

Report on training in Field techniques on population and distribution studies, Conservation Management and Public Education of Bats and Rodents, 2-6 March 2005, Dhaka, Bangladesh.

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The Chiroptera Conservation and Information Network of South Asia (CCINSA) and the Rodentia, Insectivora, Lagomorpha and Scandentia Conservation and Information Network of South Asia (RILSCINSA) organised a hands on training on Field techniques, conservation management and public awareness of bats and rodents" at Dhaka, Bangladesh from 2-6 March 2005. Dr. Mike Jordan, Curator of higher vertebrates, Chester Zoological Garden, UK and Dr. Shahroukh Mistry, Associate Professor, Westminster College, USA, were the main resource persons for the workshop. The Wildlife Trust of Bangladesh and Asiatic Society of Bangladesh hosted the workshop. More than 30 field biologists mostly from Bangladesh and few from India participated in it. The unique aspect of this five day workshop is that both volant and non-volant mammals were covered.

Day 1: In an informal inaugural Prof. Anwarul Islam of Wildlife Trust of Bangladesh and local host welcomed all participants and resource persons. Sanjay Molur, Zoo Outreach Organisation explained about the background of the workshop. Dr Mike Jordan, Dr. Shahroukh Mistry, the main resource persons for the workshop and Sally walker, Founder, ZOO and the chair of the networks gave brief inaugural talk. The training programme was scheduled with a combination of both lecture classes and field demonstrations.

Mike Jordan during his colourful introductory talk about rodents, insectivores and lagomorphs said, though rodents form 40% of all mammals, these are considered as pests irrespective of the fact that only 10-15% (<1%) are major pests. However, many of them are threatened. The diversity among rodent groups was well explained though slides by giving examples from Murids, Sciurids, and other families belonging to Acomidae, Heteromyidae, Dipodidae, Geomyidae, Castomyidae, Hystricidae; insectivores families such as Soricidae (Shrews), Erinaceidae (hedgehogs and moon rats), Talpidae (moles), Tenrecidae (tenrecs) and Chrysocholidae (Golden Moles).

Shahroukh Mistry while giving an introduction to Chiroptera talked about the general morphology and ecology with evolutionary details of supporting facts. While explaining the division of bats as Megachiroptera and Microchiroptera he highlighted the number of threatened species globally. South Asia has 123 species of bats of which 25% are threatened category. two are Critically Endangered; nine are Endangered, 20 Vulnerable, and 32 Near Threatened. He also talked about the ecological and economical values of bats. Insectivorous bats eat many million tones of insects every night, while the fruit bats help in pollination of flowers and seed dispersal. More than 114 species of trees are visited by three species of fruit bats of the genus *Pteropus*, *Cynopterus* and *Rousettus*. Many of them are of economic value, like banana.

The topic of the field demonstration session in the afternoon was traps and trapping for non-volant small mammals, in which Mike Jordan introduced different types of traps such as Sherman traps of varying dimensions, homemade wood-wire traps and snap traps that can be used to trap rodents in the wild which is an absolute need to learn more about rodents. He also

explained the number of traps required for a study, place to set up the trap and also minor details of successful trapping experiments such as space requirements and time with suitable examples.

With regard to bats and the techniques for studying bats in the field Shahroukh Mistry explained various capturing techniques using different types of nets such as mist nets, harp nets, butterfly net and funnel traps. Owing to the importance of mist net use in bat study he explained how mist nets should be used for a successful catch. He pointed out that placement of mist nets is important to ensure the capture success. Ideally the mist nets should be placed over water, paths, near fruiting trees, near the roosting sites etc. Dusk and dawn are the best times for capturing bats. He also explained that Canopy net is similar to the mist net but is kept vertically in the canopy to capture high flying bats.

Field session: To do an exercise on use of mist nets, participants were divided into smaller groups of four to five members and were given a chance to get themselves familiarize with the mist nets. They were then explained about the handling, unrolling, and rolling of the mist net.

To do an exercise on rodent capture techniques the operation of the Sherman traps, the types of baits, bait preparation, the precaution to be taken while putting the baits inside the traps etc were demonstrated.

At around 1730hrs 20 Sherman traps were set in the campus of Asiatic Society of Bangladesh. Every participant got a chance to learn how to set the traps in the field. Once the Sherman traps were set all the participants took part in setting the mist nets. Four mist nets were set. By about 1810hrs the first bat was caught. The method of removing the bat from the mist net, without causing injury, neither to the bat nor to the man, was demonstrated. The bat immediately after removing from the net was transferred to the cloth bag for study. Handling the bats and the method of taking various measurements were then explained.

Day 2: The second day started checking with Sherman trap in which few specimens were caught. Mike demonstrated the handling, weighing, marking and the release of the animal.

Shahroukh Mistry explained different measurements to be recorded on bats, sexing, reproductive status, determination of age, the ectoparasites present if any and collection of tissue sample for genetic studies. Collection and analysis of feces of the bats collected could give very valuable information about the diet of the bats. Feces of insectivorous bats could contain remnants of insect parts. The feces of the frugivorous bats provide pollen and seeds of the flowers and fruits that they feed.

In the afternoon Mike Jordan gave a talk on Welfare and handling of small mammals. The underlying principle in animal handling and restraint is that the same should be safe to the human as well

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as to the animal. While explaining handling methods he explained how animals can be sexed, marked, photographed, plantar pads as well as observed for ectoparasites. Different methods of marking such as microchipping, ear tagging, fur clipping etc were explained.

In continuation of the bat training Shahroukh Mistry gave a talk on guidelines for studying bats. It is essential that conservation status, biology and threats to the species should be known while studying about bats. The study should be supervised by a training personnel; should not harm the roost site, population and habitat of the bat and hibernating animal roosts should not be disturbed. He also explained study techniques required for field study.

Field session: Rodents - In the evening fifteen Sherman traps were set at the Botanic Garden and five were kept in the market near the Asiatic Society of Bangladesh.

Bats - Four mist nets were set at the Botanic Garden of Dhaka University. One bat was caught around 1900hrs. The morphometric measurements of the bat were taken before it was released back and the bat was identified as Tickell's Bat, *Hesperoptenus tickellii*.

Day 3: The days programme started with checking the traps left yesterday. Two *Suncus murinus* and one *Rattus rattus* were caught from the Botanical Garden and the market area respectively. Mike Jordan demonstrated the handling, marking and release of the specimens collected. He also explained the different restraint methods of the rodents and insectivores. The handling, marking (different kinds such as fur clipping, ear tagging, micro-chipping etc). The release of the caught animals was also demonstrated.

Shahroukh gave a good account of important organisations that could be of help in conducting the bat field studies, resources for bat studies and methods of writing good bat study proposal. The participants were also asked to make a 'mock-project proposal'. This was a very useful tip for the growing field biologists.

Demonstrations on skinning and skulling the specimens: Mike Jordan demonstrated the unique 'dry preservation' technique for the museum collection of rodent specimens. The 'dry preservation' is not preferred for the bats, because the same results in shrinkage of the facial features of the bats, many of which are important identification characters of the bats. So in the case of the bats the 'wet preservation' technique is preferred, which was explained by Srinivasulu, C. He also demonstrated the preparation of the skull of the bat specimen.

Field session: Rodents - Fifteen Sherman traps were set at the Botanic Garden and five were kept in the market near the Asiatic Society of Bangladesh.

Bats - Three mist nets were kept open in the Botanic Garden. This day again only one bat was caught. The same was later identified as Tickell's Bat, *Herperoptenus tickellii*. The body measurement was taken before it was released.

Day - 4

In the morning around 0800hrs traps were checked. Out of the five traps kept in the market four animals were caught. Apart from this one *Suncus murinus* was caught from the Botanic Garden. The handling techniques were practiced.

Education for public support and lobbying: Sally Walker explained

about the evolution and various activities of CCINSA and RILSINSA. The CCINSA right now has 163 members, while RILSINSA has 78 members. She also explained about the educational materials designed by the CCINSA and RILSINSA in collaboration with ZOO and CBSG, S Asia. The educational materials are in great demand and are extensively used in the different South Asian countries to create awareness and public support on these less known at the same time very important group of mammals, the bats and rats.

In a lecture on Ecological studies on bats: Insectivory, Pollination and Seed Dispersal, Shahroukh detailed the relationship between the bat and the environment, such as habitat preference, roost preference, elevation preference of the bats.

This was followed by developing a protocols for surveying rodents and bats. Mike Jordan, Shahroukh and Sanjay Molur coordinated this. They worked by combining the small mammal (both volant and non-volant). The protocol is as follows: Arrive at the study site; Plan and do a reconnaissance to know about the habitat, terrain etc. The rodent traps can be set by afternoon, so as to check them before dusk; Set the mist nets at least an hour before dusk; Ideally it would be good to keep the net open the whole night, so as to get an idea about the activity pattern of the bats in the study area over the night; Check the rodent traps in the morning; The rest of the day until evening can be spent on preparation of the skin/skull of the specimens collected; The rodent traps also may be checked for the diurnal rodents, particularly if the study area has squirrels.

Field session: In the evening the Ramna Park, in the Dhaka city was visited to do an observation on bat collection.

Day 5: The last day of the workshop was devoted mainly conservation oriented details. Mike Jordan gave a talk on Small Mammal Conservation. According to 2002 IUCN red list, rodents, insectivores and bats together account for 65% of all the mammals of the world, that is threatened with extinction. The main threats are habitat loss, competition, predation and disease due to alien or invasive species and habitat degradation. Captive breeding and reintroduction can be a good strategy for small mammals.

Towards the end of the programme, Sanjay Molur summarized the status of small mammals in Bangladesh. He highlighted the scope for taking up studies on the small mammals of Bangladesh. Sally Walker talked about the Conservation Assessment and Management Plan (CAMP) workshop process, the advantages and the results of the CAMP. Sally pointed out the lack of our knowledge about 40% of the known species of bats of Bangladesh and warrants more serious and systematic studies on them. One of the main reasons for the conduct of this training workshop here at Dhaka is to equip the young researchers to take up this challenge.

During the valedictory function all participants were asked to give commitment to take up some activities towards conservation of bats and rodents. All participants received a certificate of appreciation and a CD containing all presentations of the resource persons and related literature. Prof. Anwarul Islam thanked all the participants for their interest shown in attending the workshop. He also thanked Zoo Outreach Organisation and resource persons for their effort in organizing a workshop which is a need for Bangladesh at this point.