



**ASSOCIATION OF INDIAN ZOO AND WILDLIFE VETERINARIANS**  
M-83, B.D.A. COLONY, TIBRINATH, BAREILLY – 243005, UP (INDIA)

From  
Dr. B.M. Arora, M.V.Sc, PhD, PGD (J&MC)  
President, AIZWV  
Ex principal scientist  
Director, NZP, New Delhi  
M-83, BDA, Tibrinath Complex,  
Bareilly-243005 (UP)

डाक / कोरियर  
दिनांक 12.01.2010

सेवा में,  
मेम्बर सेक्रेट्री  
केन्द्रिय चिडियाघर प्राधिकरण  
बीकानेर हाउस एनेक्सी-vi  
शाहजाह रोड नई दिल्ली- 110011

महोदय,

निवेदन इस प्रकार है कि भारतीय चिडियाघर और वनजीवन पशु वैज्ञानिक संस्था, (AIZ&WV) और केन्द्रिय चिडियाघर प्राधिकरण (CZA) के साथ मिलकर हिन्दी की एक पुस्तक शीषक- भारतीय संकटग्रस्त वनप्राणी- प्रबन्धन एवं संरक्षण (**Indian Endangered Wildlife- Management & Conservation**) का प्रस्ताव अनुमोदन के लिए भेज रहे हैं (प्रस्ताव की एक प्रति संलग्न है)। प्रस्ताव में बाह्य रूप-रेखा, विषय सूची और उद्देश्य का विवरण दिया गया है। अतः आप स अनुरोध है कि इस प्रस्ताव को केन्द्रिय चिडियाघर प्राधिकरण को वर्तमान में होने वाली टेक्नीकल सभा के मुद्दों में सममिलित किया जाये। अगर इस प्रस्ताव के सम्बन्ध में कोई अन्य जानकारी की आवश्यकता होती है तो सूचना होने पर उपलब्ध कराई जायेगी। यदि शीषक के बदलाव में किसी भी प्रकार की आवश्यकता पडती है तो केन्द्रिय चिडियाघर प्राधिकरण अपनी इच्छानुसार बदलाव करने में सक्षम है क्योंकि इसका प्रकाशन सयुक्त रूप से किया जाएगा।

प्रार्थी

(बी0 एम0 अरोरा)  
अध्यक्ष

## Proposal

1. Title: भारतीय संकटग्रस्त वनप्राणी- प्रबन्धन एवं संरक्षण (**Indian Endangered Wildlife- Management & Conservation**)
2. Broad Subject: **Management and Conservation of endangered wildlife**
3. Address (a). **Dr. B.M. Arora, President AIZ&WV Ex Director, NZP, Principal Scientist (Wildlife) IVRI Izatnagar-243122 (UP)**
- b. Residence Address: President Association of Indian Zoo & Wildlife Veterinarians  
M-83-BDA, Tibrinath Complex, Bareilly-243005
- c. Ph No :0581-2541644; 9219419919
- d. E-mail :drbmarora@rediffmail.com
4. University/institute/professional Body where the work is proposed to be undertaken and through which financial assistance for the work is to be channelised.  
Association of Indian Zoo & Wildlife Veterinarians M-83-BDA, Tibrinath Complex, Bareilly-243005
5. Designation of the official to receive the financial grant.  
President Association of Indian Zoo & Wildlife Veterinarians M-83-BDA, Tibrinath Complex, Bareilly-243005
6. Time required for completing the work: **24 months**
7. Brief statement of:
  - i) Definition of the problem: Management & Conservation of Endangered and rare Indian mammalian, avian and reptilian species.
  - ii) Objectives of the Book : (a). To provide comprehensive update information to build scientific and technical manœuvre in management of wildlife  
(b) To facilitate Wildlife Science education in professional institutions engaged in teaching, training and conducting research.
  - (iii) The proposed book **Indian Endangered Wildlife** will be endowed with much of the details on basic of conservation and management of endangered wild mammalian, avian and reptilian species, which include species in in-situ and ex-situ population dynamics, husbandry, biology and various threats and losses impinge upon  
An brief details of the proposed publication:

### **Class Mammalia will include**

- (i) **Artiodactylids:** Barasingha, sangai deer, hangul, chousingha, pigmy hog
- (ii) **Carnivores:** large cats (tiger, leopard, lion), small cats (Leopard cat,

- Wild cat, large civet, bears, red panda.
- (iii) **Non human primates:** Lion tailed macaque, Nilgiri langurs, Hoolock gibbon, slender and slow lorises
- (iv) **Rodents, lagomorph & Pholidota:** Giant squirrel, porcupine, hispid hare, pangolin
- (v) **Perissodactylids:** wild ass species, rhinoceros);
- (v) **Proboscida:** Asian elephant.

**Class Aves will include wild avian species of Orders of Galliformes (pheasant sp.: Chir, tragopans monal) Strigiformes (Owl sp. ), Falconiformes (Vultures- Gyps sp) & others (Hill Myna, sarus crane, adjutant storks, great horn bills).**

**Class Herpatofauna will include : Chelonian sp ( tortoises), crocodilian sp. (crocodile, gavialis), ophidian /serpentine sp.**

8. Review of status of research and development on the subject:

- i). Classification and status  
Schedule 1 & 11 (WPAI) species of Orders : Mammalian, avian and reptilian species
- ii). Species distribution and legal status, distinctive characteristics (Taxonomical and morpho-anatomical attributes), Conservation - population dynamics, eco-husbandry (geographical adaptation, nutrition, breeding biology, major threats, health and disease, etc
- iii). Appendix (Physiological values, procedures, relevant data, etc).

9. Justification:

In the recent past species specialists-biologists, ornithologists, herpatologists, veterinary scientists have visited India on request of Government of India to facilitate specific species conservation programme such as tiger (*Panthera tigris*) habitat management and conservation, crocodile breeding and rehabilitation, rhinoceros (*Rhinoceros unicornis*) rehabilitation, captive breeding of red panda (*Ailurus fulgens*) and pigmy hog (*P. salvanicus*), surveys of pheasants, release of sarus crane, etc. and then after have documented their experiences and recommendations. We have brought out certain publications of our studies on Indian species in English too. They are rich in contents for education, research and guiding policy for perspective management of Indian endangered wild animals. More over for Hindi speaking states, viz., Uttar Pradesh, Uttarakhand, Bihar, Madhya Pradesh, Haryana, Rajasthan, Delhi, Jharkhand, etc where middle supervisory and management staff deployed in ex-situ and in-situ wildlife is educated only in Hindi medium and are not enriched with the basic knowledge of various facets of wildlife management and conservation which is available in English. Therefore it is dire need of the day to have made available consolidated information knowledge on all the facets of wildlife management in Hindi.

Hence, proposed publication is aimed to consolidate and garnered our observations and practical inputs to produce comprehensive account of endangered wildlife species management and their conservation in Hindi. For the purpose text contents will describe endangered wild animal species distribution, status, distinctive characteristics, eco husbandry management, conservation biology, threat crises, health and disease, etc. It will be certainly be baneful to all those raw hand intellectuals entering into services of wildlife management and conservation. Very recently many basic sciences has approved teaching and training programme on Wild Animals at undergraduate levels as mandatory this book will be beneficial for them, since there is no such book in Hindi that gives practical insight of management and conservation on wildlife to Hindi Speaking states of the country

10 Budget Estimate for writing, printing and publication jointly by AIZ&WV&CZA

Budget Estimate under different Heads

	Salaries/Wages	Period	Fund	Total
i)	Honorarium to Principal investigator	24 months	As per rule	As per rule
ii)	Technical/Secretarial assistance (part time)	12 months	Rs 2500 x 12 months	Rs 30,000/=
iii)	Traveling Expenses		Rs 2,00,000/	Rs 2,00,000/
iv)	Contingencies and supplies		Rs 15,000	Rs 15,000/=
v)	Over-head Exp. to Institute		Rs 15,000/	Rs 15,000/=
	Typing and Printing 300 copies		Rs 3,00,000/=	Rs 3,00,000/=
	Total			Rs. 5,60,000/=

Dr. Anil Kumar

Banapur

## Author inputs in brief

## Name:

Dr. B.M. Arora, M.V.Sc, PhD, PGD (J&MC)  
President, AIZWV  
Ex principal scientist  
Director, NZP, New Delhi  
M-83, BDA, Tibrinath Complex,  
Bareilly-243005 (UP)

## 1. Scientific Research:

- (i) Individual tiger identification by body strips pattern analysis using by camera photography at the face of non-availability of transponder.
- (ii) Analyzed studbook records of elephant and rhinoceros and determined age of longevity of the species in captivity.
- (iii) Documented dietary husbandry schedules of wild mammalian species.
- (iv) Studies on breeding biological profiles of mammalian species
- (v) Developed guidelines for restraint, translocation and quarantine of wild mammalian species

## Research projects

	Project No.	Title
3.	Code No. PI 85/70/ IVRI-Zoo/5204/90-01	Studies on breeding, nutrition and disease problems in some species of cervidae vis-a-vis conservation in free and captive environment.
	Principal Investigator Collaborators	B.M. Arora S.N. Kaushik, N.N. Pathak and P.N. Bhat
4.	Code No. PI 85/71/ IVRI-Zoo/6450/90-02	Studies on the management of Cheer pheasant ( <i>Catreus wallichii</i> ) in captivity under propical and temperatae environment.
	Principal Investigator Collaborators	B.M. Arora G.L. Koul, R. Somvanshi and P.N. Bhat
5.	Code No. PI 86/31/ IVRI-Zoo/4100/90-30	Studies on Disease Surveillance & Health Monitoring in Captive and Free Wildlife.
	Principal Investigator Collaborators	B.M. Arora P.N. Kumar, N.S. Parihar, J.K. Varma & A. Prasad
6.	Project (Adhoc short term)	Preliminary nutrition studies on blackbuck ( <i>Antelope cervicapara</i> ) in captivity.
	Project Leader Collaborators	B.M. Arora N.N. Pathak, D.N. Kamra and N. Kawalramani
7.	Project (Adhoc short term)	Nutritional evaluation of feed and fodder in some native wild herbivore species.
	Project Leader Collaborators	B.M. Arora A.K. Garg, A. Sahoo, D.N. Kamara & N.N. Pathak
8.	PI 97-10/2000/IVRI-L-	Epidemiological studies on various causes of infectious and non-

73/5000/04-01	infectious diseases in captive and free mammals and reptiles.
Principal Investigator	B.M. Arora
Collaborators	G.R. Singh, N.S. Parihar, A. Prasad

## 2. Publications –List of publications by BMARORA

SN	Title of Publication	Publisher	FOREWARD
3	Restraint & Translocation in wild mammals, First Edition 2000	Published by CZA, MOE&F, New Delhi	Secretary Min. Of Environment & Forests
4	Dietary Husbandry of Wild Mammalia. First Edition 2001:	Pub.:AI Z & W V and Central Authority, Ministry of Environment and Forests	Director General Environment & Forests. Exhausted. Only Xerox copy
5	Reproduction in Wild Mammalian & Conservation 1 <sup>st</sup> .Ed. 2002 .ISBN:	Published by AI Z & W V	President Veterinary Council of India
6	Indian Wildlife Year Book, Vol. 1, II, III & IV VI & VI, published yearly from, 2000-to 2007	Vol.1 2002 (sponsored by CZA), Rest All published .by AIZ&WV.	Editorial <del>Chitrag 2007</del>
7	Indian Wildlife Diseases and Disorders, ISB: 81-901417-2-4. 1 <sup>st</sup> Edition 2003	Published by AIZ & WV	Vice Chancellor, T.N. University of Animal & Veterinary Sci.
8	Rehabilitation in Free living Wild Animals. Ist Edition, 2007 ISBN: 81-901417-3-2	Published by AI&WV, 2007	Director, Wildlife Institute of India
9	Advances in Zoo & Wild Animals Health & Management	Publishers-Shyam Book Distributors & Vinyak, Publication-House, Jaipur	SKUAST
10	Colour Atlas of Wildlife Diseases& Disorders, 2009	International Distribution Books Co. ( IDBC), Lucknow	Financial supported by DST, Govt of India

## 3. Education & Training

### Seminars/Workshops at National and International level Organized.

- (i) 27-28 April, 2001: Basics of Zoo Animal Management 26-29 April 2001. Sponsored by Central Zoo Authority, Ministry of Environment & Forests, Govt. of India
- (ii) 25-27 April, 2002: Workshop on Management of Rare & Endangered Wild Animals & Neonatal care Sponsored by Central Zoo Authority, Ministry of Environment & Forests
- (iii) 4-5<sup>th</sup> February, 2004: South Asian Workshop on Restraint, Quarantine and

### Translocation of Wild Animals, at Lucknow (UP)

- (iv) 25-26 Oct.2005: National Symposium on Wildlife Health & Husbandry constraints, held jointly by College of Veterinary Science and CZA at Guwahati(Assam).
- (v) 27-28 April, 2007: International Congress on Advances in Management & Disease of Wild Animals held jointly with Faculty of Vet. Sci., of SKUAST, Jammu.
- (vi) 20-21 June, 2008: National Seminar on Advances in Management & Diseases of Wild Animals organized jointly by Veterinary College, KVAFSU, Hebbal, Bangalore with AIZ&VW, Department of Forests & Department of AH& Vet Sci. of Karnataka

**4. Contribution in scientific bodies.** (a) In India Subject matter expert lectures, presentation of research findings, chairing scientific forums, conferences, technical and management committees and Coordination to conduct and organize programmes at National level (Pl. see Annexure 3- Biodata).

**(b) Abroad. Participation and Contribution in International Scientific forums (Pl. see Annexure 3- Biodata):**

- 1991. C.B.S.G./ I.U.C.N on Global and Regional Wildlife Conservation strategies held at Singapore. On behalf of Ministry of Environment and Forests presented policy of endangered species breeding in captivity.
- 2003 : Tuberculosis in Zoo Animals- 3<sup>rd</sup> International Wildlife Management Congress at University of Canterbury, Christchurch, New Zealand, 1-5<sup>th</sup> Dec.2003.
- 2007: Population control in low risk zoo animal species. Presented in poster session of 6<sup>th</sup> International Conference on Fertility control held in Yorkshire, UK.
- 2007: Indian Wildlife Conservation Priorities- 2<sup>nd</sup> International Symposium on Integrated Zoology, Beijing China, 8-10 December, 2007.

### 5. Human Resource development-Education and Training Facilities

- (i) Introduced P.G. diploma course on Zoo and Wild Animal Health Care and Management at IVRI, Izatnagar (UP) w.e.f. Academic Session 1995 of Deemed University IVRI, Izatnagar (UP)
- (ii) Founded Association of Indian Zoo & Wildlife Veterinarians, 1991 Registered in 29th December, 1999.
- (iii) First veterinarian Secretary General (1990-94) of Indian Association Zoo Director, the association was registered on 13th July, 1991.

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(iv) Regular orientation to wildlife management affairs to officers of Indian Forest Service training programs sponsored by Union Ministry of Environment & Forests.

(v) Imparting training and field practical guidance to sponsored Vet. Sci. Officers on the wildlife health and management.

#### **6. Wildlife Management Conservation**

(i). AIZ&WV as well as CZA implored formation of Wildlife Health Board/ Committee in each State of the country. Certain States had constituted wildlife health boards.

(ii) Recommendation made for Establishment of Institute on Wildlife Health- No action taken by MOE&F & ICAR. However, in 2007, Government of Karnataka has established the institute first of its kind in the country

(iii) Envisaged National Coordinated Zoo Animal Health & Disease Diagnosis & Investigation programme and got implemented through Central Zoo Authority-- MoE&F

(iv). In the capacity of president AIZ&WV, Chairman working Meeting held at Guwahati, in 2005 made recommendation to CZA for establishment of National Referral Centre for disease investigation and diagnosis under IVRI.

(v) Recommended, CZA to ensure optimum Zoo Animal health care staff in all the large and medium zoos

(vi) Formulated guidelines for animal exchanges and suggested application of population control in common zoo animal under Zoo Recognition rules.

(vii) Perusing the Ministry of Environment & Forests for regular appointment of at least one Vet officer and Biologist in each National Park & Wildlife Sanctuary.

#### **7. Administrative management Assignments:**

(i) With effect from August, 1984 to August 2002, Officer In-charge/ Head, Centre for Wildlife Conservation, Management and Disease Surveillance IVRI, Izatnagar (UP).

(ii). From 1.4. 1990 to 30.11.1993, Director, National Zoological Park, New Delhi, Ministry of Environment & Forests, Govt. of India.

(iii). Head, Division of Epidemiology, IVRI, Izatnagar, U.P. from Sep. 1995 to 2001.

(iv). Advisor to National Zoological Park, New Delhi, 1981-Feb, 1992

(v) Member, in Elephant Steering Committee, ME&F, New Delhi



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- (vi) Technical Member in CZA, Zoo evaluation committee,2004
- (vii) Permanent invited Member, CZA-Executive Committee
- (vii) Member, IUCN Species Survival Commission (1998-2001) and veterinary specialist Group (2004 to 2009)
- (vii) Member-Advisory Board, Institute of Wildlife Veterinary Research ( IWVR), KVA&FS University.(2009-Cont.)