

Studies on Asiatic wild dog *Cuon alpinus* in captivity at Indira Gandhi Zoological Park, Visakhapatnam

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Introduction: The Indira Gandhi Zoological Park, Visakhapatnam has been selected by Central Zoo Authority, New Delhi for Conservation breeding of Asiatic wild dog or Dhole *Cuon alpinus* in captivity. A small grant research fellowship program to study the reproductive biology, breeding behaviour and environmental enrichment needs of Dholes was initiated at Indira Gandhi Zoological Park, with financial assistance from Central Zoo Authority, New Delhi. The present captive stock of dhole at the zoo park is 9 with 5 males and 4 females. The existing dhole enclosure is an open moat with a total area of 1660.86 Sqmts with plant species such as *Acacia auriculiformis*, *Tectona grandis*, *Polyalthia longifolia*, *Acacia nilotica*, *Tamarindus indicus*, *Borassus fiabellifer*, *Azardirachta indica*, *Terminalia catappa* and *Mangifera indica*.

Rationale behind the Study: Dhole (*Cuon alpinus*) is a highly social and cooperative animal, living in organized packs of around 10 individuals and occasionally over 30 (Fox, 1984). Dholes regularly hunt in packs and this requires intelligence, co-ordination and courage as well.

Dhole's future in the wild is under threat from the depletion of its prey base, habitat loss and fragmentation, human persecution, competition with other species including feral dogs for prey species, disease and pathogens. (Davidar, 1975).

The dhole is a protected species under Schedule-II of Indian Wildlife (Protection) Act, 1972. They are also protected in Appendix-II (2003) of CITES. The IUCN categorized the status as Endangered in the wild. Moreover, very few studies on breeding biology of dhole have been conducted so far.

The reproductive and denning behaviour of dholes is not clearly understood in order to efficiently manage and eventually breed this endangered species in captivity. This has also, in earlier cases, led to uncertainties in managing dhole packs in confinement.

According to Central Zoo Authority records less than (30) animals are left in all Indian zoos. Wild dogs are very susceptible to even the slightest changes around their enclosures and many areas concerning their preference of enclosures, reproduction biology, courting and mating, growth and early pup development, role of siblings/rest of the pack in pup rearing are still not clearly understood. Hence, a thorough knowledge on the behaviour and biology is essential for better management of dhole population.

Study objectives: To initiate an Indian Wild dog breeding program in captivity.

Specific Aim I : Studying the breeding behaviour of wild dogs in captivity.

Objectives

1. Behavioural observation on mating behaviour. This includes, natural selection /choice of mating couple, courtship, mating, mating duration role of other members of the pack. Percentage success of mating, mating pair preference spot in the enclosure.
2. To create an optimal atmosphere in the enclosures that will allow and suit breeding of the dogs. Observations of the reactions to the enrichment offered, influence of the enrichment on breeding success.
3. To document various social behaviours of captive dholes and compile them into an ethogram.

Specific Aim II : Observation of growth and early cub development.

Objectives

1. Observations on the role of dam, role of the sire and role of the pack in early pup development.
2. Preference of the mothers and packs diet and variation in quantities consumed during pups growth and early development.
3. Observations on the pups changing morphology.

Summary of the on-going research programs:

The following studies are being conducted on dholes at Indira Gandhi Zoological Park, Visakhapatnam.

I) Ethogram documentation: An ethogram represents a qualitative inventory of all behaviour elements contained in the repertoire of an animal species (J. Lamprecht). Constructing the ethogram of wild dogs in a zoo environment has certain benefits (Kummer). Because of the calmness of the animals (which allows the observer to come much closer to the animals) there are some benefits. a) Animals in zoo spend more time in social interaction. b) The number of social interactions is higher in a zoo. c) Some behaviour patterns that in the wild occur only in very special situations and with a few individuals may be observed more frequently in a zoo (Hediger 1977). Using Focal animal sampling method (Altmann, 1974) data is collected by describing all the behaviours displayed

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by an individual on a particular day. A second individual animal is selected on Day 2 and so on. The described behaviours are classified into respective behavioural categories and compiled into an ethogram.

Video recording: The complex denning behaviour and feeding behaviour is regularly documented on film with the help of a Sony Handycam Vision (CCD-TRV 43, VTSC) with 330 x Digital Zoom.

Justification: Since no attempts have been made so far to develop an ethogram for dholes in captivity, the results obtained out of such studies may be utilized by other zoos and *ex-situ* facilities in India as a reference for wild dog behavioural research. Ethogram documentation precedes more analytical studies in captivity.

II) Aggression in Wild dogs: Aggression in captive wild dogs has been observed in some contexts and a study to observe and record aggression is underway. Behaviour sampling method is adopted where in the observer will watch the entire group of subject and keep record of exhibited aggression. The initiator of aggression as well as the resultant behaviour of the recipient is recorded in a remarks column. The time and length of aggressive interactions is also recorded in appropriate data sheets.

Expected Results: From the results of the above study, we will know if aggression or fights are occurring at any particular time of the day. We will also know if this behavioural display is just an odd occurrence or a trend. By capturing the lengths of aggression, we will get an idea on how long fights lasts for? This would help us in understanding the different displays of aggression in dholes. Over a period of time, if we can build some aggression signaling indicators that will help take immediate measures against high levels of aggression amongst captive dholes and avoid unnecessary injuries with in dog packs kept in human confinement.

III) Enclosure utilisation by captive Dholes: To better understand the spatial use patterns of dholes in a zoo environment, a study has been designed to test the following hypothesis.

- Do captive dholes have individual preference to certain locations in their enclosures?
- Do external factors like human disturbances and ecological factors like bright sunlight or soil structure have any impact on spatial selection and utilization of the enclosures space in captivity?
- Do evolving, new social structures in young dholes correlate to specific individuals occupying specific niche spots or use of specific areas in the enclosure?

For this purpose, the existing enclosure is divided into six grids name as A, B, C, D, E and F and data is collected at 17 different time periods during the day.

Expected Results: From the data collected, we will understand the spots dholes choose to occupy at a given time in the day. The choice of place will also be correlated with dominance hierarchy in the pack in zoo environment, human disturbances cause dholes to avoid areas closest to the edge of the enclosures. Times of peak human disturbances will be noted and this be compared to the distance the dholes maintenance from the source of disturbance. By understanding these aspects we can plan for better environmental enrichment programs in captive conditions for the species.

Future Research activities planned at the zoo park:

- Measuring the effectiveness of enrichment offered to wild dogs in captivity.
- Studying the indices of association between various pack members.
- Understanding pup care and development.

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