

CBSG / RSG Training Workshop on Reintroduction, Conservation Welfare, and Conservation Breeding with Special Emphasis on Non-Volant Small Mammals

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After the Conservation Assessment and Management Plan CAMP Workshop and Global Mammal Assessment GMA for South Asian Non-volant Small Mammals, a training workshop on reintroduction, conservation welfare and conservation breeding with special emphasis on rodents and insectivores was conducted at the CAMP/GMA venue, the Karl Kübel Institute, Anaikatty, Coimbatore and the Silent Valley National Park on 13-15 February 2004.

This training workshop was planned around the notions that

- a) a number of South Asian small mammals may be assessed as Threatened and would be in need of recovery or other conservation action;
- b) there is till date no viable conservation breeding programme for small mammals in the region of S. Asia;
- c) that small mammals, with their small size and short generation time, would be relatively easy to breed systematically for conservation and could thus demonstrate many of the principles of conservation biology which are not clearly understood by the captive breeding community;
- d) that small mammals, as a result of their small size and non-threatening physical presence (as compared to a large carnivore, for example), and importance to ecosystems would be excellent candidates for reintroduction programmes, (assuming that such programmes would be done systematically); and
- e. small mammal field researchers have been observed to be handling the animals carelessly and in a non-human fashion, which is neither ethical, scientific or good for use in conservation programmes, and therefore require some tips in animal welfare.

The latter topic of animal welfare was given a new name, "conservation welfare" to distinguish it from common forms of animal welfare, such as what is applied to laboratory animals, and to introduce it as a unique focus to cover the situations in which animals have to be captured, handled, kept, bred and released for the purpose of conservation.

The workshop was organised by the Rodent, Insectivore, Lagomorph, Scandents Conservation and Information Network of South Asia (RILSCINSA) and ZOO. It was jointly conducted by IUCN SSC Reintroduction Specialist Group (South & East Asia), and the Conservation Breeding Specialist Group, CBSG-SA. Twenty two participants from CCINSA and RILSCINSA from India, Sri Lanka and Bangladesh participated. Resource persons for the workshop were Dr. Mike Jordan (Chair, IUCN SSC ReSG, [Europe and Central Asia]) and Dr. Giovanni Amori (Chair, IUCN SSC Rodent Specialist Group). The workshop was jointly facilitated by Sanjay Molur and Sally Walker of ZOO and WILD and representing also RSG and CBSG in S. Asia.

Day 1 - Agenda

1. Lecture: Introduction and small mammal diversity by Mike Jordan
2. Lecture: Over view of rodent conservation - a global perspective by Giovanni Amori
3. Lecture: Small mammal conservation in South Asia by



Mike Jordan, Lead Resource Person lectures at Silent Valley on conservation breeding and conservation welfare.

Sujit Chakraborty, (Scientific Chair, RISCLINSA; Retired Scientist, ZSI).

Mike Jordan delivered his lecture on the small mammal diversity of the world and began by outlining the plight of these numerous species that contribute to more than 75 percent of the known mammal diversity of the world. Although numerous, they are generally considered as pests and are under constant threat due to control and management actions taken against them by humans all over their range. Contrary to popular belief, the small mammals are more than pests and are among the most beautiful living organisms. Among the small mammal diversity, the non-volant forms are more diverse in number, size, distribution and ecology. The rodents, distributed widely excepting certain arctic islands, parts of West Indies, New Zealand, many oceanic islands and Antarctica, express diversity in size ranging from the smallest Harvest Mouse (*Micromys minutus*) weighing 2-4 g to the largest Capybara (*Hydrochaeris hydrochaeris*) that usually weigh 50 kg with some adult males scaling 80 kg. Rodents are mostly represented by the murids - rats and mice (65%) but also include a variety of other forms too. The order Scandentia is represented by tree shrews that are very few in numbers and are restricted to the old world regions. Mike Jordan wound up the lecture by indicating that the small mammals, although representing 60% of the known mammal diversity, are a neglected group of animals and huge amount of conservation action go to the 40% of large mammals.

Dr. Giovanni Amori dealt with the rodent conservation scenario. Between 1982 and 1993, rodent diversity increased by 17.5% the world over and the trend still continues. A crude estimate based on a comparison drawn with the primate diversity suggests that there may be around 3400 species of rodents in the world. Rodents are very essential as they sustain predators of various sizes and kinds. Rodents are also under severe threat due to natural and anthropo-driven extinctions. In the last 500 years 53.5% of the mammal extinctions are those of the rodents. With as many as 369 species at the threshold the oriental region is rich in

threatened species. Dr. Amori emphasized of the fact that correct interpretation of the issues is better for conservation issues. The rodents that had been introduced have negatively affected the native fauna. For example, *Rattus norvegicus* has resulted in extinction of *Sphenodon punctatus* in select areas in its range, etc. In some areas to control such exotic rodents, small carnivores were introduced, a measure that led to faster depletion of more native endemic fauna than expected. Introduction of the Grey Squirrel in England and mainland Europe has slowly replaced the native squirrel from its range. Dr. Amori listed the following recommendations - i) promote taxonomic introduced now may not adapt itself to the new habitat or may greatly affect the habitat thus affecting directly many more species native to the place.

Dr. Sujit Chakraborty delivered the third lecture 'Small mammal conservation in South Asia'. He began outlining the sparser nature of mammals in diversity, and went on to emphasize that due to their pre adaptability they are widespread, and exhibit diversity in body size and behaviour. He felt that the 'small mammals' do not have a clean taxonomic entity and felt that those that are less than 5 kg in body weight are small mammals. Small mammals play a crucial role in the ecosystem as they help in predator prey relationship, act as ecosystem regulators, affect plant composition, soil type and drainage too.

He felt that all south Asian countries have been witnessing a steady increase of improvised human population leading to changes in agricultural practices, unplanned exploitation of bioresources that directly affects the mammalian assemblages in the region. To counteract this bleak situation actions need to be taken and the positive thing he felt was that related to the growing and conscience effort to conserve wildlife, habitat and species, researches and laws, etc. He pointed out that excepting habitat management that affects the small mammals too, all other efforts are dealing with or addressing charismatic large mammals. He felt that the role of and conservation status of small mammals need be emphasized to as many citizens as possible as without their help the conservation programme fail and does not serve any purpose. Dr. Sujit indicated that small mammals also live in areas outside the protected area networks and many are synanthropic. These are hated by humans as their activities are thought to be against human well being and have been under severe threats due to drastic control measures meted against them. He indicated that due to the intensive agriculture activities taken up after the Indira Gandhi Irrigation Canal in the Thar Desert region many small mammals were locally wiped off from many localities.

Diverging from the actual happenings unfolding on ground where the small mammals dwell, Dr. Sujit went on to say that small mammals are neglected from legislation point too. He pointed out that the environmental impact assessment studies carried out restricted themselves to charismatic large mammals and the small mammals are affected in a larger way due to this negligence. He further went on to mention that the Indian Wildlife Protection Act listing bats, rats and mice as vermin and this requires urgent attention as many of the species belonging these



Small Mammal workshop participants at Silent Valley. Photo by SW.

groups and threatened and data deficient in wild warranting full protection, without which they are destined to become extinct. Furthermore, lot many species unknown to science may become extinct before science gets to know them. Illustrating the case of Marsh Mongoose *Herpestes palustris*, a recently described Indian mammal becoming extinct due to wetland reclamation, Dr. Sujit feared that we may be losing some restricted range species if we do not take necessary actions now. He emphasized on the role of *ex situ* management of such priority species and felt that sufficient momentum for this cause has been lacking evidently resulting decline of many known life forms and numerous yet to be described life forms. To this effect, Dr. Sujit placed the blame on the scientific community and emphasized that a sound conservation management plan requires baseline data including area-specific inventorying of flora and fauna, and actual trends of their population in wilderness. Prioritizing these would result in achieving our conservation goals in the long run.

Day 2 - Agenda

1. Lecture: Setting priorities for reintroduction and captive breeding by Dr. Mike Jordan
2. Lecture: Identification of small mammal species through owl pellet analysis method by S.S. Talmale (Zoological



Nameer, Mike and Sanjay admire one another's photos during the field trip. Photo by SW.

Survey of India, Western Regional Station, Pune).

3. Lecture: Some field techniques for studying rodents by Shomen Mukherjee (Ben Guir University, Israel).

4. Lecture: Conservation status of Indian rodents as per IUCN Red List categories by Dr. M.S. Pradhan (Scientist, Zoological Survey of India, Western Regional Station, Pune).

5. Lecture: Small mammal welfare and handling by Dr. Mike Jordan.

The day began too early at 0500 hrs as two mini vans transported sleepy participants to Silent Valley National Park, preceded by half a day lecture session held at Mukali - the base camp of the National Park.

In his first lecture of the day Mike Jordan clarified that captive breeding programmes and reintroduction programmes are fully integrated with field conservation measures. Liaisons between field biologists and people working in captivity are very important for conservation. The reintroduction programmes need to surpass political boundaries and take on a holistic approach with conservation of the species as its main goal. He illustrated this with the example of *Cricetus cricetus* reintroduction programme undertaken by Belgium, Holland and France, the countries collaborated to bring out guidelines in their national language to save the animal from extinction and to initiate captive breeding plans. Until now only one country has initiated a captive breeding reintroduction programme, which make the survival more difficult due to the other countries "non-participation".

Threats on populations having limited number of mature individuals are very high, thus timely action taken would go a long way. In such cases guidelines need to be formulated before it is too late. Clear mandate to initiate a captive breeding programme too is essential. Collection of captive breeding stock is to be planned in such a way that a sufficient amount of mature breeding pairs could be left in the wild so as to not affect the population totally in case the captive breeding programme fails. Captive breeding and management can serve two purposes including i) population management, and ii) education.

Species selection for reintroduction needs to be carefully



Dr. Pradhan and Dr. Chakraborty commit to conservation by exchanging rakhis. Photo by SW.



Dr. Giovanni Amori, IUCN SSC Rodent Specialist Group Chair and Dr. Y. P. Sinha, ZSI Chiroptera taxonomist search for fruits in their role as bats in the education session. Photo by SW.

planned as disease risks and its potential on the wild population greatly outweighs all other reasons. Mike Jordan also indicated that the IUCN Red List fails at the level of local prioritization of the status of a particular taxa in the region and stressed that national level assessments caters to this need. The IUCN Technical guidelines on the management



Participants chant the praises of much maligned bats. "Bats are good. Bats are great ! Without bats, we'd have no food on our plates. Photo by SW.

of the ex situ population for conservation has the wide implication towards this cause. He felt that the listing of the species from the region that globally requires captive breeding should be given top priority, as many of these are potentially reintroduction candidates.

S.S. Talmale gave an illustrated presentation about identification of small mammal species through owl pellets and indicated that the secondary source of information gives us information about many untrapable species of small mammals. Shomen Mukherjee spoke on the field methodology that he and his team were following to study gerbil behaviour in arid regions of Israel.

After the tea break, Dr. M.S. Pradhan briefed the participants

about the conservation status of Indian rodents as per legislation and IUCN red listing categories. He felt that it is now time to accord correct conservation status to the non volant small mammals and the mention of rats and mice as 'vermin' may be changed accordingly to include only the recognized and listed rodent pest species.

Mike talked about 'small mammal welfare and handling,' illustrated with beautiful slides, emphasizing that the trap design should take into consideration animal behaviour and requirements. Animal handling should be humane, and care should be taken not to harm the animal physically and also reduce stress to the animal. To subdue the captured animal use of isoflourine is far better than ether or chloroform as both of these lead to irritation and tissue damage. Many other such points were related.

After lunch, the participants visited Silent Valley where they took a 1.5 km forest transect observing footprints, scats and droppings, and also scanned the canopy for non volant small mammals.

Day 3 - Agenda

1. Protocols for Small Mammal Reintroductions by Dr. Mike Jordan
2. Public education for small mammals: Active learning - bats: a case study by Sally Walker and Gigi Joseph, Education Officer, Periyar Tiger Reserve, Kerala
3. Case studies in conservation action coordinated by Dr. Mike Jordan
4. Preservation of specimens by Dr. S.S. Saha (Retired Scientist, Zoological Survey of India, Kolkata).
5. Reintroductions for S. Asia, personal commitments etc., coordinated by Dr. Mike Jordan, Sanjay Molur and Sally Walker
6. Vote of thanks and distribution of certificates.

Mike Jordan outlined the four phases of a reintroduction/restocking programme, i) the feasibility study, ii) the pre-release phase, iii) the release phase, and iv) the post-release phase. Feasibility study is the first phase that aims at putting the available literature on biology of the target species, predator-prey relationship and its effect on the target species, habitat issues, habitat known to be used and



Group photograph of the CBSG/RSG Training Workshop in Reintroduction, Conservation Welfare and Conservation Breeding for Small Mammals,

Commitments made by participants

- Joya Thapa - focus on rodent conservation in her study
- Y. P. Sinha - help in identification of bats and study more bats
- C. Srinivasalu - Help compile the taxonomy guide booklets
- S. S. Saha - would solve some sticky taxonomical problems
- S.U. Sarkar - work on small mammals in Bangladesh
- M. S. Pradhan - Anything for helping rodent identification. Would enable access to all ZSI collections and any other help from ZSI
- P. Padmanabhan - take up survey small mammals of Kerala, Silent Valley NP in next 2 years
- K.M. Pillai - include non-volant mammals in KFD. Help in legislation. Will publish about Rodent conservation and breeding in the March issue of "Aranyan". Assist field study permission to PA's in Kerala.
- Shomita Mukherjee - Will not look at rodents only as prey
- Shomen Mukherjee - Publish rodents studies & do more serious research
- Mike Jordan- help someone study captive management at Chester Zoo
- W.L.D.P.T.S. de A Sampath - Conduct studies in Sri Lanka
- T. Bhattacharya - provide information on DD species
- Sujit Chakraborty - All support for conservation of all species
- S.S. Talmale - Systematic & help in identification of rodents
- Gigi Joseph - teach children to be friends of rodents; survey of small mammals of Periyar Tiger Reserve
- Mewa Singh - keep notes on small mammals during primate work
- H.N. Kumara - keep notes on small mammals.
- Thomas Nelson - highlight significance of small mammal conservation in Parambikulam
- Nandini Rajamani - Commit to work on small mammals.
- P. O. Nameer- Continue work on the field studies on small Mammals and try captive breeding common rodents & insectivores
- Sanjay Molur - focus more on small mammal study, publish short notes on species account in Zoos'Print Journal
- Sally - catalyse and help coordinate several ideas generated in and inspired by this workshop, e.g., organize field techniques workshops more locally with indigenous trainers and combining chiroptera and rodentia training in one workshop; incorporate many of the working group recommendations from the CAMP workshop into CCINSA and RILSCINSA; help Nameer to develop the "handbook" for rodent field biologists; push the "bats n rats" education programme.