

Chiroptera Research Techniques and Conservation in Bangladesh - Report Nurul Islam*

**Group for Conservation
& Research of Bats,
One Health
Young Voice
Bangladesh
(OHYVB)**



On 23-25 January, 2014 Chittagong Veterinary and Animal Sciences University (CVASU) hosted the second workshop on bat research techniques and conservation in Bangladesh at the University itself initiated by the Group for Conservation & Research of Bats, One Health Young Voice Bangladesh (OHYVB) and CVASU, in collaboration with the Zoo Outreach Organization, Chiroptera Conservation & Information Network of South Asia (CCINSA) and the Conservation Breeding Specialist Group. Funding was generously provided by Bat Conservation International, Chester Zoo and the Food & Agricultural Organization (FAO) and CCINSA. Dr. Neil M. Furey from Fauna & Flora International (Cambodia) was key resource person for the workshop. A total of 25 participants and 5 volunteers with backgrounds in biological and environmental sciences attended the three-day event.

Bats provide important ecological services worldwide and though they are among the most neglected mammals in Bangladesh, the country is home to at least 33 bat species. For instance, fruit bats play major roles in plant pollination, seed dispersal and forest regeneration, while insectivorous bats control



Dr. Neil Furey, Fauna & Flora International (Cambodia) was the key resource person for the workshop.



**Honorable
Chief Guest
Prof. Dr. A.S.
Mahfuzul Bari
delivers a
most
encouraging
speech in the
inaugural
session of
this unique
and much
wanted and
needed
workshop**

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harmful crop insects and serious disease vectors. Bats in Bangladesh made international news in 2001 when the first outbreak of Nipah virus occurred.

In other regions, bats are known to carry other zoonotic diseases such as Ebola, SARS, Hendra and MERS. Risks of bat-related disease outbreaks have increased due to habitat destruction and wildlife trade bringing bats into closer contact with human beings. To safeguard environmental and public health, increased research on bats is needed from ecological, conservation and medical standpoints.

To address this need, training of younger generations in multi-disciplinary approaches is required to stimulate greater interest and effort in bat research and conservation. A volunteer bat research group at Chittagong was created to this end and is dedicated to improving understanding and conservation of bats in Bangladesh.

As such, the purpose of the three-day workshop was to:

- Educate 25 science students on basic bat biology and their conservation importance
- Provide hands-on training in field research methods through field practicals
- Review the status of bat research and identify key gaps and needs in Bangladesh
- Promote bat research and conservation in Bangladesh through future collaborations

Workshop Details Opening Ceremony

The workshop was inaugurated on 22 January through a ceremony in CVASU by Prof. Dr. A.S. Mahfuzul Bari (CVASU Vice-Chancellor). Special guests attending the event included Prof. Dr. Md. K.I. Khan, Prof. Dr. A.K.M. Saifuddin, Prof. Dr. Md. A. Hoque, Prof. Dr. Md. A. Hossain, Prof. Dr. A.N.M. Rahman and Dr. B.C. Sutradhar, among others.

In addition to several speeches on the importance of bats, the new website for the Group for Conservation and Research of Bats, Bangladesh (www.gcrbbd.org) was launched.

It is hoped to develop the website over time so that it becomes a key resource for all bat researchers and enthusiasts in Bangladesh in future.



Mist netting for live bat capturing, demonstration of netting to the participants, live bats in mist net handling and i.d. of bat in BARI

Workshop, Day 1

The first day of the workshop ran from 0900 to 1900 hrs and included classroom sessions and a field practical at the Bangladesh Agricultural Research Institute (BARI) in Chittagong. The morning session included a series of lectures and open discussions led by Dr. Furey and Md. Nurul Islam on basic taxonomy, natural history, reproduction, ecosystem services, conservation threats and the bat fauna of Bangladesh. The early afternoon session provided instruction on live trapping methods, bat handling, field safety, data collection & management, alongside gender, age and reproductive diagnoses.

Following the early afternoon session, the participants went to BARI to undertake the field practical. During the practical, Dr. Furey demonstrated methods of setting up and handling mist nets in the field. Two nets were erected by the participants in locations thought suitable for capturing bats, and as darkness fell, two ultrasound (bat) detectors were used to demonstrate acoustic sampling methods. Three fruit bats (Pteropodidae) were caught in the mist nets, two of which were *Cynopterus sphinx*, and one appearing to be *Megaerops niphanae*. If confirmed, it would constitute a new country record for Bangladesh. Bat handling generated great interest also attended by the CVASU vice-chancellor.

Workshop, Day 2

The second day of the workshop ran from 0800 to 1830 hrs and similarly comprised classroom sessions and a field practical. Topics dealt with during the morning session included lectures on bat species identification, specimen collection and methods for determining species habitat preferences (via eco-morphology) and dietary composition. During the early afternoon session, instruction was given on population census and monitoring methods for flying foxes, as well as bat diseases in Bangladesh. Practical methods for preventing *Nipah encephalitis* were included in the latter.

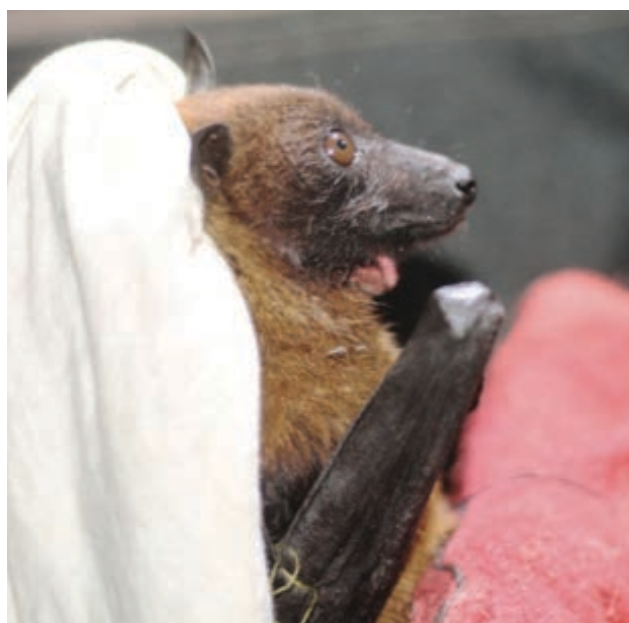
Following the early afternoon session, the participants visited a permanent colony of Indian flying fox (*Pteropus giganteus*) in Chittagong city. The participants were divided into five equal-sized groups (5 members each), and using standardized survey protocols provided earlier on, were given the task of undertaking: a) a colony description, b) a direct roost count, and, c) an evening dispersal count. A single flying fox was also briefly captured by the field assistants for a short handling demonstration and released unharmed afterwards.

Workshop, Day 3

The last day of the workshop ran from 0900 to 1800 hrs and proved especially busy with a recap session on the field practical of the previous day, a series of theoretical lectures, practical demonstrations, course evaluations and a closing session. A presentation was provided by Dr. S.K. Shil on bat



Brief by Dr. Furey on data collection sheet



Demonstration of captured Indian Flying fox



Indian Flying fox (*Pteropus gaigantius*) roost in Chittagong



Direct count of bats by the participants

skeletal features and several lectures were given on bioacoustics including: functional basis and taxonomic patterns of bat echolocation, field equipment and recording methods, strengths and weaknesses of acoustic sampling, and finally echolocation call scaling, variation, measurement and description. Various models of bat detectors were also demonstrated.

Following course evaluations by participants, the closing session began at 1700 hrs. This was attended by Dr. M. Yamage (FAO representative), Prof. Dr. F. Ahsan from Chittagong University and Prof. Dr. P. K. Biswas, all of whom gave excellent talks which included a vote of thanks to the event organizers. Participant certificates were distributed by Dr. Furey during the session, as were two copies of "Ecological and Behavioral Methods for the Study of Bats" (given to the CVASU Central Library and Green Explore Society), after which a wrap-up presentation of the workshop was given.

Workshop Evaluation

Towards the end of day 3 of the workshop, a simple questionnaire was provided to the 25 participants to solicit their opinions and evaluation of the training program.

Asked whether they found the event useful, 55% said that they found the training "extremely useful", 40.7% said they found it "really useful" and 3.7% said they found it "definitely useful". None of the participants opted for the remaining two categories: "not useful" and "A little useful" (Figure 1). When asked if they thought they might like to work with bats in future, all said they would and indicated their areas of interest in descending order as: "Research" = 62.9%, "Conservation" = 18.5%, "Education" = 11.1% and "Other" (Disease studies) = 7.04% (Figure 2).

The following comments illustrate what participants liked most about the course:

"I liked the technical section of the course, especially the field research parts and where Dr. Furey described behavioral patterns of bats and field research techniques." (Animesh Ghose)

"It was really amazing experience to learn these relatively new concepts (for us) about bats. I especially liked the population monitoring and emergence counts of the fruit bats (*Pteropus giganteus*). I was also pleased with our exposure to real field conditions. We were really surprised to see the differences in emergence counts between the different groups". (Rahul Talukdar)

"I especially liked the echolocation and mist netting techniques in BARI. It was really surprising to hear bat calls through the detectors. I also enjoyed the sessions on live-trapping and species identification." (Fakrul Islam)

When asked for suggestions for future courses, responses were:

"Almost all of us had no or only very basic knowledge on bat research and techniques. The workshop was only for 3 days and had a packed schedule. Though the course content was much as an hour. It would be better to have breaks after 30 to 40 minutes to help participants keep their concentration. And it would also be great if future workshops were longer, at least 7 days." (Ferdous Alom)

"It was good to learn and get practical experience from the field trip each day, but we now need to use what we have



SK Shil presented a lecture on Bat Anatomy



Field session



Classroom session

learnt. Sophisticated equipment like bat detectors and even simple things like mist nets are not available in Bangladesh. We need to develop our resources so that we can apply our new knowledge. We can also pass it onto others that couldn't participate in the workshop". (Rubyath Binth Hasan)

"The workshop venue was in a busy metropolitan area and I was really interested to learn about bat echolocation. But due to time constraints I didn't have many opportunities to use the bat detectors. It would be great if field trips focusing on echolocation could be included after the training on call measurement. Also the software was not installed on participant laptops so we missed some exciting opportunities!" (Tawhid Hossain)

From the organizers point of view:

"It was a lot of work to manage all of the daily tasks associated with 25 participants. Some topics were not covered and some had to be dealt with rather quickly due to time constraints. It would be worth expanding this type of workshop to at least 10 days." (Nurul Islam)

Recommendations

Capacity building for bat taxonomy

Knowledge of the Bangladeshi bat fauna remains in its infancy. The current checklist of species for the country is incomplete and due to training and resource limitations, the taxonomic capacity needed to identify bat species does not yet exist. As correct species identifications are fundamental to effective research & conservation efforts, we recommend:

Organization of a ten-day workshop to build taxonomic capacity in Bangladesh.

Development of a bat voucher specimen collection at Anatomy Museum of Chittagong Veterinary and Animal Sciences University to facilitate training and research.

Resources & Networking

GRCB aims to develop resources in Chittagong for bat enthusiasts throughout Bangladesh. Though these are still very limited, students and researchers can borrow materials free (only domestic shipping costs will apply) for the duration of their projects. GRCB should explore ways to develop its available resource in terms of equipment and literature. The GRCB website (www.gcrbbd.org) should be actively developed to stimulate and maintain interactions between all interested parties. All participants and bat enthusiasts should also be urged to become a member of CCINSA of the Zoo Outreach Organization.

Funding Opportunities

Securing funding is the major challenge to develop bat research and conservation initiatives in Bangladesh. Nonetheless, participants are recommended to do all they can to explore potential funding sources. The GRCB website should also maintain a database of potential donors interested in supporting research and conservation of bats.

Bats & Diseases

Nipah virus is an important and widespread issue in Bangladesh. All bat researchers are recommended to adopt Personal Protective Equipment (PPE) protocols (provided during the workshop) when undertaking field studies.



Certificate issued by Furey to the participants



Field demonstration



The report has been prepared by
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Evaluation results

Figure 1: Participant evaluation on the usefulness of the workshop

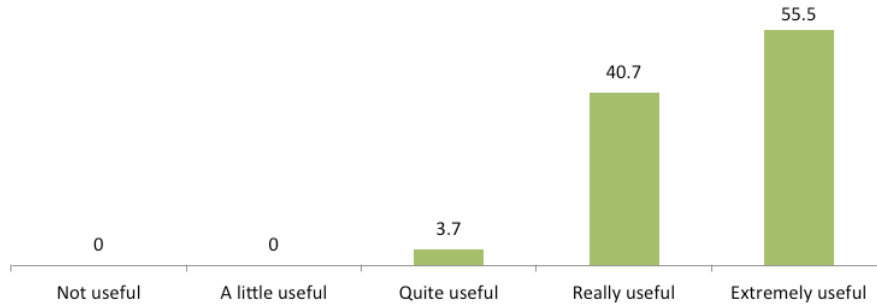
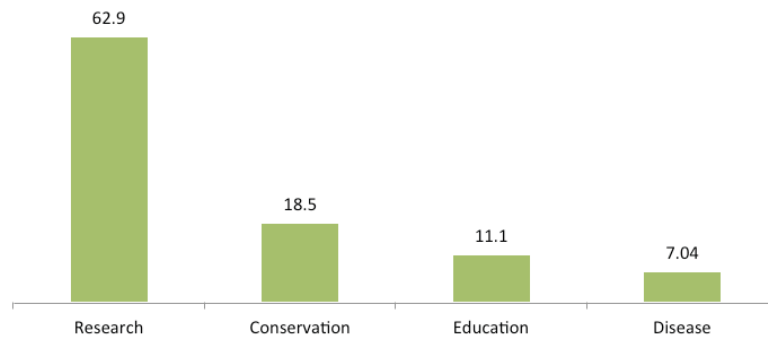


Figure 2: Participant responses on their future career interests relating to bats



Participants with the trainer and guest in a frame!