Small Mammal Field Techniques Training, Thrissur, Kerala

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ZOO/WILD and its networks CCINSA and RISCINSA organized five-days hands on training workshop hosted by Department of Wildlife, College of Forestry, Kerala Agricultural University. Thirty five bat and rodent researchers from India (Andhra Pradesh, Arunachal Pradesh, Assam, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Sikkim, Tamil Nadu, Himachal Pradesh), Sri Lanka and Nepal attended this programme. Prof. Paul Racey, Visiting Professor, Department of Exeter in Cornwall, Co chair, Bat Specialist Group of IUCN's SSC, Dr. Mike Jordan, Senior Conservation Advisor, National Zoological Gardens of South Africa, Regional Chair IUCN SSC Reintroduction Specialist Group were the lead trainers. Dr. Sanjay Molur, ZOO, Dr. P.O. Nameer and Dr. N. Singaravelan handled sessions. This training was sponsored by Chester Zoo, Knowsley Safari Park, Columbus Zoo and Conservation Breeding Specialist Group, USA.

Dignatories on the dias during inaugural

Dr. Paul Racey setting up mistnet

During the inaugural, Dr. Nameer, College of Forestry, Kerala Agricultural University, host of the workshop, welcomed the gathering. He said 'this is an extremely important exercise, hands on training workshop in small mammals, that we will be having for the next five days. Small mammals are an important group of mammals because they constitute about 60-70% of mammalian diversity of the world. In spite of this, very little is known about them. ZOO is organizing training workshops on this since 2000 and organized training programmes in all south Asian countries and KAU is hosting for the second time. ZOO trained many researchers and they are generating small mammal information from all South Asian countries'.

Dr. Mohan Kumar, Dean, College of Forestry said 'I hope this training will produce a critical mass of a research workers and Scientist in the area of small mammal conservation to work in South Asia and they carry forward the research for this neglected group of organism".

Prof. Pushpa Latha, Registrar, KAU while inaugurating the workshop said that the importance of this training is very clear since every creature has a role in its ecosystem. Though small mammals constitute 60-70% of all mammals they are highly neglected. From the time memorial we are worshiping some rodents eg Shrew, the vehicle of Lord *Ganesha* but still we have many myths related to bats and rodents. This workshop will help to save the beautiful creature of nature.

Sally Walker, Founder CCINSA / RISCINSA and ZOO during her talk shared the history of these workshop series. She said, this kind of workshop started with the IUCN Red List exercise in India. ZOO was interested in Conservation Assessment and Management Plan workshop which is a creation of Dr. Ullie Seal who was the Chairman of IUCN SSC CBSG. In 1996 Government of India conducted Biodiversity Conservation Prioritization Project BCPP and as a part of it ZOO offered to help assess all the species of India. We divided species assessment in to seven workshops and one of the workshops was mammals. I learned that rodents and bats are the most species and actually there were very few experts we could call. Later after CAMP workshops ZOO started networks for lesser known groups and I started a network for Bats and rodents. We combined bat and rodents since bats can be studied during night time and rodents during day. We had this workshop combining Chiroptera and different rodents. Paul and Mike were

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A session on rodent handling and sexing by Dr. Mike Jordan

Demo on dry skin preservation techniques by Dr. P.O. Nameer

our resource persons for all our workshops. I feel that animals should not be mistreated. Our trainers teach us to treat the animals well. She thanked KAU for hosing this training for the second time.

Paul Racy expressed his happiness to be here after eight years. The last workshop was very successful that generated interest from mammal researchers from all over India. He also said that IUCN has many commissions and SSC is one of the commissions. Bat Specialist group is one of the SG of SSC. Priority of BSG is action planning for conservation priority. Action plans have 20 major recommendations. The current priority of BSG is to revise the action plans. It will be a web based plan and will be updated systematically.
Mike Jordon said it is a pleasure to be back to Kerala. This training has created scientists producing information about small mammals in India and South Asia. There is so much to be achieved to save this group of species.

Sanjay thanked Kerala Agricultural University, staff and students for their assistance in organizing the training. He also thanked Knowsley Safari Park, Chester ZOO and Columbus zoo for their funding support and to CBSG as our mentor.

The programme started with self-introduction by all participants. Please see annexure 1 for names of participants and their expectations.

As an **introduction to small mammals**, Mike Jordan spoke about biodiversity of non-volant small mammals of the orders rodentia, insectivora and scandentia. He stressed upon the disparity and the neglect that is being received by the small mammals, though they account for about 55% of the mammals of the world. Paul Racey, as an introduction to Volant small mammals gave a detailed introduction of bats with classification, general features, taxonomy, distribution ecology, feeding ecology etc. He added that first fossil bat was found 50MYa that belonged to Eocene period that had very long wings developed long ago. They already had echolocation. As on 2010 about 1124 bat species has been reported which accounts about 20% of mammals. There are still more to be described. Chiroptera is classified into Megachiroptera – 1 Family Pteropidae (old world fruit bats) and Microchiroptera – 17 families. Some recent editors do not use mega and micro instead they use Yinpterochiroptera and Yangochiroptera based on molecular genetics data.

Field techniques: For non-volant different types of traps used for the study of rodents was explained. During the training live and single capture traps of varying dimensions were used. All aspects of Sherman trap was explained including cost and trap maintenance. Other traps generally used for rodent work such as Wire mesh traps, multi-capture traps such as Uglan Traps were also discussed. With regard to Volant mammals different types of nets to survey bats such as mist nets. Harp nets, canopy nets, bat detectors, flick nets were explained. Foraging strategy of bats was explained.

Demonstration on trap setting and mist nets: Entire evenings of all workshop days were utilized to set up traps or mist nets. The Sherman traps set was monitored periodically and trapped rodents were used to learn handling, species identification, sexing, marking weighing, age determination and breeding conditions of the species. After marking the species were released back in the same location caught. During trap setting, details about preparation of the baits for setting the traps were discussed. The participants were divided into groups and were taken to the nearby plantation areas for the demonstration of setting of traps. A total of about 40 traps were set at different plantation areas. Similarly mist net setup was demonstrated in orchards with in KAU campus and the participants in groups learned to set up mist nets during evenings. Identification of habitats and sampling methodologies were discussed during demo practice. Among non-volant mammals, *Rattus rattus, Mus booduga, Bandicoota bengalensis,* and among Volant

A wildlife researcher handling a bat

mammals, *Cynopterus sphinx, Hipposideros ater*, *Hipposideros speoris, Rhinolophus rouxii* were caught.

As part of practice for identifying the species caught, dichotomous key and character matrix for identification of bats in the field was taught. During the course of bat examination, sexing, the breeding condition of the bats such as lactating females, pregnancy and age estimation.

Marking techniques: During classroom and field sessions different methods of marking the bats such as temporary marking (marker pen, varnish), permanent marking (forearm bands/rings, necklace, tattooing, bleaching the fur) were explained and demonstrated. Study of the foraging behaviour of the bats, radio-tracking studies, use of bat detectors etc were explained by Paul. Mike explained methods of marking of rodents such as Microchipping, ear tagging and fur clipping.

Dry skin preservation of small mammals: Maintaining voucher specimens are of great importance in taxonomy studies. Dry skin preservation help to retain the original colour and shape of the animal for a longer period and also the technique is very simple that require limited equipments like a pair of scissors and borax powder. P.O. Nameer demonstrated the dry skin preservation techniques of rodents (carding) for storage in the museum.

Animal handling: Welfare of animals is a very important component in research who may do not care for welfare. The trainers explained about the welfare needs of the animal. Underlying principles in animal handling and restrain is that the same should be safe to the human as well as to the animal.

Pollination by rodents and bats: Interaction between animals and plants are mutualistic. Among mammals fruit bats and some mammals are pollinators. Frugivorous and nectarivorous bats pollinate and disperse seeds of hundreds of species of plants. Dr. N. Singaravelan gave a talk on pollination ecology of bats giving examples and case studies reported from different parts of the world. He also gave a demonstration on pollination aspects.

Dr. Sanjay Molur, gave a presentation on methods on population estimation of small mammals based on his thesis work. He also explained about the small mammal networks Chiroptera Conservation and Information Network of South Asia (CCINSA) and Rodentia, Insectivora, Scandentia Conservation and Information Network of South Asia (RISCINSA).

At the end of the workshop the participants committed to contribute for the conservation of small mammals. At the end all participants received a certificate of participation.

Participants of Small Mammal Field Techniques Training workshop