Groundbreaking International Conference on "India's Conservation Breeding Initiative"

Proceedings authored and compiled by Dr. B.R.Sharma, Member Secretary, Central Zoo Authority, CZA Staff, and the Resource Persons and Participants. Summarised by editors ZOOS' PRINT.

This ground breaking and long awaited gathering was organised by the Central Zoo Authority, the Statutory body under the Ministry of Environment & Forests, Government of India.

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The Central Zoo Authority would like to thank all the speakers and participants in making this publication a rich source of information.

Summary of Overview, Dr. B.R. Sharma

India is among the 12 mega biodiversity countries of the world. Due to degradation of habitat from expansion in agriculture and human settlements and poaching, status of wild populations in the field is on the decline and many species are on the verge of extinction in many parts of the country. Zoos in India are regulated as per the Recognition of Zoo Rules, 1992 under the provisions of the Wild Life (Protection) Act, 1972 and are guided by the National Zoo Policy, 1998. CZA was established by GOI in 1992 to oversee the functioning of Indian Zoos in the country and help them to the desired level of management. There are 180 recognized Zoos in India of which 62 are major Zoos. The Central Zoo Authority has been instrumental in physical closing of 260 wild animal facilities which were unwisely created and poorly managed. CZAs primary objective under the National Zoo Policy, 1998 is to strengthen the national efforts in conservation of rich biodiversity of the country, particularly the wild fauna, which can be achieved by supporting the conservation of endangered wild animal species by giving species which have no chance of survival in wild, a last chance through coordinated breeding under *ex-situ* conditions and raise stocks for rehabilitating them in wild, as and when it is appropriate and desirable.

It has been decided in the Central Zoo Authority that the Indian zoos must have at least 100 with a target of 250 in captivity in world of which 100 must be in India. The animals should be physically, genetically and behaviourally healthy individuals of each threatened wildlife taxon with less than sufficient individuals left in the wild. Species with localized distribution get preference. Captive stock to continue display, act as insurance against exigencies and for reintroduction/ release in wild to form very base of conservation breeding programme in India.

The *ex-situ* conservation breeding of endangered species in India is a joint venture of *in-situ* and *ex-situ* wildlife managers. It is a need based activity. Two to four zoos in the habitat range of the targeted species take part in the breeding programme, whereas, the breeding facilities in the form of off-display conservation breeding centres are created only in one (coordinating zoos) to two zoos of the region. Other zoos in addition to the coordinating and participating Zoos continue to display the species in naturalistic enclosures. Possibility of identifying around 25 founders is assessed from existing captive population in Indian Zoos. Efforts are to be made to acquire suitable founders from rescue centres, foreign zoos and even from wild to initiate the programme or to induce new blood in the existing captive populations. CZA is providing funds for creation of off-display Conservation Breedng Centres (CBC) and engagement of technical manpower for preparation of Conservation Breeding Management Plan (CBMP) for each identified species in coordinating Zoos.

The Wildlife Institute of India has been entrusted the work of preparation and updating the national studbooks/ herd books of all the targeted species including marking and preparing animal history cards of all the participating individuals. A National Referral Centre has been established at Indian Veterinary Research Institute, Bareilly to provide super speciality services and diagnostic facilities to the Zoos for physical health check-up and health care of the animals. A Laboratory for Conservation of Endangered Species (LaCONES) for biotechnological interventions has been established at Hyderabad for doing genetic fingerprinting of the founders and others. World Association of Zoos & Aquariums/ Conservation Breeding Specialist Group (CBSG)/ SSC/ IUCN have also been requested to be engaged and support the activity. All the major Zoos in India are joining ISIS/ ZIMS. 63 different critically endangered wild animal species have been identified for adoption under coordinated planned conservation breeding programme in India.

The Central Zoo Authority received tremendous response from the world zoo community as 98 participants from countries like Australia, USA, UK, Czech Republic, United Arab Emirates, Finland, France, Germany, Holland, Hungary, Japan, Russia, Sri Lanka, Sweden, Switzerland, Thailand and of course from India attended the conference.Except the resource persons, rest of the international participants attended the conference at their own expenses. The local hospitality was provided by the Central Zoo Authority.

Presence of the Minister of State for Environment & Forests (Forests & Wildlife)/ Chairman, Central Zoo Authority; Director General of Forests, Ministry of Environment & Forests, Government of India during the Inaugural Session and the Secretary, Ministry of Environment & Forests, Government of India and Director General of Forests, Ministry of Environment & Forests, Government of India in the Closing Session explains the importance Government of India assigns to the conservation breeding programme and presence of Dr. Robert C Lacy, Chairman, CBSG and Prof. Gordon Reid, President, World Association of Zoos & Aquariums along with 43 participants from abroad all through Conference measures of the interest of the world zoo community into the programme/ conference.

The programme was based on a **"Concept paper on *In-situ ex-situ* linkage -Conservation Breeding of Endangered Wild Animal Species in India"** by Dr. B.R. SharmaMember Secretary, Central Zoo Authority which was well distributed and delivered at different fora including WAZA and CBSG. It is available on the CZA website and was reprinted in ZOOS' PRINT, Vol XXII, Issue 12, pages 5-8 accessible on the website www.zoosprint.org The sequence of steps to be taken up under the planned coordinated Conservation Breeding Programme of critically endangered wild animal species in India is:

1. Identification of species.
2. Approximate number of animals of the species in the wild.
3. Number of animals of the species in captivity in Indian Zoos.
4. Identification of coordinating Zoos.
5. Identification of participating Zoos.
6. Existence of animal enclosures in coordinating, participating and other Zoos.
7. Existence/ creation of off-display enclosure for conservation breeding in coordinating Zoo.
8. Identification of founders.
9. Marking of founders (transponders, ear tags or rings).
10. Preparation of animal history cards of the identified founders by the Zoos.
11. Compilation of Studbook by the National Studbook Keeper, (Wildlife Institute of India, Dehradun/ co-ordinating zoos).
12. Liaison with the International Studbook Keeper of the species (if any).
13. Possibility of acquiring the founders from foreign Zoos (if required) and details of the Zoos from where founders can be acquired.
14. Physical health check-up of the founders using the veterinary hospital in the Zoo as well as National Referral Centre (Indian Veterinary Research Institute, Bareilly).
15. Genetic health check-up of the founders using blood samples or body parts with help from LaCONES, Hyderabad.
16. Engagement of Technical Personnel in the coordinating Zoo.
17. Preparation of conservation breeding management plan of the species.

The creation of appropriate housing facility in the form of off-display conservation breeding centre/ satellite facility along with the project office in the coordinating Zoos will be funded by the Central Zoo Authority on 100% basis. The maintenance of the conservation breeding facility will be the sole responsibility of the Zoo Operators/ State Governments.

More than 90% of the recognized Zoos in the country are operated or controlled by the State Forest/ Wildlife Departments.These are also managing the in-situ facilities that make the coordination between the in-situ and ex-situ wildlife conservation activities much easier.

Help of the national/ international organization, institutions, NGOs and related bodies will also be sought to make the programme successful. World Association of Zoos & Aquariums (WAZA) will also be requested to support the activity as part of Global Species Management Programme (GSMP). Conservation Breeding Specialist Group of SSC-IUCN will also be engaged in the activity. The wild animals bred as part of the coordinated conservation breeding activity, will occasionally be released in the identified habitats following IUCN guidelines for the purpose involving Reintroduction Specialized Group of SSC-IUCN. The main purpose of this is to have hands on experience and develop the mechanism for such operations, so that the same can be used in case of exigencies in formal release operations, Zoos may have to conduct in future.

Present stock of wild animals of the commoner species from unplanned breeding of unknown lineage or prolific breeding species in Indian Zoos again of doubtful lineage will be phased out and replaced by the individuals of the desirable species bred and kept in more planned and scientific ways, which are physically, genetically, behaviourally healthy and can be used as future insurance for the cases of exigencies. The conservation breeding programme is not necessarily to breed the animals of the targetted species for reintroduction in the wild straight only but to have proper stock for display in the Zoos and to have the right animals as an insurance for exigencies and for experimental release in the wild.

List of the identified endangered wild animal species to be taken up for the planned coordinated Conservation Breeding giving details of the coordinating Zoos, participating Zoos and the number of animals of the species in captivity in India

Name of the Species		Coordinating Zoo	Participating Zoos	# capt.
1.	Asiatic lion (*Panthera leo*)	Junagarh	Hyderabad, Bhopal, New Delhi, Rajkot	80
2.	Bengal tiger (*Panthera tigris*)	Bhopal	New Delhi Hyderabad, Bhubaneswar, Chhatbir, Chennai	255
3.	Snow leopard (*Panthera uncia*)	Darjeeling	Leh, Kufri, Nainital, Gangtok	18
4.	Clouded leopard (*Panthera nebulosa*)	Sepahijala	Guwahati	14
5.	Asiatic cheetah (*Acinonyx jubatus venaticus*)	Junaga rh	--	--
6.	Golden cat (*Catopuma temmincki*)	Guwahati		3
7.	Tibetan wolf (*Canis lupus laniger*)	Darjeeling	Gangtok, Nainital, Kufri	21
8.	Grey wolf (*Canis lupus*)	Junagarh		
9.	Wild dog (*Cuon alpinus*)	Visakhapatnam	Chennai	30
10.	Brown bear (*Ursus arctos*)	Kufri	Leh	2
11.	Sun bear (*Helarctos malayanus*)	Aizawl	Guwahati	2
12.	Red panda (*Ailurus fulgens*)	Darjeeling	Gangtok, Yachuli	18
13.	Binturong (*Arctictis binturong*)	Sepahijala	Guwahati, Aizawl	13
14.	Smooth coated otter (*Lutrogale perspicillata*)	Ahmedabad		
15.	Malabar giant squirrel (*Ratufa indica*)	Pilikula	Chennai, Pune	
16.	Pangolin (*Lepus nigricollis*)	Bhubaneswar	--	8
17.	Lion tailed monkey (*Macaca silenus*)	Chennai	Mysore, Trivandrum	60
18.	Pig-tailed monkey (*Macaca nemestrina*)	Sepahijala	Guwahati	18
19.	Stump tailed monkey (*Macaca radiate*)	Aizawl	Guwahati	51
20.	Phayre's leaf monkey (*Trachypithecus phayrei*)	Sepahijala	--	14
21.	Crab eating monkey (*Macaca fascicularis*)	Chidiyatapu (Port Blair)	--	12
22.	Nilgiri langur (*Semnopithecus johnii*)	Chennai	Mysore	27
23.	Golden langur (*Trachypithecus geei*)	Guwahati	Island near Guwahati	14
24.	Capped langur (*Trachypithecus pileatus*)	Rangapahar	--	6
25.	Hoolock gibbon (*Hoolock leuconedys*)	Itanagar	Aizawl, Guwahati, Sepahijala	11
26.	1ndian One-horned Rhinoceros (*Rhinoceros unicornis*)	Guwahati	Patna, New Delhi, Kanpur	36
27.	Indian bison (*Bos gaurus*)	Mysore	Chennai, Bondla	37
28.	Wild ass (*Equus hemionus khur*)	Junagarh	--	11
29.	Himalayan tahr (*Hemitragus jemlahicus*)	Gangtok	Darjeeling, Kufri, Chopta	3
30.	Nilgiri tahr (*Nilgiritragus hylocrius*)	Ooty	--	1
31.	Markhor (*Capra falconeri*)	Pehalgaon	--	-
32.	Blue sheep (*Pseudois nayaur*)	Gangtok	Darjeeling	-
33.	Serow (*Nemorhaedus sumatraensis*)	Guwahati	Manipur	6
34.	Swamp deer (*Cervus duvauceli*)	Kanpur	Jaldapara WLS	115
35.	Thamin deer (*Cervus eldii*)	Manipur	Guwahati, Kolkata, New Delhi	177
36.	Mouse deer (*Tragulus meminna*)	Hyderabad	Bhubaneswar	13
37.	Musk deer (*Moschus chrysogaster*)	Chopta	Gulmarg, Gangtok, Kufri	11
38.	Hangul (*Cervus elaphus hanglu*)	Shikargah	--	1
39.	Chiru (*Pantholops hodgsonii*)	Leh	--	2
40.	Pygmy hog (*Sus salvanius*)	Basistha	Guwahati	112
41.	Himalayan monal (*Lophophorus impejanus*)	Manali	Darjeeling, Gangtok	23
42.	Blood pheasant (*Ithaginis cruentus*)	Gangtok	Darjeeling	--
43.	Cheer pheasant (*Catreus wallichi*)	Chail	Almora	48
44.	Hume's pheasant (*Syrmaticus humiae humaie*)	Aizawl	--	4
45.	Grey Peacock pheasant (*Polyplectron bicalcaratum*)	Guwahati	Kolkata, Darjeeling	60
46.	Sclater's (mishmi) monal (*Lophophorus sclateri sclateri*)	Yachuli	--	--
47.	Tibetan eared pheasant (*Crossoptilon harmani*)	Yachuli	--	--
48.	Temminck tragopan (*Tragopan temminckii*)	Yachuli	--	--
49.	Blyth's tragopan (*Tragopan blythii*)	Kohima	--	12
50.	Western tragopan (*Tragopan melanocephalus*)	Sarahan	--	8
51.	Styr tragopan (*Tragopan satyra*)	Darjeeling	Gangtok	2
52.	Grey jungle fowl (*Gallus sonnerati*)	Tirupati	--	33
53.	Red jungle fowl (*Gallus gallus gallus*)	Morni	Chail, New Delhi, Aizawl	209
54.	Malabar grey hornbill (*Ocyceros griseus*)	Kodanadu (Kerala)	Hyderabad	
55.	Malabar pied hornbill (*Anthracoceros coronatus*)	Kodanadu (Kerala)	Hyderabad	
56.	Vultures (White backed Vulture, Himalayan Griffon Vulture, etc.)	Pinjore	Hyderabad, Bhopal, Junagarh, Bhubaneswar, Rajabhatkhawa, Guwahati	93
57.	Falcons (Eagles, Hobbies, Kestral, Harrier, accipiter, etc.)	Chhatbir	Jaipur	3
58.	Bustards (Great Indian bustard, Lesser florican, Bengal florican, Hubara bustard)	--	--	1
59.	Nicobar pigeon (*Caloenas nicobarica*)	Chidiyatapu, Port Blair	Ahmedabad, Kolkata	42
60.	King cobra (*Ophiophagus Hannah*)	Pilikula	Bangalore, Mammalapuram	35
61.	Water monitor (*Varanus salvator*)	Chidiyatapu, Port Blair	Mammalapuram	40
62.	Painted roof turtle (*Kachuga kachuga*)	Kukrail	Mammalapuram	2
63.	Himalayan salamander (*Tyletotriton verrucosus*)	Darjeeling	--	

Programme Summary - International Conference on"India's Conservation Breeding Initiative"21st to 24th February, 2008, New Delhi (India)

20th February, 2008 (Wednesday)
(i) Indian Zoo Directors' Meeting with Member Secty,
(ii) Subject ZIMS – Dr. Brij Kishor Gupta

21st February, 2008 (Thursday)
Registration (Indian Zoo Directors)
• *In-situ* & *ex-situ* linkage- Wildlife Conservation in India Dr. R. B. Lal, IGF (WL) & Director, Wildlife Preservation, Govt. of India
• Zoos in India – legislation, regulations, policy & guidelines Dr. B. R. Sharma,CZA
• LaCONES and biotechnological interventions in Conservation Breeding of wild animals Dr. S. Shivaji, Deputy Director, CCMB; In–Charge, LaCONES, Hyderabad
• National Referral Centre and Physical Health Check-up/ care of wild animals in Indian Zoos Dr. D. Swarup, Coordinator, NRC/IVRI

Session I - Environmental Enrichment
• The history, philosophy and concept of environmental enrichment in Zoos Dr. David John Shepherdson, Conservation Program Scientist, Oregon Zoo, USA
• Environment of environmental enrichment Ms.Valarie Hare,Associate Editor,The shape of Enrichment Inc. USA
• Enrichment Planning Ms.Valarie Hare, Associate Editor,The Shape of Enrichment Inc.
• A Scientific evaluation of Environmental enrichment Dr. David Shepherdson, Conservation Program Scientist, Oregon Zoo, USA

22nd February, 2008 (Friday)
Session II - Record Keeping
• Managing Zoos using Modern record keeping systems Dr. Nate Flesness, Executive Director, International Species Information Systems (ISIS), Minnesota, USA
• National Stud/ Herd Book of identified Wild animals species in India Sh. B.C. Choudhary, Director,Wildlife Institute of India, Dehradun
• Use of Zoological Information Management System (ZIMS) in Indian Zoos Dr. Nate Flesness, Executive Director, ISIS
• Discussion on Indian Zoo's joining of ZIMS Dr. Nate Flesness, Executive Director, ISIS
• Session III - Small Population Management
• Conservation Breeding – Challenges and Protocols Dr. Robert C Lacy, Chairman, Conservation Breeding Specialist Group (SSC/ IUCN), USA
• Managing populations for Conservation Breeding Dr. Jon D Ballou, Research Scientist, Smithsonian's National Zoological Park,Washington DC, USA
• Discussion and Recommendation
• Dinner hosted by the Hon'ble Minister of State for Environment & Forests & Chairman, CZA

23rd February, 2008 (Saturday)
Registration (all participants)
Inauguration

Technical Session - I
• Chairman: Sh. S. C. Sharma)
• Conservation Breeding – India's initiative Dr. B. R. Sharma, Member Secretary, CZA
• World perspective of conservation breeding of wild animal species of Indian Sub-Continent Dr. Gordon McGregor Reid, President,WAZA & Chester Zoo, UK

Technical Session II
(Chairman: Dr. Gordon Reid)
• Need for Global co-operation in management of small populations in Zoo for wildlife conservation Dr. Jon Ballou Research Scientist, Smithsonian's National Zoological Park,Washington DC, USA

Working groups formation and introduction to the topics
Ms. Sally Walker, Zoo Outreach Organization (India) (Facilitator)
Working groups:
i. Conservation Breeding of Carnivore——Naim Akhtar
ii. Conservation Breeding of Herbivore——Kartick Satyanarayan
iii. Conservation Breeding of Primates Omnivores—Brij Kishor Gupta
iv. Conservation Breeding of Birds——Vibhu Prakash
v. Conservation Breeding of Reptiles & Amphibians———B. C. Choudhary

Working Group – I [Herbivores] Coordinator: S. C. Sharma, Presenter: Kartick Satyanarayan, Recorder: Manoj Kumar . Species to be undertaken: Nilgiri tahr, Rhinoceros, Himalayan tahr, Gaur, Markhor , Wild ass, Blue sheep, Serow

Working Group – II [Carnivores] Coordinator: S. K. Patnaik, Presenter: Naim Akthar, Recorder: Sunita Pradhan. Species to be undertaken: Asiatic lion, Snow leopard,Bengal tiger, Clouded leopard, Asiatic Cheetah

Working Group – III [Primates/Bears Coordinator:A. K. Sinha, Presenter: Brij Kishor Gupta, Recorder: Ravi Kumar Singh. Species to be undertaken: Lion tailed macaque Nilgiri langur ,Pig tailed macaque, Golden langur, Stump tailed macaque, Capped langur

Working Group – IV [Birds] Coordinator: Vinod Rishi, Presenter:Vibhu Prakash, Recorder:Anupam Srivastav. Species to be undertaken: Western tragopan, Nicobar pigeon, Blyth's tragopan, Malabar grey, hornbill Temminck, tragopan, Malabar pied hornbill, Satyr tragopan

Working Group–V [Reptiles/Amphibians/Birds of Prey]
Coordinator: B.Vijayaraghavan, Presenter: B. C. Choudhary, Recorder: Kartick Vasudevan. Species to be undertaken: Himalayan salamander, Vultures (White backed, Slender billed, Long billed vultures), Nyctibatrachus species , Falcons (Eagles, Kestrels, Harriers, Accipiters etc), Other species of frogs.

24th February, 2008 (Sunday)

• TechnicalSession–III (Chairman: Ms.SallyWalker)

• Conservation breeding scenario of wild animal species of Indian Sub-Continent and possibilities, Sh. S. K. Patnaik Principal Chief Conservator of Forests

• Conservation Breeding- Global Overview, Dr. Robert C Lacy, Chair IUCN/SSC Conse

Working Group Discussions

WorkingGroup–I [Herbivores]. Coordinator: S. C. Sharma, Presenter: Kartick Satyanarayan, Recorder: Manoj , Species to be undertaken: Swamp deer, Pigmy hog, Thamin deer, Hangul, Mouse deer, ChiruMusk deer, Malabar giant squirrel

Working Group – II [Carnivores]. Coordinator: S. K. Patnaik, Presenter : Naim Akthar, Recorder: Sunita Pradhan, Species to be undertaken: Golden cat Binturong Tibetan wolf Pangolin Wild dog Malabar giant squirrel

Working Group – III [Primates/Bears].

Coordinator:A.K. Sinha Presenter: Brij Kishor Gupta Recorder: Ravi Kumar Singh, Species to be undertaken: Hoolock gibbon, Brown bear, Phayre's leaf monkey, Sun bear , Crab eating monkey, Red panda

Working Group – IV [Birds]. Coordinator: Vinod Rishi, Presenter:Vibhu Prakash, Recorder:Anupam Srivastav , Species to be undertaken: Western tragopan, Nicobar pigeon, Blyth's tragopan, Malabar grey hornbill, Temminck tragopan, Malabar pied hornbill ,Satyr tragopan

Working Group–V [Reptiles/Amphibians/Birds of Prey] Coordinator: B.Vijayaraghavan, Presenter: B. C. Choudhary, Recorder: Kartick Vasudevan. Species to be undertaken: Himalayan salamander, Vultures (White backed, Slender billed, Long billed vultures) Nyctibatrachus species, Falcons (Eagles, Kestrels, Harriers, Accipiters etc), Other spps of frogs

Discussion on individual species of interest by working sub-groups

Closing Session (Chairman: Ms. Meena Gupta)

Working group presentations, discussion & recommendations Sh. P. R. Mohanty Dr. Robert Lacy, Dr. Gorden Reid, Sh. S. C.Sharma, Sh. S. K. Patnaik, Ms. Sally Walker & Dr. B. R. Shrama on the dais

Farewell Dinner

Training Sessions 1

In-situ-ex-situ linkage-Wildlife conservation in India Dr. R.B. Lal, IGF (WL) & Director Wildlife Preservation, Ministry of Environment & Forests.

Zoos in India-legislation, regulations, policy and guidelines

Dr. Brij Raj Sharma, Member Secretary, CZA

Laboratory for Conservation of Endangered Species

(LaCONES) and Biotechnological interventions in conservation breeding of wild animals

Dr. S. Shiwaji, Deputy Director, Centre for Cellular and Molecular Biology and In-Charge Laboratory for Conservation of Endangered Species (LaCONES), Hyderabad (A.P) National Referral Centre and

Physical health check-up/care of wild animals in Indian zoos

Dr. D. Swarup, Principal Scientist, Indian Veterinary Research Institute and Coordinator, National Referral Centre (NRC), Bareilly, (UP)

Training Sessions II

Environmental enrichment; History, philosophy and concepts-Dr. David Shepherdson, Oregon Zoo, USA

The environment of environmental enrichment- Ms. Valerie Hare, The Shape of Enrichment. Inc., USA

Environmental planning- Ms. Valerie Hare, The Shape of Enrichment. Inc., USA

A scientific evaluations of environmental enrichment: An effective tool for reducing stereotypic behaviour- Dr.David Shepherdson, Oregon Zoo, USA

Training Sessions III

Modern animal records keeping for zoos- Dr. Nate Flesness, Executive Director, ISIS/ZIMS

National studbook (Herdbook) of identified wild animal species in India- Shri B.C. Choudhary, Wildlife Institute of India

Use of Zoological Information Management System (ZIMS) in Indian Zoos- Dr. Nate Flesness, Executive Director, ISIS/ZIMS

Indian zoos joining ISIS/ZIMS Dr. Nate Flesness, Executive Director, ISIS/ZIMS and Dr. B.R. Sharma, Member Secretary, CZA

Training Sessions IV

• Conservation breeding-Challenges and Protocols- Dr. Robert C Lacy, Chairman, Conservation Breeding Specialist Group of SSC, IUCN

• Managing populations for conservations breeding- Dr. Jonathan D Ballou, Smithsonian's National Zoological Park Washington, USA

Conference Sessions

• Conservation breeding- India's Initiative- Dr. Brij Raj Sharma, IFS, Member Secretary, CZA (India)

• Zoo conservation in the Indian context- Professor, Gordon McGregor Reid, President, WAZA

• Conservation breeding scenario of wild animal species in India and possibilities- Shri S.K Patnaik, IFS Adl. Principal Chief Conservator of Forests & Chief Wildlife Warden (Retd.), Orissa,

• India Conservation breeding-A Global view- Dr. Robert C Lacy, Chairman, Conservation Breeding Specialist Group

• Global cooperation in captive breeding- Dr. Jonathan D Ballou, Smithsonian's National Zoological park, Washington, USA

Working Group Sessions

• Working Group Formation and Introduction to the Topics- Ms. Sally Walker

• Conservation Breeding of Carnivores- Dr. Naim Akhtar

• Conservation Breeding of Herbivores- Mr. Kartick Satyanarayana

• Conservation breeding of Omnivores (Primates & bears)- Dr. Brij Kishor Gupta

• Conservation breeding of Birds- Dr. Vibhu PrakashConservation breeding of Reptiles and Amphibians- Mr. B. C. Choudhary

General recommendations from the International Conference on India's Conservations Breeding Initiative held during 21st to 24th February, 2008

The issues related to initiation of conservation breeding of critically endangered wild animal species of Indian subcontinent were deliberated during the Conference. After series of technical sessions and working group discussions, following recommendations are made for consideration of Government of India, Central Zoo Authority, WAZA, CBSG, other related organizations/ agencies, zoos in India and abroad :

I. All the identified coordinating zoos in India shall select the sites for creation of off-display conservation breeding centres (CBC) in the zoo premises or as satellite facilities. The proper designs for animal enclosures need to be prepared and submitted to the Central Zoo Authority for approval. Help of the experts may need to be taken in selection of sites for conservation breeding centres and preparation of designs of the animal enclosures. The Central Zoo Authority will provide funds on 100% basis for construction of the above conservation breeding centres including the project offices.

All the participating zoos also need to initiate proposals for creation of proper display animal enclosures for all the identified species in their premises (if not already existing).

The Coordinating and participating zoos shall take all possible steps for proper enrichment in the off display conservation breeding centres (CBC) and display animal enclosures to provide for physical, biological and behavioural needs of the animals, housed/ to be housed in these. Help of national/ international experts, behaviour biologists may have to be taken for the same.
(Action : CZA, Coordinating zoos and participating zoos)

II. All individuals of identified species in Indian zoos need to be marked for identification using ear tags, leg bands or micro-chips. Animal history cards for each identified individual need to be prepared in the given Performa. The Wildlife Institute of India, Dehradun in collaboration with Central Zoo Authority will train and assist the zoos in preparation of animal history cards and compile the National Studbooks of all identified species at least upto the year 2010-2011. The Wildlife Institute of India will also take steps for training and preparing the coordinating zoos to take up the responsibility of preparation and updating of National Studbooks of the concerned species from 2010-2011 onwards.

The responsibility of sharing the details with the International studbook keepers relating to National studbooks of the species will be of Central Zoo Authority, Wildlife Institute of India and Coordinating zoos of the species in the same order, at least upto the year 2011.
(Action : CZA, Wildlife Institute of India and Coordinating Zoos and concerned Zoos)

III. All the major zoos and conservation breeding facilities in India shall join ISIS (International Species Information System) with a view to getting access to its proposed Zoological Information Management System (ZIMS). The process shall be completed as early as possible, but latest by March, 2009. The Central Zoo Authority will pay for all the initial costs as well as membership dues of all these facilities, at least upto the year 2012 (XI Five Year Plan period) from the date of joining of ISIS [ZIMS]. Until ZIMS is formally launched, it is felt that Zoos identified to join ZIMS in India may be provided ISIS software (ARKS & SPARKS etc.) and training for better record keeping.

The use of these software will prepare them better to adopt the ZIMS whenever available.
(Action : ZIMS, CZA and Concerned zoos)

IV. All the coordinating, participating and other zoos have to take steps for immediate complete health check-ups of all the probable founders. Help of the Regional Referral Centres (local veterinary colleges/ hospitals) and the National Referral Centre (NRC) i.e. Indian Veterinary Research Institute (IVRI), Bareilly have to be taken for the health analysis of the identified individuals/ founders.
(Action : CZA, IVRI, Coordinating zoos, Participating and Other zoos)

V. Blood/ bio samples of the individuals, identified as probable founders need to be sent to Laboratory for Conservation of Endangered Species (LaCONES) for genetic fingerprinting to analyse the heterozygosity level (animals of unknown images/ doubtful cases only). This is required to be done to know about the genetic profile of the animals. The LaCONES will analyse the samples on priority basis and report findings to the Central Zoo Authority, Wildlife Institute of India and the concerned zoos as early as possible. The activity is part of the on going project of Central Zoo Authority with LaCONES.
(Action : LaCONES, CZA and Concerned zoos)

VI.(a) There is an urgent need to organize meetings (national co-ordination meeting) of the coordinating and participating zoos in India, preferably in the coordinating zoos to finalize the details of the initiation of the breeding programmes for all the identified species (within 31st March, 2009).
(Action : CZA, WII, Coordinating and participating zoos)
(b) This is also recommended to organize two to three days' workshops (international workshop) for each identified species in the coordinating zoos involving all the participating zoos in India and abroad and identified experts on the species/

conservation breeding from India and abroad (within three years time). (Action : CZA, Coordinating zoos)

VII. The coordinating zoos have to initiate the proposals for engagement of technical personnel/ experts for preparation of conservation breeding management plans (CBMP) for each identified species in India. The process of preparation of CBMP has to be completed within two to three years' time. Central Zoo Authority will fund the activity on 100% basis.
(Action : CZA, Coordinating zoos)

VIII. The Chief Wildlife Wardens of the States/ Union Territories and in-situ wildlife managers shall be asked to take all possible steps for revival of targeted wild animal species in the wild and/ or take all necessary steps to improve the condition of the natural habitats of targeted species/ re-introduction site to make it viable for the long term survival of the species in wild.
(Action : MoEF, Wildlife Wings of States/ UTs, CZA)

IX. The Conservation Breeding Specialist Group (CBSG) of SSC/ IUCN and its regional offices shall be requested to organize workshops/ PHVA's in the coordinating zoos for each identified species. The CBSG's PHVA or similar workshops shall be taken up only when sufficient homework has already been done as part of the preparation of conservation breeding management plan (CBMP) for each identified species in Indian zoos (within five years).
(Action : Coordinating zoos, CZA and CBSG)

X.(a) After organizing the national coordination meetings and international workshops (item VI a+b) for each identified species for initiation of conservation breeding programme, if it is felt that the programme is doing fine, requests may be made to World Association of Zoos & Aquariums (WAZA) to approve and assist the activity as part of the Global Species Management Programme (GSMP).
(Action : Coordinating zoos, CZA, WAZA)
(b) Indian Zoos Association (IZA) shall apply for the membership of the World Association of Zoos & Aquariums [WAZA]. The Central Zoo Authority shall consider to sponsor the membership of IZA to WAZA at least up to at least XI Five Year plan period.
(Action : IZA, CZA, WAZA)

XI.(a) For making the conservation breeding programme successful, the concerned zoo personnel, veterinarians and biologists may have to visit the natural habitats of the identified species, and different zoos having expertise of the identified species as part of human resource development activity in India or abroad.
(Action : CZA, Concerned zoos)
(b) There is an immediate need for creation of an Institute of Zoo Sciences in India (Centre for Zoo Science) for proper trainings, human resource development, coordinated research, to act as referral centre and for better coordination among zoos and zoo personnel not only of India but also of all the SAARC countries. This will go in long way in scientific management of zoos in India and whole of South Asia. This will also give a big boost to the conservation breeding programme in the regions.
(Action : MoEF, CZA, NZP, New Delhi)

XII. All exchanges of animals between Indian zoos as well as zoos abroad shall be considered based on the studbook information about the pedigree and expected contribution from the proposed individual animals in the breeding programme. The coordinating zoos, participating zoos in India and participating zoos abroad will get preference in acquisition of animals and in the same order.

Proposals for exchange of animal species between zoos in India and abroad, which are not part of the conservation breeding programmes, may also be considered if such exchanges help directly or indirectly in facilitating the acquisition of required animals of the targeted species for the ongoing conservation breeding programme.

Government of India may also be approached for permission for acquisition of animals from the wild, if it is found that there is no possibility of initiation and continuation of planned breeding of the desired species from the captive stocks and keeping it mind that zoos provide the insurance for the disappearing species that can be reintroduced from the zoo/captive bred specimens.
(Action : CZA, Coordinating zoos, participating zoos in India and abroad)

केन्द्रीय चिड़ियाघर प्राधिकरण
Central Zoo Authority

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