

South Asia Regional Network *Newsletter*

Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka

CBSG, South Asia is a regional network consisting of the countries listed above which define "South Asia" according to the South Asian Association for Regional Cooperation, SAARC, an economic, cultural, academic, and quasi political organisation which aims to draw together the South Asian nations into more cooperative activities and relationships.

CBSG, South Asia is one among several regional and national network of the Conservation Breeding Specialist Group. The CBSG network "movement" began with CBSG, India which evolved into CBSG South Asia, along with other networks throughout the world, Indonesia, MesoAmerica, Mexico, Europe, Brazil, Southern Africa. CBSG, South Asia is hosted by and operates in association with Zoo Outreach Organisation (ZOO) and Wildlife Information Liaison Development (WILD), both of which coordinate several taxon (amphibian, invertebrate, pollinator, small mammal, primate, reptile) and thematic (zoos, reintroduction, conservation and animal welfare education) networks for the region, based on IUCN SSC Specialist Groups with the manner and philosophy reflective of CBSG characteristics & principles. This *modus operandi* helps cover a variety of diverse subject areas and actions with a small organisation, minimal funding and some hard work.

In making reports and allocating credit for for almost any activity it seems incomplete to do so without including CBSG, SSC, IUCN as their tools, processes, vitality, mandate and mission underpin so much of our direction, philosophy and expertise. CBSG and what it represents as communicated and practised by Dr. Ulie Seal has been grafted onto our very core, almost since inception in 1985.

Since the latter part of 2006 CBSG, South Asia has not been as active as usual due to several factors, principle among them overload and the need for a "catch up" period, family issues and higher studies. We have not conducted a PHVA or CAMP or any other CBSG process workshop since 2006 BUT have worked effective towards finishing incomplete projects, initiating, refining our educational and focusing on our website activities, the latter two of which give a much larger audience an opportunity to participate.

The Species Survival Commission and CBSG SSC itself are in a process of restructuring which has been noted CBSG Chair, Bob Lacy on the following page. We know that with our collaboration with CBSG, with the Reintroduction Specialist Group, the International Association of Zoo Educators, the World Association of Zoos and Aquariums and the taxon based specialist groups of IUCN we can continue to make a contribution to conservation for a long time to come. We appreciate our regional members and will continue to find ways to involve everyone who wants a bigger role in the future. Hint : public education is one very good way.

Sally Walker and Sanjay Molur and all ZOO Crew

CBSG, South Asia is hosted by Zoo Outreach Organisation Sally Walker, Convenor, sallywalker@aol.com

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IUCN SSC CBSG
Message from CBSG Chair Bob Lacy



Dear South Asian Colleagues :

The Species Survival Commission of IUCN is in a process of re-designing itself to better meet the needs of its members and the demands of conservation in a changing world. This will be discussed by the chairs of the SSC Specialist Groups at a meeting in February.

The Species Survival Commission is one of the six commissions of IUCN, holding the taxon based and thematic specialist groups. The taxon based specialist groups are those like Primate, Chiroptera, Felid, Bear, Medicinal Plant, etc. The thematic specialist groups include CBSG, the Conservation Breeding Specialist Group, and RSG, the Reintroduction Specialist Group. SSC IUCN review is responding to ideas, wishes, and complaints expressed by its members over the past few years. A significant part of the proposed change to SSC structure is to create new Red List Groups which would focus on species assessments and will work in parallel to the taxonomic specialist groups, which will then be able to focus more energetically on development and implementation of conservation actions. The intent is to provide clearer paths through which SSC members can contribute their expertise to species assessments, conservation actions, or both – according to their interests.

The proposed re-design of the SSC will not necessarily mandate any change to the CBSG, but it offers us a good opportunity to re-examine the purposes of the CBSG, the roles of members and partners, and the structure of our networks, staff, and committees – to open ourselves up for a fresh look at what the CBSG should be in the future, including its roles in SSC.

The SSC Species Conservation Planning Task Force, which I chair, will soon unveil a new set of guidelines that will describe a much more holistic approach to species conservation plans than what has been included in most SSC Action Plans of the past. The new framework builds on many of the processes and tools that have been developed by the CBSG, adds some new thinking and emphases, and offers more encouragement and support for effective species conservation planning. This initiative could lead to new demands on or opportunities for the CBSG, new relationships to other Specialist Groups, and/or transfer of some of our technologies to others.

Finally, there are also wider forces of change that we should consider, such as the development of new communications and information technologies, emerging global recognition of looming impact of climate change, an increasing interest by the corporate sector to be partners in conservation, and the high likelihood that the world will fall far short of the 2010 Target set by the Convention on Biodiversity to achieve a significant reduction in rate of biodiversity loss.

At our mid-year meeting of the CBSG Steering Committee, we discuss how the CBSG might evolve to take advantage of the changes within the SSC, the new opportunities for collaborations to serve conservation needs, and the energy of our members. **A very important part of the CBSG is our regional networks, which provide us with a way to tap into the interests, expertise, and local knowledge of our members and partners in various parts of the world.** The discussions about the best future for CBSG will include consideration of how to make our regional networks even more effective and powerful forces for conservation. We will involve all parts of the CBSG in the ongoing discussions, especially the regional networks. I look forward to hearing your suggestions. I wish your meeting all success, and regret my inability to attend due to a pre-engagement. I will meet some of you at the CZA International meeting in February and will speak with you on these issues then.

Best regards,

Chair, IUCN SSC Conservation Breeding Specialist Group

IUCN SSC CBSG
Message from CBSG Executive Director, Onnie Byers



Dear CBSG, South Asia Colleagues :

I think that many of you will remember CBSG's founder, the late Ulysses S. Seal. He was a visionary leader, a creative thinker, a risk taker, and he had a deep fondness for this region of the world. No one I know embodies these qualities more than your own Sally Walker. This commonality was not lost on Ulie, of course. He spotted Sally's passion and drive early on and that is why, back in 1990, when Sally proposed a plan and structure for a "CBSG, India" Ulie immediately agreed. This national network proved so successful that it was soon expanded to include the entire South Asian region. The consequences of Ulie's decision are tremendous not only for South Asia but for conservation across the planet, as CBSG Networks sprang up in 7 regions and countries emulating the example set by CBSG, India.

As expected, CBSG South Asia has conducted many CBSG CAMP and PHVA workshops and produced an impressive number of workshop reports. But CBSG South Asia has evolved far beyond anything even Ulie could have imagined. It took the CBSG philosophy of stakeholder participation, interdisciplinary collaboration, and needs-based action and developed taxon networks that are the essence of what CBSG is meant to be. These networks bring together the region's expertise around high diversity but for low profile taxonomic groups such as bats, rodents, insects and others.

This approach is reminiscent of the SSC's Specialist Group structure but with a regional rather than global focus. CBSG South Asia's taxonomic networks strengthen the power of experts to produce positive change on behalf of species in need, and they make it possible for more people to belong to CBSG in spirit in their own cultural context.

While the accomplishments of this CBSG Regional Network are too numerous to list here, I want the world to know that CBSG South Asia:

- is the leader in CAMP workshop process implementation and development and is CBSG source of Red List expertise;
- CBSG South Asia has been a model and a source of ideas and inspiration for the seven other regional and national networks of CBSG;
- CBSG South Asia has for many years, represented the region in the international zoo community with great pride and given a voice to the conservation concerns of the region. This advocacy led to the birth of the region's zoo association - SAZARC;
- promoted of the needs of all zoos in different cultural, economic, historical and social settings led to the development of a globally recognized initiative to respond to zoos needing improvement; and
- successfully links *in situ* and *ex situ* conservation through creative and effective education programs which make it possible for anyone with interest to participate usefully in CBSG and wildlife conservation in the region.

CBSG's mission is to transform passion for wildlife into effective conservation. CBSG South Asia is a shining example of the impact this transformation can have on both people and, ultimately, the animals with which we share the planet.

I wish your meeting all success. My absence is not indicative of the enthusiasm I have for your Annual meetings with our partner the Reintroduction Specialist Group (the only such network meetings aside from our global Annual Meeting) or my intense desire to visit your region, particularly India.

Good wishes,
Onnie Byers, Executive Director
Conservation Breeding Specialist Group

CBSG Characteristics

CBSG Regional Networks are most effective as activities or project of an established organisation. The profile given here lists the features required in order to mimic the effectiveness of CBSG.

Features	Definitions
Flexibility	CBSG networks should have the ability to be able to: respond to the diverse needs of regions; accommodate a variety of participation; change direction when required; respond to the needs of local conservation groups and individuals; understand CBSG processes, and their flexibility
Autonomy	CBSG networks are based on a belief in individuals and their ability to bring about more changes than can be achieved by an institutional structure
Catalysis	aspects of CBSG that catalyse action: Dr U. S. Seal (Chairman); PHVA and CAMP training workshops; products and publications of workshops; Regional Networks; expertise; trust and openness in the expression of ideas
Innovation	CBSG networks should be capable of producing and sustaining a high level of innovation: in the processes; in educational opportunities; in outreach; sensitive analysis & vision for future; response to needs; people from different disciplines and inclinations; positive vision
Multiple approaches	CBSG networks should be able to use multiple approaches, such as newsletters, media events, briefing books, scientific and general publications, and the integration of <i>in situ</i> , <i>ex situ</i> and educational components
Commitment	CBSG network activators must be committed and have: total involvement; a belief they can make a difference; a belief that other individuals can make a difference; volunteer participation
Unity and fellowship	CBSG networks should be able to combine a variety of groups to: bring together local organizations; organize meetings at the grass-roots level with multiple stakeholders, including the local community; bring together NGOs and governmental organizations; form multidisciplinary groups, <i>in situ</i> / <i>ex situ</i> , and effect intra-organizational collaboration and communication
Non-dictatorial	CBSG networks engineer, rather than dictate, action and consensus; can highlight the need for action and effect invitations; assume all ideas are valid, differences are not recognized or accepted as problems; involve active listening, seeking common ground and action; use ground rules as contract not a code; strategy with implementation left to local agencies & organizations
Flat organization structure	CBSG networks should be non-hierarchical; have minimal bureaucracy; have a horizontal management structure; be respectful of local hierarchies but able to transcend their effect. CBSG networks are an example of a flat organizational structure
Objectivity	CBSG network activators are objective: have no bias for captive or fieldwork; are non-competitive for scientific status; are non-judgemental for information sources
Neutrality	CBSG networks have no politics
Vision	CBSG networks have long-range goals: long-term survival and protection of species; regional objectives; maintenance of networks in the long run
Need-based	CBSG networks should fill a niche that is not being filled by other conservation organizations
Responsibility	CBSG network activators have particular qualities, including: leadership; guidance; the ability to plant ideas; recognition of and quick response to crisis situations



Summary CBSG, South Asia Mid-year Activities 2007

Taxon Networks :

All ZOO WILD taxon networks are based on the processes and principles of CBSG and all works are done with aim of conducting conservation exercises with positive, constructive, practical and meaningful output, such as PHVAs, CAMPs, Conservation Planning etc.



Amphibian Network of S. Asia

ANSA was restructured in 2007 with the appointment of Dr. Karthik Vasudevan as the Scientific Chair along with Sanjay Molur, who continues as Technical/Administrative Chair of the regional network. ANSA represents IUCN SSC Amphibian Specialist Group.

ANSA was represented at the First Steering Committee meeting of AArk Amphibian Ark global programme on 15-16 February 2007 in Atlanta, Georgia. S. Walker represented ANSA since she was in USA at the time. ANSA committed to conducting training and education/awareness in the South Asian Region.

In August 2007 ANSA launched the AArk education programme in India by developing a set of educational materials for distribution to ZOO's education partners in the country in collaboration with ZOO/WILD and SANIZE. In late December zoos from four countries of this region participated in the global programme of "Leapfrog" in collaboration with AArk and other zoos of the world, generating unprecedented publicity. A special round of educational materials were produced to celebrate Animal Welfare Fortnightly in January, with another round to serve educators who wish to conduct programme in the early part of 2008, sponsored by Chester Zoo and Universities Federation for Animal Welfare. A grant has been submitted to Sea World for providing amphibian educational material and catalysing amphibian education in all the countries of the region.

In October 2007, the co-chairs of ANSA were confirmed as co-chairs of the South Asian regional network of the Amphibian Specialist Group.

In December 07, ANSA organised a 7-day training course on Amphibian Biodiversity Conservation at Periyar Tiger Reserve, Thekkady, Kerala in collaboration with Durrell Wildlife Conservation Trust, Kerala Forest Department and Periyar Foundation.

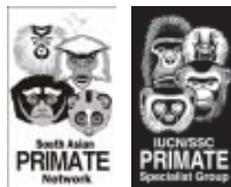
Also in December, chairs of ANSA participated in the 1st SERC School of Herpetology, a two week training course in herpetology organized by the ex-chair of ANSA, Dr. Sushil Dutta, with the Department of Science and Technology backing at Baripada, Orissa.

Issue 13 of the Newsletter frog leg was published in December and the next one is in the process of being assembled for publication in February 2008.

Currently, the long awaited CAMP/GAA Report is under finalization and is slotted for publication in early 2008. The network url is www.zooreach.org/ANSA

South Asian Reptile Network

This network is under restructuring with activities planned in 2008. The newsletter Reptile Rap is in press and will be released in January 2008. The current co-chairs include Dr. R.J. Rao (Scientific) and Sanjay Molur (Technical/Administrative). One of the major events planned for latter part of 2008 is a Conservation Assessment and Management Plan workshop for South Asian reptiles along with the Global Reptile Assessment. The earlier date of December 2007 was premature for this workshop. Presently, the database is being worked on in preparation for the workshop. The network has a website at www.zooreach.org/SARN



Primate Specialist Group IUCN SSC South Asian Primate Network - PSG SAPN

Fundraising -- A total of over \$70,000 was raised for primate education including Hoolock Gibbon materials, a South Asian primate colouring book and menace monkey educational materials in three languages. In addition over \$10,000 (Thrigby Hall and Chester Zoo Keeper Grant) was committed for a primate translocation training focused on Hoolock Gibbon to be conducted (if USFWS funds also materialise) in September 2008.

Members - the network inducted 92 new members. A *Directory of South Asian Primate Biologists* was completed and uploaded on http://www.southasianprimatenetwork.org/pdf/Primate_directory_2005.pdf

Website

A South Asian Primate Network website was established www.southasianprimatenetwork.org featuring **Directory** of SA Primate Specialists, **Workshops**, including CAMPs and PHVAs, **Publications** by ZOO, including CAMP report and summary, Hoolock PHVA and summary, **Educational materials**, including manual, coloring book, packet items, educational guidelines, articles published in ZPJ / ZPM, PPT presentations, write up of 25 most endangered primates, Hoolock Gibbon Manual **Threatened Taxa Monitoring System** - South Asian Primates **Lists of interest from PSG website**, IPS website Primate Organisations, Primate Journals, Primate Sanctuaries, Primate Lit for Primatology (A bibliographic database Primate) **Presentations** by Coordinator made at IPS, CBSG and other gatherings; **Checklist of South Asian Primates**, **Draft Indian Action Plan** for the control of commensal Non-human primates in public and educational materials developed for Monkey conflict problem.

Sally Walker, coordinator PSG SAPN attended the IPS Annual Conference in Entebbe, Uganda and gave two presentations and spoke for consideration for Western Hoolock Gibbon or 25 most endangered list, handing out masks and placards to reinforce the message.



CCINSA

Bat Network

CCINSA Chiroptera Conservation and Information Network of South Asia, sponsored by Bat Conservation International and Chester Zoo. The network maintains the Chiroptera conservation experts, educators and enthusiasts as a community. Newsletter, Directory, occasional mailings, organisation of lobbying, training, travel, bat related web sites such as Pterocount, TTMS and Bat network and publications in zooreach and zoos' print web sites.

Training in field techniques and training of Bats for Nepal, 19-24 June 07
<http://www.zooreach.org/Networks/Chiroptera/Nepal%20workshop%20report.htm>

Bat Newsletter, Vol.8, No.1-2, Jan-Dec 2007
[http://www.zoosprint.org/ZoosPrintNewsLetter/Bat%20Newsletter%208%20\(1-2\)%202007.pdf](http://www.zoosprint.org/ZoosPrintNewsLetter/Bat%20Newsletter%208%20(1-2)%202007.pdf)

CCINSA Directory updated www.zooreach.org/Networks/Chiroptera/Batdirectory06.pdf

Developed Bat Programme Kits/ Drama Kits with guidelines www.zooreach.org/downloads_ZOO_Educational_Materials/Bats/Bat_2007_packet.zip

Bat Clubs - CCINSA started CCINSA Bat Clubs mostly for kids three years ago and this had a very long and successful life. The children's bat club run by Geeta Shreshta in Nepal brought a number of bat students of college age together and they formed a different kind of Bat Club, resulting in a couple of training workshops, some grant support and generally better communication and bat action in that country. Now thanks to BCI grant we are introducing the children's Bat Clubs again in a short time.

Using the Web for education with Website illustrations of S. Asian bats : Fruit bats can be seen by clicking on the following url:
http://www.southasianntaxa.org_search.asp?txtOrder=Pteropodidae&cboFamily=Family&cboCountry=&cboTable=Animals&btnSearch=Search
or you can go to the site www.southasianntaxa.org and search by Family and using key word "Pteropodidae"

Another website having to do with fruit bats run by our colleagues Sanjay Molur and Sharoukh Mistry is described elsewhere in this newsletter -- **Pterocount**
www.pterocount.org.



Rodent Activities

Training in field techniques for small mammal studies

The six-day training for survey and conservation of Rodents and Insectivores was conducted at Nepal Administrative Staff College, Kathmandu and Institute of Forestry, Pokhara, Nepal from 19-24 June 2007, organized by Zoo Outreach Organisation and its small mammal network RILSCINSA, hosted by NATURE, Kathmandu, Institute of Forestry and Bats Friends, Pokhara, Nepal and sponsored by Bat Conservation International, Chester Zoo, and Knowsley Safari Park.

Didactic material was covered at the college in Kathmandu for 3 days and intensive field training for selected field researchers was held at Pokhara. For the didactic component 42 participants from Nepal, Bangladesh, India and Pakistan attended and 16 selected persons participated in the intensive training at Pokhara. Prof. Paul Racey from Aberdeen University, Dr. Mike Jordon, Curator of Higher vertebrates, Chester Zoo and Dr. Sripathi Kandula from Madurai Kamaraj University handled both class room and field sessions as Resource Person. The entire programme was planned by Sally Walker, administrative chair of RILSCINSA and coordinated by B.A. Daniel and R. Marimuthu. See full report at <http://www.zooreach.org/Networks/Chiroptera/Nepal%20workshop%20report.htm>

The Rodent directory was updated with new members.
<http://www.zooreach.org/Networks/Rodent/RDirectory06.pdf>

Working on Small Mammal Database for IUCN

Using the Web for education with Website illustrations of South Asian rodents.
<http://www.southasianntaxa.orgsearch.asp?txtOrder=Rodentia&cboFamily=Order&cboCountry=&cboTable=Animals>

Small Mammal Project for IUCN

ZOO/WILD has been given responsibility to complete the Red List accounts for small mammals of South Asia with a grant of \$5000 from IUCN, Switzerland. ZOO/WILD/CBSG South Asia conducted CAMP workshops for bats and small mammals in 1997 for India under the auspices of the Biodiversity Conservation Prioritisation Project BCPP and again in 2002 for bats under our own auspices and then in 2004 for IUCN SSC's Global Mammal Assessment for South Asia.

Dr. C. Srinivasalu and Dr. P. O. Nameer are working on the database supervised by Sanjay Molur and with help from the ZOO office. Tasks for the database include : Updating the species taxonomy and species list to be inclusive of the region in question, consolidating all of the small mammal species for the region into one single species account in the SIS Data Entry Module (DEM) for final expert review at the workshop. The following information will be collected for each species in textual form: taxonomic changes, general ecology, population, conservation status and threats. All maps are to be reviewed to ensure that a map exists and is up to date and updated as necessary with the species accounts. Monitor and track account status in an Excel format with notes on individual species issues or status ... among other things.



SOUTH ASIA NETWORK

SAN-IZE

South Asian Network for International Zoo Educators IZE Training Workshops conducted Six Hoolock Gibbon workshop in Assam

Six educator training workshops were conducted from 1-28 February 2007 in different parts of Assam covering most of the entire state. Participants numbered 181 including teachers, ngos, forest rangers etc from 96 institutions attended. Sponosred by US Fish and Wildlife Service, hosted by Wildlife Areas Development & Welfare Trust, and CEE (Northeast)

Assam Refresher Courses Two follow-up refresher courses were conducted in Assam for the February 2007 for Hoolock Gibbon and Tigers workshop participants held at Assam Forest School, Jalukbari, Guwahati from 29-30 October and Kaziranga National Park, from 1-2 November, 2007. These courses were sponsored by US Fish and Wildlife Service.

Teachers for Tigers training, Nepal

Twenty eight educators teachers, zoo personnel, Forestry students attended 'Teachers for Tigers' workshop, hosted by the Central Zoo from 26-28th June 2007. This work-shop was sponsored by Wildlife Conservation Society, USA.

In-house educator training workshops at ZOO

Zoo Outreach Organisation organized its first in-house Training workshop in its office venue on 7, 21 & 28 July 2007 sponsored by Wildlife Conservation Society, Bronx, NY. 22 teachers from three schools in Coimbatore participated for the three-day programme.

Educator Training - Samrakshan Trust- Meghalaya

ZOO conducted a 3-day training programme on wildlife education from 3-5 November 2007 to seven persons from the two teams of Samrakshan Trust of Meghalaya and Mizoram.

Animal Welfare Fortnightly 2007 and 2008

2007 - ZOO provided several packet themes to zoos, Ngo's, museums and forest department personnel, totally we supplied about 1,500 items.

2008 - ZOO provided 7 kinds of 4600 education items to 27 organisations for 08 Animal Welfare Fortnight.

World Environment Day 2007-supply of education materials

ZOO received more than 21 requests for education materials during World Environment Day and filled all requests by supplying 3,241 items of 11 different kinds.

Wildlife Week 2007

Zoo Outreach Organisation provided education kits to 72 persons during Wildlife Week 2007 -- 10 zoos, 33 forest department personnel, 14 NGO's and 15 educational institutions throughout India. We supplied 19 kinds of 20,000 items.

Education sponsors

Our education sponsors include Chester Zoological Gardens, Bat Conservation International, Alertis, Wildlife Conservation Society, Universities Federation for Animal Welfare, Awley Wildlife, Appenheul Primate Park, Thrigby Hall Wildlife Park, North Carolina Zoological Society, WCS, EAZA, Zoo Koln, WAZA and CBSG. Not all are currently sponsoring but sponsored an item that has enjoyed great popularity and gone through revisions but is still with us.



Activities of Invertebrate Conservation and Information Network of South Asia (ICINSA) and

Invertebrate Pollinator Network of South Asia (IPNSA) from mid 2006 to December 2007

The Invertebrate Conservation and Information Network of South Asia ICINSA is an activity of ZOO/CBSG South Asia initiated in the year 1995. The objectives of the network are to promote invertebrate conservation in south Asia, network invertebrate conservation

researchers, establish global network of people concerned with, or involved in invertebrate conservation. ICINSA has 450 members.

The Pollinator network is a subsidiary of ICINSA which has about 40 members from South Asia. The objectives are to bring together resource managers, stakeholders, and personnel who can provide information on pollination and pollinators, to collate and analyze published and unpublished information as well as traditional wisdom/unconventional sources of such information, in order to evaluate the magnitude and consequences of disruption of pollinator services, to use this analysis of secondary data on pollinators and pollination services and the pollinator network to engage in discourse with policy makers and civil society in order to effect a positive impact on pollinator conservation, to develop methods and impart training for rapid assessment of pollinators and impacts of their declining status and to create awareness at all levels. Both network are supported by the Invertebrate Conservation Centre, London Zoo.

Some of the activities of Invertebrate network:

- . Enrolled 25 invertebrate specialists as member of ICINSA and updated the invertebrate database. Some of the members were invited as the reviewers for the peer reviewed journal published by ZOO. Enrolled 6 new IPNSA members.

- . Assisted the network members to avail literatures related to invertebrate conservation and exchanged published articles.

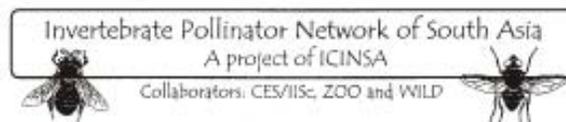
- . Assisted ICINSA and IPNSA members to publish invertebrate research articles in ZOOS' PRINT Journal.

- . Published the *web edition of IPNSA directory*. Updated the IPNSA directory for 2007 and added new members to the network.

- . Initiated a project to develop a manual on climate change to teach about Climate change challenges.

The Indian Tarantula project is run from the ZOO office by Dr. S. Manju. It continued with periodic surveys on Rameshwaram Island to understand the distribution, abundance and behaviour of *Poecilotheria hanumavilasumica* Smith, 2004 in the wild and the threats to this species in a small area of the island. Spider population estimation studies were conducted in Nilgiris and also in Orissa. Periodic surveys were carried out in Coorg district to understand the distribution of ground Theraphosids. Completed collecting trade related information on Theraphosid spiders.

ICINSA coordinator was invited to attend Soil Biota National conference at Erode, Tamil Nadu. He also co-authored a technical article entitled '*The conservation value of Insect breeding programmes: Rationale, evaluation tools and example programme case studies*' - P. Pearce-Kelly, R. Morgan, P. Honan, P. Barrett, L. Perroitti, M. Magdich, BA Daniel, E. Sullivan, K. Veltman, D. Clarke, T. Moxey and W. Spencer. In: *Insect Conservation Biology* eds. A.J.A. Stewart, T.R. New and O.T. Lewis (2007). Pp. 57 -75. CAB International For more information about the network activities please visit <http://www.zooreach.org/Networks/invertebrate/invertebrate.htm> and to become a member of the network write to badaniel@zooreach.org
Submitted by B.A. Daniel, Coordinator, ICINSA and IPNSA



Important meetings, training attended or conducted by staff of ZOO/CBSG, South Asia

Sally Walker

-SEAZA conference in Vietnam, 09-13 September 2006, organised workshop on Substandard Zoo issue.
-IZE biennial Conference held at Pretoria, South Africa, 11-14 October 2006
-Aark Steering Committee meeting 15-16 February at Zoo Atlanta, Atlanta Georgia, USA
-Opening ceremony of the Lion exhibit Zurich Zoo, 28 March. Presented an overview of the life of P.P. Raval and participated in a ceremony honouring him.
-CIRCC Meeting-April 14-18, 2007 and WAZA Drafting meeting on Substandard Zoo Issue, Karlsruhe, Germany
-Zoo Experiences and the Human Dimensions of Saving Wildlife, 24-25 May 2007, Zoological Society of London
CBSG / WAZA Annual meetings, 22-30 August, Budapest.

Sanjay Molur

-Asian Primate Red List workshop from 08-12 September 2006 in Phnom Penh, Cambodia
-Population and Habitat Viability Analysis for the Mexican Howler Monkey held at Xalapa, Veracruz, 14-21 October 2006
-CBSG Modeling workshop held at Africam Safari, Puebla, 22-28 October 2006
-SIS/ISIS CBSG Synergies Meeting (27-28 November 2006) at Zoological Society of London
-Workshop on Red Panda Pre-PHVA in Gangtok, Sikkim, 17-19 Feb 2007
-Amphibian Biodiversity Conservation (ABC) at the Periyar Tiger Reserve, Kerala from the 10-16 Dec 2007
-1st SERC school in Herpetology from 27 Dec -08 Jan 08, North Orissa University

B.A. Daniel

-CBSG Modeling workshop held at Africam Safari, Puebla, 22-28 October 2006
- Educator training, Hoolock Gibbon, 1-28 Feb, Assam

-ICEF-BVIEER National workshop on locale specificity in Environment Education, Pune from the 23 - 24 March 2007
-Meteorological station, Adayaar, Chennai - to climate change project, 6-8 November 2007
-Amphibian Biodiversity Conservation (ABC) at the Periyar Tiger Reserve, Kerala, 15 December 2007
-Centre for Environment Education Regional Workshop on developing the Master Education plan for Zoos of India, 24-25 May 2007 Arignar Anna Zoological Park, Chennai
-Training in Field Techniques for Volant and Non-Volant Small Mammals, 19-24 June 2007 Kathmandu / Pokhara, Nepal.
-Teachers for Tigers workshop, 26-28 June 2007 Central Zoo, Kathmandu, Nepal
-Advanced Technique Refresher Course Hoolock Gibbons / Teachers for Tigers, Assam Forest School, Jalukbari, Guwahati 29-30 Oct; Kaziranga NP, Assam, 1-2 Nov 2007
-Three day training programme for Educators' (Samrakshan Trust-NE) on wildlife education, Meghalaya, 3-5 Nov 2007

Marimuthu

-IZE biennial Conference held at Pretoria, South Africa, 11-14 October 2006
- Nepal Zoo Inspection trip, December 2006
-Centre for Environment Education Regional Workshop on Developing the Master Education plan for Zoos of India, 24-25 May 2007 Arignar Anna Zoological Park, Chennai
-Training in Field Techniques for Volant and Non-Volant Small Mammals, 19-24 June 2007 Kathmandu / Pokhara, Nepal.
-Teachers for Tigers workshop, 26-28 June 2007 Central Zoo, Kathmandu, Nepal
-Advanced Technique Refresher Course Hoolock Gibbons / Teachers for Tigers, Assam Forest School, Jalukbari, Guwahati 29-30 Oct; Kaziranga NP, Assam, 1-2 Nov 2007
-Three day training NE) on wildlife education, (Samrakshan Trust-NE) on wildlife education, Meghalaya, 3-5 Nov 2007

New Chair for CIRCC, Committee for Inter-regional Cooperation in Conservation

After years of dedicate service to the Committee for Inter-regional Cooperation for Conservation Dr. Jonathan Wilken stepped down from this post as he was handing over the post of Director of the Australian Association of Zoos, Parks and Aquaria. After an exhaustive search, a replace was located, and that is David Richard Morgan, current Director of the African Association of Aquaria, and Zoological and Botanical Gardens.

Dave Morgan is a Resource Person for our CBSG/RSG meeting and SAZARC meeting this year. He has been a resource person for SAZARC in the meeting of 2006 in Coimbatore. He has also been a friend of the Director, SAZARC for some years and an excellent advisor and mentor as well. Dave Morgan and Sally Walker initiated the latter named Substandard Zoo Initiative in 2003 in Costa Rica with presentations elucidating the "other zoo world". Roundly snubbed at that time, the topic rose like a Phoenix from the Ashes and ultimately became the Zoo Improvement Initiative of WAZA which passed a resolution and a methodology which will, we hope bring about greater transparency and cooperation on the topic of zoos that need improvement with western zoos taking on projects of such zoos where feasible.

Dave lives at 5 Steyn Street Pierre Van Ryneveld Centurion Pretoria South Africa with his wife Cecile, Embryologist/ Reproductive Physiologist, several hot-dog dogs and two cats. He has been officially employed as Executive Director of the African Association of Zoos and Aquaria (**PAAZAB**)

since February 2003. PAAZAB represents 62 institutional, affiliate and associate members in 11 African countries. Dave is actively involved in and oversee all elements of the Association's operation, including conservation programmes co-ordination, legislation, education, working groups, outreach programmes, finance, membership screening and administration, general administration, marketing, publications, website content, sister association affiliation, regional representation and meeting administration. He is the nominated representative of the WAZA and now Chair of WAZA's CIRCC. He has serve on the ISIS Board of Trustees as African rep. He is Legislative Liaison of the South African National Code of Zoo and Aquarium Practice and has served on countless other prestigious wildlife and biodiversity as well as zoo committees.

He is well qualified for CIRCC Chair having been a representative for several years and also the designated Conservation Programmes Co-ordinator of PAAZAB. Dave has worked in South Asia as a Subcontractor of Bernard Harrison & Friends (Pvt) Ltd – a consultancy group based in Singapore – on several occasions since 2005 and have additionally worked on projects in: Greater Noida Night Safari, Noida, India, Lahore Wildlife Park, Lahore, Pakistan, and Lal Suhanra National Park, Bahawalpur, Pakistan. He has worked at many bird and reptile facilities in Africa in Curatorial and other managerial capacities. He is a member of several professional organisations. We are happy to welcome him as CIRCC Chair and as a Resource Person

Threatened Taxa Project, Threatened Taxa Website and now Journal of Threatened Taxa, Threatened Taxa Monitoring System for South Asian Fauna, Flora & Fungi (www.southasiantaxa.org)

CBSG, South Asia in collaboration with ZOO, WILD, our appropriate taxon networks and other partners within the region and around the globe conduct Conservation Assessment and Management Plan Workshops and Population and Habitat Viability Assessment Workshops from time to time, as often as appropriate and needed. The volume of this information and the combination of publications, education material and activities we conduct adds up to the Threatened Taxa Project. The TTP has been evolving since 1991 and finally got a name in 2006.

Also in that year, in order to provide an easily accessible and retrievable data set for this CAMP and PHVA information we developed a website with the following characters :

1. standard, taxonomically correct, current, systematic regional checklists of all taxa of fauna, flora and fungi of South Asia
2. national checklists for the eight South Asian countries, including Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka
3. global assessment of taxa (species and subspecies) for all endemics of South Asia
4. regional assessment of taxa for all non-endemics in South Asia
5. national assessment of taxa for all non-endemics in every country of occurrence in South Asia
6. compilation of information from experts in the region and apply IUCN Red List Criteria for in-house assessment status of taxa
7. development of species distribution maps
8. analysis of information for the region and for every country
9. compilation of drawings and photographs for every taxon
10. compilation of information for global assessments for IUCN Red List
11. creation of a mechanism for local and regional experts to update distribution information and maps
12. concise and accurate assessments of South Asian taxa made available on the web
13. provision of most up-to-date distribution information and maps for all taxa
14. a system for monitoring the status of selected taxon groups in the coming years
15. a web site dedicated to achieving all of the above
16. a single database for effective summaries and analyses
17. a system to compliment global assessment efforts by IUCN
18. a source of reliable taxonomic and conservation information for faunal, floral and fungal taxa of South Asia in one place

The system will be available for all experts to contribute and update regularly under specific guidelines. An in-house team of database managers and outside experts will be involved in compiling the information to constantly review information and update. Information will be provided in the required format to the central IUCN SSC Red List office for inclusion in the global red list.

The system is intended to be aid in monitoring the status of taxa in the wild in South Asia. It has been initiated after successfully assessing the status of 1982 South Asian taxa, including both flora and fauna, over the last 10 years. The TTMS will be evaluated as often as possible by various outside experts and agencies. The usefulness of the system will be measured by the comments received and by the number of hits on the website over the long term. Check it out.

Now, we have scientific quality drawings of all South Asian Primate taxa (Artist, Stephen Nash, sponsored by Conservation International) and many bats, illustrations by Arnab Roy, NINE, Calcutta and various photos. We are constantly searching for high resolution, definitive photos to create scientific drawings and to put up as photos. If you take photos and would like to contribute to this handy compilation, contact us at zooreach@zooreach.org.

SouthAsianTaxa.org **ZOO WILD**

Home Search Contact About 2009/10

TTMS
Threatened Taxa Monitoring System
for south asian fauna, flora and fungi

ZOO WILD

ZOO WILD CBSG TAXON NETWORKS
Institutions, individuals, Republic, Social Democrats, Primate, Freshwater Ecol, activities to come. Member contributions that do not include full size images are at 1000x1000 pixels. Copyrighted by Nature (http://www.nature.com) and government.

South Asia: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka

© TTMS Threatened Taxa Monitoring System can view our home page online **ZOO WILD**

SEARCH

Keyword:

Search by: Common Name

Country: SOUTH ASIA

Region: Fungi

Display: Grid Search for common_name Country: South Asia Search for: **Advanced**

S/N	Common name	Order	Family	Status	Species	Sub species	Authority / Year	Distribution	ENDemic to South Asia
1	THORNED CRINOID	CRINOIDA	INCRINOIDACEA	CRINOIDA	CRINOIDA		DE GUYER, 1842	INDIA, PAKISTAN	NO
2	THORNED CRINOID	CRINOIDA	INCRINOIDACEA	CRINOIDA	CRINOIDA		DE GUYER, 1842	INDIA, PAKISTAN	NO
3	THORNED CRINOID	CRINOIDA	INCRINOIDACEA	CRINOIDA	CRINOIDA		DE GUYER, 1842	INDIA, PAKISTAN	NO
4	THORNED CRINOID	CRINOIDA	INCRINOIDACEA	CRINOIDA	CRINOIDA		DE GUYER, 1842	INDIA, PAKISTAN	NO
5	THORNED CRINOID	CRINOIDA	INCRINOIDACEA	CRINOIDA	CRINOIDA		DE GUYER, 1842	INDIA, PAKISTAN	NO
6	THORNED CRINOID	CRINOIDA	INCRINOIDACEA	CRINOIDA	CRINOIDA		DE GUYER, 1842	INDIA, PAKISTAN	NO
7	THORNED CRINOID	CRINOIDA	INCRINOIDACEA	CRINOIDA	CRINOIDA		DE GUYER, 1842	INDIA, PAKISTAN	NO
8	THORNED CRINOID	CRINOIDA	INCRINOIDACEA	CRINOIDA	CRINOIDA		DE GUYER, 1842	INDIA, PAKISTAN	NO

And now, a Journal of Threatened Taxa

Zoos' Print Journal was started in April 1999 and has been covering several topics with a focus on South Asia. We have had a good response from academicians, researchers, scientists and conservationists from the region and because of the speed of publication, quality and accessibility, some conservationists have been able to use this publication in developing conservation action plans for areas under threat and also reach out to the government. Since early 2006 we have been looking at making this journal more widely available and with a wider coverage to include all of the species-rich countries of the world and provide an opportunity for local scientists to publish in international journals, who due to several factors are not able to do so. So, with experience in hand and the need, we are starting a new journal called **Journal of Threatened Taxa**, which will be hosted online as a totally open access journal from April/May 2008 www.threatenedtaxa.org. With this we intend to reach out as widely as possible and publish as quickly as possible.

The **Journal of Threatened Taxa** is an effort to get the species-rich developing countries to publish articles related to conservation, taxonomy/systematics, new descriptions, veterinary issues, diseases, ecology, different aspects of conservation efforts such as *ex situ*, reintroduction, etc., species status at the global and subglobal (regional or national) levels, reviews, check-lists, new records, audio and video records (snippets) of new information to science

forwarding conservation/natural history, illustrations to promote the same, natural history, etc. of flora, fauna and fungi.

The target audiences are primarily the conservation, research, academic and actioner communities who have a direct or indirect stake in promoting conservation, research, policy making, and taxonomy all around the world. Our interest is in harnessing the experience gained from Zoos' Print Journal (8 years of non-stop monthly publication) and positive steps taken in South Asia based on the publications in it. The new journal will be online, open access, rapid publication with an aim to publish all of the above issue-related articles within a month from final acceptance.

Although named as such, the journal is not restricted only to the IUCN definition of 'threatened'. And it is not restricted to only species either.

Our vision is also to provide through tools such as audio-visual clips and illustrations to complement scientific publications and also provide an authenticity and permanence to these tools. With this, our intention for the journal is to reach out to educators, forest departments, community workers, lobbyists, para taxonomists, and others interested in these subjects and are stakeholders in conservation work.

There is no page limit to contributions but sooner is better and colour photographs and videos are encouraged.

Project PteroCount

Sanjay Molur

In 2006 Chiroptera Conservation and Information Network of South Asia (CCINSA) along with Dr. Shahrourkh Mistry, USA, embarked on a project that involves identification and monitoring of fruit bat (*Pteropus giganteus*) colonies/roosts all over South Asia. The project will be an ongoing one with regular monitoring of colonies to understand the dynamics, population trends and various other aspects of the region's largest bats.

In 2007, a few new roosting sites were added by new members, especially from northern India. From the south, several roosts recorded in the previous years were razed due to road expansion work. Some of the observations over the last two years were published by volunteers in the BatNet Newsletter. BatNet Newsletter is brought out by CCINSA Network and is sponsored by BCI and Chester Zoo. Sally Walker chairs CCINSA and edits Bat Net.

A set of colour posters of fruit bats is being designed and developed for printing for distribution to volunteers and others interested in monitoring fruit bats in South Asia as well as for public education. The set is being sponsored by BCI as a CCINSA activity for Pterocount and the public.

Volunteers are encouraged to apply for the monitoring of fruit bats under Project PteroCount. Emails evincing interest in joining the project should be sent to pravin@zooreach.org

If you wish to join Project PteroCount as a Volunteer, please fill in your details Name, Organisation, Address, City, State, PIN, Country, Phone, Fax, E-mail, Comments (if any) and also write about your interest, experience and why you wish to volunteer. You can find this form on



our website under Volunteers Needed. Address is: www.pterocount.org. Send it by e or snail mail or fax to our office. Email : herpinvert@gmail.com; fax : 422 2563269 or POB 1683, Peelamedu, Coimbatore 4.

CBSG&WAZA create Amphibian Ark AArk -- CBSG, South Asia Jumps on Board

When the Amphibian Crisis was announced almost two years ago, the IUCN SSC Amphibian Specialist Group suggested that the zoo community might like to jump into the crisis and possibly save some amphibian species which were otherwise doomed in the wild. CBSG and WAZA immediately rose to the challenge and formed Amphibian Ark AArk, a global programme for zoos to do what they do best to save amphibians. A AArk Steering Committee was formed and at the first meeting a variety of approaches were discussed.

After discussing the subject with Sanjay Molur, one of the Chairs of ANSA, Amphibian Network of South Asia, CBSG South Asia and SAZARC was represented at this meeting and committed to do whatever was appropriate in the region. In South Asia the finance and sophistication may be insufficient to run conservation breeding programmes which involve handling diseased frogs and curing them of Chytrid and breeding them. It was decided to make training and public awareness the primary focal point of the ANSA/CBSG South Asia/SAZARC amphibian programme.

In short order we were contacted by Durrell Wildlife Conservation Trust asking if we wanted to organise and host their Amphibian Biodiversity Training Course and it was planned for December. Durrell and DICE trainers came to Periyar Wildlife Sanctuary from 10-16 December 2007 and put on a very good course for 19 participants from four South Asian countries. Durrell sponsored the course with generous grants from Rufford Maurice Laing Foundation and the World Association of Zoos and Aquariums WAZA. Central Zoo Authority supported five Indian zoo persons. Subjects ranged from global and regional diversity, status, prioritization, threats, diseases, husbandry, and education to research techniques. The objective of the course was to identify and network serious amphibian biologists in various organizations of the region to be in action mode in case of emergencies like that of the Panama situation where hundreds of species of amphibians went extinct due to the debilitating effects of chytrid fungus. Since there are reasons to believe that the fungus could be present in the region, negative effects could manifest in the amphibian populations of the region. **More courses are envisioned and those interested can contact Sanjay Molur at herpinvert@gmail.com or at ansa@zooreach.org.**

In January of ANSA (Sanjay and Karthick) participated in the first SERC School of Herpetology, a two week training course in herpetology organized by the well-known amphibian biologist Dr. Sushil Dutta, an earlier chair of ANSA, with DST backing at Baripada, Orissa.

Amphibian Ark education, South Asia

We jumped into planning educational activities. It was easy because the AArk Marketing Committee sent round a great marketing kit with an attractive logo for AArk. We changed the colours of the logo to mimic Indian official flag colours and in short order we had an AArk programme to put on during Wildlife Week, India's biggest wildlife public awareness event. We applied for a big grant so that we could help the other South Asian countries with their programme but, alas, we didn't get it. Thanks to a few sponsors, we were able to do the following. Just imagine what we could have done if we had got the big grant!

Indian Campaign Wildlife Week 07 -- ZOO/SANIZE made 3000 amphibian packets and 1200 t-shirts to distribute various groups during wildlife week 2007 sponsored by Le Shark, Chester Zoo, WAZA and CBSG. During Wildlife Week 2700 packets and 960 t-shirts were used in education programmes throughout India. A total of

fifty-six NGO's, zoos, schools, and forest personnel order materials and conducted programme, most of them receiving significant publicity. Orders came from 21 out of the 29 Indian states and even 3 out of the 7 union territories. ZOO also sent appeal letters along with education kits to relevant **Ministers and senior officers**, 28 PCCFs and 34 Chief Wildlife Wardens of all states and UTs. In addition a press release with amphibian education kits has been sent to 68 newspapers throughout India.

Amphibian Ark-Global Leapfrog event

ZOO coordinated this event for AArk, in the South Asian Region, providing encouragement through email and phone. ZOO also provided participation certificates to the Indian zoos as well as packets and other items. For other regions zoos, templates of the certificate and other items such as amphibian fact sheets, simple line drawings ZOO sent via email, which they reproduced.

The following zoos participated: Dhaka, Chittagong, Rangpur & Dulahazara, (4 zoos) in Bangladesh; Mysore, Coimbatore, V.O.C. Park and Chhatbir (4 zoos) in India; National Zoo in Sri Lanka and Central Zoo in Nepal.

Animal Welfare Fortnightly- A special series of amphibian materials were printed calling attention to animal welfare aspect of protecting amphibians. A small number were printed estimating the number of orders. ZOO limit orders to 50 packets per organiser with instructions to plan a programme rather than simply handing out material. Number of orders 25 and packets distributed 1290.

Spring and Summer programmes - With a generous grant from Chester Zoo and Universities Federation for Animals Welfare ZOO has produced 6700 packets, bumper stickers and posters with an amphibian conservation theme. These months include global events such as Earth Day, World Environment Day, etc. which do not get so much attention as the locally designated days. ZOO/SANIZE will be doing a special push to get people to use these events to educate people about the amphibian crisis. Bumper stickers are not as ubiquitous in India or South Asia as in USA but we have made some and hope to induct India, at least, into the bumper sticker habit with very bright and typical India pastel colours for YOTF bumper stickers. By summer we will know whether we got our big grant and can share better with South Asian countries in our educational endeavours. We hope to send soft copy camera ready graphics and small grants to do the printing in each South Asian country to avoid postage and customs.

Other amphibian biology and field training courses are needed and will be planned for 08. Governments of all countries must be approached and requested to put up funds for training, surveys, breeding programmes at laboratories or scientific institutions, and put more amphibians (all threatened ones) on the wildlife legislation of their country. Zoos and wildlife divisions can do a great service for amhibians by simply educating the public about a need for more attention to this important animal group.



CBSG and WAZA work together for Climate Change

CBSG

The climate change issue was brought to the forefront of CBSG consciousness by Paul Pearce Kelly who gave an excellent presentation on the topic and urged CBSG to take active interest. CBSG responded immediately by organising a Working Group at their Annual meeting.

The working group included *Emily Brickell, Mark Craig, Kristin Leus, Phil Miller, Patricia McGill, Ruben Ngwenya, Paul Pearce-Kelly, Rebecca Soileau, David Tonkin, Jonathan Wilcken.* They discussed the fact that CBSG is not currently incorporating climate change impact prediction data sufficiently into their conservation planning processes. Correcting this situation is a conservation priority.

The group defined climate change in the CBSG context as: anthropogenic derived climate change impacting on biodiversity. This includes general trends and extreme events. Some major challenge areas were identified as risk assessment and climate change mitigation including measures particularly for zoos..

Risk Assessment

Goal: To better incorporate climate change impact dynamics into our risk assessments by improving our modeling tools (e.g. *VORTEX*), and our workshop processes. Suggested to review our current capabilities to model climate change factors, especially in *VORTEX*, among them to Review workshop processes (e.g. PHVA) documentation and consider the inclusion of climate change relevant people on invitation list, climate change appropriate data collection, and consideration of climate change effects as a standard component of each workshop.

Mitigation for zoos

Zoo and aquarium based efforts to mitigate institution impacts on global warming could be effective, and zoos could consider the following actions to raise awareness of climate change, and act to reduce their own impact.

- Zoo operations – emissions reduction impact.
- Lead by example.
- Factor into zoo design.
- Act locally – think globally.
- Use of zoo education programs.
- Zoo visitors can be more immediately engaged – i.e. can take action immediately.
- Recognize all programs have a global climate change impact.

CBSG proposed a draft Statement of Concern for Consideration by WAZA

'Given the severity of the climate change threat facing species, habitats and biomes around the world, we urge the international zoo and aquarium community to prioritize commitment to reducing the global warming threat as a key focus of its public education programs.

To this end, a WAZA-led campaign to increase awareness of the global warming threat to biodiversity and to reduce global greenhouse gas emissions is urgently required. CBSG to assist with relevant information – will seek assistance from WAZA

WAZA

Resolution on Climate Change

IUCN - The World Conservation Union states that global climate change is one of the most pressing concerns of the 21st century. Warming temperatures, changing rainfall

patterns, increased extreme events and sea level rise are already being observed and will have serious implications for economies, society and the environment. Reducing greenhouse gas emissions to limit future climate change and improving the capacity of the world's biodiversity and poorest communities to adapt to its inevitable impacts are the two central challenges.

It is expected that the number of species requiring conservation help will increase dramatically as the effects of climate change are understood with greater clarity and focus. There are three distinct and focused areas of work where it is believed that the zoo and aquarium community is not currently incorporating the likely effects of climate change sufficiently into its thinking and activities:

Species Risk Assessment

Climate change dynamics must be more effectively incorporated into conservation risk assessment processes, including modelling tools and workshop methodology.

Zoo and Regional Collection Planning

Taxon advisory groups need to ensure that taxa threatened by predicted climate change impacts are given enhanced consideration in collection planning reviews at institutional and regional levels.

Zoos Commitment to Climate Change Mitigation.

The global zoo and aquarium community should assume a leadership role, through exemplary daily operational activities, in environmental sustainability, particularly in achieving a sustainable reduction in greenhouse gas emissions. The global zoo and aquarium community should also initiate and sustain a long-term, worldwide education campaign that focuses on issues of environmental sustainability, in particular Climate Change.

WAZA Resolution on Climate Change

Recognising the severity of the threats from climate change facing species, habitats and biomes around the world;

Responding to a call for action formulated by the Conservation Breeding Specialist Group of IUCN - The World Conservation Union at its Annual Meeting in Halle, 24 - 27 August 2006;

WAZA COMMITS significantly to increase the quantity and quality of its actions to reduce global warming;

ALSO COMMITS to a long-term, WAZA-led campaign to reduce the global greenhouse gas emissions generated by zoo and aquarium operations, and significantly to increase awareness of the threats to biodiversity from global warming.

Adopted at the WAZA Administrative Session of 31 August 2006 - 61st Annual Meeting, held at Leipzig, Germany, August 27-31, 2006. Edited by the WAZAQ Executive Office.

Climate Change Challenges and education initiatives by ZOO/WILD/SANIZE/ CBSG, South Asia/SAZARC

B.A. Daniel

The Intergovernmental Panel on Climate Change (IPCC) founded in 1988 by the World Meteorological Organisation (WMO) and the United Nations Environment Programme (UNEP) assessed all the aspects of climate change using the best available information reported that the average global surface temperature has already increased by 0.3-0.6°C in the last 100 years. It also projected that the global mean temperature may increase between 1.4 and 5.8 degree Celsius by 2100. So climate change is now the most important environmental threat facing human today. A wide range of scenarios such as socio-economic, sea level, water resources, agriculture, forests, human health and biodiversity has been predicted to be affected due to climate change.

IUCN – The World Conservation Union, realising the severity of the impact of climate change on species considers reducing greenhouse gas emissions to limit future climate change and improving the capacity of the world's biodiversity and poorest communities to adapt to its inevitable impacts as the two central challenges. It has suggested that Zoo and aquarium community should involve in to conservation risk assessment processes, including modelling tools and workshop methodology, enhanced consideration in collection planning at institutional and regional level for taxa threatened by predicted climate change impacts, and to take up a leadership role, through exemplary daily operational activities, in environmental sustainability, particularly in achieving a sustainable reduction in greenhouse gas emissions.

CBSG and WAZA have made plans and taken resolutions to reduce the greenhouse gas emissions generated by zoo and aquarium operations and to raise awareness about global warming.

ZOO/WILD/SANIZE and its networks with financial support of Zoological Society of London and technical support of Paul Pearce-Kelly will bring out a manual addressing the challenges of educating the public on climate change. ZOO, with help from the Wildlife Conservation Society, Bronx, New York, has evolved a methodology for teaching and for attracting non-traditional as well as traditional educators to adopt techniques which are more effective in bringing about comprehension, retention and behavioural change.

The methodology is a combination of educational tools and techniques responding to South Asian conditions and problems. The methodology involves the following tools: a teaching manual, guidelines booklet, educational packets containing activity-based "toys", a drama kit, posters, etc. that are useful in teaching different target audiences. The manual will have six units of which a brief description is given here.

Unit 1 -- covers four evaluation methods to assess the efficacy of any programme on participants' knowledge and bring in attitudinal change. This unit will also include basic information about the earth, environment, and biodiversity.

Unit 2 -- presents the problem of climate change including its effect in various scenarios. Participants (teachers) will be taught to use drama for illustrating the various scenarios for maximum impact. Some of the theme of dramas would

be impact of climate change on species, water resources, agriculture, forests and human health. A "time line" activity in this unit will help the audience to learn about changing temperature on earth in recent history. Actual statistical data from 1860 – 2050 will be used to plot a graph that will illustrate change in global mean temperature and aid understanding.

Unit 3 -- impact of climate change on culture at a global level. Real stories from around the world will be discussed. Predictions on climate change based on *Six degrees* written by Mark Lynas will be the major portion of this unit in the form of songs and play.

Unit 4 -- climate change and species problems, illustrated through role play assuming the characters of farmers, scientists, media, politicians, poets, artists and others.

Unit 5 -- how scientists measure climate change, its impact and its vulnerability. To include prediction of climate change, real stories on impact from South Asian countries and vulnerabilities. Mock citizens debates and role play in which participants take on different roles will discuss climate concerns in national planning and debate policies' relevance to climate change. "Government officers" will suggest development projects that include sustained economic growth, high food production and poverty alleviation.

Unit 6 -- about global issues and how decisions are taken at global level to meet these challenges, taught through games and mock conference exercises incorporating IPCCs (Intergovernmental Panel of Climate Change) recommendations and priorities. At the end tips for the participants to meet climate change challenges at individual level will be included. At different levels of this learning process energizer games will be played related to climate issues to boost up their learning process.

Teaching Teaching (teaching how to teach)

These chapters feature the issue as a medium for conveying a wide range of active learning techniques for both experienced and amateur educators. The activities will be indoor or outdoor, informative, interactive and fun. Only a few basic supplies are needed to supplement this manual. Some activities will be designed to give as hand-outs to remove from the book and duplicate. In case there is no capacity to take photocopies, alternative group exercises will also be available in the manual. There is no need for a projector or any other 'technology' to use this material.

Join us !

We hope that many South Asian Zoos will also join this movement and attempt to make their visitors aware of the immediacy and seriousness of the problem. ZOO/WILD/SANIZE will do its part to create guidelines and materials which will be meaningful to zoo visitors of this region and make them available to whomever wants to take on this crucial educational initiative.

For more information and how to participate in these activities, indicate your interest to badaniel@zooreach.org with a copy to zooreach@zooreach.org.

Using CBSG Conservation Process Workshops for Education : Case Study Sally Walker and B.A. Daniel*

For a long time ZOO/CBSG South Asia has wanted to incorporate some of the PHVA and CAMP process workshop components into education. We use the output of CBSG CAMPs and PHVAs almost exclusively for the factual material of our educational publications (handouts, posters, packets, etc.) but in the CAMPs and PHVAs themselves, it is striking how exciting some of the methodologies are and we wanted to share these with youngsters. And when we learned the WCS style of education using their manual and active learning techniques, we were even more keen about this.

WCS had developed a Teachers for Tigers Manual of very innovative and exciting games to use in teaching kids of ALL ages about tigers. We decided the Manual format would be an excellent place to try some of the PHVA and CAMP process methods as educational tools. B.A. Daniel was in the process of developing a Manual based on the WCS T4T Manual but on Hoolock Gibbon, for which we were preparing to conduct a series of six teacher training workshops in Assam.

So we developed two modules for CAMP and PHVA and published them in the Manual. During the workshops our trainers tried them out. Daniel has written a description and assessment of this experiment.

Assessment of CAMP and PHVA portions and modifications

Population and Habitat Viability Assessment (PHVA) workshop process builds extensively upon the familiar analytical assessment tool known as Population Viability Analysis, or PVA. PVA combines the specification and quantification of threats to wildlife populations with detailed mathematical models of population dynamics in order to evaluate the risk of population extinction under a variety of alternative future scenarios. In the case of PVA, information is usually taken from primary literature. In the case of PHVA (which includes Habitat as well and Population), information is taken from living participants who work for the species under assessment.

The Conservation Assessment and Management Plan (CAMP) workshop is a rapid, broad-based evaluation of a selected group of species that occupy a particular country or region. The diverse expertise among workshop participants is applied to the IUCN's quantitative Red List system to categorize each species' degree of endangerment, based on estimates of the threats to these populations and their habitat.

In unit 5 of the 'Helping Hoolock gibbon Hang on' manual, Population and Habitat Viability Assessment (PHVA) and Conservation Assessment and

Management Plan (CAMP) were included as teaching tools for better understanding of complex concepts as well as to make learning fun. They also learn how conservations themselves can better understand the status of a species in the wild (as per CAMP process) and the chances of survival of a threatened species (as per PHVA).

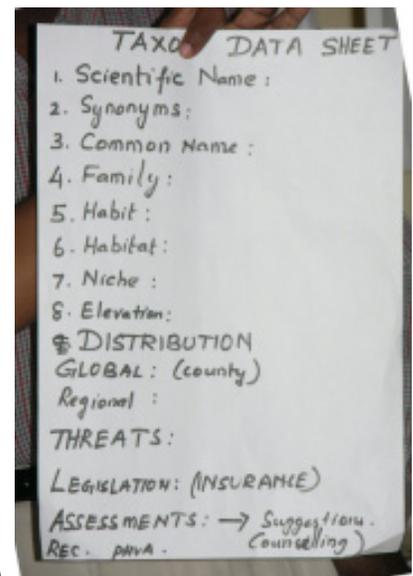
Our workshops cover a wide range of audiences -- school and college teachers, Forest officers and rangers, zoo personnel, wildlife NGOs, etc. In order to reach all ages, the process was made into a dialogue such as an interview. This is comparable to species information collection in the real process.

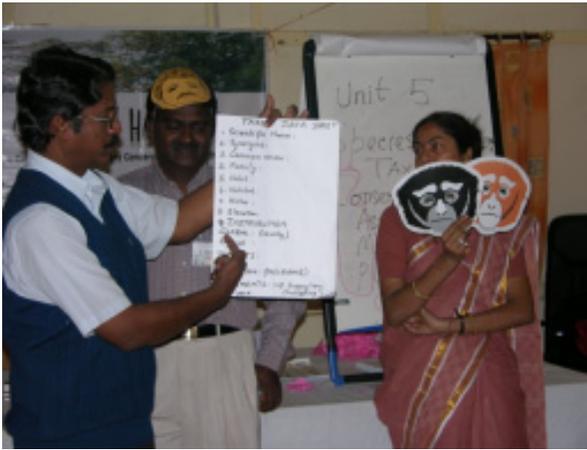
The objective of this activity was to familiarize participants with the need for information about the species in order to assess its status in the wild and to know the assessment is done. Thus, the participants were informed that certain information had to be collected and written onto a Taxon Data Sheet, and that experts using the IUCN Red List categories and criteria could derive the status and suggest recommendations using this information. In this process, participants absorb the information as well as get a good idea of the CAMP or PHVA process. It had to be made very clear that we were substituting a person for a species and a social worker for a conservationist for the sake of the activity. It is a kind of role play

Method:

The participants were given 10 minutes to read the filled in Taxon Data sheet of Hoolock gibbon provided in the manual. The major details asked in a CAMP process for a species were written on a white board. (see photo)

Two participants were invited to act as a human and hoolock; they wore masks of Hoolock and Human to make it more interesting. A dialogue was initiated and the following questions were asked to the "human" with the "hoolock" giving answer for the same question. The





Two participants, the interviewees acted as a human and hoolock; they wore masks of Hoolock and Human to make it more interesting.

“hoolock” must be prepared with Q&A before initiating the dialogue.

Information for Taxon Data Sheets of CAMP workshop used as Questions for the dialogue:

The questions were re-worded from “Scientific name of species” to things like “What is your first and last name?”

Scientific name of the species?

What is “your” First and Last name?

Synonyms

What is your pet names (if any)?

Common name

What is your nick name?

Family

What is your family name?

Habit

Food habits? Vegetarian /non-vegetarian?Where do you live? City/Village/ever green forest?

Habitat

What is your address?

Distribution

Where are your family members are distributed Globally (Country wise) Nationally (state wise)

Threats

Do they experience any problem of survival? (*while explaining this the person wearing human mask has to act as if he is suffering due to some threats; the gibbon has lots of threats to share*)

Population

What is your family size ? (can add all related questions for PHVA.

Wildlife Legislation

Do you hold any insurance?

Status (Global/national) (*It has to be explained that the Hoolock has been assessed globally as Endangered in South Asia; at national level it has been assessed as Critically Endangered in Bangladesh and Endangered in India*)

Recommendations: (*At this point the interviewer explains that the experts (a wildlife manager for Hoolock and a doctor for Human) after analyzing the situation will give some recommendations. For Hoolock gibbon the following are typical recommen-*

dations given: Genetic research, life history studies, survey and ecological studies.)

After the dialogue the interviewer will find the condition of the human as serious due to some bad health and recommend him to go to a hospital. In comparison it was concluded that the primate experts after observing the situation of the species and after refereeing the IUCN Red List Categories will assign a status to the species and give recommendations that will help save the species.

Abridged CAMP/PHVA lessons from the Hoolock Gibbon Teacher Training Manual Unit 5: Species Problems and Solutions

The materials in this part of the unit will guide participants as they investigate the major conservation problems faced by Hoolock gibbon, encouraging them to identify various threats to the species, such as habitat destruction, decline in shelter, food; population size issues, as well as issues that are unique to particular localities. A focus in this unit was explaining how capturing wild Hoolock gibbons for trade (pets and zoos) contributed dramatically to their decline.

Understanding species problems: CAMP workshop

In this section, participants will become primate experts, captive facility managers, field biologists, wildlife managers, conservation biologists representatives of academic institutes working on primate conservation. Tell participants that the C.A.M.P workshop process was developed by the IUCN SSC Conservation Breeding Specialist Group (CBSG). Tell them that this assemblage of experts is to provide the most current information about primates in order to assign species to IUCN Red List Categories of Threat (See appendix for structure of Categories; Also check http://www.iucnredlist.org/info/categories_criteria2001), formulate broad-based management recommendations and develop more comprehensive management and recovery programmes.

Understanding Chances of Survival: PHVA

After the performances, have each of the regional groups gather again. In this section, participants will become delegates at the Population Habitat and Viability Assessment (PHVA) workshop. Tell them that the groups are formed based on their expertise in field and thus the first group will be analyzing the Habitat and distribution of Hoolock gibbons; another group on Political and Public Awareness; third group on Captive management and fourth group on Wild population management. There is one more group who will be doing simulation modeling using a computer programme called VORTEX developed by CBSG. This group works towards identifying the primary drivers of Hoolock gibbon population growth, the probability of the species survival etc. (*See the full explanation and some photos of the exercise in the version on your gift souvenir stick and also on the website url : www.zooreach.org*)

Gharial -- no will and no way despite a PHVA



In 1995 -- 12 years ago for numerically challenged individuals -- the Central Zoo Authority sponsored a Population and Habitat Viability Assessment workshop for Gharial. This was then an unprecedented event, that is, the first time a government institution had financially sponsored a PHVA workshop. At that time, we had CBSG, India instead of CBSG South Asia and although the PHVA had been suggested to CBSG India by Prof. R. J. Rao, well known gharial specialist and a member of CBSG, India. Since the host organisation and its founder were associated closely with the Central Zoo Authority and since zoos had played a big role in trying to assure the survival of Gharial since 1975, we asked CZA if they would sponsor the event and they agreed.

The three-day workshop was conducted at Jiwaji University, Gwalior, between January 16-18, 1995 and attended by a very respectable group of herpetologists and persons for whom gharial was a responsibility, such as DFOs and zoo personnel. The Member Secretary, CZA, was present the entire time and there was also a Ministry of Environment and Forests representative and the state Chief Wildlife Warden. No names will be revealed to protect the innocent (or otherwise!).

You would think that gharial, with its clearly threatened status, prestige through age on earth, high profile in conservation circles, and multi-state distribution, might have been selected for a MOEF supported Project Gharial as per Project Tiger and Project Elephant. Not that tigers and elephants are necessarily doing so well as a result of the attention, but simply because a reptile is surely as important as a mammal and ... it MIGHT HAVE made a difference.

One of the many reasons, R. J. Rao had suggested the PHVA was because Government had taken a decision to stop supplementation of wild populations with the young gharials reared in several captive facilities under the auspices of the state Forest Departments and the ostensibly successful Crocodile Project of 1975. We wanted to use the VORTEX population modelling programme to predict the impact of stopping supplementation, among other things. There were a number of problems and issues that could benefit by a discussion of stakeholders, and did ... but to what result?

Practically speaking the result was NIL. Very few of the recommendations were carried out. Most of the recommendations were linked to government and government had already indicated their attitude by announcing the curtailment of supplementation. Apparently it was thought that because populations seemed to have improved as a result of supplementation, that all was well and supplementation could be discontinued. All was not well and it should not have been discontinued. Who makes these decisions? Certainly not researchers or

biologists. After some time news began to come in that gharial was again in terrible trouble, when in fact, gharial had never been out of trouble.

In 1995 when we had the PHVA it was the beginning of the 20th anniversary of the Crocodile Project. That would have made a good year to turn it around and create Project Gharial but in fact, despite many suggestions that government do something for the two-decade anniversary, nothing much was done except supplementation was stopped.

CBSG, India dutifully wrote letters to the state government, distributed the 106 page report and hoped some light would shine through the muddy waters of gharial futures.

Today, looking at what needs to come up at a CBSG/RSG meeting, and reading today's news of more deaths by liver damage and further population crashes I went back to the Recommendations of that PHVA and marvel at how well we called it. If government had just carried out some of the recommendations, maybe the situation would not be so very dire. At least one could say that "attempts were made".

I have to say, however, that nothing was done at all. That is a pity. I remarked to my colleague, Sanjay Molur, who courageously did all the population modelling for that workshop in his modelling infancy (did a real good job too according to Bob Lacy, author of VORTEX), "hey", I said, "we could collect a few thousand dollars for another PHVA and bring out the same recommendations and keep the money!"

Just kidding, but we CAN reprint the recommendations here again in honour of the thirteenth anniversary of the PHVA which occurred on the twentieth anniversary of the Crocodile Project. Thirteen is good because it symbolises how very unlucky Gharial has been to have such neglectful caretakers ... I'm not talking about DFOs, Rangers, or even Conservators. Those people are not running things and those whom I know were just as frustrated and more so than we. Such species problems which range throughout several states need more attention from governments, both state and central.

This is not to say that NGO's and others have no role or responsibility but in case of wildlife in the wild, there are simply few things that we are permitted to do. So all we can do is rail. So in this issue is included the Recommendations from 1995, a CBSG working group reports and recommendation and some other tidbits.

What ARE we going to do about gharial NOW? It is ironic that we have everything - including a large captive population that could be utilised somehow, global interest, recent upgrade to CR from EN. It is an "irony rich" diet of tragedy.

1995 Gharial PHVA Executive Summary and Recommendations

Executive Summary

From 16-19 January 1995 a Population and Habitat Viability Assessment (P.H.V.A.) Workshop for Gharial was held at Jiwaji University, Gwalior. It was attended by an assembly of wildlife field managers, captive management specialists, gharial researchers, university professors and NGO's / NGI's.

Twenty years ago — in 1975 a Crocodile Project was initiated in India. This programme included conservation of three threatened species of crocodilians, including gharial, a species of immense scientific interest. After two decades of conservation and significant progress, some researchers and wildlife officers felt that the work lacked a well-defined direction. There were accompanying concerns about the actual success of the conservation measures so far implemented, and the fate of the species in the near and distant future. Recent decisions to terminate supplementation of wild populations withdrew active assistance towards recuperation of the species. Concerned researchers and managers felt that a systematic assessment of the current status of the species following the years of harvest, supplementation and other management strategies was necessary at this time.

After consultation with leading crocodile experts and institutions of the country in states like Orissa, U. P., Tamil Nadu and M. P., the PHVA for Gharial was initiated by the School of Studies in Zoology at Jiwaji University which has been involved actively in research activities and conservation of this species since the last ten years. The Madhya Pradesh Forest Department came in as a co-organiser. The Ministry of Environment and Forests, Government of India agreed to sponsor the Workshop. The Zoo Outreach Organisation/CBSG, India agreed to facilitate the Workshop.

Population and Habitat Viability Assessment, developed by the Conservation Breeding Specialist Group, SSC, IUCN, is a process for assessing extinction risk for a species and for developing management recommendations to enhance long-term survival. PHVA workshops are conducted in the range area of the species in collaboration with wildlife agencies of the area. Also included in the PHVA process was an evaluation of the status of the species in captivity, projected plans for reintroduction, and issues requiring collaborative research.

In this Workshop issues and concerns of gharial were discussed in a combination of small working group sessions alternating with plenary discussions. The Working Groups were: Census and Distribution Group, Habitat Group, Modelling Group, Threats Group, Captive Management and Disease Group, Education/Awareness/Human Interaction Group, Trade Group, and Reintroduction Group.

The Census and Distribution Group reviewed the information collated by the researchers and field managers. In the past two decades about 4000 gharial have been released into 12 rivers in four states under the "Grow and Release" programme in which eggs were collected and hatched and hatchlings reared to sizes which could increase the probability of their survival in the wild. While there are indications that this Programme has made the species secure in certain

areas, there was a conspicuous lack of information in other areas.

This Working Group recommended that the annual census be done in every area, using a more standardised methodology, and taking the help of local people and other volunteers for whom briefing sessions and literature would be organised. It was also recommended that a Central Coordinating Unit be established which would provide a mechanism for better interaction between the different states and agencies involved in conservation activities for gharial.

The Habitat Group defined the various components (with particular emphasis on prey availability) that make up an "ideal" habitat, which constitute the criteria by which suitable reintroduction sites could be identified in the future. Sites which fall outside protected areas but are felt to be highly suitable and stable or those which migrant gharials are trying to recolonise, should be protected under the Wildlife (Protection) Act. International cooperation for better management of metapopulation is recommended for habitats extending across international borders.

The Modelling Group simulated gharial populations over a wide range of sites and under various conditions. The three populations — Chambal, Mahanadi and Kateriniaghat — are in different degrees of stability. The Chambal population is stable and can even withstand a yearly small harvest for genetic supplementation of other populations. A review of the Chambal population is recommended before five years and after collection of some more information. The Mahanadi population, while appearing relatively stable, suffers from a larger number of more potentially catastrophic threats. Extensive studies need to be done on these threats and the population needs to be thoroughly assessed again before five years with additional data. The Kateriniaghat population is very small and unstable, and requires continuous supplementation in order to be sustained at all. Genetic studies for diversity and for variability are crucial for all populations.

The Threats Group identified 10 direct and 8 indirect threats and identified that gharial populations of Mahanadi River was the most seriously threatened. It was felt that the Ramganga population was least affected by such threats. It was noted that threats to gharial in unprotected areas such as fishing, sand mining, river side cultivation and industrial pollution can be controlled best by education/awareness activities. It emerged from the Modelling exercise that inbreeding could be a more serious threat than previously considered.

The Captive Management and Disease Group assessed the ability of existing captive facilities to breed and rear gharial for future, either for supplementation of wild or for provision to zoos for exhibition and education. They concluded that all these facilities taken together could generate a spatial capacity to propagate as many as 4000 - 5000 animals per year if required. In this scenario, a coordinated, scientific breeding programme is necessary. The Group recommended that the zoos holding gharial should create or upgrade gharial enclosures so as to be more educationally

relevant and more mindful of the welfare of the animals. Those zoos which are identified as breeding or holding units for conservation may be suitably improved.

The Trade Group assessed the request of some agencies for an opinion on the opening of trade based on utilisation of Gharial. The Group felt that conservation of Gharial would not be improved by opening of trade and in fact could be seriously damaging. The Group affirmed other effects of opening trade also, e.g. that it would convey a wrong signal for conservation of wildlife in general, offend the cultural and religious sentiments of a large portion of the population, and even contradict Article 5/A of the Constitution of India.

The Reintroduction Group endorsed the contention of the Census and Distribution Group as well as that of the Modelling Group that regular supplementation should be maintained without significant reduction. However, it was felt that the age of the animals when released and the sex ratio may need to be redefined according to scientific research input. Frequent and consistent monitoring to determine habitats in which populations had responded favourably to supplementation with captive reared animals is recommended.

The Education Group identified several target groups, including the people who are most affected by gharial conservation, e.g. fishermen. They suggested methodology suitable for each target group and recommended a drastic upgrading of public education with respect to gharial conservation. The PHVA participants agreed that lack of public education had been a major lacuna in the Crocodile Conservation Programme.

General

A National Action Plan should be prepared under the auspices of the central coordinating unit incorporating sub-plans for each major river system. Comprehensive management plans should be prepared with recommendations for these areas as well as for Protected Areas that already exist for gharial and these plans implemented to minimise irreversible limiting factors.

A second PHVA for gharial should be held within three years, after some of the recommendations have been implemented and more facts about the biology of the species have emerged.

The research base of every range state of Gharial needs to be strengthened and additional resources made available for this in view of the importance of the species and its habitat. On grounds of logistic advantage and presence of trained and experienced manpower, the Zoology Department at Jiwaji University, Gwalior should be encouraged to grow as a National Centre for Gharial research, with Gharial rehabilitation Centre at Deori (Morena) being revived as a vibrant field research station.

The Government of India, the range states of gharial, and the zoos and captive rearing centres holding gharial should utilise the occasion of the 20th anniversary of the Crocodile Project to highlight the success of the project, the need to continue protection of gharial and the importance of gharial to the aquatic ecosystem. Government of India should mark this anniversary in an

elaborate manner, bringing out posters and brochures reviewing the Project and suggesting future directions.

Population Biology (Modelling)

General recommendations for all three populations

1. Systematic monitoring of all gharials is to be carried out to record longevity, age of first reproduction, sex ratio and other basic biology.
2. DNA fingerprinting is recommended for all populations to better understand the genetic make up and the effects of population bottleneck.
3. If the populations have retained sufficient genetic diversity between them, Katarniaghat and Mahanadhi populations be supplemented with gharials from Chambal.
4. Effects of threats must be studied in detail so as to reduce the causes and the impact of these threats.

i) Chambal population

1. Subpopulation within the Chambal population must be studied for migration by monitoring their movements to understand the dynamics of the population.
2. Harvest of eggs should be done giving due consideration to the requirement of other populations. The Chambal population can withstand a harvest of maximum 500 eggs every year.

ii) Katarniaghat population

1. Continuous supplementation is recommended to insure viability of the population.
2. Gharial juveniles of minimum age 4 years and above should be released to reduce post release mortality.
3. Monitoring of the juveniles must be carried out once they are released.

iii) Mahanadi population

1. Continuous supplementation of the Mahanadi population over the last 19 years has in fact helped the population avoid total extinction. Although continuous supplementations were carried out, however, the population has not stabilized. Even though the simulation model showed no extinctions in the populations, high degrees of threats can push this population to extinction. Supplementation must continue to be carried out.
2. Studies on threats and their effects must be made in detail. This will help understand the actual role such threats play on the dynamics of the population and also help reduce this cause.

Census and Distribution

Annual census must be conducted. Habitat status with respect to basking and nesting sites should be surveyed at the time of annual census and possible occurrence of changes monitored by compiling habitat field maps. All participating state agencies should have effective coordination. Annual census by different agencies should be well coordinated and a permanent central coordinating unit should be created.

Comprehensive maps showing distribution of gharial (i) historically, (ii) before initiation of the project, and (iii) current population strength should be prepared and made available to census agencies. These should be updated on the basis of census results.

A brief brochure dealing with census techniques should be prepared for distribution to agencies and individuals associated with the census with the idea of optimising survey and census techniques. The possibility of making these more accurate can be explored in workshops to be conducted periodically.

NGO's and other interested individuals should be motivated to participate in survey and census work and a network of participants to conduct annual census of gharial throughout its countrywide distribution built up. A briefing session should be organised in sector levels for all the participants before census.

Habitat

Availability/status of habitat be assessed by trained surveyors on the basis of identified qualifiers. Such habitats outside protected areas which are identified as highly suitable and stable, or those that gharial migrating out of P.A.'s attempt to recolonise be protected under the Wildlife (Protection) Act. Habitat extending across international borders necessitates international cooperation for management of metapopulations which occur in such habitats. Several important gharial populations are affected by impediments arising from lack of coordination between India, Bangladesh, and Nepal.

Threats

Identify community nesting areas and provide protection to the nests to reduce the risk of predation. As there are many gharial in unprotected areas, threats such as fishing, sand mining, riverbed cultivation and industrial pollution can be controlled best by education/awareness activities.

The computer modelling exercise indicated that a lack of heterozygosity resulting from inbreeding may be a problem in some populations. Also very little is known about the age structure of the populations. As no genetic management has been considered in release programmes to date, it is strongly recommended that managers take cognisance of genetic and demographic factors.

Operation of irrigation and hydro-electric structures should be examined for possibilities in their modification to facilitate proper Gharial management and the construction of migration routes for river life be incorporated into the planning of future projects.

Trade

Although there is no significant trade in gharial, it is still important to educate the local people in and around gharial habitats. This will promote awareness to stop illegal local trade, which takes place from time to time for non-tannery products such as eggs, meat and medicinal biomaterial. Training of enforcement officers (customs, local policemen and forest dept.) to help them in identifying derived products should be done.

Although there has been substantial pressure from international bodies for opening up trade in crocodilian products in line with the conservation strategy of sustainable use, it was strongly felt by the Workshop participants that opening of trade in India, at least at present, is not justified. It would create unwanted results which, on balance, would negate any economic or social benefit generated by opening of trade, especially for gharial.

The requests which have come from within India for opening up of trade in crocodilian products in recent years stem in part from the surplus animals which exist with different agencies which bred them in anticipation of need. Zoos and rearing centres should therefore rear only such numbers of gharial as are required for

exhibition or supplementation. In the case of accidental surplus accumulated "in good faith" and not required for conservation due to unavoidable circumstances, the Government of India may consider undertaking support of the animals for the rest of their natural lives.

Reintroduction

- Releases for supplementation should be made at a standard optimum size. This exercise should be supplemented with scientific research input accompanied by frequent and consistent monitoring.
- Releases must strictly adhere to the accepted norms of release except when there are species- or habitat-specific variables which require different norms.

As a result of the modelling exercise which was done on Katarniaghat populations as well as scrutiny of results of 20 years of supplementation of wild populations with captive reared animals, the view of the group was that long-term survival of gharial could not be assured without continued supplementation.

Captive Population / Disease Group

Individual identification marking of gharial should be done using a standardised code to facilitate planned captive breeding. Preparation of a studbook should be carried out and maintained with available gharials in zoos/gharial rearing centres.

It is recommended to have detailed investigation with the help of disease diagnostic laboratories to come to definite conclusion about the disease responsible for mortality and to find out the proper prescription for cure.

Detailed investigation with the help of disease diagnostic laboratories should be carried out to arrive at definite conclusions about diseases and causes of mortality.

Better management practices which include prophylactic measures may be undertaken as well as proper prescriptions for treatment, developed with collaboration between veterinary institutions and captive rearing centres.

The number of hatchlings to be reared should be decided strictly according to the requirement of the stock intimated by the concerned authorities responsible for reintroduction programmes.

Rearing procedures for hatchlings should be standardised and these standards strictly maintained to ensure maximum production of gharials from eggs produced in captivity.

Contemporary research has opened up possibilities of controlling sex ratios of crocodilians produced through temperature controlled incubation. This technique should be investigated with the objective of improving gharial management *in situ* through supplementation if so required.

Education

A major initiative should be directed towards specific target groups important to gharial conservation, such as fishermen and others who might have been affected by the gharial programme. Emphasis should be given on the utility of gharial for sustaining the health of the river system and the perilous consequences of its disappearance.

2007 Gharial Resolution - CBSG & WAZA

CBSG Working group on Gharial Extinction Crisis
Ivan Rehak, Prague Zoo (ivan.rehak@volny.cz) took the initiative to convene a working group at CBSG in 2007 focused on the gharial and on doing ground work for CBSG partner WAZA to come out with a resolution calling attention to its serious plight. The group met and discussed aspects of the crisis and prepared a briefing for use in WAZA whose Annual meeting is attended by many CBSG members. WAZA has the kind of international profile that is good for a Resolution. It was hoped that IUCN would take up the issue and make a statement to the government of Gharial states.

WAZA Discussion and resolution

As emphasized at the 2006 IUCN-SSC Crocodile Specialist Group (CSG) Meeting in Montélimar, the gharial (*Gavialis gangeticus*) is again very close to extinction. There are only about 200 adults remaining in the wild, reproduction is catastrophically low, and the situation in gharial reserves is such that the survival of gharials cannot be ensured. The gharial is without any doubt the most endangered big animal of Indian subcontinent, 20-times more than tiger. And it is overlooked! Still it is widely supposed that gharial is safe thanks to well the known FAO/Indian Government Project Crocodile launched more than thirty years ago. So, it is urgent to change this persistent but wrong perception.

The gharial is both Evolutionarily Distinct and Globally Endangered (EDGE species), i.e. it should be a top priority for conservation. One of the necessary actions would be to attract public attention to the gharial extinction crisis. Also an alarm should be sent to all seriously interested in (and dealing with) biodiversity conservation. Regrettably, there is not much political will in the higher echelons of the Indian government to deal with gharial conservation, and under these circumstances a wide and serious international interest showing that the world is not indifferent regarding the fate of the most unique of crocodilians would be most helpful.

Due to its reputation, the WAZA could help very much in this case, and a "WAZA Resolution on the Gharial Extinction Crisis" may contribute very significantly to efforts to save the species.

In particular, a WAZA Gharial Resolution would
a) alert the global zoo-community and draw its attention to the ongoing conservation catastrophe concerning the most unique of all crocodiles;

b) provide a valuable document reflecting the opinion of highly respected global organization with strong conservation mission (WAZA designates itself as "United for Conservation") and worldwide influence;

c) facilitate efforts to encourage WAZA members to support gharial conservation in any way.

WAZA Resolution on the Gharial Extinction Crisis
RECOGNIZING that the gharial (*Gavialis gangeticus*), being the most unique crocodilian species of extraordinary conservation value, represents an irreplaceable heritage of global importance;
AWARE that the gharial has become by far the rarest and most endangered large animal species of S Asia;
COMMENDING the pioneering efforts of various institutions and individuals (IUCN, GMTF, MCBT, etc) in assessing the status of the species and the scale of its extinction process;
CONCERNED, however, that past conservation efforts to save the gharial seem to have failed to ensure its long-term survival and that the gharial faces an immediate extinction crisis in India and Nepal;
NOTING that the factors behind the projected extinction are known, but this knowledge is not sufficiently reflected in real gharial conservation now
EMPHASIZING that gharial is a flagship species for conservation for the whole of its disappearing riverine habitat and associate wild community including a number of other critically endangered species like river dolphins or turtles;
CONVINCED that only an immediate complex conservation action in gharial range countries with wide international perception, support and co-ordination can reverse the imminent extinction of the species;
CONVINCED that WAZA with its strong conservation mission should not be indifferent to the gharial's fate and should not avoid efforts to prevent its extinction.

THE WORLD ASSOCIATION OF ZOOS AND AQUARIUMS:

·RECOGNIZES the significance and urgency of the gharial's ongoing extinction spiral;

·RECOGNIZES that the world zoo-community has significant potential to draw wide public attention to the gharial extinction crisis and accelerate and facilitate conservation efforts;

·RECOGNIZES that its members have skills and abilities to link their conservation mission and *ex situ* experience with *in situ* conservation, in accordance with that of the WZACS;

·URGES its members, both associations and individual institutions, to support conservation efforts to ensure the future survival of gharial. This may include spreading alarm on the plight of the gharial, financial and material support for gharial conservation, direct co-operation with *in situ* projects.

·COMMITTS itself to encourage its members to contribute;

·WILL LIAISE and COLLABORATE with the relevant bodies established by IUCN and its partners to confront the ongoing extinction of gharial.

Adopted at the WAZA Administrative Session of 30 August 2007 - 62st Annual Meeting, held at Budapest, Hungary, August 26-30, 2007

Global Species Management Program



The WAZA Global Species Management Program

is intended to link the species management efforts of the regional zoo and aquarium associations. This would have the effect of improving cooperation, collaboration and communication between regions and insure sustainability and conservation value of the wild animals zoos keep in captivity. The program is also intended to provide a route for combining support for efforts to conserve biodiversity *in situ*.

Zoos will need to assess candidate species for the development of Global Species Management programmes. Central Zoo Authority in India has taken this on some time ago and is now acting in a dramatic way by organising a meeting, inviting people from many parts of the world to collaborate with them on Indian species.

All zoos and aquariums of the world must come to realize that, for many species, it may be only through genuine and sincere collaboration between countries where the species are indigenous and endemic and countries which have been most successful in maintaining a healthy captive gene reservoir that their continued existence in the wild will be possible.

Adapted from a letter to Zoos of the world by Karen Sausman, Immed Past President, WAZA

Why a Global Species Management Program

Why coordinate globally?

Zoos now play a significant role in saving threatened species. They encourage public interest and awareness in corners of the world. Zoos are experts in breeding animals and in providing space for threatened species until safe, wild habitats are again available.

If managed properly, *ex situ* populations can also serve as important genetic and demographic reservoirs to help wild populations survive and recover in the future. To do so, we need to manage *ex situ* populations to ensure their genetic health and integrity and to retain their long-term viability.

Without management, *ex situ* populations will not be useful for conservation

If not managed properly, *ex situ* populations will become genetically impoverished and as a result animals within the population will likely breed less well, have offspring that survive less well, and be less adaptable in the face of changing environments and new diseases. These effects are well documented in a wide range of species.

Small populations are particularly sensitive to these effects and therefore are particularly vulnerable to extinction.

Zoo populations are too small to survive without close management

Ex situ populations are always small in comparison to healthy wild populations. Global holdings of priority species rarely exceed 350 specimens (in 2006 the average population size across 174 global studbooks was 301 animals). In comparison, wild populations of less than 1,000 adults are considered vulnerable to extinction solely because of their small population. Indeed, wild populations of less than 10,000 adults may still be considered vulnerable to extinction if they are showing some decline.

Further exacerbating this, *ex situ* populations are largely managed at a regional, rather than global level, and

regional *ex situ* populations are much smaller again. Extending the life of captive populations and preserving their genetic and demographic value, requires careful management of animal movements, breeding and husbandry. This is most effective when planned strategically and coordinated centrally. Mechanisms for strategic planning and central coordination of population management are now well established in several zoo regions, and are progressing in others.

Linking regional populations results in larger populations

For some populations, management at regional level may be sufficient to achieve program goals. For many, however, population size, carrying capacity or genetic limitations may prevent those goals from being achieved. In such instances, linking regional populations into a multi-regional or global program increases the size of the population being managed, and may be an effective way of ensuring its persistence and preserving its conservation potential. Global management can offer advantages to different types of populations, for example:

•For **small, widely dispersed** populations, global management provides an opportunity to link up a number of isolated, unsustainable units, improving demographic stability and managing inbreeding and gene diversity more effectively.

•Recent research demonstrates that the genetic diversity of **large global populations** may benefit from strategic population sub-division and restricted but carefully managed migration between these sub-populations.

•For **expanding populations** that are primarily held in one region but sought after in others, global management may be a useful mechanism for distributing important founder lines so that overall genetic diversity is maximised. In the absence of such management, over-represented lines are often continually exported from the source region to found new populations. This can reduce the genetic potential

and therefore the conservation value of those populations.

What is a global program?

A WAZA Global Species Management Program is one that involves collaboration between two or more regions and has been endorsed by WAZA as representing a global priority for zoos and aquariums.

Such programs are overseen by the WAZA's Committee for Inter-regional Conservation Cooperation (CIRCC). Where management of an *ex situ* population is of global priority, WAZA Global Species Management Programs are established to:

- encourage effective collaboration at a multi-regional level
- ensure appropriate consultation with relevant bodies in range states
- regularly generate and distribute recommendations for the management of the taxon in zoos and aquariums
- maximise zoo and aquarium contributions to the program

The program is overseen by a GSMP Management Team that has been authorised by CIRCC. The program management team is made up of all regionally appointed *ex situ* population managers of WAZA member associations (all relevant regional species coordinators and/or studbook keepers) as well as the International Studbook Keeper if one exists. A global program coordinator is elected by the management committee from amongst its members.

What do global programs need?

International Studbooks

For global programs to work, they need to be based on accurate, current information about specimens in the population and their location. Maintaining this information is the role of the International Studbook Keeper. International Studbook Keepers operate under WAZA and information on applying for, maintaining and reporting on, international studbooks, is available from the WAZA Secretariat.

Population Management

To realise genetic and demographic potential, global programs must operate to a long-term strategic plan. This plan needs to describe the goals of the captive program, and how genetic and demographic management is to be organized to meet those goals. The plan should include information about target population size, the genetic management strategy to be applied, and how production of surplus is to be managed.

An understanding of species biology

The plan for a global program should identify the biological constraints within which population management will operate.

For example, where reproductive pairings can be manipulated and monitored, genetically optimal breeding pairs can be identified and established as required.

However, for some highly social species, the need to maintain social cohesion will need to be factored into the demographic and genetic management strategy. This can be catered for in some instances by applying group management schemes such as the Maximal Avoidance

of Inbreeding scheme.

For some pair-bonding species, the need for females to select mates in a group setting may need to be accommodated.

The global program Management Team will develop long-term genetic and demographic management strategies to accommodate the needs of the species.

Reliable husbandry practices

Population management is only really effective where animal husbandry practices for the target species are reliable and consistent. Of particular relevance is the ability to breed and to prevent breeding, to rear reproductively competent offspring and to transport without injury. The global coordinator plays a role in determining what husbandry issues need to be addressed within the program, and in assisting institutions with the information and contacts that they need to develop and hone the necessary skills. Where it is possible to do so, the coordinator may assign program roles to institutions on the basis of available skills and experience. For example, priority breeding animals may be preferentially assigned to institutions with a good breeding record. Institutions new to the species may be asked, in the first instance, to take post-reproductive animals, single-sex groups or individuals from genetically over-represented lines. Regional husbandry networks to be used to provide support where possible.

Records keeping

Maintaining good, accurate records of birth and death dates, parentage, and animal transfers, is crucial to program management.

Some populations or species may require additional information. For some species and for some styles of management, accurate records can be difficult to maintain. Though it is possible to design programs to deal with this (for example those based around group management, such as Maximal Avoidance of Inbreeding (MAI) schemes all efforts should be made to improve records keeping in the first instance). The global coordinator, in consultation with participants, will determine a reasonable, minimum standard of records keeping for the target species, and for the management strategy selected. Where institutions are unable to keep data to the agreed standard they may be assigned a role in the program that takes account of this – that is, they may be asked to hold non-breeding, single-sex groups or post-reproductive animals – until systems for maintaining more accurate records are in place. All efforts should be made, however, to encourage standard record keeping throughout.

Use of technology

Some biological constraints can be overcome with technologies such as artificial insemination and embryo transplant. Such technologies, though they may be useful to the program, will not be readily available to all institutions and may be available to very few. The global coordinator will design the program in this context.

Maintaining Consensus

To achieve program success it is important that all participating institutions understand the goals of the program and their role in achieving those goals. Further, they must have an opportunity to participate in management decisions. Implementation of transfer and breeding recommendations, of program policies and of required husbandry practices, is much more likely to occur where there is stakeholder participation, and where stakeholders are required to endorse

recommendations formally. Population management recommendations and policies relating to the program are circulated to all program participants for review, comment and endorsement, before they are activated.

Evaluating success

The success of each global program is evaluated periodically by CIRCC. This evaluation will usually be conducted every five years. However for some species, particularly those where significant change might be expected over a relatively short periods of time, program evaluation may occur more frequently. This may be expected for species that breed relatively frequently and show rapid generation turnover. The program's Management Team circulate transfer and breeding recommendations at least annually, in a standard format. The same document provides a report on the program's progress towards its agreed goals, and on progress with the previous year's recommendations. Final versions of these reports are sent to WAZA's Committee for Inter-Regional Conservation

Coordination for evaluation.

The report enables the Committee to assess how the program is progressing, and the extent to which zoos are supporting program recommendations. Concerns raised by the Committee are directed to the global program coordinator.

Securing institutional commitment

One of the greatest barriers to viability is population size. For a program to succeed it must be able to grow to and remain at, target size. Where regional mechanisms for securing space commitments from institutions are in place, these should be used for global programs. Where they are not, commitments should be sought through a standard WAZA agreement. Space commitments should be for a period of time, and re-confirmed periodically as part of the annual reporting process.

Technical support

In those regions where population management programs are well developed, ongoing technical support for regional species coordinators is usually provided through the regional zoo association. Global coordinators should also use this avenue for support where it is available.

Where it is not, the global coordinator should seek the assistance of regionally appointed program champions where they exist, or seek to establish mentoring relationships within the program's Management Team to assist with capacity building where needed.

The role of WAZA and CIRCC

CIRCC is WAZA's Committee for Inter-Regional Conservation Coordination. CIRCC reviews applications to establish global programs and makes recommendations to WAZA Council on which should be endorsed for development.

The Committee tracks progress with developing programs and monitors and evaluates performance of established one. Regular performance reviews are provided by CIRCC to WAZA Council.

Complaints about program operation may be forwarded in writing to the CIRCC and the Committee will investigate these. Where possible, conflict within a program should be resolved by the global coordinator through the program's Management Team. Where attempts have failed, issues may be brought to CIRCC

for resolution.

Making an application

Standard application forms are available on request from the WAZA (email: waza.secretariat@bluewin.ch). Applications may be made by any member of staff of a WAZA member institution but must carry the following endorsements:

- The applicant's host institution
- The regional associations from all participating regions
- All existing Species Coordinators in participating regions
- The International Studbook Keeper (where one has been appointed)

Completed application forms are submitted to the WAZA Secretariat, which will organize a CIRCC review against the relevant criteria. Applicants are notified as soon as a decision has been made. All correspondence relating to applications should be addressed to: WAZA Executive Director waza.director@bluewin.ch

Cautionary Note

Global management can be difficult and labour-intensive for the studbook keepers, coordinators and in some cases the institutions involved. It requires close communication and cooperation across a number of distant countries with different disease and regulatory environments. Movements across these international borders can be problematic and, where disease or pest issues prevail, movement may become impossible for periods of time.

Therefore, global management is not a quick or an easy solution to inadequate space commitments by zoos in participating regions. Where a region's population is small and remote, perhaps being held only by a few zoos or even by a single zoo in a region, it will be difficult to integrate such a sub-population effectively into a broader global program. It is likely that more animals will be needed to be moved internationally to support the regional sub-population.

For threatened species in particular, where captive stocks represent a conservation resource, the value of such small regional holdings should be carefully considered. Options such as expanding the local population or consolidating the *ex situ* population in institutions elsewhere might need to be considered by the participants as a clear, mutual declaration of commitment after the manner of a Memorandum of Understanding. Such a commitment should leave some recourse for the program to retrieve for use in the program any genetically important stock should there be a need.

Further Reading

This document should be read in conjunction with: *Procedures and Responsibilities for WAZA Global Species Management Programmes*: WAZA (2003) *The World Zoo and Aquarium Conservation Strategy*: WAZA (2005). *IUCN Technical Guidelines on the Management of Ex Situ Populations for Conservation*: IUCN/Species Survival Commission (2002). *The IUCN Reintroduction Guidelines*: IUCN/SSC/Reintroduction Specialist Group (1998)

OTHER DOCUMENTS RECOMMENDED HERE ARE AVAILABLE IN FULL ON THE MEMORY STICK GIVEN TO YOU WITH YOUR BRIEFING BAG OF MATERIALS.

Recent productions of ZOO/WILD/CBSG South Asia and networks

Walker, S. & S. Molur (Compiler/Editor) 2007. Guide to South Asian Primates for Teachers and Students of All Ages. Zoo Outreach Organisation, PSG South Asia and WILD, Coimbatore, India

B.A. Daniel, Payal Molur and Sally Walker 2007. Helping Hoolock Gibbons Hang on – A Manual to make Every Teacher a Conservationist and Every Conservationist a Teacher.

SAZARC, 2006. Report of 6th Annual Conference of SAZARC & 3rd Annual Joint Meeting of CBSG, SA & RSG, S&EA. ZOO/SAZARC/CD-Rom.

BatNet Newsletter, 2007. Newsletter of the Chiroptera Conservation and Information Network of South Asia CCINSA and the IUCN SSC Chiroptera Specialist Group of South Asia (CSGSA), Volume 8, No. 1-2, Jan-Dec 2007, Sally Walker and Sanjay Molur (Editors), ZOO/CCINSA.

South Asian Primates, 2007. NEW Education Tools for teaching about South Asian Primates. Walker, S. Editor/Compiler. ZOO/ PSG SAP - Primate Specialist Group South Asian Network/CD-Rom

Educational Manual, 2007. Tools and Techniques for Zoo Education, Walker, S. Editor/Compiler. ZOO/SANIZE.

Sally R. Walker, B.A. Daniel, R. Marimuthu and Latha G. Ravikumar 2007. Report of the workshop series on "Conservation Education for North East Indian Hoolock Gibbon with particular reference to shared Hoolock and Tiger localities- Assam, India"

Frog Leg 2007. Newsletter of the Amphibian Network of South Asia and Amphibian Specialist Group – South Asia, No.13, December 2007. Sanjay Molur, Sally Walker, Karthikeyan Vasudevan (Editors)

ZOO 2007. South Asian Monkey Colouring Book. ZOO/SAPN, PSG.

ZOO 2007. South Asian Bats Colouring Book. Zoo Outreach Organisation/CCINSA.

Reptile Rap 2008. Newsletter of the South Asian Reptile Network, No. 8, January 2008. Sanjay Molur, Sally Walker and R.J. Rao (Editors)

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ZOO 2006. Go Gharial ! Go back to survival. Education Packet. Revised version. Zoo Outreach Organisation, 5 items

ZOO 2006. Amphibian: Global Warning! Educational Packet. Revised version. Zoo Outreach Organisation, 7 items

ZOO 2006. Daily Life Wildlife Conservation and Welfare, Education packet. Zoo Outreach Organisation, 7 items

ZOO 2006. Bears on the road... Not in the forest in Hindi. Education Packet. Zoo Outreach Organisation, Coimbatore, 9 items

ZOO 2007. Mind your Monkey Manners Education Packet in English, Hindi , and Tamil. Zoo Outreach Organisation, Coimbatore, 7 items

ZOO 2007. Monkey Manners Drama Kit. Zoo Outreach Organisation, Coimbatore.

ZOO 2006. Conservation – Conscious (or) Conservation – Careless Zoo Education Packet. Zoo Outreach Organisation, Coimbatore, 7 items

ZOO 2007. Bats. Education Packet, Zoo Outreach Organisation, Coimbatore, 6 items

ZOO 2007. Chiroptera Drama Kit. Zoo Outreach Organisation, Coimbatore.

ZOO 2007. Amphibian Ark. Education Packet, Zoo Outreach Organisation, Coimbatore, 5 items

ZOO 2008. Admire all Amphibians -- Frogs are Fabulous, Education Packet. Zoo Outreach Organisation, Coimbatore, 6 items

ZOO 2008. Frogs Rock! On the Amphibian Ark! , Education Packet. Zoo Outreach Organisation, Coimbatore, 6 items

Future

Handlist for South Asian Primates
Field Guide for South Asian Primates
Fruit bat poster set
Website illustrations S. Asian bats
Amphibian CAMP Report CD and web version



CBSG Process Output - CAMP and PHVA Reports

Molur, S. and S. Walker (eds.) (1998). Conservation Assessment and Management Plan for selected species of Medicinal Plants of Southern India", Zoo Outreach Organisation, Conservation Breeding Specialist Group, India, Coimbatore. 142 p.

Molur, S., P.O. Nameer and S. Walker (eds.) (1998). Report of the Workshop "Conservation Assessment and Management Plan for Mammals of India" (BCPP-Endangered Species Project), Zoo Outreach Organisation, Conservation Breeding Specialist Group, India, Coimbatore, India. 176 p.

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Rao, T.A., S. Molur and S. Walker (eds.) (1998). Report of the Workshop "Conservation Assessment and Management Plan for Mangroves of India" (BCPP-Endangered Species Project), Zoo Outreach Organisation, Conservation Breeding Specialist Group, India, Coimbatore, India. 106 p.

Molur, S., and S. Walker (eds.) (1998). Report of the Workshop "Conservation Assessment and Management Plan for Freshwater Fishes of India", Zoo Outreach Organisation, Conservation Breeding Specialist Group, India, Coimbatore, India. 156 p.

Molur, S. and S. Walker (Editors) (1998). Conservation Assessment and Management Plan Workshop for Non-Timber Forest Products of Madhya Pradesh. Indian Institute of Forest Management, Bhopal, Madhya Pradesh, 100pp.

de Silva, A., S. Molur and S. Walker (Editors) (2000). CAMP Report for Amphibians and selected taxa of Reptiles of Sri Lanka. Conservation Breeding Specialist Group, Sri Lanka, 212pp.

Kumar, C.S., B.V. Shetty, S.S.R. Bennet, T.A. Rao, S. Molur and S. Walker (Editors) (2001). CAMP Workshop Report for Endemic Orchids of the Western Ghats. WILD,

CBSG India and Zoo Outreach Organisation, Coimbatore, India, 195pp.

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Molur, S., G. Marimuthu, C. Srinivasulu, S. Mistry, A.M. Hutson, P.J.J. Bates, S. Walker, K. Padma Priya and A.R. Binu Priya (Editors) (2002). Status of South Asian Chiroptera: Conservation Assessment and Management Plan (C.A.M.P.) Workshop Report, 2002. Zoo Outreach Organisation, CBSG South Asia and Wild, Coimbatore, India, vii+141pp+CD-Rom.

Molur, S., D. Brandon-Jones, W. Dittus, A. Eudey, A. Kumar, M. Singh, M.M. Feeroz, M. Chalise, P. Priya and S. Walker (2003). Status of South Asian Primates: Conservation Assessment and Management Plan (C.A.M.P.) Workshop Report, 2003. Zoo Outreach Organisation/ CBSG South Asia, Coimbatore, India, vii+1432pp.

Molur, S., C. Srinivasulu, B. Srinivasulu, S. Walker, P.O. Nameer and L. Ravikumar (2005). Status of South Asian Non-volat Small Mammals: Conservation Assessment and Management Plan (C.A.M.P.) Workshop Report. Zoo Outreach Organisation / CBSG- South Asia, Coimbatore, India, 618pp.

ZOO (in prep). A Conservation Assessment and Management Plan (C.A.M.P.) Workshop for the Mammals of Pakistan assessed a total 199 species of mammals (with 7 sub-species) occurring in Pakistan using the 2001 version of the IUCN Red List Criteria, held in Islamabad, 18-22 August 2003

ZOO (in prep). A Conservation Assessment and Management Plan (C.A.M.P.) Workshop for the Freshwater Biodiversity of Pakistan assessed a total 298 species using the 2001 version of the IUCN Red List Criteria, held in Islamabad, 13-17 December, 2004.

ZOO (In prep). A Conservation Assessment and Management Plan (C.A.M.P.) Workshop for the Amphibians of South Asia assessed a total 348 species using the 2001 version of the IUCN Red List Criteria, held in Coimbatore, 1-5 July 2002

Indian False Vampire Bat
(*Myotis myotis*)



Common Otter
(*Lutra lutra*)

List of Invitees for CBSG RSG meeting

Gujarat

Shri Pradeep Khanna, I.F. S.
Chief Wildlife Warden
Ghandinagar

Shri Z.A. Sacha,
Dy. Municipal Commissioner
Ahmedabad Municipal Corp

Dr. R. K. Sahu, Director
Kamla Nehru Zoo
Ahmedabad

Shri C.N. Pandey I.F.S
Director, Indroda Nature
Park GEER Foundation
Sector- 9 Gandhinagar

Shri D.K. Sharma I.F.S
Conservator of Forests
Wildlife Crime Cell,
Gandhinagar

Shri N.V. Kataria I.F.S
Conservator of Forests
Gandhinagar

Shri Bharat Pathak, I.F.S
Conservator of Forests
Wildlife Circle Junagadh,
Sardar Baug, Junagadh

Shri M.M. Sharma, I.F.S
Conservator of Forests
Junagadh Circle, Junagadh

Shri G. Yadaiya, I.F.S
Conservator of Forests
Wildlife, Kothi Annex,
Baroda

Shri Kabulchanel, I.F.S
Conservator of Forests
Valsad

Shri Jagdish Prasad, I.F.S
Conservator of Forests
Kothi Annexi, Baroda

Shri B.V. Vaghela, I.F.S
Deputy Conservator of
Forests, South Dang

Shri S.P. Jani, I.F.S
Deputy Conservator of
Forests, Godhra

Shri Manishwar Raja, I.F.S
Deputy Conservator of
Forests, Sasan

Shri M.M. Bhalod
Deputy Conservator of
Forests, Porbandar

Kishore Kotecha, Exec Dir
WL Conservation Trust
Phulchhab Chowk, Rajkot

Mr. Kartik Shastri
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Panchvati, Elisbridge
Ahmedabad

Mr. Kiran Desai, Director
Sundervan Nature Discovery
Centre, Jodhpur Tekra,
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Shri Ruchi Dave
Bird Conservation Society
36, Gujarat Housing Board
Mehuva

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Junagadh

Dr. Bhuva
V.O. Sakkarbaug Zoo
Junagadh

Dr. Vadher
V.O. Jasadhar (Gir)
Junagadh

Host/Helpers Kamla Nehru Zoo

Mr. Bharath Sinh
Mr. Bharath Marata
Dr. N.K. Savtariya
Dr. J.B. Kacha

Bangladesh

Md. Abdur Razzaque Mia
Retd. DG, Dhaka

Md. Mongur Morshed
Chowdhury, Curator,
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Note: If you have the email of these persons please pass it on.

How to join CBSG, South Asia

CBSG, South Asia is open to anyone with a genuine interest in conservation of flora, fauna and fungi, and/or skills and information which might be useful in conducting CBSG process workshop. Naturally we can't know who is sincere so we accept everyone. That being the case, we also don't offer any benefits except the fact of membership UNLESS you make yourself extremely useful, work for free, never let us down, and try to

act according to the

Three C's of Conservation

Communication

Cooperation

Coordination

and act to avoid the

Three E's of Extinction

Ego

Envy

Elitism



**CBSG
South
Asia
Network**

If you are still interested, send us an email (no no snail mails accepted for this - to be a member you have to have an email address:) to pravin@zooreach.org with a copy to sallywalker@aol.com.

Central Zoo Authority -- International Cooperation



The Central Zoo Authority is conducting a groundbreaking international meeting, calling zoo director, curators and species coordinators from around the world to cooperate with India's breeding programme for a designated list of threatened species.

At CBSG SSC IUCN Annual Meeting Dr. Brij Raj objectives, initiatives and strategy, Dr. Sharma quoted from a position paper that "Indian Zoos have to have at least 100 properly and scientifically bred and physically, genetically and behaviourally healthy individuals of each endangered wild animal species in captivity to act as insurance cover in case of population loss of the species in the wild. He went on to describe the three objectives for Indian zoos breeding programmes

- i. having proper captive stocks to continue display, ii. have properly bred animals to act as insurance and for reintroduction or release in the wild in case needed
- iii. form very base of planned coordinated conservation breeding programme in Indian Zoos. d

A strategy has been approved for carrying out a detailed plan. Help of the national/ international organizations, institutions, NGOs and related bodies is being sought to make the programme successful. WAZA and CBSG are requested to become engaged in the activity. The meeting will take place end February and is by invitation only.

CBSG South Asia

Regional Network *Newsletter*

CBSG, South Asia is a regional network of the IUCN SSC Conservation Breeding Specialist Group whose main office is located in Minneapolis, Minnesota, USA. The CBSG regional and national network initiative originated in India with CBSG, India started by Zoo Outreach Organisation with the kind permission of Dr. U.S. Seal, late Chairman of CBSG. Today CBSG, India has been amalgamated into CBSG, South Asia which covers all the South Asian countries. There are many national and regional networks -- Indonesia, MesoAmerica, Mexico, Southern Africa, Japan, Europe, Brazil -- all working for conservation action in their own way and at their own pace.

CBSG, South Asia is funded by Global Conservation Network (GCN), USA and the Chester Zoological Gardens, UK. CBSG, South Asia projects get funding from a wide variety of zoos and conservation organisations throughout the world. This newsletter and meeting have been covered by funds from Chester Zoo and CBSG.

CBSG Newsletter is published occasionally but news of CBSG South Asia can be found throughout ZOO'S' PRINT magazine. This issue has been published on the occasion of the Annual Joint Meeting of CBSG, South Asia and RSG South and East Asia held in GEER Foundation, Gandhinagar, Gujarat, India and the Annual Conference of the South Asian Zoo Association for Regional Cooperation SAZARC. Jan-Feb 2008
Sally Walker, Editor and Convenor, CBSG, South Asia