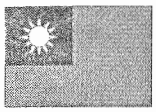

A NEW RESCUE CENTER IN AN ESTABLISHED ZOO THE ARIGNAR ANNA ZOOLOGICAL PARK, INDIA

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Abstract

Arignar Anna Zoological Park has an area of about 510 ha and was established during 1985 at Vandalur near Chennai (Madras) in Tamil Nadu State, India. The zoo has 50 mammalian species represented by 401 specimens, 81 bird species represented by 759 specimens and 22 reptilian species represented by 534 animals. The zoo is visited by about one million visitors every year. The environment of the zoo is green and most of the animal enclosures have natural forests. The zoo has been recognized as the best maintained zoo in India by the Chairman of the Parlimentary Standing Committee on Science and Technology, Government of India. Our zoo is one of the largest zoos in Asia and is a model for wildlife conservation, education and training in India.

We are aware of the wild animal pet trade and several endangered species are known to be kept as pets by local residents. Moreover many wild animals are orphaned due to direct human intervention in their natural habitat. Every year the zoo receives several wild animals as gifts, and sometimes confiscated and orphaned animals are being brought to the zoo. Chennai is also a major airport and seaport which serves as entry points to import and export endangered species. Hence it is proposed to establish a new Rescue Center in the campus of Arignar Anna Zoological Park, within an area of 2 ha. The objectives of the proposed rescue center are: (i) to undertake consistent evaluations of all rescued animals, (ii) to collect and maintain data on individuals, (iii) to develop procedures of disposition and evaluation, (iv) to establish a network of rescue centers within India, and (v) to ensure that animals stay in rescue centers as short a duration as possible.

The advantages of establishing a rescue center in our zoo are: (i) availability of expertise, (ii) availability of veterinary facilities, (iii) availability of qualified staffs in the management of rescue center, (iv) animals can be distributed on exchange between rescue center and zoos as gifts, (v) rescued animals may be loaned to others zoos for breeding, exhibition and education purposes. (vi) the animal rescued from the wild may be utilized as a founder stock of that particular endangered species in an intensive conservation breeding program, and (vii) to develop genetic resource bank using materials from rescued animals.

Introduction

Arignar Anna Zoological Park is one of the largest zoological parks in India extending over 510 ha, and it was established during 1985 at Vandalur tropical dry deciduous scrub jungle, about 25 km south of Chennai (Madras) in Tamil Nadu State of India. The zoo has 50 mammalian species represented by 401 specimens, 81 bird species represented by 759 specimens and 22 reptilian species represented by 534 animals. The zoo is visited by about one million visitors every year. The environment of the zoo is green and most of the enclosures for animals are large and naturalistic. The Chairman of Parliamentary standing committee on Science and Technology, Ministry of Environment and Forest, Govt. of India had appreciated that Arignar Anna Zoological Park was the best maintained zoo in the country. It has a national acceptance and is a model for conservation, education and training in the country.

The extinction of species has always been natural part of evolution. The fossil record shows that since life originated about 4 billion years ago, quite number of species that have existed are now extinct. Two broad process are believed to influence the dynamics of population and to cause extinction.

) Deterministic process - direct human interaction.
ii) Stochastic process - demographic, environmental, genetic uncertainity and natural catastrophes.

Exsitu and *insitu* conservation strategies are complementary approaches (Kennedy, 1987; Robinson 1992). Examples of *exsitu* facilities for animal preservation include zoos, game farms and aquaria. The best conservation strategy is without any doubt the protection of natural communities and population in the wild. however, for many rare species, *insitu* conservation is not a viable option. In these cases, it is likely that the only solution to prevent extinction is to maintain individuals in artificial conditions under human supervision. Many species will require the aid of captive propagation within the next 50 years in order to avoid extinction.

Zoos presently maintain over 500,000 individuals of terrestrial vertebrates, representing 3000 species of mammals, birds, reptiles and amphibians (Conway, 1988). For the major 1000 Zoos in the world, capital represents around 5 billion dollars and atleast 2 billion dollars per year in operating costs (Seal, 1991). More than 600 million people visit zoos annually (over 10% of the entire world population). A major goal for zoos is to establish captive breeding programmes of rare and endangered species.

We are aware of the wild animal pet trade in India and several endemic, endangered species are known to be kept as pets by local residents. Moreover many wild animals are orphaned due to human intervention in the original habitat and also illegally exported to other countries. Every year Arignar Anna Zoological Park receives many species of wild animals as gifts, confiscated and orphaned animals (Table 1-4). Chennai boasts an international airport and a well developed port which serves as entry points for animals to legal and illegal import and export. Hence it is proposed to establish a new Rescue center in the campus of Arignar Anna Zoological Park in an area of about 2 ha. for the well being of rescued animals.

Location of Rescue Center

It is proposed to build the Rescue Center opposite to veterinary hospital which is bifurcated by a main road (Map). Veterinary building with isolation and quarantine facilities are available close to the Rescue Center at Arignar Anna Zoological Park. Roads for regular service are also available.

Points to remember for Rescue Center design

a) Well constructed boundary fence (to keep predator out, animals in and to control visitors).
b) Suitable enclosures for the selected species.
c) Rooms for preparation and storage of food.
d) Rooms for storing tools and other mnaintenance equipment.
e) Officers, housing and workrooms for staff.
f) Water, electricity, gas supplies.
g) Waste disposal and drainage.

Animal enclosure

Space is not the most important factor in enclosure design. It is impossible to provide the same range as in the wild for most animals and is not necessary. The natural range is primarily to secure sufficient food. Food is provided in a rescue center and hence space can be much smaller. It is the quality of the space that is important, particularly in providing structures to enable the animal to recognise and fix a boundary.

a) In this order the enclosure must be humane i.e. seen to be making the animal comfortable.
b) meet the needs of the animal i.e. suit its behaviour.
c) feel safe for the animal.
d) Cater for the needs of the keeper i.e. be easy to manage and minimise stress for animal.
e) be hygienic.
f) allow proper veterinary treatment.
g) Catch up areas should be incorporated so that animal restraint is routine and able to minimise stress.

Administration

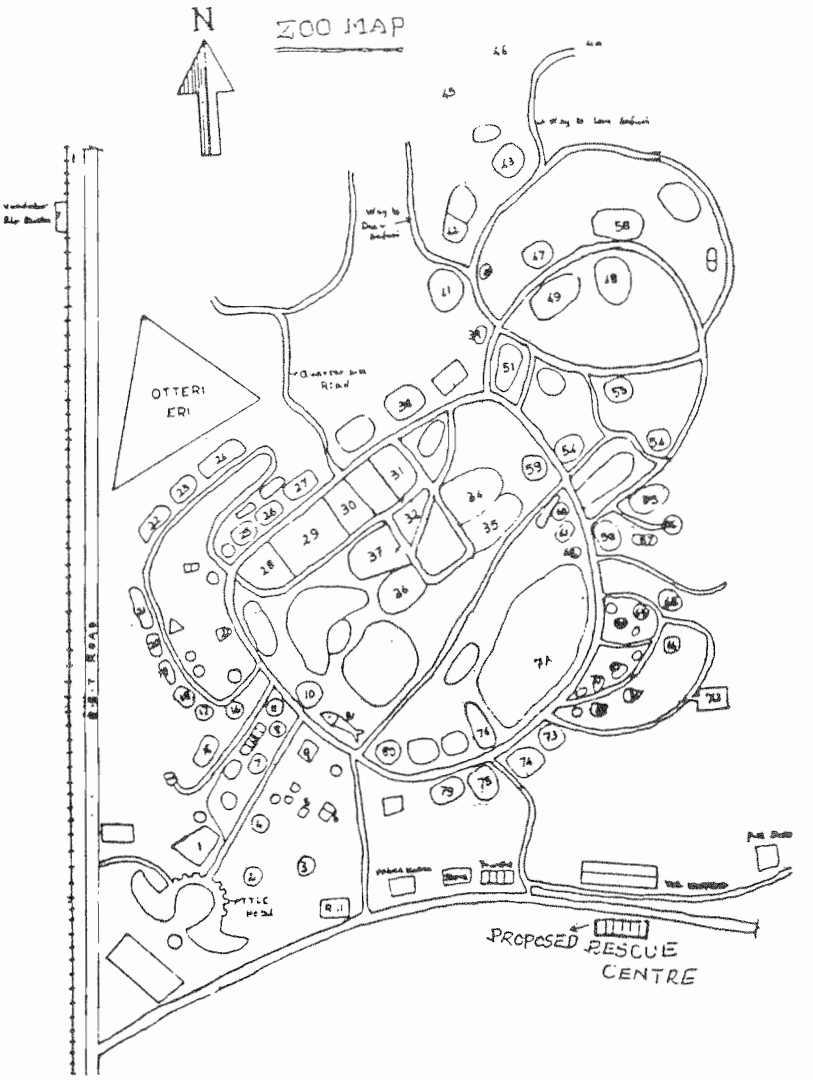
Since the animal rescue center is situated within that Zoological Park, many workers need not be appointed. The Rescue Center may be headed by the zoo authorities (Director and Deputy Director). One curator with wildlife back ground and 2 or 4 keepers can be appointed and they may be asked to look after the mundane works of upkeep, managements of the rescued animals.

Objectives of Rescue Center

1. To undertake consistent evaluation of all rescued animals.
2. To collect and maintain data on individuals (general information, physical condition, location etc.)
3. To develop consistent disposition, evaluations (for immediate release, rehabilitation or euthanasia).
4. To ensure that animals stay in rescue centers as short a duration as possible.

Rescue centers located inside zoological parks play a major role in conservation, education and research of that particular species rescued. Advantages of forming rescue center in a well established zoo are as follows.

1. Availability of full expertise in upkeep maintenance, and management of rescued animals in scientific line.
2. Availability of veterinary facilities: Arignar Anna Zoological Park has a fully equipped modern veterinary hospital manned by three full time veterinarians.
3. Acquisition of feeding and diet specialisation.
4. Availability of qualified personnel for record keeping.
5. Rescued animals may be distributed on simple exchange between rescue centers and zoos as gifts, for exhibition and education purpose for public.
6. A particular rescued species, really having conservation value, it may be loaned to zoos for breeding programmes.
7. The animal rescued from the wild may be utilized as founder stock of that particular endangered species in the zoo for planned captive breeding programme.
8. To develop genetic resource bank using genome materials animals from rescued animals.



Zoo map showing the location of proposed rescue centre at Arignar Anna Zoological Park

Table 1. Confiscated animals at Arignar Anna Zoological Park 1990 to 1997

S. No.	Name of Species	Sex M	Sex F	No.	Remarks
	Mammals				
1.	Lion-tailed macaque	-	1	1	Hill tribes
2.	Nilgiri langur	1	3	4	Kalakadu Hill tribes
3.	Black buck	0	1	1	Village Point calimere
4.	Indian giant squirrel	1	-	1	Circus
5.	Indian porcupine	2	2	4	Saligramam
6.	Jackal	1	1	2	Circus
7.	Grizzled giant squirrel	-	2	2	Srivilliputher, Hill tribes
8.	Lion	1	-	1	Illegal possesion of Circus
9.	Sloth bear	1	-	1	Circus
10.	Rhesus macaque	1	1	2	Circus
11.	Bonnet macaque	1	3	4	Circus
12.	Palm civet	-	1	1	Circus
	Birds				
1.	Rose ringed parrot	-	-	50	Srivilliputhur
	Reptiles				
1.	Starred tortoise	-	-	2000	Chennai Airport in 3 occassion

Table 2. Rescued animals from the wild since from 1990 to 1997

S. No.	Name of Species	Sex M	Sex F	No.	Remarks
	Mammals				
1.	Panther	-	2	2	as abondoned cubs from Mudumalai
2.	Asian elephant	2	-	2	as abondoned cubs from Mudumalai
3.	Flying squirrel	-	1	1	-do-
4.	Mouse deer	1	-	1	-do-
5.	Gaur	3	-	3	as abondoned from Mudumalai
6.	Nilgiri langur	1	-	1	as abondoned from Topslip
7.	Sloth bear	2	1	3	1 stray, 2 abondoned from Salem & Mudumalai
	Birds				
1.	Flamingo	-	-	1	From flood
2.	White stork	-	-	1	From flood
	Reptiles				
1.	Reticulated python	-	-	1	Wood logs from Malaysia
2.	King cobra	-	-	1	Wood logs from Malaysia

Table 3. Donation of Wild Animals from Public from 1990 to 1997

S. No.	Name of Species	Sex M	Sex F	No.	Remarks
	Mammals				
1.	Jackal	2	4	6	as cubs by public & Blue Cross Society
2.	Jungle cat	-	2	2	Wood Merchant
3.	Slender Loris	-	4	4	Donated by public
4.	Bonnet macaque	10	6	16	Public & Blue Cross Society
5.	Ant-eater (pangolin)	7	10	17	By public
6.	Spotted deer	4	2	6	By public
7.	Sambar	-	2	2	By public
8.	Black buck	1	-	1	By public
9.	Fishing cat	1	-	1	By public
10.	Indian palm civet cat	5	4	9	By public
11.	Jungle cat (kitten)	8	2	10	By public
12.	Mongoose	-	2	2	Animal Welfare Board
	Birds				
1.	Koel	-	-	4	Public
2.	Brahmini kite	-	-	1	Blue Cross Society
3.	Bengal vulture	-	-	2	Public
4.	Spotted owl	-	-	5	Public
5.	Spoon bill	-	-	1	Public
6.	Wigeon	-	-	2	Public
7.	Indian great horned owl	-	-	2	Public
8.	Barn owl	-	-	4	Public
9.	Pariah kite	-	-	3	Public
	Reptiles				
1.	Chameleon	-	-	4	Public
2.	Starred tortoise	-	-	3	Public

Table 4. Innovatively Rescued wild animals at Arignar Anna Zoological Park.

S. No.	Name of Species	Sex M	Sex F	No.	Remarks
	Mammals				
1.	Panther	2	1	3	turned into man eaters and trapped
2.	Tiger	-	1	1	man eater, trapped
3.	Bonnet macaque	-	-	90	monkey menace, trapped, translocated (or) rehabited
4.	Spotten deer	-	-	210	Air port menace translocated to Arignar Anna Zoological Park
	Reptiles				
1.	Cobra	-	-	20	trapped in BHEL
2.	Common krait	-	-	25	during '97
3.	Trinket snake	-	-	30	
4.	Russels viper	-	-	22	
5.	Saw-scaled viper	-	-	35	
6.	Bronze back tree snake	-	-	41	
7.	Rat snake	-	-	51	