

# THE ASIAN ELEPHANT

ECOLOGY, BIOLOGY, DISEASES,  
CONSERVATION AND MANAGEMENT



KERALA AGRICULTURAL UNIVERSITY

## **PREFACE**

**T**he elephant has been part of the Indian culture, mythology and ethos from time immemorial. We know of the celestial elephant Airavata. We worship Ganesa, the elephant headed God of Wisdom and the white elephant is so venerated by the Buddhists of South East Asia. Probably the earliest work referring to the elephant is Kautilya's Arthasastra. Historically, one of the most exhaustive writings in elephants is that of Abul-Fazl Allami (1551 - 1602) in his An-Akbari outlining also the management of thousands of elephants in the stables of Akbar the Great. His son Emperor Jahangir is said to have had over 12,000 elephants in the imperial Mughal fighting force. Today elephants have become an integral part of the social scenario of India. They are not only an important component of the ecosystem but also have become part of man's life and are used for a variety of purposes such as for religious and social functions, heavy work, capturing and training of other elephants and in Zoos and Circuses. Scientists of the Kerala Agricultural University have been associated with captive elephants for more than 25 years and have been involved in the study of their physiology, nutrition, management, chemical immobilization and health care. The last decade has also witnessed a surge of activity on the study of wild populations of the Asian Elephant especially elephant ecology, behaviour and migration and their social interaction with man. So it was thought appropriate that at this juncture we discuss at a common forum the rapidly accumulating information to identify the lacunae in our knowledge on the Asian elephant and to suggest future course of action in research and management.

The Symposium was organised in 8 technical sessions (Status and Prospects, Ecology, Biology, Management, Capture and Translocation, Conservation, Diseases and Health Care and Elephant and Man) and a plenary session. The present volume is the proceedings incorporating the papers presented and the recommendations of the Symposium. I am very grateful to all the participants of the Symposium - from India and abroad - for their keen interest on this endangered species of animal.

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# PRESIDENTIAL ADDRESS

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*The Hon'ble Minister of Agriculture, Shri. V.V. Raghavan,  
Prof. M.K. Prasad, Pro-Vice Chancellor, Calicut University,  
distinguished Scientists from India and abroad,  
invitees, my colleagues, Ladies and Gentlemen,*

The Symposium on the Asian Elephant, organised by the Kerala Agricultural University and co-sponsored by the Bombay Natural History Society, The Elephant Welfare Association of Kerala, The Guruvayoor Devaswom, Gaumaramadalayam, Coimbatore and the SPCA., Trichur, is an effort to jointly bring together lovers of elephants, elephantologists and Administrators to discuss at a common forum, research, development and management issues. Such an interaction has been necessitated by the sea change that is taking place in the country on elephant studies since the mid-seventies, both of captive and wild populations.

The seventies was a crucial period which also saw the inclusion of the Indian Elephant (Wild populations) in Schedule I of the India Wild Life (Protection) Act of 1972, the inclusion of the Asian Elephant in Appendix I of CITES; and the constitution of an Asian Elephant Specialist Group by the IUCN. All these and other measures such as the establishment of Wild Life Sanctuaries and Biosphere Reserves aimed at the protection of the elephant and other wild life and at habitat restoration have not yielded the desired results. The elephant-man antagonistic confrontation is on the increase and is a matter of grave concern. The animal is not only poached for its tusks, but is one of the most persecuted and harassed creatures by man who has encroached on its domain and in the name of crop protection takes all devious means to drive away the herds to the ever shrinking forest cover. Well known elephant walks have been blocked or tampered with by establishing plantations, agricultural farms, dams, canals, and human settlements.

Apparently the Government of India is seized of the gravity of the situation. Recently the Elephant and the Snow Leopard have been identified as animals which need special conservation efforts as the Indian Tiger.

I had recently an occasion to go through a thought provoking article on "The Indian Elephant in a changing world" by Dr.D.K. Lahiri Choudhury who is with us today. He reports the elephant population in India as on 1985 to be between 16,535 and 21,361. He has indicated the almost inevitable elimination of a few thousand animals in the wild, especially in North East India in the not too distant future. His question is whether we should be reconciled to live with a stable wild population of around 12,000 animals through judicious culling and management practices. This is no doubt one major issue for discussion at this Symposium.

The Elephant has been part of the Indian culture and ethos from time immemorial. Prof. V.T. Induchudan has written exhaustively on this in an article published in the Souvenir to be released today. So also Shri. T. Madhava Menon writes on the "Jekyll and Hyde" aspect of the Asian Elephant, generally lovable and only occasionally fearsome in captivity, but mysterious, unapproachable and inscrutable in the wild. It may not be a wrong presumption that elephants roamed the length and breadth of this country during the time of the Indus Civilization. Historical documentation during the Mughal period speak of the wide spread occurrence of elephants in Central India and along the foothills of the Himalayas, where they no longer exist, nor is there any trace of their original habitat. Today we witness a disjunct distribution of the residual population, the genetic homogeneity of which also needs examination.

Nomenclature wise, the Asian Elephant has five recognized sub species in South East Asia, *Elephas maximus indicus* in India, *Elephas maximus ceylonicus* in Sri Lanka, *Elephas maximus burmanicus* in Myanmar (erstwhile Burma), *Elephas maximus sumatranicus* in Indonesia and *Elephas maximus hirsutus* from Malaysia. Now what about the *forma typica*, *Elephas maximus maximus*?

A holistic approach to the study of the Indian Elephant is what is needed today. We are moving in the right direction. I must mention specially the work initiated by late Dr. Salim Ali and Mr. J.C. Daniel at the Bombay Natural History Society through intensive field programmes in the Nilgiri Biosphere area and parts of North East India. We have a new breed of ecobiologists like A. Ajay Desai, N. Sivaganesan and S. Ramesh Kumar, who are living with wild elephants and studying them. Habitat evaluation at macro and micro levels and phenology of tree species and grasses preferred by elephants, to look at feeding ecology and diet selection are underway. These studies on elephant ecology, biology and behaviour conducted by Mr. Daniel and his associates at great personal risk and under hazardous conditions will go a long way to enhance our knowledge and also help us develop better management measures.

Dr. R. Sukumar has recently given projections on effective population size, genetic viability of populations and the minimum viable area for the conservation of elephant and related aspects in discussing strategies for conservation.

A recent, and in a way disturbing phenomenon was the migratory movement of wild herds from Tamil Nadu through part of Karnataka to Andhra Pradesh. An equally significant fact was the translocation of part of the population back to its original habitat successfully using the drive method traversing nearly 190 kms through human settlements and agricultural pastures. What is it that triggers such large scale movements? Is the degradation of its natural habitat so great to create such an urge? Are more herds likely to move out? Are other forms of human interference leading to this; or as elephants being intelligent animals and realising the limitations of the carrying capacity in their habitat, moving out seeking better pastures? Or is this a result of population pressure? We need more information on the seasonal movements of elephants in the peripheral areas and answers to many such problems. These issues will come up for discussion at this symposium.

Dr. Jacob Cheeran and his colleagues from the Kerala Agricultural University have been playing a nodal role in the tranquillisation of captive elephants in musth and wild elephants for translocation. Radio collaring cum telemetry is a new area which is going to help us considerably in unravelling many mysteries of elephant life habits.

We have a long way to go to understand the social system and flexibilities in social system, and seasonal herd dynamics in the Asian Elephant. I am reminded of the pioneering work on these and related aspects by Cynthia Moss and others on the African Elephant.

Similarly, elephant communication, especially infrasonic low frequency communication is a new area under investigation which may throw more light on social interactions and long distance communication. There is also a need to make indepth studies on working capacity and elephant energy utilisation. The observations and absorbing stories by J.H. Williams in his book 'Elephant Bill' published in 1950 is now a classic recording a saga over twenty years of training, managing and caring for the health of the work elephant in the teak forests of Burma during peace and war. It is a tribute to 'the most lovable and sagacious of all beasts' of which we have yet to learn a lot.

A fund of information on elephants, particularly the captive and domesticated animals is available with the mahouts, and elephant owners. It is imperative that we make an effort to collect and collate such traditional knowledge before they are lost through lapse. To initiate such data acquisition, we have a parallel session on one of these days with elephant lovers, owners and mahouts.

Infectious diseases in captive animals, especially in zoological gardens, circuses, timber yards and those owned by temples need greater study. The dreaded Foot and Mouth disease has been reported from our elephants besides a wide vareity of other infectious diseases.

The Kerala Agricultural University through the College of Veterinary and Animal Sciences has been playing an important role in the study on aspects of the biology (nutrition, physiology, reproduction) and health care of the elephant, especially the captive animals. Some of our Scientists are constantly in demand for controlling animals in musth, and in some cases translocation of the animals after tranquillizing them. The treatment of elephants for multifarious health maladies is one area where some advance has been made by these Scientists and their contribution at this Symposium will highlight these aspects.

We have here distinguished Scientists from our neighbouring countries as well as distant lands. Management problems of wild populations of the Asian Elephant in the developing countries may parallel what is happening in India. More information on the economics of elephant management is necessary.

Shri. P. Neelakantan Namboodiripad, a renowned Ayurvedic Physician has written an exhaustive article in Malayalam on the genesis of treatment of diseases affecting elephants in the Souvenir being issued today.

India today has National Institutes or National Centres for Research for most of our domesticated animals such as the camel, the horse, the goat, the sheep, the buffalo, the yak and Mithun. It is high time we planned for a National/International Centre for the study of the Asian Elephant.

The Kerala Agricultural University considers it a proud privilege to have with us at this meeting some of the doyens of elephantology who have contributed greatly to our knowledge of the wild and captive elephants.

To all the distinguished elephantologists who have come from far and near I extend greetings, and look forward for very constructive deliberations during the Symposium which has been organized in eight technical sessions to cover over fifty scientific contributions.

I have great pleasure in requesting the Hon'ble Minister of Agriculture Shri. V. V. Raghavan to inaugurate the Symposium.