BAT NET NEWSLETTER

Newsletter of the Chiroptera Conservation and Information Network of South Asia

CCINSA and the IUCN SSC Chiroptera Specialist Group of South Asia (CSGSA)

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Contents

From the Editor and Convenor, CCINSA

Dear Colleagues and Friends :

I ask you forgiveness for the lateness of this issue of Bat Net News. For a long time there was nothing at all to print. Then all of a sudden there was almost too much. Since it is almost December and we have another issue coming up in January, I hope you will excuse me for making this one the January 2005 issue, Volume 6, Number 1. I will try and keep to schedule next year and provide two issues.

We are also due another version of the CCINSA Member Directory. We have updated a lot of information on our members. If you have not sent in your recent address and phone number, email, etc. do NOT worry. We will put the next Directory up on the website and request members to see and send corrections to their entry by email. We have a beautiful format for the Directory developed by Dr. B.A. Daniel who created it for his invertebrate Directory. The new Directory should go up soon after the new year. It has colour so send your colour passport photos to us ... its not too late to include this.

We have exciting things coming up this year in CCINSA, one being the field techniques training workshop in Bangladesh. We need to cover Sri Lanka and Nepal with training also in the next year or so. We have a lot of work to do ... we still have to finalise the CCINSA Research Policy. Paul Racey wants us to start work on an IUCN South Asian Action Plan for Bats.

We are delighted with the Bat Clubs and the creativity with which their organisers are running their groups, and also the way that zoos, forest divisions, ngos, etc. are ordering bat educational material. We have made a fresh assault on the new officials in the Ministry regarding the bat amendments to the Wildlife Protection Act.

Please keep BAT Net Newsletter alive and on time by sending your articles, notes, drawings, personal achievements, to include. Best wishes for the new Year, 2005.

Sally Walker

Twilight zone at Chester zoo - a different experience

P.O. Nameer *

I recently got a chance to be at the Chester zoo, Manchester. At Chester among the various excellent enclosures for different threatened species of animals, there was one for the bats too, which is rightly called as *Twilight zone.* The twilight zone is an exceptionally good nocturnal enclosure where two species of fruit bats are kept. The enclosure dimension was, height - 8m, length - 30m, and width - 20m, with a total area of 4800m^3.

The bats kept in Twilight zone are, Rodrigues Fruit bat (*Pteropus rodrigues)* and Seba's Fruit bat (*Carollia perspicillata)*. The former is found in the rain forests of Rodrigues Is., west of Madagascar, and is endemic to the region. It is a Critically Endangered species, only 150 animals survive in the wild. There are about 60 Rodrigues Fruit bat in the Twilight zone of Chester zoo.

The Seba's fruit bat on the other hand is found in South America. It's a cave dwelling fruit bat, 200+ animals are kept in the Twilight zone of Chester zoo. This species live about 7 yrs. In wild, having a litter size of one, breed twice a year. Male maintain territory, one male keeps about 18 females. There can also be all male roosts.

The day is reversed in the Twilight zone in such a way that the day appears as night by providing dim light, while during night white light is kept on. This reversal of the day and night, make the bats active when the visitors are in the zoo.

The routine activity in the Twilight zone include, cleaning the food bowls, which are hung on to the branches of the trees / shrubs inside the enclosure. They are then replaced with fresh fruits such as apple, orange, banana, melon, pear, capsicum, tomato, etc. which are chopped into small pieces and kept in small plastic trays and are hung from the branches. Apart from this grape bunches and bananas are also kept in different positions in the enclosure. As a matter of environmental enrichment, the fruits are randomly kept in the enclosure so that bats need to search and find the fruits.

For the Seba's fruit bat, being a cave dwelling bat, an artificial cave has been created inside the Twilight zone. Seba's fruit bats is a small sized fruit bat, smaller than *Cynopterus sphinx*, while the Rodrigues Fruit bat is about the size of *Pteropus giganteus.* All the Rodrigues Fruit bats are colour banded on the 'thumb' of the forelimb, and are also micro chipped. Information on the date of birth, sex, and health status are maintained in the zoo database.

Mr. James Andrews, who came to India for the training workshop on "Ecological Field Techniques, Taxonomy, Captivity and Education for South Asian Chiroptera", which was organized by the CCINSA and ZOO during July 2003, is in charge of the Twilight zone. I spent couple of sessions at the Twilight zone and the same was a great learning exercise. I was given a chance to help them with chopping the fruits for the bats, which included apple, orange, banana, melon, pear, capsicum and tomato. All these are chopped and mixed with zoo mineral mixture. 24 kg of fruits are given in a single day to the bats.

We then caught two juvenile Rodrigues fruit bats, which are about three months old. The bats were caught to be sexed, weighed and micro chipped and fixed with the color tag. The bats were caught using long and big sized 'butterfly net'. After micro chipping and color tagging the bats was released back in to the enclosure.

Then we set the food in different places in the enclosure. The bright white lights were then gradually turned down in order to create the twilight setting. The change over of the light is a gradual process and the same is automatically controlled. Also the temperature of the twilight zone is regulated to simulate the tropical weather. The temperature was maintained between 25 to 28^o C. There is a big pool inside the twilight zone, where in large South American catfishes are kept. There is also an artificial stream created within the twilight zone.

The Twilight zone is a unique enclosure maintained at Chester zoo, which took into account all the possible environmental enrichment activities within captive condition. The enclosure also gave utmost consideration for the welfare of the bats. The big sized enclosure has adequate space even for the bigger Rodrigues fruit bats for 'free flight'. The arrangement of the food trays, regulation of the lightings, controlling the temperature, regular health checking, and the documentation of every bit of possible information on the threatened captive animals, all were a unique learning experience to me.

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ZOOLOGICAL GARDENS
CHESTER

Report on Participation in the 13th International Bat Research Conference 23-27 August 2004, held at Poland

G. Marimuthu *

International Bat Research Conference (IBRC) is being conducted every three years. The following earlier IBRCs were conducted at different countries:

IBRC	Place	Country, Year
1st	Hluboká n. Vltavou	Czechoslovakia, 1968
2nd	Amsterdam	The Netherlands,1970
3rd	Plítvíce	Yugoslavia, 1972
4th	Nairobi	Kenya, 1975
5th	Albuquerque	U.S.A., 1978
6th	Ife	Nigeria, 1982
7th	Aberdeen	U.K., 1985
8th	Sydney	Australia, 1989
9th	Madurai	India, 1992
10th	Boston	U.S.A.,1995
11th	Pirenópolís	Brazil, 1998
12th	Bangi	Malaysia, 2001
13th	Miko³ajki	Poland, 2004

The 13th IBRC was conducted at Poland during August 23-27, 2004. The Museum and Institute of Zoology, Polish Academy of Sciences was the host. The conference was held in the hotel Golebiewski at Mikoùajki, 3½ hours journey by bus from Warsaw. There was an open reception held on the evening of 22nd August 2004. Scientific sessions started on 23rd and ended during the late afternoon of 27 August 2004. Total number of countries from where participants hailed was 45 (Annexure 1), which was the largest representation compared to the earlier IBRCs. Total number of authors in the presented papers was 351 (including the authors who have not actually participated). However, total number of registrants was 228. A total of 182 papers were presented – 98 oral and 84 posters.

The following five symposia and seven sessions were organized:

Symposia:

1. Bat Systematics and Evolution: Molecules, Morphology, Mystery
2. Sensory Ecology in Bats Foraging Behaviour
3. Sociality in Bats: Causes and Consequences
4. The Ecological, Morphological and Physiological Correlates of Dietary Diversification within Chiroptera
5. Conservation and Management of Bats in Changing Landscapes

Sessions:

1. Systematics and Evolution
2. Behaviour and Communication
3. Morphology and Physiology
4. Roosting Ecology
5. Functional Ecology
6. Community Ecology
7. Conservation and Education
8. Feeding Ecology
9. Open Meeting of the IUCN/SSC Chiroptera Specialist Group

Every day morning one symposium was organized in which all participants could attend. During afternoons papers were presented in two parallel sessions.

In the symposium and session on 'Systematics and Evolution' the phylogeny of chiropteran families was presented. According to earlier reports by an Australian bat-researcher, neuromorphological traits constitute the main body of evidence supporting chiropteran diphyly hypothesis. He reported that the neural traits of megachiropteran are similar to primates, and microchiropterans are closely related to insectivores. However, recent investigations suggest that the retinotopic organization of the superior colliculus of megachiropterans is dissimilar with primates, but follows the general mammalian scheme. In addition, the megachiropteran lamination pattern in the lateral geniculate nucleus is distinctive and differs from that of primates. Its visual system exhibits regressive features indicative of secondary reductions. The gross morphology, cyto- and myeloarchitectonic organization of the spinal cord do not differ significantly between Mega- and Microchiroptera. Quantitative brain characters, when analyzed within an appropriate statistical framework support the monophyletic origin of bats. The evolution of echolocation within Chiroptera appears to be complex, with nasal echolocation evolving independently three times, once each in Rhinolophoidea, Nycteridae and Phyllostomidae. Another paper dealt with karyological view on chiropteran phylogeny. Other presentations in this session covered evolutionary relationships among north American *Myotis* species, morphological and genetic divergence in vespertilionids, interspecific phylogeny of bats of Madagascar and genetic structure in serotine bats based on mtDNA sequences.

In the session on 'Behaviour and Communication' the presentations exemplified that the emotional status of an individual bat *Megaderma lyra* is coded in the characteristics of its calls. Stenodermatine bats perched on inflorescences of the palm *Calyptrogyne ghiesbreghtiana* to feed on flower tissue. In contrast, the glossophagine bats fed upon such tissue by hovering over the flowers without perching on them. Thus stenodermatines are the

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efficient pollinators compared to glossophagines. A study on social calls of the adults and infants of *Rhinolophus ferrumequinum* suggests that ultrasonic social calls of adults have their origin in the calls of the infants although their purpose differs. Another presentation on orientation by using vision or echolocation in the megachiropteran bat *Rousettus aegyptiacus* explained that learning about a location when only vision is available does not allow the bat to perform the task when only echolocation is available, the task must be relearned. During mating season males of *Pipistrellus kuhlii* share their roosts with one or two females. Males spend more time in roosts than females. 60% of males share roost with two or more females, while 69% of females share roosts only with a single male. This behaviour suits well with a lek pattern rather than with 'resource defence polygyny'.

In the symposium on 'Sensory Ecology of Foraging Behaviour' the presentations were on adaptive significance of echolocation call design in nature and its implications on sonar engineering; dependence on passive acoustic cue (flight noise of katydid insects) to track and locate prey in addition to echolocation by two gleaning phyllostomid bats; foraging flexibility of the frog-eating bat *Trachops cirrhosus* in response to the mating calls of frogs; prey selection by the gleaning bat *Myotis myotis* based on amplitudes of arthropods' rustling sounds; visual prey detection in vespertilionid bats; homing behaviour after translocation and passive usage of magnetic sense; using the odour of ethanol to select fruits and bats avoiding fruits containing ethanol with concentration >1%; multimode foraging behaviour of *Megaderma lyra*; resource partitioning among *Myotis nattereri* and *M. bechsteinii*; and association between superior colliculus and size of olfactory bulb.

I chaired the session 'Morphology and Physiology' in which papers on variations in elements of teeth system; feasibility of active flight; and correlations of wing morphology and flight performance with dietary selection and feeding habits of the Salim Ali's fruit bat *Latidens salimalii*, were presented. Juliet Vanitharani, a member of the CCINSA, presented the last paper.

In the session on 'Roosting Ecology' papers on existence of fission-fusion roosting behaviour in the micro bat *Tadarida australis* to maintain social relationships; associations in a group of horseshoe bat *Rhinolophus mehelyi*; conservation biology of the bent-winged bat *Miniopterus schreibersii bassanii*; origin, current status, importance for bats and bat-research in 'Nietoperek' Bat Reserve at Poland; and roosting and population ecology of three sympatric tree-dwelling vesper bats, were presented.

In the symposium on 'Sociality in Bats' T.H. Kunz, a senior bat-researcher from the U.S.A. delivered a detailed lecture on roost selection, social organization and mating system in the Chiroptera. Other papers dealt with roost making as a cue for mate choice; breeding behaviour and its implications for sociality; information transfer within colonies; evolution of swarming behaviour in the context of information transfer within and among colonies and species; social structure; adaptive significance of male sociality and finally are harems of *Saccopteryx bilineata* actually harems?

In the session on 'Functional Ecology' papers on sexual segregation and mating strategies; role of bats in conventional agricultural landscapes; bat interactions with wind turbines; and swarming behaviour and genetic diversity were presented.

In the session on 'Community Ecology' papers on ecology of specialized nectarivorous bat *Musonycteris harrisoni*; influence of biotic and abiotic factors on the structure of South African insectivorous bat ensembles; impacts of land-use and habitat change on bats in Australia; status and habitat use of bats of Atlantic archipelagos of Azores and Madeira; effect of ectoparasite loads on physical conditions, especially during reproductive phases of *Miniopterus schreibersii*; and finally bats as a source for generations of local radioactive foci, were presented.

In the symposium on 'Ecological, Morphological and Physiological Correlates of Dietary Diversification' papers on use of nitrogen isotopes to evaluate the trophic position of vampire bats, historical and ecological dietary diversity of neotropical leaf-nosed bats; diet analyses to extrapolate the proportion of polyunsaturated fatty acids in their body fats prior to hibernation; implications of food hardness on diet selection; thermoregulation in nectarivorous bats; and morpho-physiological responses of bats to changes in diet quality, were presented.

In the session on 'Conservation and Education' papers on long-term management strategy to protect orchards and roosting and foraging habitats of fruit bats in Australia; managements of populations of threatened species in New Zealand; distribution and status of Polish bats; educational campaign about bat conservation in Portugal; globally endangered bumble bee bat in Myanmar; and on Lubee bat conservancy- an international non-profit organization, based at the USA working with conservation scientists, educators and zoological institutions to link field studies on bats and to support conservation programmes, were presented.

In the 'Feeding Ecology' session I presented my paper on 'Nectar feeding behaviour of pteropodid bats on '*Ceiba pentandra'.* Other papers were on bat pollination in a West African rain forest; foraging activity of central European bats; foraging areas of the notch-eared bat in Germany; and products of fermentation and other possible cues for fruit bats in Israel.

In the Symposium on 'Conservation and Management of Bats' foraging habitat and insect preferences in serotine bats in relation to variations in land use at southwest Germany; use of forest types by bats of Scotland; influence

of habitat fragmentation on forest chiropterans in Colombia; and population and survival status of the greater horseshoe bats in U.K.

On the last day an open meeting of the IUCN/SSC Chiroptera Specialist Group (CSG), was organized. Prof. P. A. Racey, the chairman of CSG chaired the session. Conservation activities of critically endangered and endangered bat species were discussed. Population monitoring programmes during 1980s and 90s on the critically endangered fruit bats *Pteropus livingstonii, P. rodricensis* and *P. voeltzkowi* in the western Indian Ocean were presented. 84 posters on all the above-mentioned aspects displayed in two batches, each of them remained for more than two days. During the last day in the last session, it was decided to conduct the 14th International Bat Research Conference at Mexico during August 2007. See Annexure on following page.

Acknowledgements
I gratefully acknowledge the Indian National Science Academy, Department of Science and Technology, Council of Scientific and Industrial Research, (all in New Delhi) for providing financial support towards participating in this conference.

Annexure 1
Following countries were represented in the 13th IBRC:

1.	Armenia	24.	Korea
2.	Australia	25.	Lithuania
3.	Austria	26.	Madagascar
4.	Basque Country	27.	Mauritius
5.	Belgium	28.	Mexico
6.	Bolivia	29.	Myanmar
7.	Brazil	30.	New Zealand
8.	Bulgaria	31.	Norway
9.	Canada	32.	Poland
10.	China	33.	Portugal
11.	Colombia	34.	Romania
12.	Costa Rica	35.	Russia
13.	Croatia	36.	Slovakia
14.	Czech Republic	37.	South Africa
15.	Estonia	38.	Spain
16.	Finland	39.	Sweden
17.	France	40.	Switzerland
18.	Germany	41.	The Netherlands
19.	India	42.	United Kingdom
20.	Iran	43.	Ukraine
21.	Israel	44.	United States of America
22.	Italy		
23.	Japan	45.	Venezuela

A glimpse at the roosts of Indian Flying Fox: *Pteropus g. giganteus* from train track

K. R. Senacha *

If you are traveling in train form Mumbai - Ahemadabad route via Surat and Vadodara and are keen to have a glimpse at the pretty roosts of Indian flying fox: *Pteropus giganteus giganteus*, then you just keep your eyes open as and when you reach Anand and Palghar Railway Stations. It was an ecstatic journey for me when I traveled from Ahemadabad to Mumbai by train in the monsoon (in the middle of July, 2004) of this year. It was early in the morning when we reached the railway station of Anand (Gujarat state), I came out on the platform in search of a newspaper and all of sudden I heard calls of *P.g. giganteus.* I found a big colony comprising of around 200 individuals of this species roosting in a tall *Ficus* tree. (Probably of *Ficus religiosa,* commonly called as *peepul*) which is located just near the station master's office. Almost all of them roosted on the upper eastern side foliage of that vary tree facing maximum sunlight, perhaps to warm up themselves in that rainy cool morning. A few of them were very noisy whereas many of them were roosting calmly, many covering their head with their wings.

After this station when the train reached Palghar Railway Station (Maharashtra state) in the late afternoon of the same day, I was amused to see another roost of *P.g. giganteus* in the journey. This colony was much larger than that of observed at Anand railway station. There were at least six hundred individuals of this bat species roosting in the tall trees, two of *Eucalyptus sp.* and one of *Ficus sp.* each with about 200 individuals. These roosting trees were located back of the Palghar railway station building. Bats were found roosting on the upper middle of the foliage of all three roosting trees. The trees were so thickly occupied by the bats that top of those were looking almost black rather than green. Although I could not observe this colony for a long as in case of Anand railway station, but certainly bats at this roost were looking more active than that of observed earlier in the morning at Anand as I also saw some four-five individuals hovering for a while over those roosting trees.

Being a bat biologist, it was really a pleasant experience for me to see these pretty roosts of Indian flying fox: *P.g. gigantius* from the train track and I am sure that one who admires the beauty of wild fauna will definitely enjoy a glimpse of these vary roosting colonies of megachiropteran bat. In brief, *P.g. gigantius* (Brunnich, 1982) is a very large fruit bat with an average forearm length of 168.4 mm and has a widespread distribution extending from Pakistan, Nepal, India, Maldives through Myanmar and China.

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Some informal correspondence on local people and medicinal uses of Fruit bats

The following interchange took place when I sent Dr. Allyson Walsh, Director of the Lubee Foundation some small snippet I'd come across about fruit bats and medicine, now lost. However, I forwarded her reply to a few people and ended up with some interesting contributions on this topic. It is worth more study. More such bits are welcome.

Thanks Sally - it is of great interest - since I was talking to Bandana Aul about the use of bats for asthma cure in the Nicobar Islands just recently.

Fruit bats are also eaten in Australia by aboriginals to cure breathing disorders. That two such widely separated geographic regions have reached the same conclusion about the use of bats for asthma related disorders is fascinating, and I was looking at a Foundation that might support some work into this. It is dedicated to support work linking health, food & the environment.

If anyone can shed any light on how/why this belief exists - and what parts of the bat are used - Bandana suggested their bones were ground I think - I'd like to investigate further. Thanks,

Dr Allyson Walsh, Director, The Lubee Foundation, Inc.
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Later this one was copied to me from BCI for further action to induct the write into CCINSA

September 25, 2003 5:19 AM
Respected Sir,
On March 30th, 2003 we started a biodiversity conservation organization - "*Rwdwmsa*" - sprout (we pick this word from Bodo language, Bodos are one of major tribes of Assam). Amidst our aims and objectives one of the important aims is to observe the indigenous animals, birds, flora and fauna etc. and to protect them. But it is painful to express to you some things about the Indian flying foxes here.

A few years ago, after sun set it was common view to see large number of flying foxes roaming in the evening sky, flying from one tree to another tree. It was difficult to save planters' fruits from flying foxes. In our small town, 10 years ago, it was a common scene to see a decomposed body of fruit bat hanging on electric wire. But now those days are no more. Now it is rare to see flying foxes that fly in evening sky. There are some colonies of flying fox that are somehow still in existence. Within the radius of about 50/60 sq. km of our locality. There are 20 colonies of fruit bat. From August 30th , 2003 we started bat census and bat conservation awareness programme to save remaining bat colonies. We found information about 20 colonies of Megachiroptera and 3 colonies of microchiroptera. We already counted 12 fruit bat colonies and there is about 1200 fruit bats and 1 microchiroptera colony with more than 300 bats.

There is superstition in Assam (N.E. India) that, " meat of flying fox may cure asthma and other diseases". Therefore regularly few people kill these bats and sell them for Rs. 50/ animal (About US $one).There is economic problem also that leads some farmers to cut their old trees where bats roost. Although bat population is decreasing in our country day by day, our area is still comparatively rich in fruit bats. But we fear that people's superstition and poverty may finish the only flying mammal.

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Dear Colleagues, 9/27/2003
The chenchus (sylvan denizens of the Nallamala Hills, Eastern Ghats, India) occassionally consume bats for their medicinal value. Paradoxically, they feel agitated in killing bats in caves in the region as the caves invariably have shiva temples associated with them and the bats are often reverred as messengers of god. Chenchus believe that the wings have the medicinal value and do not discard it while preparing the dish.

I recollect watching some people collecting bats under the caves of Raj period buildings near Ulsoor in Bangalore, India nearly two decades ago. When enquired, the collectors informed us about the 'medicinal' importance of bat flesh in curing asthma. Beliefs vary from region to region. Indeed it would be great if someone can compile such bits of information and understand the ethnozoology behind use of bats in/as medicine.
With best regards

Dr. C. Srinivasulu, Research Associate, Wildlife Biology Section, Department of Zoology, Osmania University, Hyderabad - 500 007

Dear Allyson,
Fruit bats *(Pteropus giganteus)* are used to cure asthma/ breathing disorders and for curing menstrual problems in women in a few villages around Mysore in Karnataka. In this case only the meat is consumed. When we interviewed the villagers, we were told that the local allopathic doctors prescribe bat meat for such problems.

Pteropus vampyrus are used for curing breathing disorders in some villages on the outskirts of Medan, Sumatra.
In both the cases bats are also just consumed as food.

Fruit bats are sold in markets in Calcutta as food and medicine. Similarly, in Bangalore, I used to know some people who hunted *Cynopterus* sp. for medicinal purposes and as food.

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Special Report about *Latidens salimalii* of Kalakad Mundanthurai Tiger Reserve

Juliet Vanitharani*

(with web supplement)

***Latidens salimalii* - The Endemic Endangered Fruit Bat Of Southern Western Ghats**

According to the International Union for Conservation of Nature and Natural Resources (IUCN) Red list 2003 (version 3.1), the only rare and critically endangered fruit bat out of the 13 Megachiropteran bats of India is *Latidens salimalii* (Plate 1) named after India's eminent ornithologist Salim Ali. Resticted to the southern Western Ghats *Latidens salimalii* is found only above 1000 m and is the prime member of fruit bats there (Vanitharani *et al. in press*). Comparatively the other fruit bats: Indian flying fox *Pteropus giganteus*, fulvous fruit bat *Rousettus leschenaulti* and short nosed fruit bat *Cynopterus sphinx* are found widely distributed in plains below 600m; *while Cynopterus brachyotis*, the common fruit bat occurs around 600m.

History About The Trails Of *Latidens salimalii* In Southern Westhern Ghats

In 1948, a fruit bat, believed at the time to be *Cynopyterus sphinx*, was collected by Angus Hutton from the High Wavy Mountains in the Madurai District of Tamil Nadu, southern India. The specimen was placed in the collection of the Bombay Natural History Society and it was not until its re-examination in 1970 by Kitty Thonglongya that a number of its characteristics were found to be incompatible with those of *Cynoperus sphinx*. As a result, the specimen was assigned to a new genus and species, *Latidens salimalii* Thonglongya, 1972, so named on account of its broad cheek teeth and in honour of the Indian ornithologist Dr. Salim Ali. *Latidens salimalii* was known only by the holotype, skin, and skull until 1993, when six further specimens were collected from Yeni Kodai cave on the Kardama coffee estate (c. 09°50'N & 77°24'E) in the High Wavy Mountains during a survey of the bat fauna of the region by the Harrison Institute (The Harrison Zoological Museum) and the Bombay Natural History Society (Bates *et.al*, 1994, Bates and Harrison 1997 and Muni, 1994). The High Wavy Mountains remained the only distribution record of *Latidens* until 1999, when its presence was recorded, but without details, in the Kalakad-Mundanthurai Tiger Reserve, Tamil Nadu (Ghosh *et.al*, 1999), thereby extending its range between 110 and 160km southwards. Agoramoorthy (2000) again confirmed the species existence in the vicinity of the Kardama Coffee Estate during an examination of 46 individuals from a colony with an estimated population of 250, while Singaravelan and Marimuthu (2003a, b) collected the species from nearby.

During the course of a bat species diversity assessment and conservation management study conducted from January, 2002 onwards by the Bat Research Laboratory, Department of Zoology, Sarah Tucker College, Tirunelveli, *Latidens salimalii* were collected from seven other locations in western Tamil Nadu: (1). Therkumalai Estate at Courtallam Hills, (February 23, 2002) (2). Nagapodigai Cave (April 21, 2002) in the Agasthiyar Hill complex (3). Vudumbukal Cave in the Servalar Hills (September 8, 2002) (4). Sengaltheri Cave in the Kalakad Hills (March 8, 2003) (5). Ambalam cave in the Agasthiyar hill complex (April 7, 2004) (6). Peedam cave in Agasthiyar hill complex (June 23,2004) (7). Arangadu Cave in the Kothaiyar hill complex (September 9, 2004) (Map.1). All these locations lie within the perimeter of the Kalakad Mundanthurai Tiger Reserve (08°20'-08°51N' & 77°16'-77°39'E) except for location 1, which is positioned just outside the Reserve's north-eastern boundary (08°50'N & 77°21'E) (Vanitharani *et al*. 2004 (in press).

Roosting sites of *Latidens salimalii*

Latidens select caves adjacent to riverbeds above 1000 m. They retreat during daytime into the caves; it prefers wide mouthed, very tall caves with dark narrow chambers, which provide them protection from weather and predation. The caves are also sites for mating and for rearing the young (Kunz 1982, Kunz *et.al* 2003). In addition, they promote social interaction, digestion of food etc. Day roosts were located in Agasthiyar hill complexes (Plate 2) (origin of Thamiraparani river), Servalar hills (origin of river Servalar, a tributary of Thamiraparani river), Sengaltheri (origin of river Pachiyar (Plate 3) and in Kothaiyar, (origin of river Manimutharu). In Nagapothigai, Servalar and Sengaltheri they were found roosting along with edible nest swifts nesting there.

About The Bat-*Latidens salimalii*

The bat has dark brown to black colour pelage on the dorsal surface and has large, beautiful eyes. Superficially, they look like the common tent-making bat *Cynopterus sphinx* and *Cynopterus brachyotis*. However, they have no external tail, there is deep emargination between the projecting nostrils (Plate 4) and they have only one pair of upper incinsor teeth. And the upper canines are larger than lower. The wings are devoid of hairs. The interfemoral membrane consists of short hairs above and below. There is no sexual dimorphism. The male has a relatively massive baculum. Pregnant females were observed during the month of February and March and with young between April and June (Plate 5). When out for foraging, they leave the young in the caves.

Feeding Habits Of *Latidens salimalii*

Latidens never consume fruits at the fruiting trees possibly to avoid predation. Instead they carry the fruits to the night roosting sites to feed. They carry fruits of about 5 to 15gms

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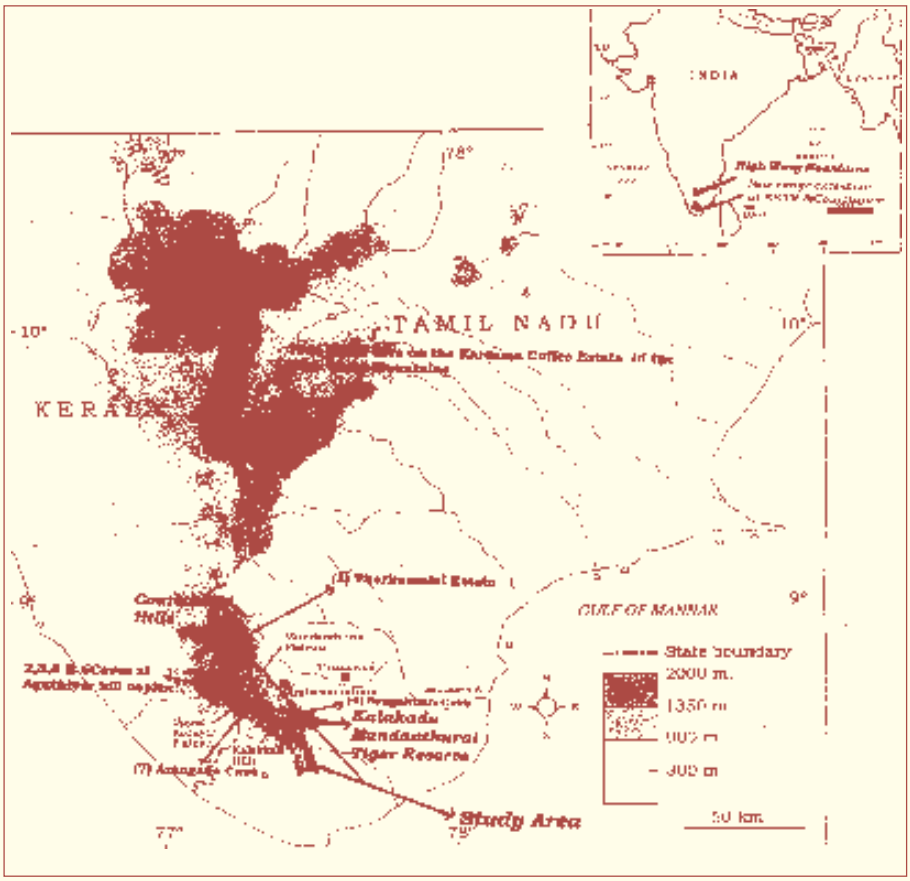
cover a distance of 2 to 10 kilometers to the night roosting site. The jaws are well modified to hold the fruits compactly. *Latidens* choose large caves and unused buildings in the forest interior as their night roosts (Plate 6). The fresh remains of half eaten fruits and ejected pellets recovered from the night roosts (Plate 7) showed that these bats mainly feed of tall fruiting trees like *Elaeocarpus tuberculatus* Roxb., *Elaeocarpus serratus, Dichapetalum gelonioides* (Roxb.), *Ficus racemosa, F. hispida*, *F. tsjahela, F. guttata, Syzygium jambos, S. cuminii, Cullenia exarillata* and *Mangifera indica* species of high altitude. During night observations, these bats were found with mouth full of fruits and flying to their night roosts. The wing membrane, claws of the first and second digits help to hold the fruit while feeding on the fruits (Plate 8). They defecate the undigested seeds in the form of pellets. The colourful liquid pastes of their feces (Plate 9) confirm the balanced diet of these bats. The bats appear to have large foraging area, in a single night. Fruit bats are the only flying mammals who can carry larger fruits with larger seeds for long distance. This behaviour underscores the superiority of bats over birds in seed dispersal, since they disperse a variety of seeds to distant places unlike birds scattering seeds under the same tree. This type of seed dispersal saves the seeds from insect pests because fecal seeds of bats are less consumed by insect pests. The gut of fruit bat processes the seed for quick germination. Ultimately, the plant species not only gets dispersed far away, but also has lesser inter species competition when they grow. The bright red, yellow, orange, purple, black and green coloured excreta of *Latidens* (Plate 9) with seeds indicates that they like to feed on fully ripened, green brightly coloured and fruits of taller trees.

The pollen dusted face of these fruit bats shows they are also pollinators of some important groups of trees. They feed on pollen, nectar and tender leaves to get a balanced diet. They need a lot of energy to have sustained flight. The wing morphological

Map 1: Distribution of *Latidens salimalii*



measurements shows they are long distance fliers with great speed in the open and capable of commuting long distances at night.

Latidens Helps Preserve The Ecosystem

The ongoing studies have revealed much information about *Latidens*'s beneficial role to the forest ecosystem. They really are the prime seed dispersers in the rain forest, which help us a lot in the restoration of tall fruiting trees of Agasthiyar malai range of southern Western Ghats, which is a Wildlife Protected Area in the Indian Peninsula and attracts international conservation communities.

The Indian Government in its recent revision to the schedules of the Wildlife (P) Act has included *Latidens* under Schedule I example part I mammals after entry 41B, and has given it protection on a par with elephants and tigers. The bat research teams at present are striving hard to protect these bats from being hunted (locals relish the meat of the bats) and disturbance to their roosting place, thus affecting their long-term viability. Already humans are unreasonably causing the extinction of rare species of fauna and flora by the hour; it would be a great ethical tragedy if *Latidens* also threatens to join the host of species lost to mankind forever.

Acknowledgements

The author specially thank the Whitley Foundation, UK for the award of the Rufford Small Grant, Ministry of Environment and Forest (Government of India) and University Grants Commission, New Delhi for the endorse of the Major Bat Research Projects which serves to support continuing bat studies and conservation initiatives in the southern Western Ghats. The author is indebted to the Harrison Institute UK

for their help in the identification of specimens and also for their valuable advice. Also grateful to Tamil Nadu Forest Department, especially for granting permission to conduct bat survey work in the southern Western Ghats, Kalakad Mundanthurai Tiger Reserve and the forest area of Tirunelveli circle. With pleasure acknowledge the help of Dr. V. Chelladurai of the Survey of Medicine Plants Unit Siddha for his assistance in identifying the plants and seeds, and Dr. Albert Rajendran of research department, St. John's College, Tirunelveli for providing information on the forests. Special thanks to Miss. Jebagnana Vasanthi, and project fellows, Miss. Arul Sundari and Malathi and field assistant Mr. Kumar for their assistance and cooperation in field work.

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News of members -- Training, Conference attendance, Paper presentations, awards

Dr. Juliet Vanitharani of Sarah Tucker College, presented a paper on "The Emerging Trends In The Bio-Diversity of Bats In Tamil Nadu" in the National Seminar on the emerging trends in Bio-diversity and Bio-technology in the Indian context organized by Christ College Bangalore - 560 029.September 25, 2003.

Dr. Juliet Vanitharani presented a paper on "Seed Dispersal Role of (Endemic, Endangered Fruit Bat of South India) *Latidens salimalii* in the Southern Western Ghats of India and its Conservation Status" at the Workshop on Seed Dispersal and Frugivory in Asia organized by Xishuangbanna Tropical Botanical Garden and the Chinese Academy of Sciences at Xishuangbanna, Yunnan, China. January 5-10, 2004.

Debojit Phukan of the Megamix Nature Club, Assam, has contributed a big article and photographs to "Bigyan Jroti", a bimonthly science magazine in Assamese. Bats are highlighted as the background Title in Vol. 38, No. 6 (April- May 2004) of this excellent publication of Assam Science Society (Est 1953). The magazine has been published since 1961, and with a circulation of 55,000 is the first and most popular science magazine in Assam. No. of circulation 55,000. Debojit's article featured on the front cover and inside page Nos. 23,24, 25 and 26. It is not the first time Debojit has sent copies of his popular articles. It is highly commendable to write for such publications which do an excellent job of getting information to the people about bats.

Dr. G. Marimuthu, Chair of CCINSA, and Head of the Department of Animal Behaviour and Physiology, School of Biological Sciences, Madurai Kamaraj University, Madurai 625 021 participated in the 13th International Bat Research Conference on 23-27 August 2004, held at Poland.

Sanjay Molur, Red List Advisor for CCINSA, attended the IUCN World Conservation Conference in Bangkok, Thailand, 15-18 November, and gave a presentation on the use of CAMP Workshop Process in Red List Assessments in South Asia. Examples from Chiroptera CAMP as well as Amphibian and Primate workshops were given to illustrate various issues.

B.A. Daniel, Chair, South Asian Invertebrate Specialist Group and Member, CCINSA attended the PDF-B GEF project on "Conservation and Management of Pollinators for Sustainable Agriculture through Ecosystem Approach" held at Almore, in 8-9 October 2004. Although Daniel attended as an entomologist, the fact that bats are also pollinators would not have escaped his attention.

Sally Walker, Convenor, CCINSA was awarded the World Association of Zoos and Aquariums prestigeous Heini Heidiger Award for outstanding and dedicated service to the Zoo and Aquarium profession at the WAZA Annual Conference held in Taipei, Taiwan, 1-4 November 2004.

Educating villagers about importance of bats in agro-ecosystems – a case study

Bhargavi Srinivasulu and C. Srinivasulu

Kawal Wildlife Sanctuary (19°05'-19°20'N & 78°32'-79°12'E), 260 km North of Hyderabad is located in Adilabad district of Andhra Pradesh, is bestowed with rich forest tracts and hilly terrain. As apart of our long term surveys on faunal diversity of the Kawal Wildlife Sanctuary, we revisited the sanctuary between the 23rd to 30th of September 2004 to carry out status surveys to collect information on the diversity and distribution of volant and non-volant small mammals in and around the Sanctuary.

On 26th September 2004, while interacting with local tribals about the presence of bat roosts in the vicinity of their villages, we were informed about the presence of bats in a cave in Chintagudem village 6 km from Jannaram village - where the headquarters of Kawal Wildlife Sanctuary is located. We became very excited and waited impatiently to start our small expedition on the next day. On the 27th we arrived at the foot of the hill called *Papammagutta,* and embarked on climbing the hill comprising large smooth faced vertical boulders. We huffed and puffed, climbing the boulders using creepers that grew densely on these rocks to finally reach the top of the hill accompanied by numerous villagers (young and middle-aged), to find a huge yawning cave beneath us, the entrance of which was on the other side of the hill. We ultimately reached the entrance and descended the depths of the cave that had jagged rocks strewn all around so much so that we had to squeeze through the gaps between the rocks sitting and crawling simultaneously to reach the place where the bats lived. Once we reached the interior of the cave to the roosting site we found ourselves sandwiched between two massive rock faces. The one facing us had large crevices that housed numerous bats that were identified as Black-bearded Bat *Taphozous melanopogon*. They were flying about everywhere, even sometimes getting under our feet. Try as much as we could to capture them they would fly away into the interiors of the cave that were inaccessible. A mist net was erected (though not in the strict sense but literally held on each person holding on to a section of the net forming a chain of individuals) to capture the bats for proper identification. After collecting four individuals of *Taphozous melanopogon* we had to stop collecting as a number of bats continued to get caught in the folds of the net that was being removed. All other specimens netted were released. We could also see many individuals of Lesser Mouse-tailed Bat *Rhinopoma hardwickii* flying near the rock faces where we stood but would fly away into the inaccessible recesses of the cave, and could not capture this species. After successful completion of capturing the bats we gingerly made our way out of the cave and down the hill. We thanked all those who gave us good and vociferous company throughout our trip.

On reaching the foothill, and entering the village where we had parked our jeep, we were surrounded by curious villagers, young and old alike (the local school headmaster had a difficult time controlling his pupils who thronged to see and listen to us!). Seizing this opportunity we took upon ourselves to educate the villagers who were superstitious about bats. We spoke about the benefits of the bats and gave positive and scientific explanations to their myths, making them aware of the myths and the facts about bats. To make them aware we carefully showed them one of the individuals of the bats that we captured while highlighting the positive impacts of the presence of the insectivorous bats in around their village and crop fields. Looking at the live bat and getting to know the facts about them overawed the villagers. Later the bat was set free and the villagers vowed never to hurt the bats, as they would by killing them or smoking them out of their houses, or fearing bats thereby hurting them hence repeating the cycle. They became aware that the bats are more beneficial than harmful. This experience left us feeling very elated and satisfied about educating and creating awareness thereby driving away the superstitions among the villagers about the bats, and of course the successful capture of bats from the cave.

In retrospection, the climb, the bruises, the falls and the captures were worth the awareness and change in the attitude caused in the villagers towards the bats.

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APOWA, Action for Protection of Wild Animals, Hatapatana, Orissa

Bijaya Kumar*

APOWA celebrated wildlife week in a different manner every day throughout the week. Along with the educational materials provided by Coimbatore based Zoo Outreach Organisation the program was made colourful, interesting and learnable. On the first day of the celebrations volunteers, students, guests and others committed to wildlife and environment tied rakhi to each other with the promise to protect wildlife. Second day we celebrated Gandhi Jayanti and Ahimasadiwas. On the eve of wildlife week a Veterinary Camp was organized by APOWA at: Nikirei under Kendrapara block. N.C. High School, Badamulabasanta was venue for the third day celebration of Wildlife Week 2004 when various competition were organised among school students coming from 12 schools of Kendrapara District. Competitions like essay writing were held."Know your Wildlife Welfare ABC's", etc. 46 students participated and filled the blanks with the name of animals using booklets provided by Zoo Outreach Organisation, Coimbatore. The students were very happy to attend such interesting programme. One other interesting activity was the Bat-count Competition which was more appreciated by the students and teachers. 52 students counted the number of bats. They used the poster and game to teach how to count bats in a tree produced by ZOO and CCINSA. Most of the students tried to give right answer.

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Observation on a colony of the Indian Flying fox in Tata Steel Zoological Park, Jamshedpur, Jharkhand, India

Dr. Y.P. Sinha *

While studying the mammalian biodiversity of Dalma Wildlife Sanctuary, East Singhbhum district, Jharkhnad, I got an opportunity to visit Tata Steel Zoological Park in Jamshedpur on 6th September 2000.

It was 10 a.m. when we entered the Zoological Park and after completing necessary formalities, we went to look at the enclosures of different Wild Life such as Lion, Leopard, Tiger, Nilgai, Samber, Cheetal etc.

In the park, there was a very small but thick forested area on a small island in the mid of a big tank named “Jayanti Sarobar”, containing various types of big trees on top of which a colony of about 300 Flying Foxes (*Pteropus giganteus*) was roosting. These trees were Silk Cotton (*Bombex ciba),* Amaltas (*Cassia fistula*), white mudah (*Terminalia arjuna*), Illipe butter or Mahuwa (*Madhuca latifolia*), Pati Badam (*Terminalia catappa*), Safed Siris (*Albizia procera*), Nepal Ebony (*Diospyros tomentosa),* Chinse date (*Zizyphus mauritiana*), Ashoka (*Polyanthia longifolia*), *Eucalyptus* sp., Mango (*Mangifera indica*), and wild *Ficus* sp. etc.

When we approached the island by boat, most of the flying foxes flew out of the trees and were flying around making "Kri-Kri-Kril" sound. They later returned to the tree and were found in pairs but hanging slightly away from each other. They were very restless and flapping their wings to cool their body.

Other colonies observed by me (Sinha, 1995) in Jharkhand in Deoghar, Giridih, Hazaribag, Palamau, Santhal Pargana and west Singhbhum districts were found on Banyan, Peepal, Tamarind, Neem, Ashoka and Eucalyptus. This bat has been decreasing due to hunting for flesh, skin and fur. Tribals and others capture the bats by fixing nets in fruit gardens in the area at night, which has been convenient especially that there was public protest when the bats were shot at using guns during day.

This bat is beneficial from the horticultural point of view as it helps in dispersal of seed of those big fruits which are not possible to carry by birds. It also helps in pollination. Goyal and Sale (1992) recommended that fruit bats be removed from Vermin Category (Schedule V) of the Indian Wild Life Protection Act 1972. CAMP Workshop for South Asian Chiroptera - 2002 also strongly suggested shifting fruit bats to a higher category.

Acknowledgements

The author is thankful to the Director, Zoological Survey of India, Calcutta for providing survey facilities and to Ms. Sally Walker for encouraging me to do work on bats.

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Celebrating Wildlife Week in Guttur, Anantapur District

G. Manjunath *

Our International Animal & Bird Welfare Society (IA & BWS), Guttur, Adrsha S.P.C.A-Gorantla celebrated Wild Life Week in collaboration with 15 Schools, two junior colleges and one Degree college at Penukonda, Gorantla and Kalyana Durgam Mandals.

The Society organised a Seminar during Wildlife Week on wildlife welfare and wild life crimes at the P.S.S. Junior College, Gorantla. The Sub-inspector of police and Forest officer were Chief Guests. A brief note about wild life welfare and wild life crime was explained by the Mandal Veterinary Officer, Gorntla and Sub-Inspector of Police. Mr Ravikumar, a Forest officer explained the importance of Wild Life welfare with the use of examples and flow charts. Mr G. Manjunath Special Police Officer of A.P state for Animal Welfare explained the different types of wildlife trade and wild life trappers using different methods to kill wild animals. He also explained the endangered species list using a slide show. He encouraged students to play a big role to stop the wild life crimes and protect endangered species. At the end of the seminar a cultural show was organised by the college students using wild animal masks.

On another day there was a Workshop with school and college students at GnanaBharathi English Medium School, Gorantla where Mr G.Manjunath Master Trainer, Animal Welfare Board of India explained about different types of animals in trade. He explained to the students their role to protect wild animals. He also explained facts & myths about bats. He also explained how bats were in domestic trade and how this depleted the wild populations of bats which are so useful for our well being and ecosystems.

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Zoo Education Programme On "Bats Conservation" during Wildlife Week

Dr. G.K. Dubey* & T. Kalaichelvan**

The Maitri Baag Zoo Celebrated Wildlife Week from 1-7th Oct 04. During this week different programmes were organized to create awareness among school, college students, teachers and public.

On 2nd October, Gandhi Jayanti day, about 130 students and 20 teachers from Science Centre Gwalior, (M.P) Science and Technology Communication Council, Government of India, New Delhi and Chhattisgarh Science Forum, Bhilai Unit participated in the "Bats Conservation programme" with the objective to create awareness about nature and its Conservation, also a part of Zoo Education Programme at M.B. Zoo. These students came to Bhilai on Nature Camp study programme 2004 for 4 days. The participants came from various places of Chhattisgarh State belonging to the different districts i.e., Rajnandgaon, Durg, Bhilai, Mahasamund, Bagtabra etc., and various villages and from adjoining forest areas.

The participants were given information about various species of zoo animals and their feeding, life span, behaviour etc.

Participants visited the Natural Habitat of Bats situated inside the Zoo which has been there for many years. They had been given detailed information on bat habits and habitat, their status, impact of human population, species identification, roosting behaviour, choosing of trees for roosting, importance of their population for maintaining ecological balance, myth about bats, how the Maitri Baag Zoo management gives protection to this species. The bats help in balancing the population of insects. Both students and teachers took much interest in the Order Chiroptera.

During the programme, the students and teachers were given Zoo education materials on Bat conservation i.e., "Just Bats About Bats" containing masks, stickers, placards, information booklets, certificates etc., provided by Zoo Outreach Organization, Coimbatore. The lectures were given on wildlife, bat conservation and general awarness by Dr. G.K. Dubey, Dr. N.K. Jain and T. Kalaichelvan of M.B.Zoo.

The participants had taken oath by tying rakhi and saying how they would help in conserving the bats and other wild animals and plants. During this programme, an "NGO" group "Nav Yuvak Mandal" of Uttai also participated to see the educational activities for conducting and involving themselves in the Zoo education unit, M.B. Zoo for future programmes.

At the end of the Programme, the participants and teachers were given certificates by Dr. G.K. Dubey.

The teachers of Nature Camp 2004 expressed their thanks to Zoo Outreach Organization, Zoological Garden Chester Zoo, CCINSA, IZE-Asia, Fauna and Flora International, Riverbanks Zoo and WILD for providing the valuable information kit, and Maitri Baag Zoo for conducting this exclusive Programme.

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New Records of bats from Kalakad Mundanthurai Tiger Reserve, India

Juliet Vanitharani, Malathi, U.S.U. and Arul Sundari, K *

Introduction

(*The present findings are the report of the ongoing bat survey work carried under the projects funded by Rufford Small Grant UK and Ministry of Environment and Forest (MoEF) Govt.of India to Dr. Juliet Vanitharani. The Harrison Institute UK has done the species identification. The detailed survey report about the bats of Agasthiyar hill complex is coming up as an elaborate paper in collaboration with Harrison Institute UK)*

Bats exploit tremendous variety of food resources and achieve remarkable abundance and diversity in certain habitats. One such region is Kalakad Mundanthurai Tiger Reserve (KMTR), located in the southern Western Ghats, Tamil Nadu. KMTR is made up of the Kalakad Wildlife Sanctuary (253 sq. km) and Mundanthurai Wildlife Sanctuary (642 sq. km) and this area eminently stands out as one of the important Protected Areas in the Indian Peninsula. Being one amongst the world's ecological hotspots it comprises some of the least disturbed forest areas. This Tiger Reserve is included in two of the 200 WWF Global Eco regions, which have been selected for their outstanding biodiversity (No 20: South Western Ghats moist forests and no 171: Western Ghats rivers and streams). KMTR is also an integral part of Agasthyamalai complex or Ashambu hills, which is internationally recognised for its species richness and for high levels of faunal and floral endemism. KMTR acts as a treasured habitat for bat diversity with species found from the foothills to the peaks of Agasthiyar hill range.

Out of the 115 bat species in India, KMTR hosts 28 species (So far identified from our on going bat survey). Two of the Microchiropteran bats recorded here *Rhinolophus beddomei* and *Kerivoula lenis* are Near Threatened species, while the Megachiropteran found here *Latidens salimalii* is considered Endangered. *Latidens salimalii* is endemic to Tamil Nadu and is reported from seven locations in KMTR.

During our ongoing study on bats in the area we obtained information suggesting range extension of few species of bats. Details of these are provided in the Table.

New location details of Bats with previous distribution records

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Table:1 New records of range extention of few species of bats from KMTR, India

Sl.No	Name of bats	New records of location details	Previous records of location details (Bates and Harrison 1997)
1	***Eonycteris spelaea*** Dawn bat	Injikuli Elevation: 1960ft N: 8°37.242' E: 77°23.8'	India: Karnataka, Andhra Pradesh, Uttar Pradesh, Sikkim, Assam, Meghalaya, Manipur, Nagaland, Andaman Islands
2	***Murina cyclotis*** Round eared Tube nosed bat	Narakadu Elevation: 2522ft N: 8°27.780' E: 77°23.068'	India: Andhra Pradesh, West Bengal, Sikkim, Meghalaya
3	***Myotis montivagus*** Burmese Whiskered bat	Sengaltheri Elevation: 3332ft N: 8°31.932' E: 77°26.886'	India: Karnataka, Andhra Pradesh, Kerala
4	***Myotis horsfieldii*** Horsfield's bat	Shengaltheri Elevation: 2814ft N: 8°32.030' E: 77°26.877'	India: Maharastra, Goa, Karnataka, Kerala, Tamil Nadu (Venniar Estate), Madhya Pradesh, Andaman Islands
5	***Miniopterus schreibersi*** Schreibers' Long-fingered bat	Injikuli Elevation: 1646ft N: 8°37.471' E: 77°17.572'	India, Nepal, Sri Lanka, Northern Myanmar, Afghanistan.
6	***Hipposideros pomona*** Andersen's Leaf-nosed bat	Kowthalaiyaru Elevation: 1802ft N: 8°42.603' E: 77°35.394'	India: Karnataka, Kerala, Tamil Nadu (Madhavoram), Andhra Pradesh, West Bengal, Sikkim, Assam, Nicobar Islands Arunachal Pradesh, Megalaya, Nagaland
7	***Rhinolophus beddomei*** Lesser Woolly Horseshoe bat	Sengaltheri Location (1) Elevation: 3331ft N: 8°31.931' E: 77°26.901' Location (2) Elevation: 4050ft N: 8°31.127' E: 77°26.932' Location (3) Elevation: 3553ft N: 8°31.127' E: 77°26.924' Kothiyar Location (4) Elevation: 3547ft N: 8°32.144' E: 77°20.302' Kuthiraivetti Location (5) Elevation: 3532ft N: 8°41.283' E: 77°31.098' Narakadu Location (6) Elevation:1224ft N: 8°27.162' E: 77°30.544' Kanniakatti Location (7) Elevation: 2634ft N: 8°37.922' E: 77°16.411'	India: Maharastra, Karnataka, Kerala, Andhra Pradesh
8	***Rhinolophus affinis*** Intermediate Horseshoe bat	Kothaiyar damsite Elevation: 4119ft N: 8°41.283' E: 77°31.098'	India: Uttar Pradesh, West Bengal, Arunachal Pradesh, Meghalaya, Nagaland, Andaman Islands
9	***Rhinolophus pusillus*** Least Horseshoe bat	Kothaiyar damsite Elevation: 3879ft N: 8°41.283' E: 77°41.098'	India: Karnataka, Kerala, Andhra Pradesh, Uttar Pradesh, West Bengal, Sikkim, Assam, Arunachal Pradesh, Meghalaya

Lubees cage designs

In October, CCINSA ran a training course described in pages 21-22, which included bat field techniques and captive management in Pakistan. While attending a presentation on captive bat husbandry by Dr. Paul Racey, Regius Professor of Natural History, Aberdeen University and Chair, IUCN SSC Chiroptera Specialist Group, I noted a particular design for bat enclosure that Paul recommended. This design has been used at Lubee Foundation in Florida which is one of the important institutions for bat research in the United States, particularly for captive bats. Paul, who started his academic career as a zookeeper of bats at London Zoo, praised the hexagonal shape of the enclosure which, he opined, is much superior to a square or retangular shape for insectivorous bats because the shape complements the bats' behaviour and biology. Instead of bouncing into walls or being frustrated at not having sufficient flying space, the bats simply fly in a circular pattern in the hexagonal shape structure and are active and satisfied.

Coincidentally, when the workshop was over, Paul found an email copied to him from Allyson Walsh, Director of Lubee Foundation commenting on the design and being quite transparent in her assessment of the Lubee design. There seems not to be an article about this anywhere so in the interests of gingering someone up to write one, I am just publishing the email exchange and some of the drawings right here. Not very professional but it will get some action going soon, I'll bet. I do a lot of things like this and they always work.

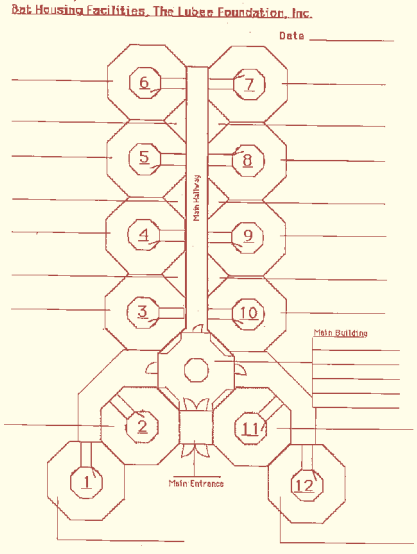
I am visiting Allyson Walsh and Lubee Foundation in January, a short visit, but enough to tour her facility and talk her into writing an article about bat housing if she has not done so by that time (if I am still welcome after publishing this at least !).

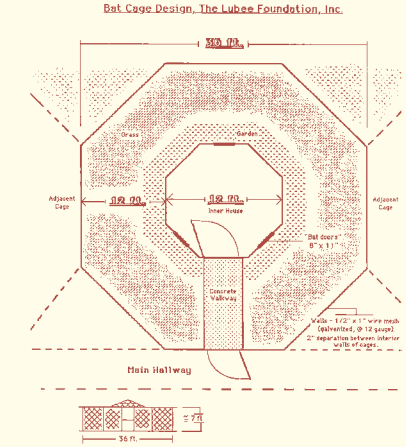
Allyson commented in the email that they, Lubee had recently worked with Oakland Zoo to set up new exhibit space which is much better than what they use at Lubee. She says it takes up more space and is more expensive but it is definitely better. She also says the optimal design would be taking the best features of both.

According to Allyson, "Lubees cages have the following problems :
a. the enclosures are too small for our largest bats. The bats can fly, but it does not encourage them to do so.
b. the hard mesh that was used to construct them causes a relatively high wing tip injury rate.
c. The night roosting houses are in the middle of the cage, and if space is available it would be preferable to place them on the outside of the circular cage . You could have vegetation a tree/covering a middle pole from which softer mesh expands out a little like a circus tent.
Oakland have had no problems with the bats being too heavy and causing sag with the softer mesh.

If I were constructing a new exhibit I would use this mesh : This picture (not included here but in the web version of this article <www.zoosprint.org> is a temporary exhibit and illustrates the softer mesh. The Oakland Zoo used polypropylene knitted netting which is made by Endurance Net, Inc. The price for 1/2" mesh size 12' x 150' is $344.00. This netting is UV stabilized with a UV inhibitor through the yarn. It has a high break strength of 95 lbs."

For more information about these designs contact Allyson Walsh, Director, Lubee Bat Conservancy <awalsh@lubee.org> and check out their website at <www.lubee.org>. Also be sure to have a look at Bat Net Newsletter on our website where these designs and the photograph referred above, which gives a much more interesting and informative overhead view of the bat enclosure complex, as well as large pictures of the designs below. If anyone else has experience to share on bat house design, such experience and information is very welcome in this forum. Sally Walker, Convenor CCINSA and Editor Bat Net Newsletter.





BCI - Bat Conservation International -- Scholarship

INTRODUCTION

Each year, BCI sponsors students in conducting conservation-relevant research. Lack of knowledge about bat ecology and behavior is one of the greatest impediments to bat conservation progress. The goal of this program is to support exceptionally talented students in research initiatives that will contribute new knowledge essential to conserving bats and the ecosystems they serve. To this end, BCI has set aside a minimum of $40,000 annually for its student scholarship fund. Individual awards range from $1,000 to $2,500, averaging about $2,000 each. It is hoped that these funds will open opportunities for matching grants from other conservation organizations, government agencies, and private foundations, and that BCI's support will grow in future years.

SUGGESTIONS FOR APPLICANTS

All BCI scholarship recipients must be conducting research that specifically addresses at least one of our specified areas of need by: 1) answering ecological or behavioral questions essential to conservation or management; 2) resolving an economic problem which will further conservation tolerance; 3) documenting key ecological or economic roles of bats; or 4) educating people who are directly relevant to conservation success.

Due to their busy schedules, our outside reviewers will be asked to consider only those proposals that are complete and clearly address bat conservation needs. Reviewers will numerically rank all conservation-relevant proposals, and those receiving the highest scores will be funded. The following research areas are most likely to receive priority rankings.

Primary Areas of Research Need

A. Documentation of Bat Feeding Behavior — Bats that eat insects, pollinate flowers, and disperse seeds play key ecological roles in maintaining the balance of nature, but the impact of their feeding behavior remains entirely or mostly unknown for most of the world's bat species, greatly hampering conservation efforts. More research is needed in these areas, and as proposals begin to better address these specific needs, additional funding will become available.

1. Insect-eating - Insectivorous bats often play important roles in keeping insect populations in check and therefore are essential to the balance of nature. They also are primary predators of insects that cost farmers and foresters billions of dollars annually. Nevertheless, very few studies document the exact species or quantities of insects eaten, nor the probable impact of such consumption. The few studies that exist support the belief that bats are far more economically important than is yet generally recognized. Additional documentation of this kind is often crucial to gaining public or governmental support for bat conservation efforts. We also need more information about bat foraging habitat requirements in order to plan for their conservation.

2. Pollination - Bats are known to serve as essential pollinators of many ecologically and economically important tropical plants in ecosystems as diverse as deserts and rain forests. Yet the roles of most nectarivorous bats remain unstudied, even ones suspected of being crucial to economies valued at more than $100 million annually. Numerous bat-dependent trees are of great importance as sources of tropical timber, food, or other commodities. Durian fruits of the Old World tropics, for example, are worth more than $100 million annually in the Malaysian Peninsula alone and require bats as primary pollinators, though no study of this economically valuable relationship exists. Anecdotal reports of durian crop failures exist from the Philippines to Malaysia due to declining bat populations. Documentation could play a key role in gaining conservation progress.

3. Seed Dispersal - It has been documented that bats account for up to 95% of seed dispersal in tropical clearings and they play key roles in forest regrowth and maintenance. Nevertheless, only a handful of studies exist, and bats typically are not even considered in long-range plans for sustainable use of tropical forests. More detailed information is needed on bat seed-dispersal roles under varied conditions. In fact, rain forest conservation and land-use planning cannot be complete without such information.

B. Documentation of Roosting Needs - Few studies document bat roosting needs, especially during critical nursery or hibernation periods. Yet such knowledge is essential to inclusion of bats in forestry, cave, and mine-land management planning, as well as in efforts to provide artificial roosts.

1. Tree Roosts - Radio-tracking studies are essential to understanding bat needs for multi-age forests with varied kinds of tree hollows and loose bark located in proximity to food and water resources.

2. Cave Roosts - Most of the world's caves are increasingly disturbed by cave exploration, sealed shut because of owner liability concerns, filled by waste dumping, commercialized, or otherwise made unusable for bats who traditionally have relied on caves as important roost resources. Yet few surveys exist to document bat population trends in caves, much less the exact roost characteristics or surrounding habitats required by cave-dwelling species. Today, bats are often found barely surviving in cave roost sites that in the long run cannot meet their needs, while nearby, traditional and potentially ideal roosting locations are no longer useable due to human disturbance. Conservation planners must have documentation of population changes in cave-dwelling species and know how to recognize ideal roost and habitat characteristics in order to protect the best sites, which are not necessarily those where bats are now living.

3. Abandoned Mine Roosts - A large proportion of remaining bat populations now live in abandoned mines, as roosting sites of last resort, having lost traditional roosts. Abandoned mines can, in fact, provide ideal alternate homes for bats. However, since the most dangerous mines provide the best protection from human disturbance, yet are often the first to be closed for safety reasons, they become death traps when sealed. There is an urgent need to survey old mines for bats and to establish use patterns. Typically bats are unable to use many mines, but form sizeable colonies in the few that meet their needs. Studies of how bats select roost sites could help tremendously in locating those special mines that need to be protected as crucial bat resources.

4. Development of Artificial Roosts - Many bats are especially threatened by loss of natural roosts and are increasingly forced to occupy artificial alternatives. Studies of roost characteristics, such as internal dimensions, temperature, height above ground, and their relationship to associated habitats, are essential. Such information is vital when setting priorities for protection of natural roosts, as well as for creation of artificial substitutes.

C. Finding Solutions to Bat Nuisance Problems - Practical conservationists must also help find solutions to the nuisance

problems sometimes created by wildlife. Bat conservationists need to help in the following areas:

1. Nuisance Bats in Buildings - Most problems of this nature are now well understood and easily addressed by exclusion professionals. However, in a few situations, bats can be difficult to exclude from older structures. Nontoxic repellents are desirable in these cases and warrant further study.

2. Fruit Damage - Bats can damage certain fruit crops, typically during periods of drought or other famine conditions when native plants do not produce. Some Old World fruit bats also may leave undesirable scratches on bananas whose flowers they visit. Research on how to reduce or eliminate problems is highly desirable.

3. Vampire Control - Available vampire control techniques are adequate. However, research on innovative methods of educating people to use only appropriate species-specific methods may be considered.

ELIGIBILITY REQUIREMENTS

Students enrolled in any college or university worldwide are eligible to apply. Students who have applied in previous years to BCI's Student Scholarship Program are eligible to reapply each subsequent year, whether they received a previous BCI grant or not. Non-students are not eligible to apply to the BCI Student Scholarship Program.

Some conservation-relevant projects may be eligible for consideration through alternative funding sources. Non-students in Canada, the United States, and Mexico may apply to the North American Bat Conservation Partnership (NABCP) Conservation Grants Program.

Conservation projects from other countries may be eligible for funding through BCI's Global Grassroots Conservation Fund.

All proposals to the Student Scholarship Program must be prepared by the applicant. While BCI will fund research that is part of a larger project, the student must personally research and develop the proposal. All funded projects must begin no later than 31 December of the year in which the grant is received.

APPLICATION PROCEDURE

Standard application forms may be obtained by contacting BCI's Scholarship Awards Coordinator well in advance of application deadlines, or they may be downloaded directly (in Microsoft Word or PDF format).

Word document version

Adobe pdf version

(Adobe Acrobat Reader required. If your computer does not have Acrobat, download it here.)

In an effort to reduce paper use and shipping costs, we would like Applications to be submitted via email as an attachment as either a Microsoft Word document or Adobe pdf file.

Responses on the Application form must be complete and accurate. The Proposal, Budget, and student *Curriculum Vitae* should be attached with the Application. All materials must be in English.

Should you wish to submit via post or courier, please use double sided copies and you must submit FOUR DUPLICATES of all materials.

BCI is not responsible for failure of materials to arrive, whether due to postal service, courier service, fax, or email.

For an example of a previously funded proposal click here **All application materials must arrive at BCI no later than 15 December in order to be considered for the coming year, and applicants are strongly encouraged to submit all materials well in advance of that date.**

Submitted materials may be rejected from the review process for any of the following reasons:

· Project does not meet the conservation goals of the program.
· Sufficient materials were not received prior to the deadline.
· Submitted materials do not meet submission requirements.
· Applicant does not meet eligibility requirements.
· Significant changes were submitted after the deadline.

Applicants whose submissions are rejected prior to review will be notified in writing.

Applications should be sent to Sarah_Keeton@batcon.org

If you wish to send via mail:

Bat Conservation International
Scholarship Program
P.O. Box 162603
Austin, TX 78716-2603
Phone (512) 327 - 9721, Fax (512) 327 - 9724

Notification of acceptance or rejection typically will be made within 90 days of the submission deadline. BCI may choose to grant the full requested amount or may grant only a portion of the requested amount, conditional on reviewer suggestions and available funds. All recipients will be required to sign a standard reporting and completion agreement and liability waiver. Upon signing of the agreement, BCI will write a check for eighty percent of the awarded amount, made payable to the sponsoring college or university. *BCI does not allow for any overhead or indirect costs to be taken from the awarded grant money by the supervising institution.*

Award will be paid to student's sponsoring institution unless other arrangements are made with BCI for extenuating circumstances. Applicants should be sure to consult with their university before filling out Application in order to determine which department BCI should make the check payable to. Applicants from outside the United States should specifically ensure that their university has an account which can accept payments in United States dollars.

Payment of the remaining twenty percent of the grant will be dependent upon timely submission of progress reports and photographs of project activities to BCI, with the balance paid upon submission of the final report. For more details about reporting requirements or contract conditions, applicants may contact BCI at any time.

SUBMISSION MATERIALS

Application - Responses on Application form must be typewritten. All sections of the Application form must be completed to the best of the student's ability and knowledge. Questions which are not applicable to applicant's proposal should have the response of "Not Applicable" or "N/A" entered.

Research Proposal

Content - Proposals should clearly state objectives of studies and the significance of the work to bat conservation progress and

give detailed descriptions of the methodology to be used. Proposals must show how projects support conservation needs and must demonstrate that the project in question is feasible within the planned time and financial limitations. It is very important to be clear in explaining the data collection and analysis techniques.

Format - The research proposal should be no longer than 3 single-spaced, typed and numbered pages. The proposal should have a character font size of 10 to 12 points.

Summary of Progress - Projects that are already underway must include an additional one-page summary of the progress made to date, including any significant findings.

References Cited - A complete bibliographic list of all sources cited in the Research Proposal and the Summary of Progress must be included. There is no page limit for the bibliography.

Budget - A sample budget has been included (in PDF format). You do not have to follow the format of the sample budget, but you must present the following information:
1. Total Expenses for the current fiscal year — Please specify, for example, equipment, assistants, field subsistence, travel, services, supplies, etc. Budget items must be itemized in detail.
2. Funding and Support for current fiscal year — Include all sources of confirmed and pending funding or support for the current fiscal year. State whether they are alternative to your request to BCI. If any alternative or unlisted grants are received, you must notify BCI at once. If you are receiving no other support for this work, please explain.
A cumulative budget for all years of the project may be included in addition to the current fiscal year budget, if the project term is planned to cover multiple years. A budget justification section may also be included.
Download and Print a Sample Budget
(Adobe Acrobat Reader required. If your computer does not have Acrobat, download it here.)

Biographical Sketch of Applicant - Applicants must submit a Curriculum Vitae, not to exceed two pages in length. If there are additional primary investigators, short Curricula Vitae for each may also be included.

Letters of Recommendation - Letters of Recommendation from three academic or conservation biology professionals qualified to judge the proposal must be submitted. We will accept an electronic letter which is formated on University/Organization Letterhead. Each letter must be accompanied by a **two page** Curriculum Vitae for the recommending person. Letters of Recommendation and corresponding Vitae may be sent separately, but all must arrive no later than the 15 December deadline for the project to be considered.

REVIEW PROTOCOL
All conservation-relevant proposals which meet minimum submission criteria will be forwarded to each member of a team of three outside reviewers, selected for their recognized expertise in bat conservation and research. Depending on the number of applications received, more than one review team may be used. Each of the three reviewers will assign scores of 1 (unacceptable) to 10 (excellent) in each of the following areas:
1. importance to conservation progress;
2. relevance to BCI's stated conservation goals (see Suggestions for Applicants section);
3. methodology (project design and approach);
4. feasibility (time, funding, logistics, and experience).
Awards will be made according to the order of rankings provided by review team members. Due to the competitive nature of these awards, any project averaging below average in any area will be disqualified unless reviewers suggest an easily made remedy that the applicant agrees to follow.
Anonymous reviewer comments will be returned to applicants. No reviewer will be asked to review proposals from students at his or her own institution. Applicants attempting to lobby reviewers will be disqualified. No preference will be shown according to age, sex, race, nationality, institutional, or geographic considerations.

EXPANSION OF THE SCHOLARSHIP PROGRAM
A lack of financial support for student research on conservation-relevant areas of whole-animal biology and ecology poses one of the most serious threats to modern conservation. The vast majority of funds now available are targeted to molecular-level research, meaning that otherwise highly qualified students now follow funding opportunities into other areas, failing either to become trained as conservation-oriented biologists or to contribute to knowledge essential to practical progress. The result is an increasingly polarized debate, which too often is exacerbated by poorly-informed amateur conservationists who tend to favor species-specific approaches over broader ecosystem-based solutions to resource utilization conflicts. Consequently, BCI plans to increase its scholarship support as rapidly as feasible. All contributions and suggestions on behalf of this program are welcome.

BCI SCHOLARSHIP PROGRAM SUMMARY
Since the program began in 1990, BCI has awarded 159 awards, for a total of $344,560. Research has taken place in a total of 44 countries.

Bats of Bangladesh with Notes on the Status, Distribution and Habitat

Md. Sohrab Uddin Sarker and Noor Jahan Sarker

Methodology

Present study was done from 1999 to 2002 in the rural wood lands, forest, old ruin buildings and urban areas of Bangladesh in different seasons of the years. Data on relative abundance, national and global status, distribution and habitat of studied bats and Pipistrellus were collected from direct observation in the field and from museum specimens in the Department of Zoology, Dhaka University.

Observation and Result

Species

Thirty two species of bats have so far been recorded and reported from Bangladesh (Khan 1982, Sarker and Sarker 1988 and IUCN 2000, NCS 2001, Sarker and Sarker 2003). Of these 11 species of bats were observed by the authors in the field so far (Table 1).

Status and Distribution

Yellow bats and 2 species of pipistrelle were common, fruit bat and tomb bats fairly common and vary from place to place. False vampire was vulnerable nationally. While many species of bats were occasional and rare. Distribution of many species was not known. In relation to the conservation status like national and global perspective many of them were under data deficient. This seems to be more serious concern than known threatened species (Table 1).

Large eared horseshoe bat (*Rhinolopus microtis)* was recorded for the first time in Bangladesh. Colonial bats firstly reported from a cave in the Whykeong Reserve Forest of the Cox's Bazar Forest Division, Chittagong during field survey in 1996. There were at least 300 bats in the colony. Bats were found chinging to the wall about 7-8m from the cave base. The bats were very sensitive to light. Some bats were collected for species confirmation, and all died within 15 to 18 hours of trapping. They were preserved in the museum, Department of Zoology, Dhaka University.

Habitat

Fruit bats were mostly observed in colonies in trees of orchards, parks, gardens, and markets and along road

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Table 1: Status, Distribution and Habitat of Bats and Pipistrelles of Bangladesh

Sl.No.	Species Name	Scientific Name	Relative Abundance	National Status	Global Status	Distribution	Habitat	Remark
1.	*Fruit bat/Flying fox	*Pteropus gyganteus*	FC	LC	—	Wide	Wood land	
2.	*Shortnosed fruit bat	*Cynopterus shinx*	F	DD	—	Dhaka Rajshahi	Wood land	
3.	Fulvous fruit bat	*Roussettus leschenaulti*	F	DD	—	—	—	
4.	Lesser rat tailed bat	*Rhinomopa hardwickii*	F	DD	—	Sundarbans	mangrove forest	
5.	Greater mouse tailed bat	*R. microphylum*	O	DD	—	Not known	—	IUCN, 2000
6.	*Long winged/Sheath tailed tomb bat	*Taphozous longimanus*	FC	LC	—	Dhaka,Sylhet Tangail	Wood land	
7.	*Black beared tom bat	*T. melanopogon*	FC	NT	—	Wide		Khan, 1985
8.	Pouch bearing bat	*T. saccolaimus*	O	DD	—	—		
9.	*False vampire	*Megaderma lyra*	F	VU	—	Wide	Wood land	
10.	Horseshoe bat	*Rhinolopus lepidus*	O	DD	—	Not known	Wood land	IUCN, 2000
11.	Horse shoe bat	*R. pearsoni*	O	DD	—	Not known	Wood land	IUCN, 2000
12.	Horse shoe bat	*R. subbadius*	O	DD	—	Not known	Wood land	IUCN, 2000
13.	*Large eared horse shoe bat	*R.. microtus*	Localised	VU	—	Whyk-eong:	Forest cave	Sarker, 2000
14.	Tail less leaf nosed bat	*Coelops frithii*	F	DD	—	Sundarbans	Mangrove forest	
15.	Leaf nosed bat	*Hipposideros larvata*	F	DD	—	Sundarbans	Mangrove forest	
16.	Leaf nosed bat	*H. galeritus*	O	DD	—	Not known		
17.	Bicolor leaf nosed bat	*H. bicolor*	R	DD	—	Sundarbans	Mangrove forest	
18.	*Thick eared bat	*Eptisicus pachyotis*	R	DD	—	Sylhet Comilla	Wood land & Forest	
19.	*Ppistrelle	*Pipistrellus coromandra*	C	NT	—	Wide	Wood land & Forest	
20.	*Pigmy pipistrelle	*P.mimus*	C	NT	—	Wide		
21.	Savi's pipistrelle	*P. savi*	C	DD	—	Not known		IUCN, 2000
22.	*Greater yellow bat	*Scotophilus heathii*	C	NT	—	Wide		
23.	*Lesser yellow bat	*S. kuhlii*	C	NT	—	Wide		
24.	Yellow bat	*S. luteus*	O	DD	—	Sundarbans	Mangrove forest	
25.	Herlequin bat	*Scotomanes ornaus*	O	DD	—	Not known		IUCN, 2000
26.	Dormer's bat	*Scotozous dormers*	O	DD	—	Not known		IUCN, 2000
27.	Egyptian fire tail bat	*Tadarida aegyptiaca*	O	DD	—	Not known		IUCN, 2000
28.	Club footed bat	*Tylonycterispachypus*	C	NT	—	Wide		
29.	Tichell's bat	*Hesperopterus tichelli*	C	DD	—	Wide		Khan, 1985
30.	Painted bat	*Kerivoula papillosa*	O	DD	—	Not known		IUCN, 2000
31.	Painted bat	*K. picta*	O	DD	—	Not known		IUCN, 2000
32.	Hodgson's bat	*Myotis formosa*	O	DD	—	Not known		IUCN, 2000

***: indicates the species observed by authors**

FC - Fairly Common; LC - Least Concern; DD - Data Deficient; O - Occasional; NT - Not Threatened; F - Few; R - Rare; C - Common; V -Vulnerable

side. The bat colonies were also observed in the urban areas e.g. district towns and even in the capital city like Dhaka.

False vampire and other small bats usually used old ruin/ unused buildings and the hollow of caves and large trees. Yellow bats and Pipistrellus were recorded from old unused and ruin buildings, tree holes, under barks, crevices, corners of houses as their habitats.

A number of bat species live in the mangrove forests where they mainly used barks and holes of trees.

Threats

Habitat loss due to cutting of large and old trees such as Koroi (*Albizia* sp), Simul/ cotton (*Bombax ceiba*), Tamarind (*Tamarindus indica*), Bot (*Ficus benghalensis*), Mango (*Mangifera indica*) for bricks making, domestic fuel and house hold appliances; agricultural extension and urbanization has lead to a decline in the population of bats, making the bat fauna of Bangladesh more threatened day by day. In recent years, cave cover has also been cleared due to deforestation.

Conservation

Cave bats in the reserve forests and bats of wood land, forests, ruin buildings and rural areas of Bangladesh needs further study for estimating their present status, distribution and relevant ecological parameters for their conservation and management planning. Growing awareness in local communities adjacent of the bat habitats will also contribute the protection of bats.

Cooperation

International organizations and NGOs may support such the program for conservation of bats of Bangladesh.

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Sarker, S.U. and N.J. Sarker 1988. *Wildlife of Bangladesh A Systematic List*. Reco Printer, Dhaka.

Sarker, S.U. and N.J. Sarker 2003. *Habitat Use and Conservation Issues of Bats of Bangladesh*. Paper Presented in the 5th European Bat Detector Workshop at Foret de Trncais, France, August 2003.

Bats 'n Rats poster

We are almost out of this poster, having distributed almost 10,000 of them singing the praises of bats n rats. We hope you all enjoyed distributing the ones we sent you. We will try for a reprint if people think it worthwhile. Editor

Conservation of Research Resources: Training launched in Pakistan for combining Volant and Non-volant Mammal Field Research

Sally Walker

Over the last five years CCINSA and its "sister" network for Rodents and Insectivores, etc., RILSCINSA, have conducted five short term training modules. The first four were either for Volant or for Non-volant mammals. The last one in November, held in three cities in Pakistan, combined our expert resource persons from both groups, Dr. Paul Racey, Chair, Chiroptera Specialist Group and Dr. Mike Jordan, Curator of Mammals, Chester Zoo.

When this Pakistan training was originally conceived, it was to be a training on field techniques for Chiroptera only to be held in Pakistan and Bangladesh. **The idea for combining this training came about in the Conservation Assessment and Management Plan Workshop for Non-volant Small Mammals, held in Coimbatore in February 2004, when it was noticed that many of the rodent specialists had also been at the Chiroptera CAMP and trainings. It was discussed at a working group that while the field techniques for bats and rodents were quite different, the timings for doing things in the field were compatible, meaning that one could go to the field and set up traps for small mammals in the night, check them in the morning, set up nets for bats in the evening and finish in time to set up traps again. It was decided to combine the training for these two groups and evolve a protocol for studying both groups in a single field visit.**

Why do this ? one might ask. One reason is that both bats and rodents are the most highly speciose of all mammal groups and the least intensively studied. While in the CAMP workshops we managed, by very clever use of the IUCN Red List Criteria to eliminate many of the 50% Data Deficient species in both bat and rodent assessments, the fact still remains that field studies need to be done to understand the population dynamics of bats and rodents, assess their actual decline, and thereby make recommendations for wildlife management.

The inspiration for the Pakistan workshop was a request by six field biologists from Pakistan at another C.A.M.P. Workshop for Pakistan Mammals last August 2003, where it became clear that there was no current information on bats and not enough on rodents. It was thought at the time that getting a resource person to visit both Pakistan and Bangaldesh on the same overseas visit would be less problematical than getting him over to South Asia twice, hence the Pakistan/Bangladesh combination. But by the time the workshop came about, a whole different scenario was in place as a result of the discussions held at that worksho. It was decided to combine training for both bats and rodents -- Volant and Non-volant Mammals.

It was also decided that field biologists from India who had gone through several trainings and had had some good field experience could start training in a small way at different universities on request. In fact we had a request, from Mandya for this training. We could then use our resources to get the senior experts such as Paul Racey and Mike Jordan to visit other countries and start to build up a community of small mammal researchers in those countries. Hence Pakistan only but three courses in three cities, so that 100 people could be trained instead of only 30. We decided to try and evolve a perfect technique for studying both of the groups in the same field trip in this training so that more field hours and more field workers can study more small mammals for the same investment of time and finances.

These logistical, temporal and financial constraints led us to limit the training to Pakistan now and Bangaladesh later. In fact the Bangladesh workshops will take place in February of 2004 with Mike Jordan for Non-volant Small Mammals and an Indian training team for Volant Small Mammals.

The Agendas for each workshop were very similar to what those of you who have taken some of our training courses experienced. Some the lectures could be common for both bats and rodents, and some of the same lectures had to be given twice, once for bats and their needs and once for rodents and theirs. Participants came from many different institutions in Pakistan from small private research projects to the government Zoological Survey Department and Pakistan Natural History Museum.

Karachi

In Karachi, the field techniques training workshop was conducted in the new Karachi Zoo Natural History Museum (which was also inaugurated on the same day for the occasion) and attended by a variegated mix of biologists from different institutes and universities, such as Zoological Survey Department, Sindh Wildlife Department, World Wide Fund for Nature, Pakistan, Karachi University and other institutions. Of particular note was the attention of the Zoological Survey Department participants and the Sindh Wildlife Department participants. ZSD is the nodal agency for collecting and cataloguing species of animals in Pakistan, much like the Zoological Survey of India in India. The Sindh Wildlife Department was represented by two persons, one being the Director of the Department. His enthusiasm for the workshop was boundless. He stated that although he was familiar with field work, he learned a very large amount in a very short time and asked if it would be possible to organize the same workshop for all the people in his department. There was also a zoo management training in which both Paul and Mike shared their experience in captive management.

Islamabad -- In Islamabad the training was hosted by the Pakistan Museum of Natural History in collaboration with the CDA, Capital Development Authority. The field techniques workshop was very well attended by scientists from the PMNH itself, WWF, Pakistan, IUCN Pakistan, Punjab Wildlife Department, and individuals from different universities and colleges. The training demonstrations were held close to the PMNH which is practically inside the Margalla Hills National Park and some of the areas in which the workshop practiced were indeed inside the national park. Participants and hosts seemed very much satisfied with their experience and made recommendations for further work.

L**ahore --** The workshops in Lahore were conducted at the Lahore Zoo in collaboration with the Punjab Wildlife Department. We lost Paul Racey for Lahore as he had to get back to UK for a meeting so Mike Jordan carried on focusing on Non-volant Small Mammals. Sanjay Molur from Zoo Outreach Organisation, who facilitated the CAMP workshop on Pakistan Mammals and is currently doing field work on both Volant and Non-volant small mammals, linked the two in his lecture on Conservation and the Pakistan Mammal CAMP, as he had done for the other two workshops as well.

These workshops seem to have been very useful and we all felt our time had been very well spent. The workshops were truly collaborative partnerships with ZOO and WILD, CCINSA and RILSCINSA, CBSG South Asia and RSG South & East Asia pooling expertise and resources to get resource person to Pakistan and move and house them in three cities. The hosts in each city sponsored the venue, preparation, equipment and hospitality, e.g. Karachi Zoo/ Karachi Municiple Corporation, Karachi ; Pakistan Natural History Museum and Capitol Development Authority, Islamabad; and Lahore Zoo & Punjab Wildlife Department, Lahore.

The donors from abroad were :
Universities Federation for Animal Welfare
Chester Zoo/North of England Zoological Society
Bat Conservation International
North Carolina Zoological Park

We will be doing it all again in Bangladesh in February where we will have a field techniques training for volant and non-volant mammals for Dhaka University and Jhahangirnagar University staff and students and other NGO groups interested in small mammals field conservation. Donors for this workshop will be Bat Conservation International and Chester Zoo.

New CCINSA members after January 2004 Newsletter

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UAS-GKVK Campus
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Just Bats About Bat Education

During the past couple of years for various functions including the 50th Wildlife Week in India more than 92 institutions and organisations ordered materials from ZOO with a bat theme for wildlife week. More than 11,400 bat packets, bat CAMP summaries, and posters have been distributed during Wildlife Week, World Environment Day/ Earth Day, Animal Welfare Fortnightly and for Bat Club.

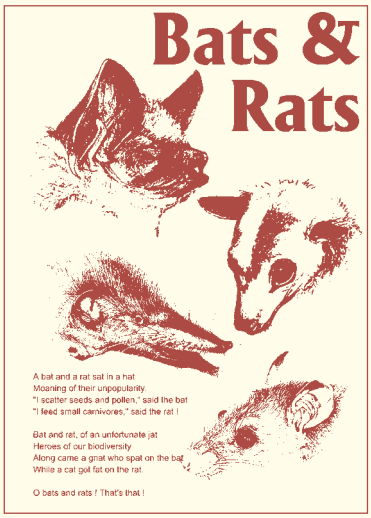
These materials have been sponsored by Chester Zoological Gardens, Bat Conservation International, Riverbanks Zoological Park and Botanical Garden and Fauna and Flora International.

During the Wildlife Week in 2004 we developed a "Bat & Rat" poster and packet, combining these two groups of animals as we have started doing in our training. 34 institutions ordered 1200 Bat/Rat packets.

The poster was designed to show the beauty and diversity of bats and rodents. This poster was created by Arnab Roy, our Calcutta artist. Almost 10,000 of these posters have been distributed to foresters, batters and ratters, zoo public and other target audiences. The sponsors for this poster were the Columbus Zoo, Knowsley Safari Park, Chester Zoo

Specific items still available with us for your education programmes are
Bat 'n' Rat Packet
Bat and Rat Poster
Bat tree game poster
Just Bat About Bats packet

Get on the bat education bandwagon. Order materials and guidelines for teaching from ZOO/ CCINSA. Email Sheela at sheela@zooreach.org for an invitation to participate and an order form.



Bats 'n' Rats packet and Just Bat About Bats Packet distribution list

Name & Institutions	Bat'n' Rat Packet	Bats 'n' Poster	Bat tree game poster	Just Bat About Bats
A. Francis Aloysius, Project Tiger, Tirunelveli	25	25	25	25
Murali Pai, Regional Manager, WTI, (CWRC), Assam			50	100
Dr. Puja Vijay Sukhija, (OASIS), Mumbai	50	50		
Tata Steel Zoological Park, Jharkhand		10		25
Snehal Patel, Nature Club Surat				30
Debojit Phukan, Megamix Nature Club, Assam	25		30	
Santanu Mitra, Tarakeswar Science Club, W.B.	50	50	50	50
Capt. Manish Saxena, WORLD, Jaipur	25	100	100	80
Bhupendra Singh, Zoo, Bikaner, Jaipur	20	50	20	20
Dr. S. Sethuramalingam, RMNH, Mysore	50	100	100	100
A. Biju Kumar, N.S.S. College, Kerala				50
Bijaya Kumar Kabi, Actn Protection of Wild Animals, Orissa	25		25	25
Sonal Rathore, CEE-North, Uttar Pradesh	50	50	50	30
Satosh Kumar Sahoo, Conservation Himalayas, Shimla	50	75	75	70
Manoj Mahapatra, Nandankannan Zool. Garden, Orissa	50	30	20	50
Ganesh Kumar Dubey, Maitry Baag Zoo, Bhilai	50	50	50	50
Mr. Kartick Satyanarayan, Wildlife S.O.S., New Delhi				50
Dr. R.K. Sahu, Kamala Nehru Zool. Garden, Gujarat	25	50	50	25
R.D. Katara, Sakkarbaug Zoo, Junagadh	25	25	50	50
Nandkishor S. More, BB Ambedkar Univ, Lucknow		50		
Supriya Goturkar, Volunteer, Pune Zoo, Pune	50			
Dr. Shashi Kant Ajay, Sanjay Gandhi Biol. Park, Patna				
Raajkaran Aravind, ZOO WATCH, Trivandrum	25	50	20	50
Mr. H.S. Gupta, Saranda Forest Division, Bihar				
Dr. C. Srinivasulu, Secunderabad	50	50		50
Dr. Mahesh Kumar, M., P.R.N.S.S. College-Mattanur, Kerala	5		55	50
Bablu Dey, Green Heart Nature Club, Assam	50	50	50	50
Namrata, Social Empoverment Through Voluntary Action, Jaipur	50	50	50	50
G. Manjunath, International Animal & Birds Welfare Society, A.P.	50	50	25	25
Dr. Sanigita Mitra, WWF-India, Kolkata	50			
Mr. Debanga Mahalia, Rwdwmsal a Bio-Diversity Cons Org, Assam	30	30	30	30
Dr. Prafull Mehta, Nature Park & Zoo, Surat	50	50	50	50
Mr. K.V. Ramana Murthy, Green Mercy, Visakhapatnam	50	100	50	30
P.C. Tyagi, Arignar Anna Zool. Park, Chennai	100	100	100	50
Prof. Gunavant M. Oza, Intel. Society of Naturalists, Gujarat	50	50	50	50
S.K. Dutta, Saranda Nature Club, (Jharkhand)	40	40	40	40
Mr. Rakesh Vyas, Hadoti Naturalists Society, Kota	50			50
H.J. Bhandari, Director, Pilikula Biological Park, Mangalore	50		50	50
Muralidharan, Deputy Director & Zoo Veterinary Officer	35			
D. Mudappa, Assoc. Ecol, Nature Cons, Foundation, Coimbatore	50	10	50	50
Dr. Manoharan, Director, V.O.C. Park, Coimbatore	100		50	50
Dr. Juliet Vanitharani, Sarah Tucker College, Tirunelveli				100
Total	**1200**	**1345**	**1365**	**1655**

Reports of CCINSA Bat Clubs

We are very proud of our bat clubs and would like to start this series of reports by thanking the sponsor of the CCINSA Bat Club Project, the Chester Zoological Garden/North of England Zoological Society, U.K. We regret being unable to publish photographs in the CCINSA newsletter. The process we use is not photo friendly. We have typset the newsletter with photos as well and kept it on our website where you can see all of the beautiful photographs sent with articles. We will also send a colour print out of the article to the author so they can take colour xerox according to need. The act of not producing a colour magazine makes more training workshops and other practical activities possible. Please try and bear with this economy. Websites: <www.zoosprint.org> <www.zooreach.org>.

CCINSA Bat Club of the Bat Assessment Troop (BAT), Assam

Bat Assessment Troop (BAT), a pioneer CCINSA Bat Club from North Eastern parts of India completed its set of Bat Club meetings recently on 27.04.2004 at BAT Head Office premises.

In the month of January 2004, two different informal meetings were held to choose the right target group within the age of 3-7 years (Kids) and 12-16 years (High School Students). Kids were very much enthusiastic about the programme but they were uncomfortable with the bat agendas. Later we decided to take the second group as BAT was looking for more and more permanent and dependable troop members for future help.

We started the Bat Club with six students from Class X of St. Agastiya High School of Dhubri District, Assam. All are very smart and determined. We organized the first meeting on 1st of February 2004. Then on 8.2.04 followed by 3rd on 7.3.04 and 4th on 21.3.04. We could not organize the 5th meeting and field trips for financial problems of the Club. Finally on 27.4.04 we organized the last meeting with a little ceremony and a short photo session. At the same time we distributed the certificates signed by the CEO of BAT and was kept inside the brown cover supplied by ZOOS.

At the end of the program all the participants pledged and promised to extend their bat knowledge to their friends and family and with a special commitment to help the CCINSA Bat Club in future for their bat conservation related activities.

Submitted by Md. Azad Ali and Abdul Hakim Choudhury Organisers, CCINSA Bat Club meetings, Bat Assessment Troop (BAT), Dhubri, Assam, India

CCINSA Bat Lovers Club, Hyderabad/ Secunderabad

The CCINSA Bat Lovers' Club was formerly launched on 14th August 2004 at St. Peter's High School, Secunderabad, Andhra Pradesh.

We started out by introducing ourselves and the CCINSA and spoke at length about the importance of CCINSA and of the club being a part of the wide network of CCINSA.

Students were made to understand the importance of each animal in this world and how important it is to give back something to mother nature by being responsible, caring and tolerant towards other living things that co-exist with us on this earth. By giving this feedback the team work of CCINSA that is brought over on to these bat clubs such that individuals being a part of the club can collectively help towards the conservation of the bats was stressed upon.

The importance of the Bat Lovers' Club and its members in decision making regarding protecting bats was stressed upon. The various rules and regulations were spelled out to the students and a computerized print out was also handed over to them with regards to the dos and don'ts of the bat club. About 40+ students turned out to attend the first meeting of our Bat Club.

Of these students 22 of them attended the subsequent meeting and were given a brief sketch of bats and their being beleagured by mankind. The presence of two major kinds of bats namely the fruit eaters and the insect eaters and the subtle differences between the two were highlighted upon through interactive sessions. A game was devised to make them understand the use of echolocation by the insectivorous bats to locate their prey, this was again followed by an interactive session during the course of which the importance of uses of bat detectors was emphasized upon to detect the different ultrasound frequencies emitted by the different species of bats and how the detectors would be useful to know the presence of those species in a given area in a more non-invasive manner. The basics of bat morphology as the size, the eyesight was shown by means of a game wherein role play was used to make them understand all about bats right from the basic to the complex level.

Preference of different roost sites as cracks and crevices in caves, old temples, old railway tunnels, old buildings used by bats were shown using photographs taken at Golkonda fort in Hyderabad, Borra caves in Visakhapatnam and the old lighthouse in Coringa. Pictures showing fruit bats using trees as roosting sites were also shown and this led to another interesting and boisterous interactive session on their seeing many such roosts in their respective native places.

Besides these activities we took bat education activity in Chintagudem village near Kawal Wildlife Sanctuary in Adilabad district where a roost of Blackbearded tomb bat and Lesser mouse-tailed bat was located. The villagers both men and women including school going and non-school going children listened with interest about the bats and their importance in agroecosystems and vowed to protect bats and educate other villagers about the same.

While interacting with the villagers in vernacular it was felt that an information brochure in the *Telugu* might have been of great use to hit the nail on the head! After having returned from the field area the translation of the My Batty Booklet in *Telugu* was taken up with the help of a Prof. P. Judson, Professor in Zoology of our Department. We intend to produce the local language booklet in collaboration with CCINSA for dissemination of information about bats and their importance to rural mass in Andhra Pradesh.

Submitted by Dr. C. Srinivasulu & Bhargavi Srinivasulu, Wildlife Biology Section, Department of Zoology, University College of Science, Osmania University, Hyderabad.

CCINSA Bat Club of Sarah Tucker College, Tirunelveli

The Bat Research Team consisting of Dr. Juliet Vanitharani, her four Ph.D. scholars and the bat club members of Sarah Tucker College has an excellent record in terms of Bat Conservation in Tirunelveli.

July 7, 2003 -- A pathetic site of a wounded flying fox *Pteropus giganteus* provoked the team members to make and arrange for a mega bat conservation awareness programme during the Wildlife Week. On October 6, 2003 the team organized a thought provoking, informative oratorical competition. A beautiful, attractive, slogan bearing colourful poster competition was also conducted to celebrate the Wildlife Week with theme of Bat Conservation inside the campus.

October 2, 2003 -- The club members visited the evergreen forest of Vaithamalai the habitat of *L. salimalii* in Curttalam hills. They gave an interview to the press, explained the importance of habitat protection.

October 6, 2003 -- Mr. H. Venu Prasad, IFS the District Forest Officer Tirunelveli circle being the chief guest inaugurated the Poster competition. He with help of Mrs. Chandralekha Johnson, Head of the Zoology Department and Dr. Janet Wilson. Reader in English evaluated the competition.

November 17, 2003 -- The club members organized bat conservation field trips to the roosting sites of *Hipposideros ater and Hipposideros speoris.*

December 2003 - March 2004 -- The III year B.Sc. Zoology bat club members did small projects about the feeding behaviour, diversity and scent marking behaviour of bats and submitted the same to the Manonmaniam Sundaranar University for the partial fulfillment of their B.Sc. Degree.

March 29, 2004 -- Certificates were awarded to all the participants and a report about the bat club members was presented in the valedictory function of the college union. The team is continuing with several ambitious research programs and working out as part of the crusade to save bats in their natural habitats.

Submitted by Juliet Vanitharani, Sarah Tucker College, Tirunelveli 7, Tamil Nadu

CCINSA Bat Club of Megamix Nature Club, Assam

We officially hosted the CCINSA's Bat Club of Megamix on the 2nd Feb. 2004 at 12 noon. As a keen activist towards Biodiversity Conservation, we selected a group of right persons having long experiences in environmental activities. It will be good and much meaningfull towards the cause of bats and their habitat. “Bat Club of Megamix” is not a kid’ s Bat Club, but it is a Club of nature enthusiasts ranging from 10 years to 65 years.

The Bat Club of Megamix comprises of seven executive members and four internal advisers. Out of 7 executives 1 is President (Mr. Naren Chutia 60) and 1 is Secretary (Mr. Debojit Phukan 40). Advisers are Dr. Amal Dutta (Ethnobotanist), Mr. Narendranth Duta (Zoologist) Mr. Mriganabh Gogoi (Fine Artist) and Mr. Thaneswar Bora (Ethnologist). The office of Bat Club of Megamix is located in the room no. 2 of Megemix Nature Club Building, Assam.

Activities Feb 2004

Date: 02.02.2004 Time: 10.30 AM to 02.45 PM
Place: Conference Hall of Megamix Nature Club Building, Dhakuakhana
Sub: Programme for instruction and Conservation of Bats
Number of Participants: 34 (female-9, male-25) Student of age group between 12 and 20 years.
Trainers: Mr. Debojit Phukan, Organiser, CCINSA Bat Clubs - Assam, Mr. Narendranath Dutta, Lecturer, Dept. of Zoology DHK College & Dr. Amal Dutta, Ethnobotanist, Secy, Megamix Nature Club.

Classroom teachings:
(a) What is Biodiversity
(b) Biodiversity and the Bats
(c) What to do as an young Bat-naturalist.
Outdoor activities:
(a) Match the pieces of the sheets of find out the hidden mammals
(b) Feelings of habitat lost (Chairs arranged in circle to create habitats and displayed as the bats flies occasionally.)

Awards of participant:
(a) Packets of 'Just bat! About bats!' and 'Bats are goooooood animals' are offered.
(b) Certificate of participation

Activity 2
Date: 19.02.2004 Time: 01.00 PM to 04.20 PM
Place: Forest Range Office Campus, Jonai.
Sub: Programme for introduction and Conservation of Bats.
Number of participants: 19 (Female -2, Male -17) Students of age group between 10 and 16 years.
Inaugural speech: Mr. V.K. Singha. Forest Range Officer, Jonai.
Trainers: Mr. Debojit Phukan, Organiser, CCINSA Bat Club - Assam & Mr. Ram Prasad Upadhyay, State Resource Person, National Green Corps - Assam
(The programme functioned under a large tree by arranging chairs, black-board and tables.)
Classroom teaching:
(a) Know about our forest (Scientific term of forest is Biodiversity.)
(b) Biodiversity and Bats.
(c) What we can do to protect the Bats and other animals and their habitat.
Outdoor activities:
(a) What is my name among the mammals?
(b) Biodiversity web-game.

Awards of participants:
(a) Packets of 'Just Bats about Bats'
(b) Certificate of participation.

CCINSA Bat Club of Megamix. Dhakuakhana, Assam, Members
1. Naren Chutia (Progressive farmer and nature club activist)— President
2. Debijit Phukan (CCINSA Bat Club Organiser, nature club Co-ordinator)—Secretary)
3. Narendra Nath Dutta (College Lecturer – Zoologist, nature club vice President)—Adviser
4. Mriganabh Gogoi (College teacher-fine arts, nature club Co-ordinator)—Adviser
5. Dr. Amal Ch. Dutta (College Lecturer-Botanist, nature club Secretary)— Adviser
6. Prodip Bora (High school teacher-science, new member-nature club) —— Member
7. Utpal Kr. Chutia (High School teacher-Science/science modelling, member)— Member
8. Rakesh Gogoi (College student, drama and nature club activist) — Member
9. Thaneswar Bora (High school teacher-Science, science society activist)— Adviser
10. Kantram Chutia (Farmer, nature club activist, social worker)— Well-wisher
11. Julie Gogoi (College student, new member- nature club, drama (actress)— Member
12. Sarbeswar baruah (Retd. H.S. teacher, Ex. President-Megamix nature club)—Patron
13. Jatindra Kr. Baruah (Sr. journalist, eminent social worker, nature club activist)—Patron
14. Purnanada Mazindar (Retd. H.S. teacher, President-Megamix nature club)—Patron
15. Nilakhi Borgohain (College student, new nature club member, sports-girl)- — Member

Submitted by Debojit Phukan, Secretary, Bat Club of Megamix (CCINSA- Bat Club), Dhakuakhana –787 055, Lakhimpur, Assam. Phone: 03752-254905; E-mail: debojitphukan@indiatimes.com

CCINSA Bat Club Nepal, N.A.T.U.R.E., Kathmandu

We had first Bat meeting on Monday 11th October. It went well. All the kids were very excited and interested. We registered 22 club members. After telling them about NATURE, CCINSA and Zoo Outreach Organisation, we prepared a concept map. I developed a new style of concept map for this bat club because this club has to go for at least 6 meeting so I made 7 circle like wheel, first middle circle is pre concept and other 6 circles are post concepts and indicated as 1st meeting , 2nd meeting ……6th meeting. The members had to write in the 1st meeting circle what they learned in the first meeting and same as in second to sixth. In this wheel we can see how the knowledge of members about bat developed gradually through the club activities. I have given the name "Bat Knowledge Wheel" for this circle.

After the bat knowledge wheel concept map we discussed about club rules and regulation and it was also decided that if any one missed any item of the bag in any meeting that member will get penalty and has to pay Rs.10. and that money will go to the club fund. And if any member became absent in any meeting without any information that will be also charged. And if any member lost CCINSA bag he will be out from the club.

We decided the objectives of the club discussing with club member. After that we did brain storm. In a chart paper we made "Are Bat GOOD or BAD", but the member had very little knowledge about bat and was mostly negative.

So we ask all member to take out their booklet and we read out the book let and also explained it in Nepali. Next we discussed about fruit bats and insectivores bats. And we also did the activity 'Find your Mate' with Raki and Mask. We fixed next meeting on 1st November after Dasain
One Nepal magazine has published little news with the head line 'club established for bat conservation'.

The second Bat Club Meeting was held on 3rd November at the Baudha School Nepal. In the beginning a general discussion was held to refresh mainly; how do bats help people, how do bats gets into trouble, Natural threats, threats from people, hunting and trade were discussed which were already briefed in first meeting

As an interaction some questions were asked to members just to know whether they are paying attention or not , and the result was good. We felt satisfied that the students were alert and interested.

In the last meeting an assignment was given to the members to find bat information from any source as much as they could. Only few students had gone through Internet and got some information. One student had written a poem on bat and he read out his poem , it was short and sweet. The poem is as follows:

It's Me A Bat
Bhola Sharma, Grade - 9

Hey, It's Me A Bat
I am not so bad
But you think like that
So that nowadays I am feeling very sad

You please dont look my outer part
Cause I have also a good heart
My face seems very bad
But internally I am a very good bat lad.

Nowadays I am feeling very glad
Cause bat club had started to preserve the bat
You dont harm me you preserve me
I will also help you I assure that.

After the interaction, we explained about the bat passport and told members to write meeting notes on their passports.
Two activities were done i) Drawing and Story ii) Flapping Bats.

i) Drawing and Story; Themes were written in A4 size paper one theme in one page and it was distributed to the members to draw the picture on the theme. 20 minutes was given for drawing, they only had to draw not color because no one had color pencil. Within these 20 minutes they drew well. All drawings were collected but again it was returned to them back for coloring as an assignment so that they can give more time and make it better. It will be collected in next meeting and will be displayed.

ii) Flapping Bats; Kids enjoyed this activity very much it was performed out side the class on the ground. First explained about the activity and its objective to make them feel that how bats have to face hard time when a hunter comes to get them down from the roost.
Asked to select the partner, a full size newspaper was provided to each pair and drum was played and all bats were dancing with music, when music stopped student fold the paper and again same process started, it continued for 5 times. While dancing whoever stepped out the paper he/ she was out of the game and the last pair was the winner and a poster of Vulture and Tiger Tool kit packet was given to them as the prize.

After all activities, cold drinks were served to the members and Bat knowledge wheel concept map was filled by the members.

CCINSA Bat Club, Shimla Activity Report

Shimla Bat Club was established in April 2004 under the auspices of the Zoo Outreach Organisation, Coimbatore to function, as an unit of Conservation Himalayas (NGO).Through this Shimla Bat Club our mission is to create an action-oriented proactive platform specially for the young school students to learn about bats and to do all possible community based efforts for the protection of the wild habitats of bats and their population colonies in the north western Himalayan region.

This initiative to establish the Shimla Bat Club was a follow up action of the bat appreciation programme which the Conservation Himalayas organised for the school children in different parts of Hiamchal Pradesh during 2003-04. As of today the Shimla Bat Club has registered 35 school students (representing two different schools : 5 from Maya Public School, Shimla and 30 from Navlok Adarsh Vidyalaya, Kansara, at Bam in Bilaspur, HP) and 5 seniors as its active members.

On 8th of October 2004 the Shimla Bat Club organised one special outdoor workshop near one Fruit Bat Habitat at Ladror. Our Bat Club Student members of the Navadoya Vidyalaya at Kansara, Ladror participated in this outdoor Bat camp first time to get familiar with the habitat and the wild Bats at the Camp site about 1 km from their school campus. Altogether it was a unique experience for the students as they performed various activities right under trees on which the fruit bats were roosting, making a lot of wild ***chpir chpir chpir…….***sounds. The programme was divided in to three parts: i) ***Bat field observation***, ii) ***Bat drawing*** and iii) ***I promist programme*** sessions.

In the first part, Dr. Santosh Kumar Sahoo, Chief Coordinator of the Shimla Bat Club, introduced the student members with the wild roosting site of the Fruit Bats and gave a short introduction about the types of bats, their habitat types, bat fruits, how bats help human beings and to the forest ecology, myths about bats, etc. Then the students were divided into five animal groups, each having 8 members. One leader was unanimously chosen in each group to lead the group in the field where the task for each group was to count the live bats from a given location, prepared a habitat sketch map showing the natural habitat conditions of the area- roads, types of trees, water source, human habitation, electric wires, possible threats to the bats, etc. The members of each group were given the ZOO outreach's Bat Club Bag containing special items on bats. Students were told how to use the bat passport and other items in the bag. The groups moved to the locations assigned to them and with all excitement did the job. This type of Bat Workshop in Wild environment, gave a thrill not only to the students, but also to the accompanying teachers and to the local villagers as well. In just 20 minutes all the groups gathered together and the leader of each animal group presented the report of their observation to the rest of the participants.

The second part involved each animal group with a BAT DRAWING session during which the members of each animal group prepared at least two BAT DRAWINGS looking at the wild bats and their habitat patterns. Drawing sheets , colour pencils, colour sketchs were provided free to each group by the Shimla Bat Club. After 15 minutes when each group finished drawings, they again gathered together and one member from each group described contents and the story attached to the Bat drawings before all other participants.

Our main objective in organising this type of outdoor Bat programme in wild is to sensitise the students about the Bats and their PLIGHT in WILD in such a manner that they get emotionally involved with Bats and come out themselves with a mission to protect and preserve the bat Colonies at the local level through their leadership role as a community-level conservationist.

In the third part of this programme, the bat club students returned to their school and joined the whole school in a special *I promise programme* inside the school premises to present to the students and teachers about their field experience in the bat Workshop camp. Besides narrating their experience in the field, the leaders took a pledge that in coming times they will be working at the local level with the help of the Shimla Bat club to educate the local villagers about the bats and also to keep constant watch on various threats to the bats in the local habitats. They also pledged to protect the bat habitat at the cost of their sincere sacrifice for the welfare of this animal and other wildlife as well. Similarly, the whole school participated in a short ***I promise programme*** in which they pledge to protect the natural ecology of the area and to mobilise an bat awareness campaign at the local community level.

The program was well appreciated by the school authority and by the villagers. The special Bat Club materials supplied by the Zoo Outreach Organisation to the Shimla Bat Club were distributed to the students and teachers.

Dr. Santosh Kumar Sahoo, Chief Coordinator, CCINSA Bat Club, Shimla, a unit of Conservation Himalayas (NGO), Verma Niwas, New Mashobra, Shimla 171007
Tel: 0177-2740316

CCINSA Bat Club, Kovai Branch

Background: The Chiroptera Conservation and Information Network of South Asia (CCINSA), on our approach, granted us permission to form a Bat club branch in the City of Coimbatore with an objective to reach children to teach about bats and kindle interest to learn and appreciate bats and to promote conservation. The Kovai Branch is located at 15C, N.V.N. Layout, Sidhapudur PO, Coimbatore 641004 TN India. It was started on 8 August 04, has 24 members and 2 coordinators. We have organised four meetings so far.

Zoo Outreach Organisation provided us all materials required to start the club. That will include: a guidelines book, kit bag (30 sets), coordinator's kit, information in the form of CD, t-shirt for the children members and the coordinators, bat packets and many other items. We give an announce-ment through handouts to the inmates of the street to identify and select interested children for the Bat club (see model of our invitation). With a support of a local tuition center we succeeded to induct members and to start the club. On the first day of our meeting 14 members of age group 10-14 reported for the meting. Since first day of the club is more important we did good preparatory work so as children like it. With all these background the bat club was formed on 8th August 2004 inviting children from Sidhapudur, Coimbatore, South India and the meeting held at one of the organizers house.

The first day of the programme started at 3.30 pm. The organiser welcomed all the members and appreciated their interest for choosing to become a member of the club. He gave an introduction about the club and the objectives of the club. They were also explained about the organizations that involved with this club. The sponsors of this club namely: Chester zoo, Zoo Outreach Organisation and CCINSA were introduced to the members. The organizer after a general introduction discussed about different life forms and the most encountered animal by man – the mammal. After highlighting the specialities of mammals he introduced the only flying mammal *ie.,* bats and their importance.

Referring to the objectives the coordinator suggested forming a Bat club with the existing members and all agreed to it. They were asked to register their names in a special Bat club registration form. After registration the bat club was named that refers to the place name. Hence it was named as CCINSA's Kovai (short form of Coimbatore) Bat Club. To declare the official formation of the club, the members wrote the club name in a special name board provided by the sponsors.

The best way to identify a member from a non-member is by a badge. All the members were given beautiful badge with the CCINSA and the bat club logo. The group was also divided in to four based on the colour of the badge. (Red, Green, Blue and Yellow). The new members asked what the CCINSA stands for. The coordinator gave the expansion of CCINSA (Chiroptera Conservation and Information Network of South Asia) and explained about the activities of the network and how the bat specialist in India work to get information about Indian bats and how the networking Institute (ZOO) coordinate the network and use the information gathered from the bat specialists to make education materials that we hold here at the bat club.

After registration and becoming a member the coordinator took pass port size photos of all the members for record and also for use in future activities. Issuing bat passport to all members is the main activity of the first day. The coordinator showed a colourful attractive passport issued by the sponsors and explained about it. Before explaining he ensured that everybody got a copy of the passport. He explained all about the passport page by page starting from the logo of the sponsors printed on the front page with a additional information about the institutes and made every body understand how to use the passport. Then they were asked to write their names and fill up the back side of the front cover. He also instructed the members to get a signature from their parents at the front page near the CCINSA seal as a token of agreement by their parents by allowing them to become a club member. He also asked the members to explain to their parents about the club and its objectives and if interested ask the parents to attend one of the meetings.

The coordinator requested the members to inform their t-shirt size at the end of the meeting. After completing all these formalities the members sat down and listened to a story narrated by the organisor with the help of a power point presentation. The story was all about a baby bat called THE ECHO, that tells about the birth of new bat baby and its life history.

The kids interrupted at many stages of the story to clarify their doubts. Later after the story time we planned our next meeting. All members wanted to have it the next week ie 15 August (Independence day). The coordinator asked the members to write a short report about the first day's activity in the passport and bring it in the next meeting. The programme was over by 5.00 pm.

15 August 2004
Second meeting of the Kovai Bat Club
Preparations by the coordinators:
· Prepared a list of all members with their contact info
· Took print out of photographs takenprevious meeting.
· Prepared agenda and plan for the second meeting
· Kept all the materials ready to distribute to the members.
· Anticipating new membership, bat club kits were readied
· Greeted and welcomed the members on their arrival.

Agenda
3.00 KBC members gathering
3.15 Welcome new members and registration/ affix photo in passport or registration form
3.30 Appraisal: How members used what they learned
3.35 Introduction and all about Bats (fruit and Insect bats)
3.50 Issuing bat cards and introducing bat faces and facts
4.00 Observing bats in the field. Indoor activity with poster
4.25 Questions and answers
4.30 Issuing calendar for future programmes
4.40 Group photo and end of the second day meeting

As per the interest of the members of the club, the second meeting was convened seven days after the inaugural of the bat club. As expected, 12 out of 14 registered members reached the venue on time. Much before the members reached new members arrived at the venue for registration. The coordinator, to keep the interest of the new member, explained all about the bat club.

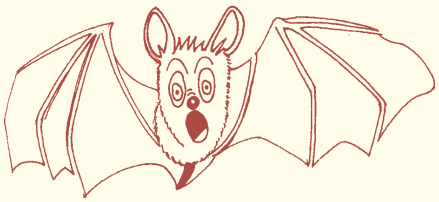
The coordinators waited for the members to arrive and the programme started at 3.15 with five new members. The new members registered their names while the existing members were asked to put their photos in the passport and also the registration form.

The coordinator welcomed the members and put the meeting in order. The photos were given to them and they were asked to affix it in their passport as well as in the registration form. Scissors, glue provided by ZOO was utilized. While they were doing pasting work the new members were called out to register their name in the specified form. Mug shorts of the new members were taken for record. The new members were asked to introduce themselves to the club.

It was interesting to note that all the members filled page 5 of the passport with a brief report of the first day meeting. None of the members failed to do it. George drew the logo of CCINSA and also brought a paper cutting to show to other members. The coordinator appreciated his interest in the club and circulated it to the members.

Sharing what they learn in the club with their friends and relatives is one of the main objective of the coordinators. To assess the interest of the members and to understand how the members after learning about bats go back and discuss about this the coordinators asked the members individually what they talked about bats in the last seven days. About 3 members raised their hands and

Various moods of Sensa (pronounced CCINSA), the CCINSA Bat Club mascot



expressed that they told about bat club to their friends. But it is evident from the fact that almost all of them should have talked about this since there is increase in the membership to a considerable level.

The coordinator briefed them about the day's agenda. There was a short discussion on the previous week activities. The feedbacks were collected from them; one of the member named as George did a picture of bat. This shows their involvement towards the club.
In this session the information were given to the members about the different types of bat, on what basis it is classified and how it can be identified by the first sight etc. To motivate the members, they were issued the bat cards and questions were asked based on that, this made them to participate actively. By this they were made known how to identify fruit bat and insectivorous bat. Then they were told about the *bons* and *boons* of the bat, and they were made to have a discussion on this. After this the bat posters were issued to them. They were also taught about how to locate a bat and the equipments needed for that. Then they were asked to count the number of bats in the picture. Then bat club bags were given to keep their belongings. The organizers also issued labels and calendars and the members were very happy to get them. They marked the dates of next meeting in the given calendar. They decided the date to be on 29th of August. The gathering ends well at 5 'O' Clock. All the members were given a change to express their feelings about their club to the President of CCINSA. All of them received a post card to write how they feel about their bat club. A slide show was shown to members who wanted to stay for some more time.

SPECIAL MEETING – NEW MEMBER INDUCTION. 22 Aug 2004.
This special meeting of the KBC was organized to induct new members. There was an overwhelming attraction developed all in a sudden as a result of the propaganda and report given by the members of KBC to their friends and family circle. The KBC members wanted to bring their friends and kin to register as a member of KBC. One of them brought his dad along with him for registration. It was decided to arrange this special meeting to induct new members in to the club and teach them at one stretch and keep them update to the level of the existing members. About six new members registered their names.

The programme started exactly at 3 pm with an introduction about the bat club and its objectives. All the new members filled in their registration form and introduced them to the gathering. B.A. Daniel covered all the topics that have been covered so far. The new members received a badge, passport, poster, calender, bag and the bat information card. All activities associated with the materials were repeated for this fresh group of members. The following rules were made known to the new members:

1. Registered members should get their parents agreement in writing* to continue as a member of KBC
2. Members should try and attend all meetings of the club
3. During the club meetings members can clear their doubts or talk with other members but with out disturbing others
4. On account of any misbehaviour by any member at any point of time during KBC meeting time, decision taken by the coordinator will be final and should be strictly obeyed.
5. Members should treat other members as friends and forming groups on any basis unofficially among KBC members is not permitted.
6. Any problem or issue related to the club should be brought to the notice of the coordinator
7. Members should use or distribute KBC's logo, information, materials only for the purpose of spreading the message about bats and its conservation.

*The members were asked to get signature of their parents in the Bat passport New members were requested to attend the next meeting on 29th August.

29th August 2004 -- Third meeting
The meeting started at 2.55 p.m. This

time there were nearly 22 members in the club. One of the girl members called Ramya, brought some valuable information on bats and also an article about bat. Master Nixon did a pencil drawing of the of Chester Zoo logo. Master George brought a paper cutting and also a write up about bats. This shows that the members had spent time on collecting those things because they are interested. Then, an activity was conducted to the students with the bat card. They were asked to read the cards for some time and clarify their doubts if they get any while reading. By this, the organizer made the members to get familiarized with some concepts regarding wildlife and some new words. Then a game was conducted based on this. The '*One word-one answer'* game this was conducted dividing all the members in to four groups according to the colour of the badge they received.

ECHOO… the game

Another game called ECHOO was developed by the coordinators and tried with the members that was enjoyed by all. The game ECHOO is based on the theme of echolocation of a bat from its roosting place to feeding place. (See below and try it !)

Everyone enjoyed the game very much and the way they visualized about the bat and their habitat was quite good. Fortunately it was *Rakshabandhan* day and so all the members were asked to tie up a *rakhi, the specialised bat wrist bracelet included* in the bat education packet.

Submitted by B.A. Daniel and D. Deepa, Co-ordinators, CCINSA Bat Club, Kovai Branch, Coimbatore.

Game: Echolocation

Objective:	To understand how bats Echolocate
Materials Required:	Mask, Kerchief
Number of players:	12 (trees) + 1 (bat)
Time Limit:	15 minutes
Age:	10-15 years

- Form a 13 member group. One among the group will be the bat and the rest represent tall trees in a forest.
- Draw a 10x10 feet square on the floor and all members representing trees should stand randomly with in the square with their hands crossed
- Tie the eyes of the bat with a handkerchief and put the insectivorous bat mask.
- All trees should stand still and the game is for the bat to fly from one side of the forest (feeding area) to other side (roosting place) with out hitting on the tre es.
- The bat should to make the sound *kirrichh*… *kirrichh*… (Ultrasonic sound) and move (fly) forward to the other side of the square (its home) with out hitting the trees.
- When the bat move (fly) forward producing the sound the trees that face the bat ha s to echo. The bat by locating the direction and volume of the sound should avoid hitting the tree and move to the other side.
- When there is no echo the bat will understand that it is out of the wooded area (square) and it will be out of the game it doe sn't get back to the square with in a minute.
- The bat that hit against trees three times will be out of the game. The bat without hitting any tree gets full 30 points. Less 10 points for each hit.
- All 13 players should get a chance and the best colloc ating bat will be the winner.
- Modify the ground size according to the members

Rules to follow:

The trees should not move and the members should not stretch their hands or legs.
There should be a minimum of two and a half feet distance between trees
Only the tree that faces the bat should give the echo, rest should remain calm. The members representing trees can help each other who should give the echo by sign language, with out making noise.
The bat should not see the structure of the forest before t he game.

***Pteropus giganteus* - Flying fox**
Artwork by Sampath Seneviratne

A d v e r t i s m e n t

FIELD BIOLOGIST FOR WILDLIFE RESEARCH

Action Oriented Wildlife Conservation Group offers opportunities for Field Biologist to assist with Primary Data Collection, Analysis of Field Data and Report Writing. Persons who are passionate about wildlife and committed to conservation and good science will be preferred. Experience in analysis of data & report writing in English is essential. Knowledge of Hindi will be an advantage.

Other skills which will be an advantage in the field are : driving, photography, computers, knowledge of wild animal behavior. Salary will depend on individual's skills. Send your bio data with 1) color photo 2) earlier work reports & 3) salary expectation by email to wsos@vsnl.com

Please enter subject in email as application for Field Biologist.

BAT NET Newsletter & CCINSA

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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.

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IUCN SSC Chiroptera Specialist Group
CCINSA represents the IUCN SSC Chiroptera Specialist Group in the region of South Asia. CSG utilises 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.

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CCINSA conservation, education and training activities are also assisted by Bat Conservation International (BCI) regularly and other organisations from time to time.

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

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ZOO CCINSA WILD