



CLOSE MANAGEMENT OF INDIAN ELEPHANT (*ELEPHAS MAXIMUS INDICUS* CUVIER, 1798) (PROBOSCIDEA: ELEPHANTIDAE) WITH THEIR PAST KNOWLEDGE: A REVIEW

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ABSTRACT

Since elephants have a gigantic impact on the ecosystem, so this is a major issue for their conservation. In this perspective, the review article could assist to identify such beneficial events as the welfare in any geographical area. This type of review method carries a fashionable amount of key points in evolution and conservation biology. Antecedent superstitions, as well as animal parts for traditional treatments and so-called clashes with elephants, had been noted very clearly. Abuse of elephants was common in the circus team. As these mastodons are huge animal, so it needs a large amount of lands with other facilities (walking, grooming, bathing, wallowing, playing, etc.), and at the end their suitable breeding ground. A routine-wise medical checkup should be maintained by a registered veterinarian in ex-situ enclosures.

1. INTRODUCTION

Few species undergo many challenges in respect to their conservation as the Indian elephant. Elephants are the largest land mammal, and for this reason, have attracted the attention of humans in the entire world for millions of years (Riddle *et al.*) [1]. Elephants have been depicted in mythology, religion, symbolism, and cultural beliefs for many communities, and both the elephant and its ivory are important in Thailand's history and culture (Nijman) [2]. Elephants are known for their role in the ecosystem by modifying their habitat in several ways, resetting succession of forested habitats to grasslands, digging holes to access water in droughts, and seed dispersers of plant species (Riddle *et al.*) [1]. Due to the size and intelligence of these megafaunas they need a large amount of space for successful survive. Human-elephant conflict is caused by habitat and resources, and the trade-in ivory, other elephant body parts, and like animals is still prevalent, causing the decline of these animals in all their range countries (Hankinson *et al.*) [3].

In the case of the Asian elephant, their extant situation is critical (Campos-Arceiz and Blanke) [4], (Gadgil and Nair) [5]. The major causes of the decline of Asian elephants were habitat loss and poaching, especially in Thailand and Myanmar (Nijman and Shepherd) [6], (Nijman) [7]. Some organizations are concerned about the keeping of elephants because they believe that zoos are unable to house such large and intelligent mammals (Kreger and Hutchins) [8]. The objective of this write-up is to focus on completely banning the abuse of elephants and ensure their sufficient space (ex-situ conservation) for natural reproduction.

Classification

Phylum:	Chordata
Subphylum:	Vertebrata
Class:	Mammalia
Order:	Proboscidea
Family:	Elephantidae
Genus:	<i>Elephas</i>
Species:	<i>maximus</i>
Subspecies:	<i>indicus</i>
Trinomial Scientific name:	<i>Elephas maximus indicus</i> Cuvier, 1798

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Figure-I: Indian Elephant (<https://phys.org/news/2019-02-asian-elephants-percent-suitable-habitats.html>)

A. Superstitions on Animals

Hunting, killing, or possessing an elephant without permission from The Forestry Department is illegal, and trading and transporting without permission is prohibited (Hankinson *et al.*,) [3]. Till now, Thailand has one of the largest ivory industries in the world, exceeded only by China (Hankinson *et al.*,) [3]. Many countries in the Asian region use animal parts for their so-called traditional remedies of the diseases (Kabir) [9], given in Table-I.

B. Wildlife-human Clashes

Recently (2017), three elephants were found dead through human-elephant conflict by the local Indonesian community (Hankinson *et al.*,) [3]. Most of the conflicts were observed in the circus during playing with elephants (Kabir) [10] given in Table-I.

C. Major Attraction in the Circus Team

In the circus team, the elephant show is the major event for the audience. Many fatal incidents happened in those circuses in the world. Due to the wildlife act, wild animals are totally prohibited in any circus group. In Bangladesh, now circus team is practising keeping domestic animals for those entertainments (Kabir) [11, 12], given in Table 1.

D. Elephants' Enclosures

Elephants exposed to temperatures below 40°F for longer than 60 minutes, must be monitored to assess the potential for hypothermia. Elephants kept outdoors when temperatures under 40°F overnight, should be provided with additional heat and adequate

shelter from adverse weather. Indoor housing for both sexes must reach up to 24 feet vertically. There is no scientific data that indicates the space needed for an elephant to be healthy and well-adjusted. The minimum size for outdoor habitats is not less than 5400 square feet per elephant (AZA) [13]. Current quarantine practices recommend a minimum of 30-90 days for most species found in zoos and aquaria (AZA) [13] given in Table-I and Figure-I.

E. Elephants' Health Issue

Elephant endotheliotropic herpesviruses (EEHV) is one of the main causes of juvenile mortality in Asian elephants and thereby a significant threat to its conservation (Seilern-Moy *et al.*,) [14, 15]. This disease has multiple symptoms, such as massive internal haemorrhages which can lead to death within 12-72 hours (Van den Doel *et al.*,) [16]. Weekly monitoring of the viral load (blood samples) of calves makes it possible to detect this disease (Schmidt and Kappelhof) [17]. Other diseases such as bovine tuberculosis (TB) also present a challenge in elephants. Obesity is a health concern in elephants, and excessive weight gain should be avoided through proper diet and exercise. The normal growth rate for an infant should be 1 to 2 lbs per day over the first three years (AZA) [13]. Annual vaccinations may protect from rabies and tetanus of the elephants (AZA) [13]. Elephants must be given a thorough annual physical examination (Mikota *et al.*,) [18]. The use of both wet and dry wallows is encouraged to assist with skincare and protection against the sun and biting of many insects (AZA) [13] given in Table-I.

F. Reproductive Biology of Elephants

It is known that allomothering behaviour is important for the protection of calves (Nijman and Shepherd) [6]. Detecting reproductive hormones as sample blood and urine has made it possible to predict mating or to perform artificial insemination (Brown) [19]. It is a belief that in the wild, most females are either pregnant or lactating, have fewer reproductive cycles than living in captivity (Hildebrandt) [20], (Boedeker *et al.*,) [21]. In some wild Asian elephants, the sex ratio is highly skewed, with many more females than males, for instance, there are some populations where the sex ratio is 1:100 (Sukumar) [22]. This is caused by the fact that more males have been poached because only male Asian elephants have tusks (Kurt *et al.*,) [23], (Sukumar) [22], given in Table 1.

2. CONCLUDING REMARKS

Thinking on ecological succession, this giant animal exhibits a great impact. This is an umbrella on other animals in the forest. Indeed, elephants have no natural predators and are very intelligent critters of nature. These animals show a long evolutionary divergence. The physical structure of this elephant is different than others. Based on many traditional beliefs, mainly for their ivory (only male for the Asian elephant), these superb mastodons are decreasing to a great extent but possible to re-establish their sustainability with animal rights that will touch their targeted gene flow.

3. CONFLICT OF INTEREST

All authors have declared that there is no conflict of interests regarding the publication of this article.

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Table 1. Research-Based orientation about Indian Elephant (*Elephas Maximus Indicus*)

Features	Examples	References
History	Historical knowledge is our base-line asset to going forward	Riddle <i>et al.</i> , 2010; Campos-Arceiz & Blanke, 2011; Nijman, 2014; Hankinson <i>et al.</i> , 2020
Role in ecosystem	Elephants have great impact in nature	Riddle <i>et al.</i> , 2010; Kreger & Hutchins, 2010; Nijman & Shepherd, 2014; Nijman, 2014
Animal superstitions	Animal trophies were used from the very beginning in our culture	Kabir, 2014; Hankinson <i>et al.</i> , 2020
Wildlife-human conflict	Human-elephant clashes are common in the history	Kabir, 2019; Hankinson <i>et al.</i> , 2020
Attraction in circus team	Now circus team is imposing domestic animals instead of wild animals	Kabir, 2013; Kabir, 2020
Elephant houses	It needs huge space as habitat	AZA, 2012
Health issue	Treatment of this animal should mitigate by veterinarian	Mikota <i>et al.</i> , 1994; AZA, 2012; van den Doel <i>et al.</i> , 2015; Seilern-Moy <i>et al.</i> , 2016a; Seilern-Moy <i>et al.</i> , 2016b Schmidt & Kappelhof, 2019
Reproductive biology	Without proper breeding ground, this is not possible to conserve this animal	Gadgil & Nair, 1984; Kurt <i>et al.</i> , 1995; Brown, 2000; Sukumar, 2006; Hildebrandt <i>et al.</i> , 2006; Boedeker <i>et al.</i> , 2012