REPORT: C.A.M.P. and GMA Workshop for South Asian Non-volant Small Mammals

Background

Rodents and insectivores are not the most popular of mammals but they are the most speciose groups (30% of Indian mammals) and also one of the most useful ... they disperse seeds, consume grasses that clog waterways, and make up a significant part of the diet of a host of other mammals (including some communities of human beings), birds and reptiles. The earth and its ecosystems would not function optimally without the world's rodents and insectivores, and although some species can be pestiferous at times, we need to take care of these small mammals -- for the sake of our own survival. Hence, the Zoo Outreach Organisation, alarmed by the results of the rodent and insectivore working groups (25% species assessed were Data Deficient) at the 1997 Indian Mammal C.A.M.P. selected this group as a major focus of our activities. From that time, another C.A.M.P. workshop, which would be backed up by serious networking of small mammal specialists, was on our Agenda. In 2002 itself we scheduled and even announced a CAMP workshop, but this was postponed for more than a year and a half so that it could be held in association with the Global Mammal Assessment organised by IUCN SSC and Conservation International.

CAMP/GMA

Finally, the Non-Volant Small Mammal (NVSM) Conservation Assessment and Management Plan (C.A.M.P.) Workshop and Global Mammal Assessment GMA (hereafter referred as NVSM C.A.M.P. / GMA) was conducted at Karl Kübel Institute, Annaikatti from 9-13 February 2004 and CBSG/ RSG Overview Training in Reintroduction, Conservation Breeding and Conservation Welfare was conducted from 13-15 February 2004 at the same venue with a field visit to the Silent Valley National Park

The C.A.M.P. / GMA workshop was attended by 30 odd NVSM researchers and taxonomists from South Asia as well as experts from other regions, including the Chair of the Rodent Specialist Group, Chair of the Reintroduction Specialist Group, Europe and Northern Asia, the IUCN SSC GMA specialists and others. Dr. John Williams, Programme Consultant for the Conservation Breeding Specialist Group, who wrote the C.A.M.P. Data Entry Programme, could attend the workshop and help ZOO recorders and researchers work out problems they had with the programme. John also got many new ideas for using the CAMP Data Entry Programme and making it more meaningful and useful for conservation biologists. Dr. Kathy Holzer, Programme Officer of the Conservation Breeding Specialist Group, visiting India to participate in the Vulture Workshop held in Himachal Pradesh was able to spend a day and a half with us at the workshop.

A conservation training workshop including reintroduction, conservation breeding and conservation welfare with special emphasis on NVSMs immediately followed the C.A.M.P. The C.A.M.P., GMA and conservation training created many ideas and suggestions to enhance, expand and deepen the work already completed by the network and its members. Some of these suggestions were formalized in the Special Issue Working Group Reports following the C.A.M.P. and some were contributed during or after the conservation training.

Group photograph of the CAMP / GMA workshop for South Asian Small Mammals at the Karl Kübel Institute in Annakatti

Sponsors

The CAMP and training were fully sponsored by the **Knowsley Safari Park, Chester Zoo/North of England Zoological Society** and the **Universities Federation for Animal Welfare,** all United Kingdom organisations.

Inaugural

The Inaugural function was honoured to host Mr. V. Ramakantha, I.F.S. and Principal, State Forest Service College and Dr. V.S. Vijayan, Director, SACON as President and Chief Guest of the function. Mr. Ramakantha has been a friend of ZOO's Conservation Breeding Specialist Group activities since 1991. He commented on the current popularity of umbrella and flagship species and congratulated scientists who were working on small creatures which might be in the process of going extinct while all were focused on charismatic species and protected areas. Dr. Vijayan spoke on the association of SACON with the C.A.M.P. workshops. He also highlighted the fact that only 30% of endemic species are in protected areas and asked who would protect them. He stressed the importance of involving more lay persons in conservation.

C.A.M.P. workshop

A C.A.M.P. workshop follows a relatively standard procedure and agenda yet is continuously under modification to improve the process on the basis of lessons learned and also to accomodate the requirements of different taxon groups, geographic areas (whether country, region or globe), and even level of information available. The essential elements remain constant however and these are :

- an attempt to find and bring the most knowledgeable field biologists and taxonomists for the target taxon group regardless of any other consideration,
- use of small working groups which are guided by "ground rules" for group interaction which are intended to facilitate the collection and recording of information and its analysis quickly
- a philosophy of objectivity, prioritising biological values of the taxa over all other considerations in order to obtain a consistent result,
- prioritising according to the IUCN Red List Criteria and Categories to assess the level of threat and assign the taxon to an accurate category,
- transparency, honesty and inclusivity with respect to information.

Information is gathered for use in assessments and for record in a C.A.M.P. Report which is made available to all persons for the purpose of conservation of the species. Participants are encouraged to part with unpublished information to increase the accuracy of the assessment. Every piece of information is credited to the participant and his ownership of it is protected so that this sharing of information does not cause hardship and loss to the author.

The output of the C.A.M.P. workshop are currently under review by participants, who will return the corrected Draft Report to the organisers. Their corrections and comments will be incorporated and a Report will be brought out which will be, if all goes as it has in the past the most compre-hensive and current published documentation of South Asian Small Mammals up to this time. C.A.M.P. Reports have proved invaluable to a great variety of policy makers, managers, researchers, educators and others who are valiantly trying to protect what remains of the Earth's biodiversity before it is too late.

Endemic species of Small Mammals

assessed at the South Asian Non-volant Small mammal C.A.M.P Workshop, 9-13 February 2004, Coimbatore *

Scientific name and authority	Common name
Rodentia	
Alticola albicauda (True, 1894)	White-tailed Mountain Vole
Alticola blanfordi (Scully, 1880)	Scully's Vole
Alticola roylei (Gray, 1842)	Royle's Vole
Biswamoyopterus biswasi Saha, 1981	Namdapha Flying Squirrel
Calomyscus hotsoni Thomas, 1920	Hotson's Mouse-like Hamster
Cremnomys elvira (Ellerman, 1947)	Large Rock rat
Diomys crumpi Thomas, 1917	Crump's Mouse
Eupetaurus cinereus Thomas, 1888	Woolly Flying Squirrel
Funambulus layardi (Blyth, 1849)	Layard's Striped Squirrel
Funambulus sublineatus (Waterhouse, 1838)	Dusky-striped Squirrel
Millardia kondana Mishra & Dhanda, 1975	Large Metad
Mus famulus Bonhote, 1898	Bonhote's Mouse
Mus fernandoni (Phillips, 1932)	Ceylon Spiny Mouse
Mus mayori (Thomas, 1915)	Mayor's Mouse
Petaurista magnificus (Hodgson, 1836)	Hodgson's Flying Squirrel
Petaurista nobilis (Gray, 1842)	Noble Giant Flying Squirrel
Platacanthomys lasiurus Blyth, 1859	Malabar Spiny Dormouse
Rattus burrus (Miller, 1902)	Miller's Nicobar Rat
Rattus montanus Phillips, 1932	Nillu Rat
Rattus palmarum (Zelebor, 1869)	Zelebor's Nicobar Rat
Rattus stoicus (Miller, 1902)	Andaman Rat
Ratufa indica (Erxleben, 1777)	Indian Giant Squirrel
Ratufa macroura (Pennant, 1769)	Grizzled Giant Squirrel
Srilankamys ohiensis (Phillips, 1929)	Ohiya Rat
Vandeleuria nolthenii (Phillips, 1929)	Ceylon Highland Tree Mouse
Insectivora	
Crocidura andamanensis Miller, 1902	Andaman White-toothed Shrew
Crocidura hispida Thomas, 1913	Andaman Shrew
Crocidura jenkinsi Chakraborty, 1978	Jenkin's Andaman Spiny Shrew
Crocidura miya Phillips, 1929	Sri Lankan Long-tailed Shrew
Crocidura nicobarica Miller, 1902	Nicobar Shrew
Feroculus feroculus (Kelaart, 1850)	Kelaart's Long-clawed Shrew
Solisorex pearsonii Thomas, 1924	Pearson's Long-clawed Shrew
Suncus dayi (Dobson, 1888)	Day's Shrew
Suncus fellowes-gordoni Phillips, 1932	Ceylon Pygmy Shrew
Suncus montanus (Kelaart, 1850)	Hill Shrew
Suncus zeylanicus Phillips, 1928	Ceylon Jungle Shrew
Lagomorpha	
Ochotona thibetana (Milne-Edwards, 1871)	Manipur Pika
Scandentia	
Tupaia nicobarica (Zelebor, 1869)	Nicobar Tree Shrew

Category	Number
Critically endangered	5
Endangered	16
Vulnerable	13
Near Threatened	1
Least Concern	0
Data Deficient	3

*** Categories and Criteria have not been listed for individual species. When the CAMP Draft has been reviewed by participants, the output will be published and distributed.**

The Global Mammal Assessment of IUCN SSC and Conservation International CI, collaborating with CBSG CAMP workshops

The Global Mammal Assessment, and indeed, all of what are known as the Global Assessments of SSC/CI, are part of the larger vision of IUCN Species Survival Commission. All of these assessments review the status of all species in different faunal groups using mapping, geographic distributions, threat assessments and documenting important habitats and threats for each species. The global assessments will help SSC achieve a larger objective of "producing relevant and accessible biodiversity assessments and analysis tools to enhance conservation and sustainable development decision-making".

The global assessments will contribute to implementation of the three objectives of the SSC Strategic Plan, e.g.
1. Decisions and policies affecting biodiversity influenced by sound interdisciplinary scientific information with outputs as under i. status of biodiversity measured by indicators derived from the Red List, ii. status of key taxonomic groups assessed, iii. impacts of key threats to biodiversity assessed, iv. key techniques and policies for conservation of biodiversity developed and dissemated, and others.

2. Modes of production and consumption that promote the conservation of biodiversity adopted by users of natural resources, such as i. tools developed to assist decision makers in managing natural resources sustainably, ii. decisions on use of natural resources increasingly based on sound scientific information provided by SSC.

3. Capacity increased to provide timely, innovative and practical solutions to conservation problems, e.g. i. management capacity and performance of Specialist Groups improved, ii. internal and external access provided to SSC publications, products and lessons learned, iii. SIS, Species Information Service, fully operational and data added on an ongoing basis, etc.

The data gathered will be kept in the SIS to jump-start data acquisition capacity in all groups. The data from the CAMP/ GMA workshop will go back to SSC Specialist Groups.

These global assessments work synergistically with a Conservation Assessment and Management Plan, eachy providing breadth and depth of approach which is not complete in the other. The South Asian Non-Volant Small Mammal CAMP is the second attempt at combining these two dynamic processes, the first being the Global Amphibian Assessment (GAA) and the S.Asian Amphibian CAMP held in Coimbatore in 2002.

ZOO / CBSG, South Asia has conducted many CAMP workshops with several objectives, one of which has been to see that South Asian endemics, many of which had not been assessed before, could be listed in the annually produced IUCN SSC Red List of Threatened Species. After years of frustration in dealing with the well-intentioned but complicated SSC Red Listing process, it seems the best way to achieve this is to cooperate with the global assessment project.

Previously in CAMP workshops, the all important mapping activities were not sufficiently well-organised and attempts to indicate localities on the maps provided by us led to mistakes and lacunaes. The global assessment workshops use mapping as their primary tool and have acquired an excellent version of ARKVIEW, one of the best computer mapping programmes.

In the Small Mammal CAMP workshop, the GMA team consisted of five persons, sufficient so that one GMA member could sit in each working group with his laptop computer and mapping programme which was an improvement over the Amphibian CAMP/GMA.

Before the workshop GMA experts met with ZOO / CBSG, South Asia staff and John Williams from IUCN SSC CBSG to figure out the most optimal way to work together. John revised the CAMP Data Entry Programme somewhat to accomodate a few things from the GMA.

After some initial discomfort as GMA experts got accustomed to the much longer CAMP Taxon Data Sheet and CAMP process, and workshop participants settled into a rhythm, all went well. One hundered and eighty-six species of Non-volant Small Mammals were assessed and Special Issue Working Group sessions were conducted.

A Draft Report was circulated to all participants at the workshop thanks to the CAMP Data Entry Programme and quick work by ZOO clerical staff.

GMA experts met with ZOO / CBSG, South Asia staff and John Williams from IUCN SSC CBSG to figure out the most optimal way to work together. Photo by SW

GMA recorder, Jon Bielby of the Institute of Zoology, London Zoological Society with the Sciurid group in the CAMP/GMA Photo by SM.

Special Issue Working Groups at the Small Mammal C.A.M.P. workshop

Working group - Research and Field studies
Sampath Goonatilake, A.K. Chakravarthy, Shomita Mukherjee, Shomen Mukherji, Meena Venkatraman, Joya Thapa, Wes Sechrest, A.R. Binu Priya

1. Protocols needed for funds and research and standards of research.
2. Priorities for research
3. Authenticity of biological information sheets. Strong support needed for any report/record.
4. Standardise data sheets (improvise existing ones) eg. Available with Sri Lanka.

Referees for screening proposals
1. Prioritize areas for initiating research
2. Taxon specific surveys based on Data deficient species from CAMP.
3. Greater emphasis on ecology, population trend surveys rather than inventories
4. More emphasis on utilization aspect – e.g. Giant squirrels
5. Application of research to conservation
6. Ecological importance of rodents
7. Threats need to be identified
8. Request ZOO to supply information on DD species (irrespective of status)
9. Some species occur in natural and cultivated areas – a comparison of their ecologies in these different habitats
10. Globally restricted DD species should be given a higher priority over widespread species

Geographical areas priorities for research were North-eastern India, Jammu & Kashmir, Western Ghats, Sri Lanka – central montane region

Recommendations were made for specific research activities for the following Data Deficient species : *Eupetaraus cinereus, Diomys crumpi, Alticauda albicauda Alticauda blandfordi, Calomyscus hotsoni, Crocidura hispida*, *Crocidura nicobarica*

CR and EN species in Andamans or Nicobar *Crocidura andamensis* and *Crocidura jenkinsi*

Sri Lankan species recommended to be prioritised for study : Solisorex pearsoni, *Suncus dayi* , *Suncus fellows-gordini* and *Suncus zeylanicus*

Population and threats research included *Suncus ceylonicus, Mus fernandoni, Feroculus feroculus, Suncus montanus, Mus mayori, Rattus montanus Srilankamys ohienis, Vandeleuria nolthenii Funambulus layardi, Petinomys fuscopapillus*

Several other species were prioritised for different conservation activities as well.

Methods
1. Genetic studies (populations and taxonomy) for restricted species and disjunct populations
2. Training in sample collections
3. Identification protocols, standardize keys
4. Long term studies for CR and EN species. Prioritise studies (e.g. long tern for CR, EN species and quick surveys for DD species)
5. Involve universities in Research (local universities)
6. Identify referees for screening proposals.

Working Group - Taxonomy
T.P. Bhattacharyya, S.U. Sarker, S.S. Talmale, S.S. Saha, Y.P. Sinha, C. Srinivasulu

1. Capacity Building
a. Centre for identification (authentic)
b. Parataxonomy at least to species level
c. Utilisation of experts – enlisting resource persons interested in small mammal taxonomy.

2. Application of advance technology in taxonomy
a. Taxon with specific status complications need to be assisted by advance techniques as the need may call for in collaboration with suitable institutions
b. Prioritisation of those taxa with conflicting taxonomic status opinions and DD species

3. i. Standardisation of workable key for identifying
a. Museum specimens
b. Live specimens in field
ii. Compilation of Atlas' (each order separately) drawings of key identification characters to aid identifications
iii. Establishment of retrievable data base on valid taxon, synonyms, subspecies, museum collection catalogues, in collaboration with concerned authorities of countries of South Asia

4. Legislation should be passed so that it is mandatory
a. That a fair share of the voucher specimens of any taxa collected from any region in south Asia be deposited in the national zoological collection of the concerned country and mention may be made in publications.
b. that any fresh / currently procured collection based on which revisionary / redescription / new record of any taxa in south Asia has been made should also be deposited in the National Zoological collection of the concerned country and mention may be made in publications.

RILSCINSA Networking, Training and Education Working Group. *Giovanni Amori, P.O Nameer, B.A. Daniel, Jonathan Bielby, P. Padmanabhan, Sanjay Molur, Mike Jordan, Ben Collen*

1. IUCN SSC South Asian Action Plans for Rodents, Insectivores, Lagomorphs
Can be prepared by the regional network and specialist group members. Should be based on Specialist groups therefore a separate Action for Rodents, for Insectivores and for Lagomorphs. It may be initially web based and if funding can be obtained, a printed document could be produced. It should be technical but also available and understandable to implementing agencies.

A small group of coordinators (steering committee) should be established RILSCINSA. The general IUCN guidelines on Action Plan formation can be used. Giovanni Amori will provide the general guidelines.

i. Introduction
ii. Chapters on each country
iii. Taxonomic accounts (including subspecies)
iv. Conservation Priorities

v. References & Appendices

Next step to identify the list of chapters and species accounts and then start to identify the list of contributing authors. An editorial board is to be established.

Time frame: Manuscript of Chapters and endemic species accounts to be completed by end 2004, for web publication in 2005, then non-endemic species accounts completed during 2005 for final publication (web and paper).

2. Training

i. A local Indian team can be formed to communicate field techniques training to different groups in different states in India. Requests have come from some regions and there could be a prioritisation of important areas. Could try to link in with other events. Maybe just 2 or 3 days each.

ii. Field study conducted as a training exercise, actual survey to inventory area, or species biology. Using reserve forest and private forest rather than protected areas and conducting a combined small mammal survey would be preferable. Would have to be 1–2 weeks.

iii. Research form that people complete to add to database as a way of capturing notes and observations that would otherwise go unmissed. Potential to publish those as notes in the ZOOS' PRINT Journal. Format based on the CAMP datasheet will be explored and circulated for comment.

There may be a need for a more technical form to record standardised information from trapped specimens to assist in accurate identification, such as plantar pads, standard measurements, etc.

3. Education

Three tiers of target groups have been listed for education.

i. Policy makers and academics: civil servants, forestry officials, college and university personnel, graduate students, etc.

ii. Lay persons, e.g. adults both city and country

iii. Young children – schools

A programme of education training for trainers was recommended. Training of teachers is particularly economical as every teacher will teach hundreds of students. Incorporate ecosystem-based concepts that link together the relationships between species such as the relationship between predator and prey.

Link together the networks of the Chiroptera and Rodent education networks under a ‘Rats 'n Bats’ banner to effectively combine educational resources. The Chiroptera network education packets are an ideal model for using to create similar small mammal material

Discussion of computer key for common species that exists for some groups already (birds, trees, insects), available on CD and website. A similar module for bats and small mammals could be done by the same institution, via A.K. Chakravorty.

Discussion of a small booklet consisting of a line drawing of each species, and a description of their biology based on the taxon data sheets for use by educators. A more technical booklet on small mammals would also be useful. Instead of a printed field guide, a field "notebook" was proposed which is simple and cheap and could incorporate the growing pieces of detailed accurate information on each species which is being contributed by RILSCINSA field biologists.

Type specimens of South Asian small mammals are mostly found in a few museums outside this region, which makes it difficult to confirm the taxonomy of many species. It was proposed to visit these museums and straighten out the taxonomic questions for South Asian small mammals. As this will be an expensive but highly useful exercise, it was suggested that one could apply for a Darwin Initiative grant to complete this project. This will be done in collaboration with Chester Zoo, U.K. with help from Mike Jordan.

M.S. Pradhan, P.R. Sinha, S.S. Talmale from Zoological Survey of India.

Inaugural function: V. Ramakantha, President; V.S. Vijayan, Chief Guest; Sujith Chakraborty, RILSCINSA Chair.

John Williams created many improvements in the CAMP Data Entry Programme during the Small Mammal CAMP in India, and finally accepted that its revision and improvement would be an ongoing process.

Note on the Non-volant Small Mammal Network

In about 1999, Zoo Outreach Organisation announced the formation of the Rodent, Insectivore Scandents Conservation and Information Network (RISCINSA) using seed money from the Society for Preservation of Species and Populations, Munich, Germany. After a few months the Network had 31 members who had sent their C.V. and list of publications. We created a professional profile of each and listed their conservation relevant publications in a Directory which came out subsequently, when there were more members.

The objectives of the network were formulated largely as a result of the workshop output. The justification for the network stressed that together rodents and insectivores made up nearly 30% of the mammalian diversity of India and that 25% of the list of 118 species assessed at the workshop had to be categorised as Data Deficient ! The network aimed to link together rodent field researchers and their field knowledge throughout India. A few months later, as ZOO extended its mandate to South Asia, Bangladesh, Bhutan, India, Nepal, Maldives, Pakistan, and Sri Lanka were added to this and our other networks. Objectives aimed to :

1. encourage and promote the study of all rodents and insectivores, prioritising species assessed as Data Deficient in the Indian CAMP Workshop of 1997 for upcoming field work.
2. assemble a check list — as complete and correct as possible — of rodents and insectivores of South Asia and maintain it providing local, national and regional information to be shared with important national agencies and institutions as well as international organisations.
3. catalyse and help organise conservation assessment and other workshops and training exercises of rodent specialists of South Asia as appropriate, nationally or regionally.
4. follow up such workshops with recommendations to local, state, national and regional wildlife authorities for protection of threatened species of bats and promotion of further studies of Data Deficient species
5. undertake a set of specific “tasks” utilising the information from the 1997 BCPP CAMP workshop to further enhance our knowledge of rodent and insectivore status in S. Asia
6. research funding sources for field surveys
7. bring out a newsletter of current rodent and insectivore research news for network members and other interested persons
8. prepare a Directory of rodent and insectivore specialists of South Asia for distribution to all network members.

The first Chair of RISCINSA (later to become RILSCINSA with the addition of Lagomorphs at the request of the IUCN SSC Specialist Group Chair, Andrew Smith), was the late Dr. Iswar Prakash who was the formost rodent and insectivore biologist of this region. After Dr. Prakash passed on Dr. Sujith Chakraborty, Retd. Scientist of Zoological Survey of India, took the Chair.

In 2001 the RILSCINSA Network found a sympathetic sponsor in Lord Derby, owner of the Knowsley Safari Park in England who was introduced to us by our old friend, Nick Ellerton who has helped with many other conservation projects.

In just over three years, thanks to very generous financial support from Knowsley Safari Park, all of RILSCINSA objectives have been realized or set up as permanent, ongoing projects with a Directory, expansion of the network, a regular newsletter, completion of several important “tasks”, very significant contact with the Ministry of Environment with regard to anomalies in the Wildlife Protection Act, a very successful field techniques workshop, field studies funding for 15 projects, and recently a regional Conservation Assessment and Management Plan workshop followed by another small mammal training.

Typical Working Group in the Small Mammal CAMP workshop. Everyone contributes and no one dominates in the CAMP Process. Photo by SW.

Detailed maps are important in ascertaining correct localities for studied species. A set of excellent maps were contributed for the workshop by the US Fish and Wildlife Service, Dept. of Interior, USA. Photo by SW.