, and Myanmar. The workshop was planned and organised by the South Asian Regional Network of the IUCN SSC Conservation Breeding Specialist Group (CBSG, South Asia) and its associate, Zoo Outreach Organisation. Participants were primarily members of CCINSA which represents the IUCN SSC Chiroptera Specialist Group in South Asia. The purpose of the CAMP was to assess South Asian bat species for use in regional action plans, management plans, legislation and in the IUCN Red List of Threatened Species. The assessments were made using IUCN Red List Criteria with Regional and National Guidelines.

Very specific information on the status and distribution of 120 species of South Asian bats was collected from participants on Taxon Data Sheets and from specialists who sent in specially designed questionnaires called Biological Information Sheets if they could not attend. The information sheets were distributed to participants as a Draft Report on the last day of the workshop and they were given one month to comment, correct and supply missing information which was incorporated.

The CBSG, South Asia staff works with the Taxon Data Sheets, compiling information and editing in a form that can be easily utilised by readers. Different types of lists are compiled also for use by people who want different kinds of information. Finally an analysis is written and sent to a core group of bat specialists for a final check and comments. Then the entire report including assessments was checked again.

In December 2002 the Report was xeroxed and issued again to a core group and comments taken before the final version was printed. Now the Report is ready and currently being sent to participants, CCINSA members, policy makers, foresters and others who need this information to make reasoned decisions about wildlife.

An education programme has been developed using information from the CAMP workshop and throughout this year, a variety of educational materials will be made available to CCINSA members, teachers and other educators for use in teaching the critical importance of bats in ecosystems.

The C.A.M.P. Workshop will make it possible to generate many other helpful documents and actions to protect bat populations. Much of this issue of BAT NET is devoted to important components of the Report.

Conservation Assessment and Management Plan (C.A.M.P.) Workshop for Chiroptera of South Asia -- *Executive Summary*

Introduction

A Conservation Assessment and Management Plan (C.A.M.P.) Workshop for South Asian Chiroptera assessed a total of 120 of the 123 species of bats occurring in South Asia according to the 2001 IUCN Red List Criteria and made conservation, research and management recommendations on the basis of the assessments. The five-day workshop was conducted from 21-25 January 2002 at the Department of Animal Behaviour and Physiology, School of Biological Sciences, Madurai Kamaraj University, Madurai. A total of 43 bat experts including currently active field biologists from 25 scientific institutions from Nepal, Sri Lanka, India, Myanmar, U.K. and U.S.A. participated in the workshop.

The workshop was facilitated and coordinated by the IUCN SSC Conservation Breeding Specialist Group's regional network for South Asia (CBSG, South Asia). The IUCN/SSC Chiroptera Specialist Group was represented by its Co-Chair. Other organizers and collaborators were the Chiroptera Conservation and Information Network of South Asia (CCINSA), Department of Animal Behaviour & Physiology, Madurai Kamaraj University, Zoo Outreach Organisation (ZOO), and Wildlife Information & Liaison Development Society (WILD). The workshop was sponsored by Chester Zoo/North of England Zoological Society, Bat Conservation International, Columbus Zoo Conservation Fund and Metro-Toronto Zoo.

The workshop was also a five-year review of an earlier C.A.M.P. for Mammals of India conducted in 1997 at the Centre for Ecological Sciences, Bangalore, under the auspices of the Biodiversity Conservation Prioritisation Project (BCPP) for India. The current exercise extended its mandate to the political unit of South Asia. The review aimed to rectify the 50% data deficient species that characterized the 1997 assessments of Indian bats by increasing the number of chiroptera specialists participating. For this a network of chiroptera field biologists was formed and provided with information and a series of tasks, which helped in bringing together biologists and data for the workshop.

The C.A.M.P. Process

The Conservation Assessment and Management Plan (C.A.M.P.) Process was developed by the IUCN SSC Conservation Breeding Specialist Group (CBSG) initially to assist zoos to prioritise species for conservation breeding but now as a tool of IUCN for assessing species for the Red List of Threatened Animals and as a means of assisting the regional and national biodiversity planning process. A C.A.M.P. workshop brings together a broad spectrum of experts and stakeholders (e.g., wildlife managers, biologists, representatives of the academic community or private sector, researchers, government officials and captive managers) who contribute data from field studies which is used by the workshop to evaluate the current status of species, populations and habitats and make recommendations for specific conservation-oriented

research, management and public education. C.A.M.P.s are run according to a philosophy of sharing information, resolving conflict, putting conservation of species first and achieving consensus to forward conservation action.

A C.A.M.P. Workshop is intensive and interactive which facilitates objective and systematic discussion of research and management actions needed for species conservation, both *in situ* and *ex situ*. Information and recommendations are compiled for each species on a Taxon Data Sheet, which also provides documentation of the reasoning behind recommendations of the criteria used for deriving a status. All assessments were ratified by participants in plenary sessions with much discussion ultimately leading to consensus within the workshop. The results of the initial C.A.M.P. workshops are reviewed by workshop participants in varying iterations and as a Report to experts and other users of the information in the greater conservation community. After assessments have been completed, participants form special issue working groups to highlight problem areas which have been identified during the workshop for further discussion, and formulate recommendations. Some participants make personal commitments to carry out these recommendations.

The 2001 IUCN Red List Criteria (Version 3.1)

The C.A.M.P. workshop process employs the IUCN Red List Criteria as a tool in assessing species status in a group of taxa. The structure of the categories includes extinct, threatened, non-threatened, data deficient and not evaluated divisions. In the last decade, IUCN has improved the method of assessment of species by incorporating numerical values attached to the different criteria for threat

categories. The 2001 version of the Red List of Threatened categories are derived through a set of 5 criteria (population reduction, restricted distribution, continuing decline and fluctuation; restricted population and probability of extinction) based on which the threatened category is assigned. The term "threatened" according to the 2001 IUCN categories means Critically Endangered, Endangered or Vulnerable.

The Workshop

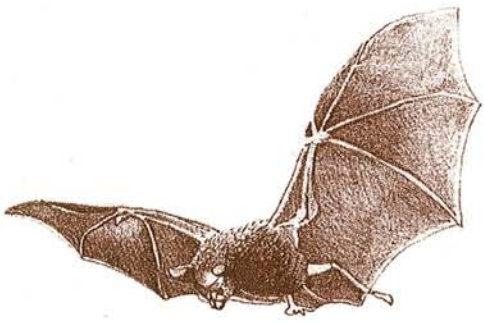
The Order Chiroptera contains 1,001 species of bats, which are the only volant mammals. Bats are sub-categorized as Megachiroptera (fruit bats) and Microchiroptera (insectivorous bats), on the basis of their specialization in feeding habits and morphological adaptations. Chiroptera is the second largest mammal group.

Bats are not popular mammals. They are viewed with fear and revulsion for such habits as poaching ripe fruits from orchards and defecating on public pathways. Conflict with fruit farmers provoked the Indian government to list fruit bats as "vermin" in 1972 in the Indian Wildlife (Protection) Act, which persists even today.

In other South Asian countries bats are given no protection, or are listed negatively, e.g. being specifically exempted from protective legislation! A strong motivation for organizing and conducting the C.A.M.P. workshop was to collect information for use in generating support for basic legal protection of these biotically useful animals. The role of bats in regeneration of forests, dispersing seeds and pollen and in consumption of harmful insects has been well documented in scientific papers from around the world. Unfortunately, such ecological studies are sparse in South Asia and the lack of this information was noted at the workshop.

South Asian Chiroptera number 123 species with about 139 valid subspecies designated within. The C.A.M.P. assessment was conducted only at the species level.

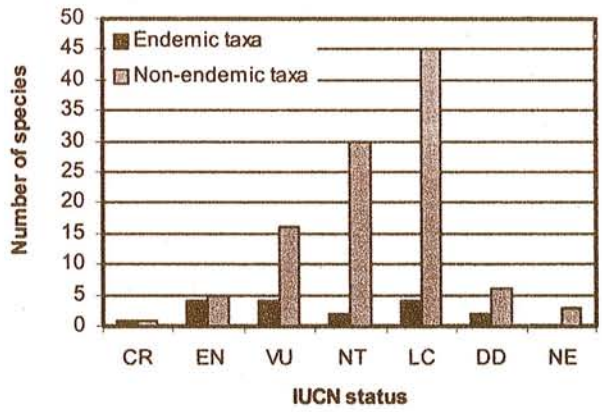
Chiroptera species constitute about one third of the mammalian diversity of the (political) region. Chiroptera species constitute about one third of the mammalian diversity of the (political) region.



Status of Chiroptera of South Asia – C.A.M.P. 2002

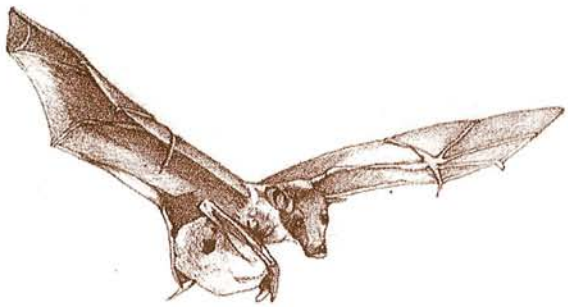
Category - *
Endemic to South Asia - **
Not endemic - ***
Total number - ****

		*	**	***	****
Critically Endangered	CR	1	1	2	
Endangered	EN	4	5	9	
Vulnerable	VU	4	16	20	
Near Threatened	NT	2	30	32	
Least Concern	LC	4	45	49	
Data Deficient	DD	2	6	8	
Not Evaluated	NE	0	3	3	
SPECIES TOTALS			17	106	123



Seventeen species of bats are endemic to South Asia. Only 8 of the 123 species of South Asian Chiroptera assessed in the C.A.M.P. workshop have been categorized as Data Deficient, a high contrast to 52 out of 102 Indian species, which were assessed at the 1997 Mammal C.A.M.P. workshop.

Threats to bats include human interference leading to habitat loss, loss of habitat quality, deforestation, direct human interference both in forest areas and in human settlements where bats have colonized. Although 40% of Chiroptera were assessed and categorized as Least Concern there is yet reason for vigilance even for these species. The assessment was conducted at the species level only, which did not include at least 139 subspecies, some of them highly restricted to small areas such as Andaman & Nicobar Islands and Sri Lanka. These subspecies and even individual populations of species may be under tremendous pressure leading to loss of biodiversity and resulting ecological impact.



Recommendations

Research recommendations confirmed that bats are one of the least studied mammalian groups in the region. Information for many species is based only on museum or literature references, with no recent population or distributional information. Therefore, chiroptera surveys make up the primary research recommendation for nearly all bats (120 species). Ecological studies were also very strongly recommended for better understanding of the status and economic value of species as well as to provide justification for upgrading bats in national legislation. Other research recommendations include life history studies, limiting factor research, taxonomic studies, genetic studies, and population and habitat viability analysis.

Management recommendations focused on the need for periodic monitoring to follow surveys, the lack of which has hindered the understanding of population structure and dynamics of bats of the region. Other recommendations included habitat management and public awareness. Habitat management is crucial from not only conserving roost areas such as caves, trees, old buildings, temples and wells, but also in conserving its sources of food, be it fruits or insects. Education should form a part of management as man is the only genuine threat to bats.

Field surveys, monitoring and conservation priorities were discussed by the Working Group. The group recommended surveys in unknown or unsurveyed localities, surveys of all the 8 Data Deficient species and resurveys in some areas where bats seemed to have disappeared. Modern scientific field techniques for field studies should be utilized with conservation as the first priority of the studies. Training was recommended for this as well as for identification of bat species so that monitoring is effective. In regard to monitoring, bats should be included in association with routine wildlife monitoring as well as in Environmental Impact Assessment (including effect of pesticides). Threatened species should be prioritised so that their population trends can be ascertained. Study and documentation of pollination and seed dispersal by bats in different ecosystems, would help improve the image of bats. For captive management, two Indian endemic bats were recommended for captive breeding programmes, *Hipposideros durgadasi* (Khajuria, 1970) and *Latidens salimalii* Thonglongya, 1972. Forty species were recommended for captive management for education and public awareness.

Legislation and policy issues included a priority recommendation as the removal of Megachiroptera or fruit bats from Schedule V (Vermin) of the Indian Wildlife (Protection) Act, 1972 with legislation to extend to other species of Chiroptera. Over time, legislation and forest management plans and guidelines should include control measures for disturbance, selling, bartering whole or parts of bats, protection of key roosting sites and important habitats of bats, particularly of threatened and endemic species. Migratory bat species should be identified and appropriate international agreement drafted. Bat taxonomy was discussed by working group members with particular focus on rectifying the ever growing lacunae in qualified bat taxonomists, coordinating access to collections in the region, capacity building and development of taxonomic keys for easier identification.

A temple bats working group recommended simple but effective methods to promote the need for protecting bats in bats in temples and tourism sites. The group recommended that when the need for disturbing bats in tourism sites arises, the cave authority and tourism authority should investigate and arrange alternate habitat for bats.

Education working group members discussed a strategy for tackling the negative attitudes towards bats which consisted of a variety of educational activities, items and projects aimed at audiences of different ages and in different strata of society.

During a session devoted to personal commitments there were many pledges to conduct educational and awareness activities for all levels of people, to start bat clubs, and to conduct a variety of research projects. Some of the projects included to study Nepal and Myanmar cave bats, pollination and seed dispersal in a forest ecosystem; to coordinate the import of bat detectors; develop a model for a bat box appropriate for South Asian environment. Other commitments included working against illegal trade of bats, adopting orphaned bats, mapping of bats in South Asia, working for upgradation of legislation, making available the Bombay Natural History Society collections for study and preparation of bat education materials for use by all participants and zoos.

Illustrations by Arnab Roy, Kolkata

List of South Asian Chiroptera assessed in the Conservation Assessment and Management Plan Workshop, Madurai, 2002

Scientific name, status and criteria code

Areilulus circumdatus (Temminck, 1840) - LC
Asellia tridens (Geoffroy, E., 1813) - NE
Barbastella leucomelas (Cretzschmar, 1830/31) - NT
Coelops frithii Blyth, 1848 - NT
Cynopterus brachyotis (Muller, 1838) - LC
Cynopterus sphinx (Vahl, 1797) - LC
Eonycteris spelaea (Dobson, 1871) - LC
Eptesicus bottae (Peters, 1869) - DD
Eptesicus gobiensis Bobrinskii, 1926 - DD
Eptesicus nasutus (Dobson, 1877) - DD
Eptesicus pachyotis (Dobson, 1871) - DD
Eptesicus serotinus (Schreber, 1774) - NT
Eptesicus tatei Ellerman and Morrison-Scott, 1951 - DD
Harpiocephalus harpia (Temminck, 1840) - NT
Harpiocephalus mordax Thomas, 1923 - DD
Hesperoptenus tickelli (Blyth, 1851) - LC
Hipposideros armiger (Hodgson, 1835) - LC
Hipposideros ater Templeton, 1848 - LC
Hipposideros cineraceus Blyth, 1853 - NT
Hipposideros diadema (E. Geoffroy, 1813) - VU — D2
Hipposideros durgadasi (Khajuria, 1970) - EN — D
Hipposideros fulvus Gray, 1838 - LC
Hipposideros galeritus Cantor, 1846 - NT
Hipposideros hypophyllus Kock & Bhat, 1994 - EN — B1ab(ii,iii) + 2ab(ii,iii)
Hipposideros lankadiva Kelaart, 1850 - LC
Hipposideros larvatus (Horsfield, 1823) - NT
Hipposideros pomona Andersen, 1918 - LC
Hipposideros speoris (Schneider, 1800) - LC
Ia io Thomas, 1902 - EN — B1ab(iii)+2ab(iii)
Kerivoula hardwickii (Horsfield, 1824) - LC
Kerivoula papillosa Temminck, 1840 - NT
Kerivoula picta (Pallas, 1767) - LC
Latidens salimalii Thonglongya, 1972 - EN — B1ab(iii)+2ab(iii)
Macroglossus sobrinus (K. Andersen, 1911) - NT
Megaderma lyra E. Geoffroy, 1810 - LC
Megaderma spasma (Linnaeus, 1758) - LC
Megaerops niphanae Yenbutra & Felten, 1983 - NT
Miniopterus pusillus Dobson, 1876 - VU — B2ab(iii,iv)
Miniopterus schreibersii (Kuhl, 1819) - LC
Murina aurata (Milne-Edwards, 1872) - NT
Murina cyclotis Dobson, 1872 - LC
Murina grisea Peters, 1872 - CR — B1ab(iii)
Murina huttonii (Peters, 1872) - LC
Murina leucogaster (Milne-Edwards, 1872) - NT
Murina tubinaris (Scully, 1881) - NT
Myotis annectans (Dobson, 1871) - VU — D2
Myotis blythii (Tomes, 1857) - VU — D1
Myotis csorbai Topal, 1997 - DD
Myotis daubentonii (Kuhl, 1819) - EN — B1ab(iii)+2ab(iii)
Myotis formosus (Hodgson, 1835) - LC
Myotis hasseltii (Temminck, 1840) - NT
Myotis horsfieldii (Temminck, 1840) - LC
Myotis longipes (Dobson, 1873) - NT
Myotis montivagus (Dobson, 1874) - VU — B2ab(iii)
Myotis muricola (Gray, 1846) - LC
Myotis mystacinus (Kuhl, 1819) - VU — D1
Myotis sicarius Thomas, 1915 - VU — B2ab(iii)
Myotis siligorensis (Horsfield, 1855) - NT
Nyctalus leisleri (Kuhl, 1819) - EN — D
Nyctalus montanus (Barrett-Hamilton, 1906) - NT
Nyctalus noctula (Schreber, 1774) - LC
Otomops wroughtoni (Thomas, 1913) - CR — B2ab(iii)

Scientific name, status and criteria code

Otonycteris hemprichii Peters, 1859 - NT
Philetor brachypterus (Temminck, 1840) - VU — B1ab(iii)+2ab(iii)
Pipistrellus abramus (Temminck, 1840) - DD
Pipistrellus affinis (Dobson, 1871) - NT
Pipistrellus cadornae Thomas, 1916 - NT
Pipistrellus ceylonicus (Kelaart, 1852) - LC
Pipistrellus coromandra (Gray, 1838) - LC
Pipistrellus dormeri (Dobson, 1875) - LC
Pipistrellus javanicus (Gray, 1838) - LC
Pipistrellus kuhlii (Kuhl, 1819) - LC
Pipistrellus paterculus Thomas, 1915 - LC
Pipistrellus pipistrellus (Schreber, 1774) - LC
Pipistrellus savii (Bonaparte, 1837) - VU — B1ab(iii)
Pipistrellus tenuis (Temminck, 1840) - LC
Plecotus auritus (Linnaeus, 1758) - NT
Plecotus austriacus (Fischer, 1829) - NT
Pteropus faunulus Miller, 1902 - EN — B1ab(iii)+2ab(iii)
Pteropus giganteus Brunnich, 1782 - LC
Pteropus hypomelanus Temminck, 1853 - EN — B1ab(iii) + 2ab(iii)
Pteropus melanotus Blyth, 1863 - VU — B1ab(iii), 2ab(iii)
Pteropus vampyrus Linnaeus, 1758 - EN — B1ab(iii)+2ab(iii)
Rhinolophus affinis Horsfield, 1823 - LC
Rhinolophus beddomei Andersen, 1905 - NT
Rhinolophus blasii Peters, 1866 - NT
Rhinolophus cognatus Andersen, 1906 - VU — D2
Rhinolophus ferrumequinum (Schreber, 1774) - VU — B2ab(iii)
Rhinolophus hipposideros (Bechstein, 1800) - VU — B1ab(iii)+2ab(iii)
Rhinolophus lepidus Blyth, 1844 - LC
Rhinolophus luctus Temminck, 1835 - NT
Rhinolophus macrotis Blyth, 1844 - NT
Rhinolophus mitratus Blyth, 1844 - VU — D2
Rhinolophus pearsonii Horsfield, 1851 - LC
Rhinolophus pusillus Temminck, 1834 - LC
Rhinolophus rouxii Temminck, 1835 - NT
Rhinolophus sinicus (Andersen, 1905) - LC
Rhinolophus subbadius Blyth, 1844 - VU — B2ab(iii)
Rhinolophus trifoliatus Temminck, 1834 - VU — B1ab(iii)+2ab(iii)
Rhinolophus yunanensis Dobson, 1872 - VU — B1ab(iii)+2ab(iii)
Rhinopoma hardwickii Gray, 1831 - LC
Rhinopoma microphyllum (Brünnich, 1782) - LC
Rhinopoma muscatellum Thomas, 1903 - NT
Rousettus aegyptiacus (E. Geoffroy, 1810) - VU — B1ab(iii)
Rousettus leschenaulti (Desmarest, 1820) - LC
Scotoecus pallidus (Dobson, 1876) - NT
Scotomanes ornatus (Blyth, 1851) - LC
Scotophilus heathii Horsfield, 1831 - LC
Scotophilus kuhlii Leach, 1821 - LC
Sphaerias blanfordi (Thomas, 1891) - NT
Tadarida aegyptiaca (E. Geoffroy, 1818) - LC
Tadarida plicata (Buchannan, 1800) - LC
Tadarida teniotis (Rafinesque, 1814) - NE
Taphozous longimanus Hardwicke, 1825 - LC
Taphozous melanopogon Temminck, 1841 - LC
Taphozous nudiventris Cretzschmer, 1830-31 - LC
Taphozous perforatus E. Geoffroy, 1818 - LC
Taphozous saccolaimus Temminck, 1838 - LC
Taphozous theobaldi Dobson, 1872 - VU — A2a
Triaenops persicus Dobson, 1871 - VU — D2
Tylonycteris pachypus (Temminck, 1840) - NT
Tylonycteris robustula Thomas, 1915 - NE
Vespertilio murinus Linnaeus, 1758 - NT

Information from the biologists and other specialists is recorded on Taxon Data Sheets which consist of eight pages and are divided into several sections, *viz.*:

Section one: General information including taxonomy, habit, habitat, distribution, locality information, threats, populations, trade, field studies, data quality, qualifier and uncertainty.

Section two: Status assessment as per information provided in Part One based on the 2001 IUCN Red List Criteria, CITES listing, national wildlife laws, presence in protected areas, previous assessments, microchiroptera and old world fruit bats action plans.

Section three: Uncertainty issues related to data quality, qualifiers and group dynamics with respect to assessments.

Section four: Recommendations for research, monitoring, captive breeding, education, population and habitat viability assessment and comments on the species.

Section five: Information on migration between adjacent populations across international boundaries, threats, colonization effects, etc. to do with assessing species at the national level.

Section six: Compilers of primary working group, reviewers of the data and sources referred in deriving literature and other unpublished information.

Information is gathered in the Taxon Data Sheets by hand and also electronically recorded in a special computer programme called the CAMP Data Entry Programme, developed by the IUCN SSC Conservation Breeding Specialist Group. When the information is complete for each species, participants attempt to derive an IUCN Red List category for the species with help from Red List experts and using primarily population and distribution information.

Other information collected in the sheets helps participants make recommendations for management, legislation, education, etc. All assessments and recommendations are ratified by the participants in a plenary sessions with much discussion ultimately leading to consensus within the workshop.

Information on distribution, including latitude and longitude in all countries of South Asia and the source of the information has been included in a table included in the Taxon Data Sheet.

The Taxon Data Sheets are included seperately in the Report in alphabetical order so that one can look up any of the 123 species and find the most current information on the species there is at this time. Samples of Taxon Data Sheets for 2 species of Hipposideros, one with a wide distribution and one with a narrow distribution have been included as illustrations.

Sample Taxon Data Sheet

***Hipposideros fulvus* Gray, 1838** — **LEAST CONCERN in South Asia**

Synonyms: *Hipposideros murinus* Gray, 1838
Phyllorhina aurita Tomes, 1859
Phyllorhina atra Fitzinger, 1870
Rhinolophus fuligens Elliot, 1839
Hipposideros fulvus pallidus Andersen, 1918

Common names: Fulvous Leaf-nosed Bat

Family: Hipposideridae

Habit: Colonial (single and mixed roosts), insectivorous

Habitat: Subterranean caves, wells, ruins of houses, thorn scrub.

Niche: Caves/ wide range.

Distribution
Global: Pakistan to Vietnam, south to Sri Lanka, Afghanistan, India

South Asia:
India: Bihar, Gujarat, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Andaman & Nicobar Islands
Nepal
Pakistan: Baluchistan, Punjab, Sind
Sri Lanka: Matara, North Western Province, Sabaragamuwa Province, Southern Province

Afghanistan

Extent of Occurrence: > 20,000 sq km.

Area of Occupancy: > 2,000 sq km.

Locations/subpopulations: Many / not known. Contiguous except for Nicobar Island population.

Habitat status: No change in habitat.

Data source: Field study, literature, museum; observed, estimated.

Threats
Threats to the taxon: Human interference, recreation / tourism, stone-quarrying, sealing and fumigation of caves in Ajanta and Ellora caves. Threat due to stone quarrying is irreversible whereas threat in caves is reversible. The influence on the population well understood, not reversible and have not ceased to be a threat.

Data source: Field study, indirect information; observed, inferred

Population
Generation time: 4-6 years

Mature individuals: > 10,000

Population trend: Population stable.

Data source: Field study, indirect information; inferred.

Red List 2001 Status derived in the workshop

Ver. 3.1: **LEAST CONCERN**

National Status:
India: Least Concern
Nepal: Least Concern
Pakistan: Least Concern
Sri Lanka: Least Concern

Uncertainty
Assessed based on evidence and on the consensus of field biologists.

Other status
Red List of Threatened Species (2000): Not Evaluated
Microchiroptera Action Plan (Global): Lower Risk least concern
CITES: Not listed

Known presence in Protected Areas
India: Bhimashankar Wildlife Sanctuary, Maharashtra.

Recommendations
Research: Survey, genetic research, ecology

Management: Monitoring, public awareness

Comments
The population seems to be contiguous except for Nicobar Islands. Delicate bat, requires humidity.

Sources
Bates & Harrison, 1997; Gray, 1838; Harshey & Chandra, 2001; Wilson & Reeder, 1993

Compilers
P.J.J. Bates, P.M.C.B. Digana, V. Elangovan, A. Hutson, D.S. Joshi, G.H. Koli, A. Madhavan, G. Marimuthu, K. Nathar, H. Raghuram, E. Pandaranayaka, P. Patlath, M.S. Pradhan, Y.S. Priya, J. Vanitharani, K.D. Yardi

Reviewers
Rest of the participants

Recent Field Studies
J. Vanitharani & S. Jayapraba in caves of Parapadi, Rodiyarpatti hills, 2000-2002 ongoing, survey of bats of Tirunelveli district and role in ecosystem
T.R. Radhamani in Madurai, 1988-1996, behaviour
A. Madhavan in Cochin in Kerala, 1993, survey
H.R. Bhat and S. Srinivasan in Karnataka, 1990, ecological record
D. Joshi in Aurangabad caves, Ellora Caves, Ajantha Caves, Bhimashankar slope caves, Maharashtra, 2001

Distribution in South Asia and Afghanistan from literature and recent field studies

Distribution in South Asia	Lat.	Long.	Notes/Sources
AFGHANISTAN			
Jalalabad	34° 26	70° 25	Bates & Harrison, 1997
INDIA			
Andaman & Nicobar Islands			
Nicobar Islands	-	-	May be referrable to *H. fulvus* (Hill, 1967)
			Bates & Harrison, 1997
Bihar			
Chaibassa	22° 31	85° 50	Bates & Harrison, 1997
Darbhanga	26° 10	85° 54	Bates & Harrison, 1997
Gaya	24° 48	85° 00	Bates & Harrison, 1997
Giridih	24° 10	86° 20	Bates & Harrison, 1997
Hazaribag and Munger	24° 00	85° 23	Bates & Harrison, 1997
Gujarat			
Bhuj	23° 12	69° 54	Bates & Harrison, 1997
Bochasan	22° 25	72° 51	Named as *H. bicolor* in Brosset, 1962b
			Bates & Harrison, 1997
Junagadh	21° 31	70° 28	type loc. of *H. pallidus*
			Bates & Harrison, 1997
Keshod	21° 17	71° 32	Bates & Harrison, 1997
Palanpur	24° 12	72° 29	Bates & Harrison, 1997
Rajkot	22° 18	70° 56	Bates & Harrison, 1997
Sadla	23° 06	7° 47	Bates & Harrison, 1997
Sasan	21° 00	70° 40	Bates & Harrison, 1997
Talala	21° 00	70° 39	Bates & Harrison, 1997
Karnataka			
Coromandal	11° 43	79° 46	Bates & Harrison, 1997
Dharwar	15° 30	75° 04	Bates & Harrison, 1997
Gadag	15° 26	75° 42	Bates & Harrison, 1997
Hanumanhalli	13° 09	78° 07	Bates & Harrison, 1997
Honawar	14° 19	74° 27	Bates & Harrison, 1997
Therhalli	13° 10	76° 23	Bates & Harrison, 1997
Vijayanagar	15° 20	76° 28	Bates & Harrison, 1997
Kerala			
Ernakulum	10° 00	76° 16	Bates & Harrison, 1997
Madhya Pradesh			
Guwarghat	23° 09	79° 56	Bates & Harrison, 1997
Hoshangabad	-	-	Harshey & Chandra, 2001
Jabalpur	23° 10	79° 59	Bates & Harrison, 1997
			Harshey & Chandra, 2001
Sheopore	25° 41	76° 42	Bates & Harrison, 1997
Sohagpur	22° 43	78° 14	Bates & Harrison, 1997
Maharashtra			
Ajantha Caves			D.S. Joshi, 2001
Aurangabad caves	19° 52	75° 22	Dry region, evergreen forest Sealing of caves for tourism D.S. Joshi, 2001
			Bates & Harrison, 1997
Bandra	19° 04	72° 56	Bates & Harrison, 1997
Bhaja	18° 42	73° 30	Bates & Harrison, 1997
Bhimashankar caves	-	-	Human interference and man-induced threats because of tourists
			D. S. Joshi, 2001
Chikalda	21° 29	77° 12	Bates & Harrison, 1997
Elephanta	18° 54	72° 58	Bates & Harrison, 1997
Ellora caves			D. Joshi, 2001
Lonavla	18° 45	73° 27	Bates & Harrison, 1997
Mahableshwar	17° 56	73° 42	Bates & Harrison, 1997
Marathwada	-	-	Bates & Harrison, 1997
Mumbai	18° 56	72° 51	Bates & Harrison, 1997
Nagpur	21° 10	79° 12	Bates & Harrison, 1997
Nanded	19° 11	77° 21	Bates & Harrison, 1997
Nasik	20° 00	73° 52	Bates & Harrison, 1997
Panchgani	17° 56	73° 49	Bates & Harrison, 1997
Ratnagiri	17° 00	73° 20	Named as *H. bicolor* in Brosset, 1962b
			Bates & Harrison, 1997
Orissa			
Bhubaneswar	20° 13	85° 50	Bates & Harrison, 1997
Dhauli	19° 51	85° 16	Bates & Harrison, 1997
Harisankar	20° 42	83° 30	Bates & Harrison, 1997
Udayagiri	20° 06	84° 32	Bates & Harrison, 1997
Punjab			
Hissar	29° 10	75° 45	Was identified as *H. cineraceus* in Siddiqi, 1961
			Bates & Harrison, 1997
Rajasthan			
Ajmer	26° 29	74° 40	Bates & Harrison, 1997
Bharatpur	27° 14	77° 28	Bates & Harrison, 1997
Bundi	25° 28	75° 42	Bates & Harrison, 1997
Dungarpur	23° 53	73° 48	Bates & Harrison, 1997
Jaipur	26° 53	75° 50	Bates & Harrison, 1997
Jhalara-Patan	24° 35	76° 12	Bates & Harrison, 1997
Jhalawar	24° 32	76° 12	Bates & Harrison, 1997
Jodhpur	26° 18	73° 08	Bates & Harrison, 1997
Tamil Nadu			
Keela Kuyil Kudi	09° 52	78° 09	Named as *H. bicolor* in Usman, 1988
			Bates & Harrison, 1997
Uttar Pradesh			
Varanasi	25° 20	83° 00	Bates & Harrison, 1997
NEPAL			
Kathmandu Valley	27° 42	85° 12	Bates & Harrison, 1997
PAKISTAN			
Baluchistan			
Hoshab	26° 01	63° 55	Bates & Harrison, 1997
Panjgur	26° 56	64° 06	Bates & Harrison, 1997
Punjab			
Chaklala	33° 40	73° 06	Bates & Harrison, 1997
Rawalpindi	33° 36	73° 03	Bates & Harrison, 1997
Sind			
Gharo	24° 44	67° 36	Bates & Harrison, 1997
Gholam	25° 06	67° 48	Bates & Harrison, 1997
Shujawal	24° 36	68° 05	Bates & Harrison, 1997
Sukkur	27° 42	68° 52	Bates & Harrison, 1997
Thatta	24° 45	67° 56	Bates & Harrison, 1997
SRI LANKA			
North Western Province			
Kurenegala	38° 47	68° 51	Caves in scrub land; North central subregion and north western region Yapa & Digana, 1996
Sabaragamuwa Province			
Ratnapura	-	-	Caves in scrub land; North central subregion and north western region Yapa & Digana, 1996
Wavulpane	06° 25	80° 40	Bates & Harrison, 1997
Southern Province			
Anuradhapura	08° 20	80° 25	Caves in scrub land; North central subregion and north western region Yapa & Digana, 1996
Hambantota	06° 07	81° 07	Bates & Harrison, 1997
Matara			Yapa & Digana, 1996

Sample Taxon Data Sheet

Hipposideros hypophyllus **Kock & Bhat, 1994** — ENDANGERED

Common names: Kolar Leaf-nosed Bat

Family: Hipposideridae

Habit: Insectivorous, cave-dwelling

Habitat: Dry Tropical Woods.

Niche: Subterranean, cave-dweller

Distribution
Global: Endemic to India

South Asia:
India: Karnataka

Extent of Occurrence: 101-5,000 sq km.

Area of Occupancy: 11-500 sq km. Estimated based on foraging range of 10km radius from the roosting areas, and survey in Mysore and Kolar.

Locations/subpopulations: 2 / not known. Fragmented.

Habitat status: Decrease in area >20% in the last 6 years due to deforestation and mining activity. Decrease in quality of the habitat mainly due to mining [Bhat *et al.*, 1993], and deforestation.

Data source: Informal sighting; observed, inferred.

Threats
Threats to the taxon: Habitat loss, extraction, mining, habitat loss and deforestation. In the case of deforestation, it is not reversible, especially after human occupation. The influence of threats on the population well understood, not reversible and have not ceased.

Data source: Informal field sighting; inferred.

Population
Generation time: 3-5 years

Mature individuals: Not known

Population trend: Not known

Data source: Indirect information; inferred

Red List 2001 Status derived in the workshop

Ver. 3.1: ENDANGERED B1ab(iii,iii) + 2ab(ii,iii)

The species has a restricted distribution, found only in two locations and is under threat from habitat destruction and modification.

1997 C.A.M.P. (Ver. 2.3): Not Evaluated

Uncertainty
Assessed based on evidence, inference and on the consensus of field biologists.

Other status
Red List of Threatened Species (2000): Vulnerable B1+2c, D2
Microchiroptera Action Plan (Global): Vulnerable B1+2C; D2
CITES: Not listed

Known presence in Protected Areas
None

Recommendations
Research: Survey studies, genetic research, taxonomic research, life history, ecological research

Management: Habitat management, monitoring, public awareness

Comments
Recently described endemic species that requires urgent follow-up studies to determine its distribution, population status and threats to its survival. The species is found only in Kolar district, Karnataka, India. There has been controversy regarding the systematic position of the species. Identity of the specimens in caves must be clarified. Known from only two localities Hanumanhalli and Therhalli in Karnataka. Current existence of this population is unknown (Sreepada). Kolar locality is based upon 2 undated specimens from BM(NH), London. Srinivasulu had been visiting Kolar areas infrequently and the information on habitat is based on informal observations. Kolar and Mysore being 250km apart the group feels that it probably occurs between these two points and nearby areas and calculated the EOO based on 250km on either side. The existing database needs to be corrected with regard to distribution, that is, Thailand: this species is only found in India as described by Kock & Bhatt (1994). Wilson & Reeder (1992) list *H. hylophyllus* not *H. hypophyllus* and is not found in Thailand (?) Proper methodology must be applied for counting the number of individuals

Sources
Bates & Harrison, 1997; Kock & Bhat, 1994; Sreepada *et al.*, 1993; Wilson & Reeder, 1993

Compilers
M.A. Ali, J.K. Immanuel, V.S. Korad, S. Mistry, P.T. Nathan, A. Noble, M. Singaravelan, Y.P. Sinha, C. Srinivasulu

Reviewers
Rest of the participants

Recent Field Studies
Sreepada *et al.*, in Therahalli, India, 1993, Trends of karyotypic evolution in the genus *Hipposideros* - *Cytobios*. 75, p. 49-57

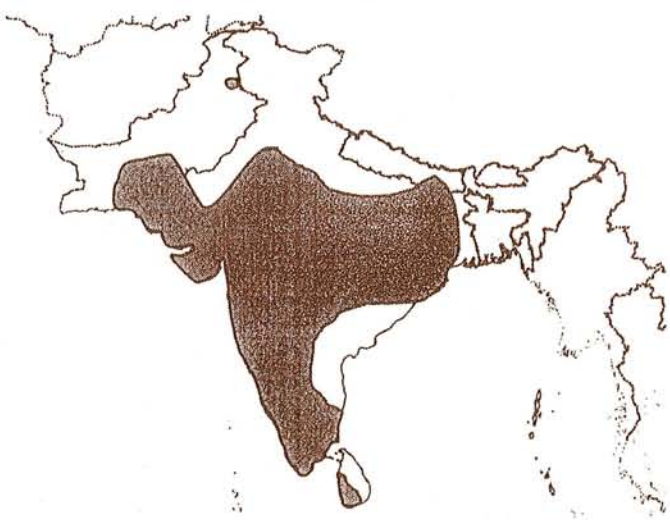
Distributionin South Asia from recent field sighting

Distribution in South Asia	Lat.	Long.	Notes/Sources
INDIA			
Karnataka			
Hanumanhalli	13° 09	78° 07	Cave mining Sreepada *et al.* 1993, 1997.

Distribution in South Asia	Lat.	Long.	Notes/Sources
Therhalli	13° 10	78° 23	Subterranean cave. - coexisting with three other species of *Hipposideros*. Mining Sreepada *et al.* 1993, 1997.

23. *Hipposideros hypophyllus* Kock & Bhat, 1994

21. *Hipposideros fulvus* Gray, 1838



Sponsors, Hosts, Coordinators, Organizers, Collaborators of the Chiroptera (C.A.M.P.) Workshop

MANY THANKS !!!

Sponsors
Chester Zool. Gardens / N. of England Zool. Society
Bat Conservation International (BCI)
Columbus Zoo Conservation Fund
Metro-Toronto Zoo

Host
Department of Animal Behaviour and Physiology, School of Biological Sciences, Madurai Kamaraj University

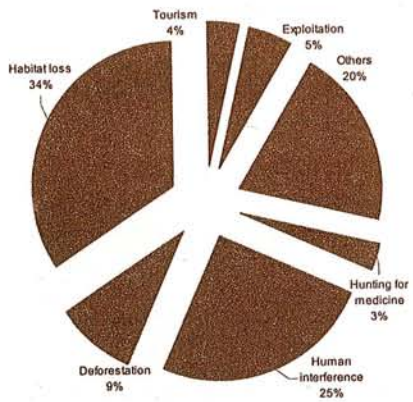
Organisers
Conservation Breeding Specialist Group, S. Asia
Chiroptera Conservation and Information Network of South Asia (CCINSA)
Zoo Outreach Organisation (ZOO)

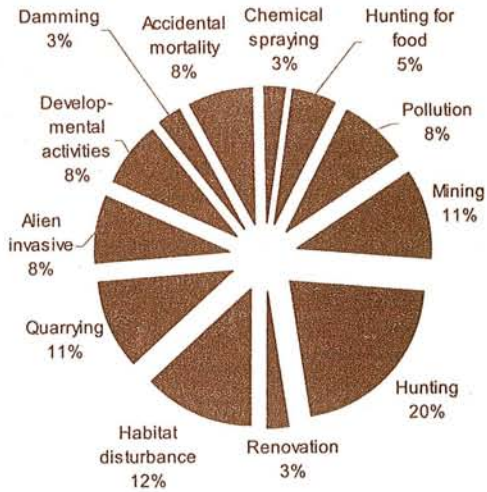
Collaborators
IUCN SSC Conservation Breeding Specialist Group (IUCN SSC CBSG)
IUCN SSC Chiroptera Specialist Group (CSG)
IUCN SSC Regional Biodiversity Programme, Asia
Wildlife Information & Liaison Development Society (WILD)
Harrison Zoological Museum

Threats to Bats

The CAMP Report includes an account of threats to bats as listed by field biologists, which provides useful fodder for addressing government agencies. Although some of these are common knowledge among batters and other species specialists, this is the first time that such theats have been quantified for the region. An important lesson of the CAMP, and its impact on legislation, however, is that until governmental agencies are convinced of the utility of bats to economy and ecosystem, they are not going to risk the ire of the agricultural community and particularly their governmental counterparts without solid evidence -- perhaps only from national examples -- that loss of bat populations will hurt rather than help in the long term.

Human interference leading to habitat loss is a major threat to almost all species of bats. Felling of roost trees for widening of roads is a common threat to fruit bats. Deforestation for different reasons such as development, timber, local needs, forest policies, etc. destroys many roost and fruit trees for fruit bats. The resulting loss from loss of habitat due to felling of trees reduces the quality of habitat





for microchiropterans – reduction in canopy insect populations. Human interferences such as lopping, fires, roost disturbance, anti fruit bat measures, etc. results in negative effect on bat colonies in both wild and semi wild habitats. Bats that live in caves that are a tourist attraction such as Ajantha and Ellora are prone to roost disturbance. Bats that have colonised old or abandoned buildings, temples, disused wells and timber yeards are under threat from changes in policies of the concerned authorities.

In addition, hunting accounts for threats to about 15% of bat species. There are different types of hunting. Locals hunt most species of bats for meat and medicine. Some species of bats such as the fruit bats are considered pests and therefore persecuted. Of the 19 species that are hunted, eight are fruit bats. Four hunted species are endemic to South Asia (Table below).

No	Scientific name	Threats
1.	*Cynopterus sphinx* (Vahl, 1797)	Habitat loss, development, dams, deforestation, exploitation, hunting, hunting for medicine
2.	*Eptesicus serotinus* (Schreber, 1774)	Exploitation, hunting for medicine in Assam, habitat destruction
3.	*Hesperoptenus tickelli* (Blyth, 1851)	Habitat loss, deforestation, exploitation, hunting, hunting for medicine, human interference
4.	*Hipposideros diadema* (E. Geoffroy, 1813)	Habitat loss, hunting for food
5.	*Hipposideros galeritus* Cantor, 1846	Exploitation, hunting for medicine in Sri Lanka, human interference, habitat loss
6.	*Hipposideros lankadiva* Kelaart, 1850 *	Habitat loss, deforestation, hunting, human interference
7.	*Hipposideros pomona* Andersen, 1918	Habitat loss, development, exploitation, hunting for food, human interference
8.	*Hipposideros speoris* (Schneider, 1800) *	Habitat loss, stone quarrying, chemical spraying, renovation of temples, hunting
9.	*Latidens salimalii* Thonglongya, 1972 *	Habitat loss, agriculture, farming, horticulture, extraction, harvesting non-woody vegetation, exploitation, hunting for medicine and food, trade,
10.	*Megaderma lyra* E. Geoffroy, 1810	Exploitation, illegal trade for food, human interference, renovation of old temples, quarrying, human habitation, habitat disturbance
11.	*Nyctalus montanus* (Barrett-Hamilton, 1906)	Hunting for medicine, habitat loss, deforestation, quarrying and mining
12.	*Pipistrellus ceylonicus* (Kelaart, 1852)	Exploitation, hunting, hunting for medicine
13.	*Pteropus faunulus* Miller, 1902 *	Habitat loss, possibly hunted
14.	*Pteropus giganteus* Brunnich, 1782	Exploitation, hunting, habitat loss
15.	*Pteropus hypomelanus* Temminck, 1853	Habitat loss, persecution
16.	*Pteropus melanotus* Blyth, 1863	Habitat loss, possibly hunted
17.	*Pteropus vampyrus* Linnaeus, 1758	Habitat loss, persecution, possibly hunted
18.	*Rousettus leschenaulti* (Desmarest, 1820)	Exploitation, hunting, tourism
19.	*Taphozous melanopogon* Temminck, 1841	Hunting, human interference

Incidence of infection by *Megaselia (Megaselia) scalaris* (Loew) (Diptera: Cyclorrhapha) on live bat *Pipistrellus coromandra* (Gray) (Microchiroptera: Vespertilionidae) in Pune (Maharashtra State), India

M.S. Pradhan and P.P. Kulkarni *

Some Dipteran flies are known parasites and also sarophagous in nature. Among those, species of family Phoridae feed on decaying vegetable matter, dead insects, and snails also. In favourable conditions their life cycle is completed within short time (Comstock, 1984). However, incidence of parasitism of *Megaselia (Megaselia) scalaris* (Loew) on a live bat specimen *Pipistrellus coromandra* (Gray) has been recorded for the first time.

Information on the species *Megaselia scalaris* (Loew) is of particular interest as it causes wound myasis and intestinal myasis. Adults are attracted to odouriferous wounds. Larvae can develop themselves in pre-existing wounds and can pass the entire life cycle in the human colon as well. The adults are of orchaceous or brownish in colour, frons with 4 rows of 4 macrochaete each; U-shaped markings dorsally on most abdominal segments. Tibiae with distinct rows of very minute hairs outside. *M.m. scalaris* is known to cause wound myasis in cattles also (Dutta, 1986).

On 16th October 2001, a bat was found lying on ground in the comparatively dark corner of the corridor of the ground floor in the office building of the Zoological Survey of India, W.R.S., Pune. The bat was alive when it was collected with the help of a long handle and then kept in a wide mouth glass bottle in captivity. Provision for breathing was made by perforating the lid of the bottle. A piece of cotton wool soaked in water was kept in the bottle to provide moisture and water, if needed.

In the morning hours of 19th October 2001, the bat specimen was found lying dead. Approximately 15 dipteran flies were trapped inside the bottle and preserved in 70% alcohol, while the bat specimen was preserved in 10% formalin solution.

Dipteran flies were identified by Shri P. Parui, of Zoological Survey of India, Kolkata as *Megaselia (Megaselia) scalaris* (Loew) (Diptera: Phoridae). The bat specimen was identified by M. S. Pradhan) as *Pipistrellus coromandra* (Gray) (Chiroptera: Microchiroptera: Vespertilionidae).

The Indian pipistrelle or little Indian bat, *Pipistrellus coromandra* (Gray), has been recorded from this region earlier by Brosset (1962) and Bates and Harrison (1997). Sanjeev Nalawade and Vishakha Korad have also collected specimens belonging to this species from Pune (pers. comm.) in 1993 and 2000.

The present communication reports first record of parasitism of *Megaselia (Megaselia) scalaris* (Loew) on a live bat specimen belonging to *Pipistrellus coromandra* (Gray) from Pune region.

Acknowledgements

Thanks are due to the Director, Zoological Survey of India, Kolkata and the Officer-in-Charge, Zoological Survey of India, Western Regional Station Pune, for providing facilities. Thanks are also due to Shri P. Parui and the Officer-in-Charge, Diptera Section, Zoological Survey of India, Kolkata, for identifying the flies.

References

Bates, P.J.J. and D.L. Harrison, (1997). *Bats of the Indian subcontinent,* Pp. 172-174. Harrison Zoological Museum, Kent, U.K.

Brosset, A., (1962). The Bats of Central and Western India, Part II: *Jour. Bombay nat. Hist. Soc.,* 59 : 707-746.

Comstock, J.H., (1984). *An introduction to entomology.* 9th ed. Pp.847-848: Publ: Satish Book Enterprise, Agra, India.

Dutta, M., (1986). Identification of Diptera of Medical and veterinary importance,: Pp. 137-159. In: *Manual collection, preservation and identification of Insects.* Zoological Survey of India, Kolkata.

Wroughton, R.C., (1918). Summary of the results from the Indian manual survey Parts 1&2. *Jour. Bombay nat. Hist. Soc.,* 26: 19-58.

*** Zoological Survey of India, Western Regional Station, Sector 29, Rawet Road, PCNTA Post, Pune 411044 India**

Two Bat Species listed in the (Indian) Wildlife Protection Act (1972, 1991, 2002) -- for the first time

As our members and other readers know, CCINSA (as well as other Chiroptera fans before us), has belaboured the fact that fruit bats are listed in the Wildlife (Protection) Act as Vermin, on Schedule V. This designation and schedule means that not only is no protection available for fruit bats, there is no mechanism for prosecuting any persons who kill, capture or torture fruit bats.

Requests to remove fruit bats from the Vermin category have been sent to the Ministry for the past three years to no avail. However, in 2002 -- perhaps as a result of two species of bats having been categorised as highly threatened in the C.A.M.P. workshop and a large amount of lobbying done by individuals and institutions, the two threatened species were upgraded to Schedule I, Part I on September 30, 2002, e.g. Wroughton's free-tailed bat (*Otomops wroughtoni)* and Salim Ali's fruit bat (*Latidens salimalii*). We hope that this is just a first step which will result in all fruit bats being removed from Schedule V and placed in some higher category which will prohibit their being destroyed or harassed with impunity.

Prosopis juliflora: An Unlikely Threat to Microchiropteran Bats

M. K. Chandrashekaran*

Senacha (2002) reports in the latest issue of BAT NET, that microchiroteran bats get entangled in the thorns of *Prosopis juliflora* and has produced photographs of dead bats (?) hanging from the branches of *Prosopis*. Of the six species of microchiropteran bats he has listed occurring in the Thar desert region, he has observed *Rhinopoma hardwickei* getting trapped in the thorns of *P. juliflora*. I would like to extend a word of caution before we conclude that such things widely happen in nature. As the author states this tree was introduced from Africa a century ago for de-desertification and fire-wood and is now thriving like a weed all over India. *Rhinopoma* spp. occur and are thriving in Africa, home to *Prosopis*, as indeed they do in central, western and southern India. *Prosopis juliflora* occurs in abundance in the Madurai region of Tamil Nadu (09° 58' N lat; 77° 42' E long). We have made field ethological observations (besides chronobiological and neurophysiological studies) on nine species of microchiropteran bats of this region. They are: *Taphozous melanopogon, T. kachhensis, Hipposideros speoris, H. fulvus, Rhinopoma hardwickei, Megaderma lyra, Pipistrellus dormeri, P. mimus* and *Tadarida aegyptiaca* for a reasonably long number of years. In our experience we had never seen microchiropteran bats getting entangled in the thorny branches of *Prosopis juliflora*, or any other thorny plant/shrub, in nature. In fact we have seen that many of these bats use *Prosopis* branches as a secondary roost for brief intervals of a few minutes when they are ingesting larger insects or other prey during their nightly foraging.

Rhinopoma hardwickei hunts flying insects (Coleoptera, Heteroptera, Homoptera, Lepidoptera, Hymenoptera, Diptera and Saltatoria) at a medium height of 15 m *always* keeping clear of dense background and foliage. The Coleoptera, which forms the main diet of *Rhinopoma*, are of an average size of < 3 mm (Usman, 1981). *Rhinopoma hardwickei* produces two kind of echolocation signals: pure tone (CF – sounds) of up to 55 ms of about 30 to 35 kHz when it is in free flight, and short FM-sounds covering a frequency range of 22 to 90 kHz when it approaches a target or intends to land on ledges of rocks (Habersetzer, 1981). At such times the train of ultrasonic pulses may increase in number from 100/s to 200/s. With such an efficient and sophisticated echolocatory mechanism *Rhinopoma hardwickei* can track down and ingest mosquitoes, often found in their faecal pellets (Usman, 1981). Neuweiler regarded (1984) *Rhinopoma hardwickei* as an intermediary form on the evolutionary way from long-range echolocation to specialization for wing-fluttering prey detection as we find in horse shoe bats.

With all this information I am making the emphatic point that, if *Rhinopoma* can track tiny beetles in free flight, it should also be able to detect and avoid bothersome *Prosopis* trees, and that no microchiropteran bat in good health is likely to entangle itself fatally in a thorny bush, under natural conditions. *Prosopis* are not like electrical wires sprang up a mere 80 to 100 years ago. Bats and obviously shrubs like *Prosopis* have co-evolved and co-existed for millions of years in Africa and other arid regions.

Needless to say I believe in the authenticity of the photographs and the dead bats *hanging* by their hind feet from the branches of *Prosopis* but they do not seem to have entangled themselves. Death might have occurred for other reasons, such as ear infection or some other illness. Furthermore the photograph was made "at open convocation pandal, J.N.V. University, Jodhpur" not the most natural of biotopes. Incidentally I have seen more dead *Rhinopoma hardwickei* at their cave sites than any other microchiropteran, with the possible exception of *Pipistrellus dormeri*. Having made this statement, I must also narrate here that using thorny branches of *Prosopis* and stuffing it at the exit points (cave mouth etc) of bats was a favourite, if cruel, method of capturing them for human consumption in the villages around Madurai. The poor bats flying out in exodus got hopelessly entangled in the *Prosopis* branches and tore their wings. The bats, thus mangled, were then extricated by the trapper. But this happens for behavioural reasons. Microchiropteran bats, which invariably exit in great synchrony *en masse*, do so without employing echolocation, possibly in order not to mutually jam the signals of one another. Flying out soon after sunset and returning to the caves a little before sunrise, are achieved by their 'space memory'. Echolocation, a very energy consuming exercise, is resorted to only while foraging and avoidance of obstacles. We also made use of this information while catching bats in mist nets (Marimuthu, 1982). Typically, members of a colony of *Hipposideros speoris* which returned in the early morning hours to the day-roost cave site, indulge in hovering flight for a few seconds and then dart into the cave. They do not emit echolocation signals during such hovering flights. This is much like daily reinforcement of site memory (Marimuthu *et al.*, 1982).

In the same issue of BAT NET there is an interesting note by Purohit *et al.*, (2002) on the domestic cat preying upon a few desert microchiropterans. Besides cats, insectivorous bats have also other predators such as snakes, bandicoots and owls. I have seen stray dogs make a meal of dog bats *Rousettus leschenaulti* when they accidentally fall on the ground. Marimuthu and I have even reported a rare sighting of a python ingesting a flying fox (*Pteropus giganteus*) (Marimuthu and Chandrashekaran, 1991).

However, in our enthusiasm for the cause of conservation we should not make statements like "*P. juliflora* thus hinders the exodus activities of bats and causes fatalities. If this plant is not removed, it may force these bats to migrate as the population decreases every year". Has Mr. Senacha kept count of population size? We, in Madurai have done this (Usman, 1981) and have noticed no such decline in the numbers of a colony of *Rhinopoma hardwickei* inhabiting a cave in the Nagamalai Ridge, incidentally, surrounded by a luxuriant growth of *Prosopis juliflora*. Yearly changes in numbers of bats can also be due to migration of a particular section, such as of male sub-adults or lactating females. Further, how does one 'remove' *Prosopis*?

. . . Continued on p. 23

*** AstraZeneca Research Professor, Chairman, Evolutionary and Organismal Biology Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur P.O., Bangalore 560064**

Furious *Hipposideros Lankadiva* Kelaart In Siju Cave, Meghalaya, India

Y.P. Sinha*

During the study period of the bats of Siju cave, South Garo Hills District, Meghalaya, I observed the ferocious habit of *Hipposideros lankadiva* on two occasions. It was very similar to the carnivorous habit of *Megaderma lyra*.

In the night of 4th June, 1992, we set a mist-net inside the cave for bat collection. After one hour, we went to see bats in the mist net and found many bats in the net. Among these bats four species *viz. Hipposideros lankadiva, Eonycteris spelaea, Rousettus leschenaulti and Miniopterus schreibersi* were observed.

I tried cautiously to capture one *Hipposideros lankadiva* in the night in the torch light but in course of handling, it buried its canine teeth very deep in my index finger piercing the nail.

On the next day, in the morning hour, due to heavy rain, we went slightly late inside the cave for capturing the bats. About 100 bats were entangled in the net. When we reached near the net, a headless *Miniopterus schreibersi* was found on the ground just below the net and an alive *H. lankadiva* was moving close to it with a small portion of the net attached to its body indicating that it had fed on the head portion, after escaping from the mist net.

*** Scientist B & Officer-in-charge, Zoological Survey of India, Gangetic Plains Regional Station, Road No.11 D, Rajendra Nagar, Patna 800 016, Bihar**

Bat Sanctuary in a school

***Daily Thanthi*, 28.11.2002, Page 8**

Bats belong to Mammals. They are considered to be ugly. People do not let them enter houses. So they live in temples, old buildings and forest trees. But the campus of a school, K.V.S. Higher Secondary School in Virudhunagar is considered to be a bat sanctuary in itself.

The campus is more than a hundred years old and has a beautiful temple, a well that has water all through the year and many beautiful trees. To add to this beauty, those trees have thousands and thousands of bats which is fascinating to see. The school authorities, teachers and students see that the bats are not disturbed and hence many people consider the campus as a bat sanctuary and visit the place often. The bats can be seen hanging from the trees throughout the day. During the night, they go to the nearby mountains in search of food.

Wherever they go, they come back before dawn. This bat sanctuary is not known to many people and is in North Virudhunagar on Madurai-Kanyakumari highway near the bypass fork.

Workshop on Seed Dispersal and Frugivory in Asia,
June 3-6, 2003, Xishuangbanna, Yunnan, China

The website for the workshop on fruits and frugivores in SE Asia is <www.xtbg.ac.cn>.

The workshop is organized by the Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences (XTBG). It is Sponsored by the Chinese Academy of Sciences and National Natural Science Foundation of China.

Background
The studies on the production of fruits by plant, their consumption by animals and the relevance of these to seed dispersal have attracted less attention than pollination biology, however, since the 1970s they have started to gain more prominence and now give rise to more research funding, seminal papers and international symposia.
In contrast to the New World where several important symposia on the topic of seed dispersal and frugivory have been held and networking and information exchange have been quite active in the past decades, regional workshops/ symposiums in Asian countries are regrettably lacking.
The main goal of this workshop is to provide an opportunity for scientists, university students, and people working on the topic of frugivory and seed dispersal to share their ideas and experiences in Asia.

The workshop will cover the general fields of seed dispersal and frugivory, such as the following themes:
-Ecological perspectives on frugivory and seed dispersal
-Evolutionary consequences of fruit-frugivore mutualism
-Study on interactions of fruiting plants and frugivorous animals: methodological considerations
-Seed dispersal and frugivory: Implications for conservation

Funding
A limited amount of funding is available, which covers costs during the workshop including registration fee, accommodation and food.
Applications should include a full manuscript that you plan to present to the workshop together with an updated resume and send by mail or email before March 1, 2003 to
Ms Li Liming,
XTBG Kunming Division,
88 # Xue Fu Road, Kunming,
Yunnan province 650223, China.
Email: Lilm@XTBG.AC.CN

Please FAX the following form to: **0086-871-5160916** (in Kunming, China) or email to: Lilm@XTBG.AC.CN

Pre-registration form for Workshop on Seed Dispersal and Frugivory in Asia

First name: _____

Last name: _____

Institute: _____

Address: _____

_____

Email: _____

Fax: _____

Tentative title for presentation: _____

_____

CHEN Jin, Professor
Chairperson of Organizing Committee
Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Mengla, Yunnan province 666303, China
Email: biotrans@bn.yn.cninfo.net

Erratum

BAT NET, 2002, Volume 3, Number 2, Pages 7-8
A Note of Prosopis juliflora: *emerging threat for the Microchiropterans,* by **K.R. Senacha** as printed

The authors of the above article are **Ashok Purohit, B.S. Gaur and K.R. Senacha** and not only the one indicated in the publication. The error is regretted.

Bat Education Programme -- Phase I over : Phase II Kits redesigned and replenished

CCINSA, with the help of Zoo Outreach Organisation Education and Publications Staff, has redesigned and replenished the bat packets brought out earlier with assistance from Chester Zoo and Bat Conservation International. A relatively small number of packets was brought out urgently to satisfy requirements of Wildlife Week and also to test materials. An evaluation form was sent along with our request for a Report from persons who ordered and used the packets.

On 8 September CCINSA members were sent a letter informing that the Bat CAMP Report was almost completed and announcing the beginning of changing conditions for bats in this region. A region-wide education and awareness programme has been proposed to make friends for bats. We want everyday people to become "just BATS! About bats."

In the last issue of BAT NET we reported the very comprehensive report of the Education/Awareness Working Group at the Bat C.A.M.P. Other working groups at the Bat CAMP made recommendations which involved education of the public as well. In addition many participants made personal commitments to communicate with public and press about bats.

Zoo Outreach Organisation as administrative office of CCINSA also committed not only to helping CCINSA members carry out their commitments but to a region-wide education programme involving a variety of target groups. ZOO developed some simple educational material collected into individual education packets which could be distributed to groups as a first phase of a much larger chiroptera education initiative. ZOO offered the bat packets to CCINSA members and zoos to help them arrange a public programme about the importance of bats in our daily life and how we should not consider them as destructive vermin or scary pests. The programme is a regular feature of ZOO activities with zoos and conservation NGO's with different themes. It was something new to offer a large, unknown and neglected mammal group as the theme of new materials.

The programme was very successful. We gave away all of the packets on hand and had to refuse some requests. All but one CCINSA member who received packets used them very effectively and responsibly, and several zoos also conducted programmes for bats. The Reports of members are mostly included in this issue and the zoos and other NGO's which conducted programmes with bat packets for wildlife week are listed here : Arignar Anna ZP, Assam State Zoo, Bhilai Zoo, Kanpur ZP, Nandankanan ZP, Nehru ZP, Sakkarbaug Zoo, Sanjay Gandhi BP, Thiruvananthapuram Zoo, VOC Park Zoo; JNV University; Kerala Forest Research Institute; Madurai Kamaraj University; Osmania University; Regional Museum Natural History, Zoological Survey of India, Patna; Conservation Himalayas; Cummins Nature Club; Sarah Tucker College; Wild Life Warden, Jaipur; Green Mercy, International Animal & Birds Welfare Society; Megamix Nature Club; Bat Assessment Troop, Conservation Himalayas; Society for Conservation of Flora and Fauna; SPROUTS and 2 individuals, Mr. Rajiv Saxena and Mr. Anil Khaire

The packets contained several items which are illustrated on the following pages along with Reports from various CCINSA members who conducted programmes. Normally we publish these reports and photos in ZOOS' PRINT, CCINSA or ARNIZE News, put some up on our website and also submit them to our donors for their perusal. It is impressive indeed when doyens of bat biology such as G. Marimuthu and Y. P. Sinha take time to organise programmes for school children. See these Reports and those of others who have used our materials very creatively and effectively along with their own lovely ideas.

Others can participate

As we are sending BAT NET to hundreds of people, including foresters, who "need to know" about the importance of bats, and who might want to share this knowledge, we would like to invite all readers of BAT NET to consider organising a programme to make friends for bats.

Here are some things you can do :

§ Associate with a zoo or NGO and volunteer to organise a lecture or series of lectures about bats with help from CCINSA members or bat scientists at your local college; give the packets we provide out to the people attending or offer them as prizes for a simple competition

§ Organise a programme in your neighborhood

§ Find a bat tree and take some students or a group of neighbors or whomever to see it and distribute the bat packets to them

§ The guidelines we will send contain ideas and games – if you have kids or relatives with kids, organise some games with them using the guidelines and items in the packets. Make sure they read the booklet and understand the significance of the games.

§ Organise a programme in your college – maybe for some undergraduate students

§ Induct undergraduate or grad students to run a programme themselves – with kids from an orphanage, a village school, a regular school or a neighborhood.

§ Use the packets to start a Bat Club (we will provide Bat Club Kits later in the year for this purpose)

Since we are giving packets free of cost, we require a "contract" with recipients. In order to obtain free packets you must submit a proposal describing a well-planned programme and relating what you will do with the packets. A programme means that you do not just hand out packets *ad hoc* -- there should be some organisation and meaning for the packets to be utilised most effectively. So we suggest that you :

- organise a programme with a function, games, etc.
- call the press to your function if possible and send us the cuttings
- take photographs and send the best ones to us
- submit a report about your programme and any artifacts that might be useful to us in reporting the entire project and promoting your activities.
- have fun doing this -- it provides a great experience for all.

Just Bats about Bats ! is an educational programme designed to inform novices about the wonders of the world of bats. Considering that most people are full of fear and disgust when they think of bats, this is not so easy. Probably the best way is to work through kids and that is what the packets are about. The packets contain a batch of things that kids would like to use in play, all of them conveying the message that bats are heroic, not horrible.

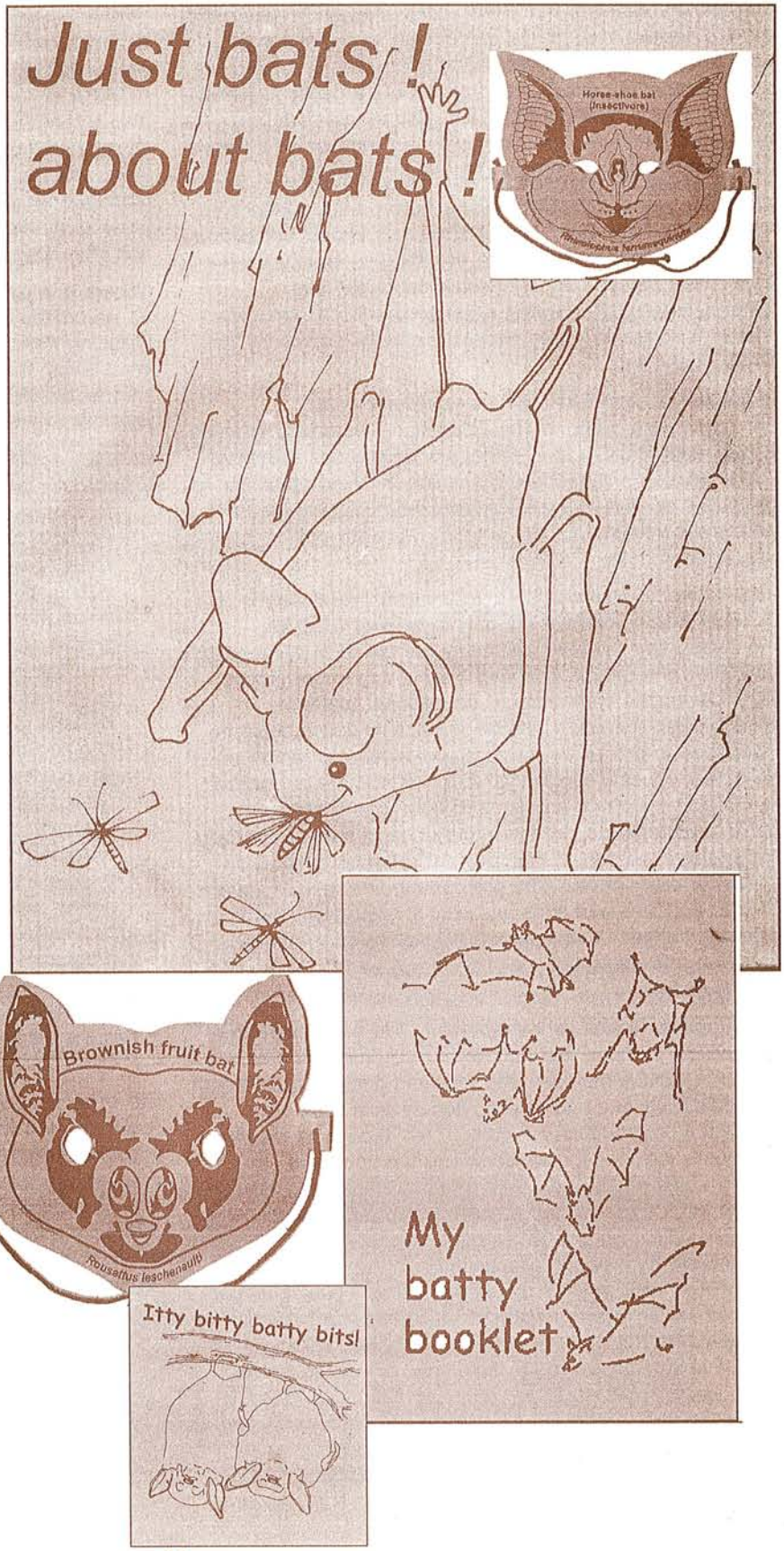
Packet – Items include:

- Booklet entitled "Just Bats about Bats" -- provides basic information about bats in an easy and fun manner
- a Mask of a fruit bat or an insectivorous bat -- there are two species of each type so that a group of kids getting packets can design a variety of games. These make for very good photo opportunities by the press
- a Sticker with bat theme for putting on notebooks, almirahs, car windows
- a tiny placard with bat theme -- for holding mini-demonstrations and rallys ... also great for photo ops !
- a Rakhi with bat -- for tieing on friends -- committing to conservation of bats
- a Participation Certificate for "Just Bats about Bats" Programme

People who organise programmes also got a set of Guidelines for organizers and 5 sets of attractive bat greeting cards to use as prizes for quiz competitions.

For Animal Welfare Fortnightly some of the same items were brought out but with a new "face". A brochure was produced for creating welfare awareness for "daily life wildlife" -- wildlife that people encounter in their lives, not when they visit a sanctuary or national park.

Illustrations of most items are included here. Why not organise a programme ? Or encourage some teacher or NGO friend to do so. You just have to write to us with your request and we will send you an application. The best bat programmes are probably organised by batters !



Guidelines for an Education Programme : Just Bats about Bats

CCINSA's efforts to encourage bat biologists, zoo directors, teachers and NGO's to start educating the public about bats is called B.A.T.S.! -- Bat Awareness Training School. It is a correspondence course, so far, although there are plans afoot to include a day of education training in the CCINSA Ecological Field Techniques Training Workshop later this year. The "training school" trains now by sending people things to give away, such as the bat packets, and providing them with guidelines.

The bat packets developed by ZOO for CCINSA are for using in a group in connection with an event or function for the sake of education. Many people want to participate in conservation by helping to educate the public, but maybe they have never taught professionally, or organised a group activity. Even professional teachers sometimes balk at organising an "education programme" and most teachers and zoo educators don't know much about a topic like bats !

Zoo Outreach Organisation has developed educational materials for many different themes and found that potential organisers get a great deal of confidence and help from a set of Guidelines.

For the bat education programme also, ZOO has developed Guidelines for conducting an education programme and published the document in a small booklet.

This article is a review of these Guidelines so that others in CCINSA or other organisations receiving BAT NET might get an idea of what is provided for them to make organising a programme easier. Once one has decided to try and organise a programme, he can write to CCINSA with a plan and order the guidelines and packets. The contents of the Bat Ed Programme Guidelines are:

Introduction - a short note providing background for why an education programme is absolutely required for bats -- people just don't know !

A C.A.M.P. Workshop for Bats -- short article about the South Asian C.A.M.P. Workshop which inspired the education programme and a review of the information about status of bats gleaned from the workshop.

Developing a programme around a species or event -- suggestions from the ZOO Ed Book on how to use either species or events as themes for a successful education programme. Description of different varieties of programmes.

Get the best from the press -- instructions on how to interact with the press; how to get your event covered in the press in the most effective manner. How to write a press release; interaction with different media.

All about Bats -- this section is a very simple overview for persons organising programmes for children or persons who perhaps have no knowledge of bats at all ! It is the "basics of bats !"What are bats? Where are bats found? How Big? How small? Colours, Home, Eyes and Ears, Hibernation, Migration, Reproduction, Kinds of bats, Importance, Threats, Hunting and trade, Legislation and Red List, CITES, Myths and What we can do. There are also short pieces of Bat boxes and Bat houses and Bats as pets. Bat bites and Batman have also been covered.

Bats in Indian Zoos -- lists the zoos in India that keep bats.

Games and Activities -- Finally, there is a section on games and activities which can be easily played with kids of all ages. Even grown up kids would have fun playing some of these games, or conducting debates and drawing contests. Each game or activity carries suggestions for a number of students or players, the most appropriate age group for the game, time required and materials required. The names themselves may inspire you to order the Guidelines and organise a programme :

Debate!
Passing the story
Find your mate
Complete the bat in its Roost
Echolocating Bats
Bat Flight
Painted Bats
Drawing and Story
Flapping Bats

References-- the guidelines end with references (some of which are websites) about bats which you may consult for more ideas and information.

It is not necessary to organise a very elaborate programme in order to teach kids about bats. You can invite a few neighbourhood kids home to talk informally about bats and play a few games. You can find out the fruits that fruit bats eat in your area and serve those fruits to the kids, explaining that although bats eat some fruits from farmer orchards, they make up for this by distributing seeds all over the landscape and providing future fruiting trees, far in excess of what they ate !

CCINSA will also provide a set of guidelines and some packets for these kinds of programmes also. Once you start teaching about bats, you will find it is very easy and your confidence -- and ambitions for bat ed ! -- will grow. That's what the B.A.T.S. - Bat Awareness Training School is all about.

Future Educational items and activities available from CCINSA

The Bat Packets described in the previous pages have been ready since last October. They have been evaluated and redesigned more attractively and practically. The Bat Packets are just Phase I of the Bat Education Programme underway by CCINSA, thanks to our donors and sponsors who have supported the ideas of the Education Working Group of the Bat CAMP Workshop.

Phase II will include the following :

1. Bat Club Kits

This is a new initiative originally inspired by a similar activity by BCI's. The idea of bat clubs was proposed in the CCINSA Newsletter and later at the CAMP Workshop. It is proposed to offer Bat Club Kits initially only to CCINSA members. A member who wants to start a bat club should commit himself to following through with his group for a minimum period of 3 years. He should raise his own funding for activities but CCINSA would provide him with a specified number of t-shirts, caps, pins, packets, and other items appropriate for such groups. Kits will contain the following :

Bat Club Guidelines booklet : this booklet will describe an "ideal" bat club giving suggestions for how to start, activities, projects, etc.

Programme Guidelines : a copy of the Guidelines from the Bat Programme Kit

Certificate of Bat Club association with CCINSA

CCINSA Bat Club logo which can be adapted for specific clubs by supplying its name.

For members – different items for members under and over 12 Bat Club braceletsBat Club pinsBat Club bannersBat Club Identity card Bat booklet – aims of CCINSA bat clubs, pledge, facts, etc. T-shirts – a specific number for Bat Club organizer to use for prizes, for rewarding for extra work, for identifying programme guides, supervisors or mentors, etc.

Sponsor -- Chester Zoo . This material will be ready in 3 months approximately. We will send a letter and description to each member of CCINSA.

2. Summary Report of C.A.M.P. Workshop : The Report of the South Asian Chiroptera C.A.M.P. workshop will be too long for easy consumption by the general public. An important component of the proposed education programme is an attractive, illustrated 20-24 page booklet for circulation to policy makers, teachers, politicians, foresters and laypersons. It will be useful for the Bat Programmes as well as for the Bat Clubs in addition to general awareness. In the booklet will be illustrations of some of the bats, a layman's explanation of the IUCN Red List Categories and Criteria, a list of the 123 bats of South Asia, their status and the reasons and a short description of some of their characters. Tables of threats, distribution, maps and line drawings of bats and bat issues will be included.

Sponsors -- Flora and Fauna International, Bat Conservation International, and Chester Zoo. This material will be ready in two months and will be available to CCINSA members to use in their education activities for adults and their interaction with foresters and other policy makers.

3. Colour poster of some bats of South Asia -- not funded yet.

4. Bat rubber stamps -- later

5. Bat material for foresters -- funds have been requested to make it possible to send 500 foresters in the Ministry, protected areas and reserve forests BAT NET and other materials about bats.

Watch BAT NET for more materials for education.

Many thanks

to the
Chester Zoo & North of England Zoological Society

ZOOLOGICAL GARDENS
CHESTER

for their generous sponsorship of the CCINSA Network, the South Asian Chiroptera CAMP, and a Chiroptera Conservation Education Programme and

Bat Conservation International (BCI)

for their generous sponsorship of the South Asian Chiroptera CAMP and a Chiroptera Conservation Education Programme

Flora and Fauna International

for their generous support of the Chiroptera Conservation Education Programme

and
Metro-Toronto Zoo

for their generous support of the South Asian Chiroptera CAMP

Bat Conservation International and the USA get 4 "stamps" of approval for bats

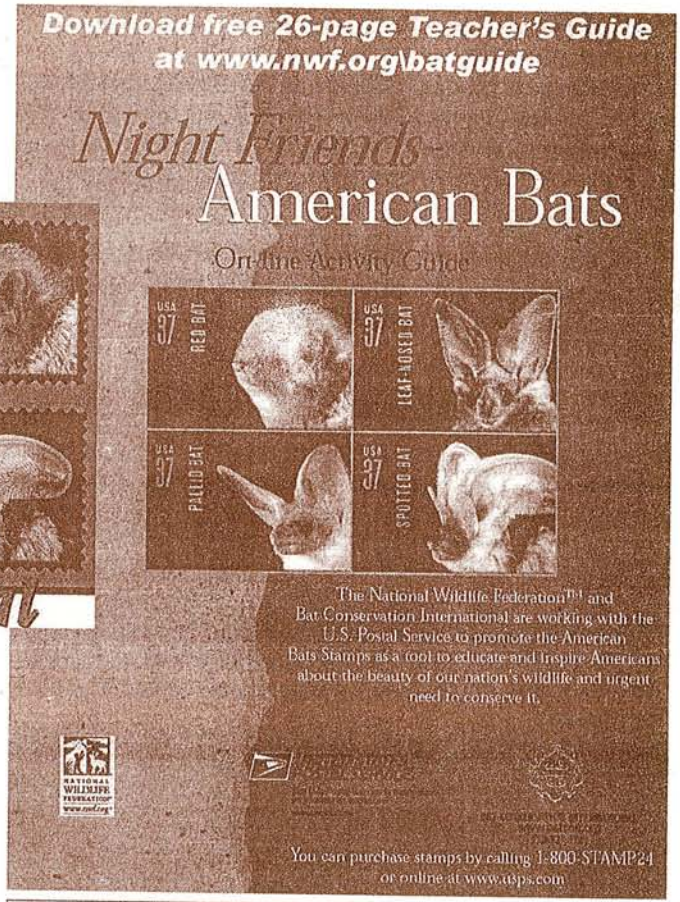
On September 13th the U.S. Postal Service joined at least 75 other countries in the world that have celebrated bats on their postage stamps. It was the first time for the USA in its 155 year old postal service. This event was achieved by a chance meeting of a bat-loving rancher and BCI member, who has several bat houses on her ranch and throws bat parties for friends, and the Chairperson of the U.S. Postal Service's Citizens Stamp Advisory Committee. When the rancher, Carol Adams, found out her dinner partner was Virginia Noelke, the Chairperson, she asked why bats had never found a place on U.S. stamps. Thus began a process two years ago which resulted in four beautiful bat stamps.

The U.S. Postal Service approached the founder of Bat Conservation International, Dr. Merlin Tuttle who is also an award-winning nature photographer for the photos and Dr. Tuttle came up with the beauties featured here.

The National Wildlife Federation, a U.S. based non-governmental nature organisation teamed up with BCI to produce thousands of pamphlets distributed with USPS assistance to some 300,000 educators and others interested in bats. The pamphlets featured information that dispelled dangerous superstitions about bats. Bat Conservation International earned several hundred new members as a result. There was good press coverage of the release of the set of stamps as well.

Another collaboration was between the USPS, BCI and NWF to bring out a free 26-page "Teacher's Guide" which is available at www.nwf.org\batguide. The organisations worked together to promote the American bat stamps as a tool to educate and inspire Americans about the beauty of their wildlife and urgent need to conserve it. The booklet gives information about America bats but it's still worth downloading and giving a good look, particularly if you are interested in education.

AND ... why should India not also have bat stamps ? Two species of bats were recently upgraded from Vermin to Schedule I of the Wildlife Protection Act. At least those bats could be nicely featured on some of India's stamps. CCINSA will pursue this and find out who to contact so members can organise a letter-writing campaign and also find out their best bat photographs to submit !



Other opportunities from BCI

Check out BCI's wonderful web site : www.batcon.org

If you are a "stamper" as well as a "batter", you can order First Day Bat Covers through the site.

Get BCI's Electronic Newsletter, **Bat Conservation** This newsletter contains news about bats, conservation needs current projects about bat activities throughout the world. Just go to the website and click on the newsletter icon and sign up.

Also on BCI's website are hundreds of articles and stories about the utility of bats, how to attract bats, how to build bat houses, etc. The many years of newsletters are archived and can be surfed and selected very easily.

BCI videos -- BCI has donated several videos to CCINSA for use in our education programmes. We will figure out a mechanism for sharing these on loan basis so that CCINSA members can add this to their list of educational ideas.

Just Bats about Bats

Juliet Vanitharani *

A bat conservation awareness programme was conducted during the Wildlife Week celebrations by the bat research team of Sarah Tucker College, Tirunelveli. In view of the need to develop new attitudes to accept the soft furry creatures called bats as a natural part of our surrounding and to have greater appreciation for the role they play in contributing a healthy ecosystem it was decided to conduct a lively programme. Creating awareness among school and college students about bat conservation will reach wider audience, which is crucial in order to gain public and government support for bats in India.

About the bat research team:
Sarah Tucker College is the first women's institution in South India. It is 107 years old and has maintained an unbroken record of academic excellence over many years with more than 2300 students. The zoology department was started in the year 1957 and provides an excellent infra structure to support bat research projects and other activities. The bat research team under the leadership of the writer, Dr. Juliet Vanitharani, consists of five more eminent researchers Dr. Usha Gana Selvi, Mrs. Jeya Praba, Mrs. Adeline, Mrs. Lily and Mrs. Ezhilmathi Sophia.
Apart from research this team conducts bat conservation programmes.

Why protect bats? Bats are beneficial members of the animal community. If bats were to be eliminated whatever the reason, the loss could trigger a cascade of linked extinctions in the ecosystem. These little creatures have been unnecessarily dreaded and defamed whereas they deserve only sympathy and protection.

The programme: 'Just bats about bats' programme was conducted during the Wildlife Week by the bat research team of Sarah Tucker College both inside and outside the campus.

Inside campus: Zoology department students saw the common fruit bat *Cynopterus sphinx* Vahl. 1797, the Short – nosed (Indian) fruit bat and the Tent maker of the city on 4th October, obtaining full information about the bats through the research team. On 7th October, a poster competition was held with posters, coloured photographs, oil paintings and Indian ink drawings of bats, with attractive captions and information. The first three best posters were awarded with prizes. The Posters were displayed in various places of college so that an "All about bats" awareness was created among the college students.

Outside campus: On 8th October 2002, a Bat Club was inaugurated at St. Francis Xavier Matric Higher Secondary School, Tirunelveli. The organizing committee was constituted by the Principal, 4 P.G. staff members of the school, bat research team of Sarah Tucker College and 55 rank holders from 6th to 8th standard. A 'Just bats and about bats' programme was conducted on the afternoon of 8 October. The programme started with a slide show with information about bats their diversity and their beneficial role in the ecosystem. Posters made by the college students were displayed in the school campus. An on-the-spot quiz competition was conducted among students, based on the information gathered through the slide show and the posters. Small prizes were given to the participants. Finally the programme ended with two games related to bats using the bat masks sent by the Zoo Outreach Organization. The students enjoyed playing bat themed games given in the guidelines sent by Z.O.O.

Students get "up close and personal" with bats.

Learning through bat games for Wildlife Week

Poster competition provides educational material for the public. Photos by Juliet Vanitharani.

Bat Programme for students of Akshara Matriculation Higher Secondary School

G. Marimuthu*

A lecture on bats was delivered to the students of the Akshara Matriculation Higher Secondary School, on 16th October 2002. The age of the students ranged between 8 and 15 and number of students who attended the lecture were nearly 150. I started the lecture with an introduction about bats with projections of faces of different species of bats. The introduction part emphasized that bats are flying mammals and not birds. Foraging behaviour of fruit bats and insectivorous bats were explained. The lecture ended with a detailed explationary on the myths and realties of bats, and their beneficial role in pollination, seed dispersal and controlling insect pests. The students raised several questions mainly on echolocation and vampire bats. The students understood the exaggerations upon bats associated with spreading diseases. The students enjoyed the kit, especially the bat masks. Since the rope in the mask is not elastic, a few masks were damaged when put on them. Most of them were seen playing with the masks. The principal Mrs. Srinivasan and the Head Mistress Mrs. Gupta thanked me for selecting their school for this programme. Photographs were taken and the newspaper *The Hindu* covered the news in their edition-dated 19.10.02.

*** Department of Animal Behaviour and Physiology, School of Biological Sciences, Madurai Kamaraj University, Madurai 625 021**

Megamix Nature Club, Lakhimpur - efforts for bats during Wildlife Week

Debojit Phukan *

Megamix Nature Club conducted several programmes during October for the sake of educating students and teachers about bats.

On 6 October 2002, Wildlife Week was celebrated at Ujani Majuli Higher Secondary School (Dist: Jorhat) with participant students between the ages of 10 and 21 years, as well as teachers and general community. This was a very large gathering of diverse age and appearance which made for an opportunity for creative efforts in education !

There were talks and deliberations from Mr. Narudha Nath Dutta, a zoology lecturer and member of Megamix Nature Club, who highlighted the role of wildlife in an ecosystem and that of human beings in protecting wildlife. The place "Majuli" is the world's biggest river island and a paradise of exotic migratory birds in the Assam valley. Mr. Dutta formed two Bat Clubs there. One school based and one N.G.O. based.

On 19th October, the P.G. Training College, Dhumaji (Dist: Dhumaji) hosted a Training of Teachers in change of Eco-clubs. There were 82 Teachers (out of 100 schools) from the whole District of Dhumaji who were the trainee participants. The writer was one of five trainers who highlighted bats as the nighttime hero of species diversity in biodiversity. They further talked about the role of bats and their position in the food chain and the interdependence and interrelations between habitat and species diversity.

The writer introduced the concept of "Bat Clubs" and selected 12 Eco-clubs to form Bat Clubs in each. These have been "registered" and supplied with a kit of our own making. The five members clubs are formed by our contact person (Teacher) and four student volunteers. A certificate was issued to the school.

On 15th October a programme was held at the residence of Mr. Robindra Baruah, Gogamakh (District: Dhumdji) for the purpose of forming a school-based bat club. Five teachers from five high schools and the family members of Mr. Baruah were participants in the evening event which consisted of an indoor training of the trainers (seven teachers) to form Bat Clubs in their schools. After an hour-long training/discussion 5 Bat Clubs were registered and the kits provided and demonstrated to train the student volunteers.

*** Coordinator (CCINSA Member), Megamix Nature Club, Dhakuakhana, Lakhimpur 787 055, Assam.**

Request from Sue Barnard :

Dear CCINSA members :
Can someone from CCINSA please tell me what types of insectivorous bats might be encountered by the public? I would also need their weights. I look forward to hearing from any and all of you. Thanks. Sue Barnard
Assistant Curator, Department of Herpetology, Zoo Atlanta, 800 Cherokee Ave., SE, Atlanta, GA 30315
Fax: 404-627-7514; E-mail: sbarnard@zooatlanta.org; batcons@mindspring.com
Websites: http://www.basicallybats.org/; http://www.basicallybats.org/batline

(Sue is a long-time friend of Zoo Outreach Organisation, host of CCINSA and a bat specialist with many dozens of publications and useful research projects to her credit. She runs an active bat rescue programme. Ed.)

Bat Walks as Bat Awareness Media

Kranti D. Yardi* and V.S. Korad **

As a part of Environment Awareness programme sponsored by Cummins India Ltd., Pune, two schools participated in Bat Walk, organized as a Wildlife Week programme for schools from Pune. Normally students go for bird watching in the nature areas in and around the city, but this time a programme on bats was arranged.

Students were taken to a roosting site located in the campus of the private company. This is a very old colony of flying foxes (*Pteropus giganteus)* with a approximate number of 4000, present on the *Casuarina* and *Eucalyptus* trees at the entrance of the factory. The colony gets full protection as it is on the premises of the company and has been flourishing in last few years.

Two batches of 120 students from two schools participated in the programme. The students were from the age group 11-14 years. Two batches were made each of which interacted for two hours. Students were excited to see the bats as they had never observed a bat colony before. Each student waited for a look through the binocular. Then we took them to the open place where Z.O.O.'s bat packets 'Just Bats! About Bats!" were distributed after which an interactive session was conducted. Questions like "how can they hang with one leg", "how do they crawl on the branches," "how a baby is born," etc. came up. Bat packets helped to present more material about the Microbats and the different species present in India. Most of the students thought microbats were young ones of Megabats. The students were astonished to hear the role bats in maintaining the ecological balance.

The students had lots more questions on bats after reading "My Batty Booklet" from the Bat Pack, as they hadn't the slightest idea of bats and their types before. It was their first introduction to bats. Students of Ramachandra Rathi Vidyalaya planned to use the masks in the drama at their school. It was a great experience for both the authors to interact with children. We are very thankful to Zoo Outreach Organisation for the informative bat packets made for the students.

***Department of Zoology, Fergusson College, Pune**

****Visiting Faculty Department of Environment, Pune University**

Bat Education Programme at V.O.C. Park Zoo, Coimbatore

N.S. Manoharan*

An education programme on bats and environmental awareness was conducted at VOC Park Zoo on 03 December 2002. The Deputy Mayor; District Forest Officer; Dr. Manoharan, Zoo Director; B.A. Daniel, Z.O.O.; B. Rathinasabapathy, Coimbatore Zoological Park and Members of a local NGO, Coimbatore Forest and Environment Protection Society helped to conduct the programme. About 500 children from C.S.I. School, Presentation Convent and Government School, Ondipudur participated.

The children were given a formal introduction about the need for conservation and zoos by the dignitaries and about bats by the resource persons. The children were taken around the Zoo in groups and informed about the fauna held in captivity there. The children were split into 2 groups and several activities and games related to wildlife conservation were conducted like Web of life and Who am I. The children were told stories and taught songs on wildlife.

The children were made to observe a tree in the park premises that holds many fruit bats. An interactive session on the importance of bats and myths about them was conducted in which the children participated actively. The children were taught about good behaviour in zoos. The packets given by Zoo Outreach Organisation were distributed to the teachers.

Director, VOC Park Zoo, Coimbatore 641018

Save Bats: Awareness Programme among School Students

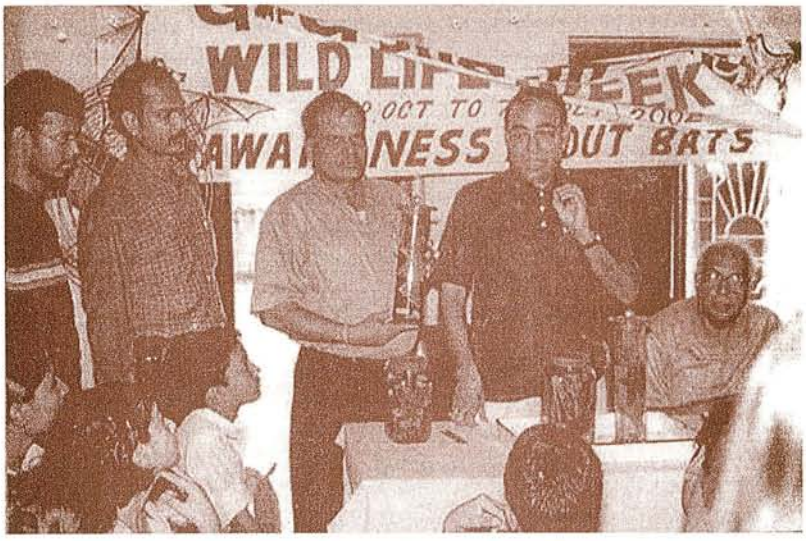
Y. P. Sinha*

Wildlife Week 2002 was celebrated in the first week of October in the Gangetic Plains Regional Station by myself and other scientists with a awareness programme. The programme featured the need to protect and save bats among school children (age group of 5 to 12 years). Shri S.C. Nahar, Assistant Zoologist helped to collect more than 40 students from different schools in Patna besides teachers and guardians.

On this occasion, this writer gave a lecture among students, teachers and guardians about the usefulness of bats for human beings. It was related that about 120 species of bats are found in India of which 27 species have been recorded from Bihar. Bats are ugly-looking creatures according to some people, but they have many good qualities, such as helping in insect control and pollination. Although some fruit eating bats destroy fruits in the gardens and orchards it can be taken lightly because they help in cross-pollination of flowers and also in seed dispersal. Many plants have "bat flowers" and they are wholly dependent on bats for pollination.

Further, the various characters of bats and their usefulness for the welfare of human being were related. It was suggested that the students collect more and more information about utility of bats and spread this information among local people and request them to neither kill the bats nor destroy their colonies. Please save the bats.

Educational materials received from Zoo Outreach Organisation including a certificate were distributed among the participants.



Y. P. Sinha gives an informative lecture to the students.
Photo by R.B. Sharma, Z.S.I., Gangetic Plains Regional Station.

* Scientist 'B' & Officer-in-charge, Zoological Survey of India, Gangetic Plains Regional Station, Rajendra Nagar, Patna 800 016, Bihar

References:

Habersetzer J., (1981). Adaptive echolocation sounds in the bat *Rhinopoma hardwickei*. *J. Comp. Physiol. A.* 144: 559-566.

Marimuthu G., (1982). Social Behaviour and social timing of a biological clock of a tropical bat *Hipposideros speoris* Schneider 1800. Ph. D. thesis. Madurai Kamaraj University, Madurai, India.

Marimuthu G. and Chandrashekaran M. K., (1991). A rare sighting of a python ingesting a flying fox *Pteropus giganteus* from a natural colony. *Bat Research News* 31: 49-50.

Marimuthu G., Rajan S. and Chandrashekaran M.K., (1981). Social entrainment of the circadian rhythm in the flight activity of the microchiropteran bat *Hipposideros speoris*. *Behav. Ecol. Sociobiol.* 8: 147-150.

Neuweiler G., (1984). Foraging, echolocation and audition in bats. *Naturwissenscaften*. 71: 446-455.

Purohit, A., Senacha, K. R. and Vantipalli V., (2002). An observation on domestic at preying upon a few microchiropteran. *Bat Net-CCINSA Newsletter* 3(2): 12-13.

Senacha, K. R., (2002). A note on *Prosopis juliflora*: Emerging threat for the microchiropterans of Thar Desert. *Bat Net – CCINSA Newletter*. 3(2): 7-8.

Usman K., (1981). Ecological and ethological studies on insectivorous bat *Rhinopoma hardwickei hardwickei* Gray 1831. Ph.D. thesis. Madurai Kamaraj University, Madurai, India.

Ecological Field Techniques Training Workshop for CCINSA Members

In the year 2003, probably after the month of June, CCINSA is likely to organise another field techniques training workshop for Chiroptera field biologists. It has been two years since the last workshop which was very well attended and highly appreciated by participants.

This workshop will focus on ecological field techniques in order to encourage biologists to gather information about the role of bats in the ecosystem. This kind of information is well known from other countries but has yet to be studied systematically in India. Some studies are going on this year and members have also applied for funds for studies.

This information is necessary for building a case for the Ministry to remove fruit bats from Schedule V or Vermin category and for upgrading all threatened bats to a higher category.

Venue is likely to be the Department of Biological Sciences, School of Ecological Studies, Madurai Kamaraj University, Madurai. Resource persons to be announced along with dates and logistics by post.

We hope many of you can attend this useful workshop.
CCINSA Adm. Office.

2002 Chiroptera C.A.M.P. Report

The Status of South Asian Chiroptera C.A.M.P. Report is available from Zoo Outreach Organisation. Each Report comes with a CD-Rom includng Report, all Taxon Data Sheets, and a photo file of the CAMP and some species of bats

Cost of Reports (includes book, CD Rom, postage and packing) is as follows :

Indian orders	**Rs. 350.00**
SAARC countries orders	**$ 12.00**
Other foreign countries orders	**$ 35.00**

(Note: CCINSA members who joined before January 2003 will receive a copy of the Chiroptera CAMP Report free of cost. Participants of the CAMP Workshop will receive two copies of the Report free of cost.)

ORDER FORM

NAME: _____

ADDRESS: _____

_____

CITY/STATE: _____

_____

Please send me _____ copies of Status of South Asian Bats with CD-Rom inclusive of postage. Enclosed/ following is my cheque*/DD / M.O. for _____ total.

* If by cheque, add Rs. 25.00 for processing

Make cheques out to *Zoo Outreach Organisation* and send to ZOO/Bat Report, POB 1683, 29/1, First Cross, Bharathi Colony, Peelamedu, Coimbatore 641 004, Tamil Nadu, India. Email <zooreach@vsnl.com>

Contents

BAT NET - Bits about Bats

Editor : Sally Walker
Assistant Editor : Padma Priya
Technical Advisors: G. Marimuthu, Sanjay Molur, B. A. Daniel

Chiroptera Conservation and Information Network of South Asia (CCINSA)
CCINSA is a network of South Asian chiroptera specialists and enthusiasts. The network aims to enhance communication, cooperation and collaboration among chiroptera specialists of this region and thereby create a chiroptera conservation "community" for better biodiversity conservation.
G. Marimuthu: Scientific Chair
Sally Walker: Convenor and Administrative Chair
Red List Advisor: Sanjay Molur
Research Assoiate: Padma Priya

IUCN SSC Chiroptera Specialist Group, South Asia Network, CSG-SA
CSG-SA represents the IUCN SSC Chiroptera Specialist Group in the region of South Asia. CSG-SA uses the CCINSA Network to locate specialists in different subject areas, to organise technical as well as conservation assessment workshops and other activities to assist the CSG in their mission.

BAT NET is a bi-annual Newsletter of the Chiroptera Conservation and Information Network of South Asia (CCINSA) and the CSG-SA. BAT NET is published by ZOOS' PRINT Screen Printing Unit for private circulation only.

CCINSA, CSG-SA and BATNET are funded by the Chester Zoo Conservation Fund. Chester Zoo, which has an excellent facility for exhibition and breeding of bats and an active conservation interest in chiroptera, is located in Upton on Chester in England and administered by the North of England Zoological Society.

CCINSA is an activity of Zoo Outreach Organisation (ZOO) and Wildlife Information Liaison Development (WILD) Society in association with CBSG, South Asia.

For communication write to
CCINSA, c/o Zoo Outreach Organisation
Box 1683, (29/1, First Cross, Bharathi Colony)
Coimbatore 641 004, TN, India

Phone 422 2563 159
Fax 422 2563 269

email zooreach@vsnl.com
Website: http:\\www.zooreach.org