

wildlife Health

JAN. & JULY 1986

VOL. 4. No. 1&2



HALF YEARLY JOURNAL OF IZWLVA
DEDICATED TO THE PROFESSION OF ZOO
& WILD LIFE MEDICINE

WILD LIFE HEALTH

(Half Yearly Journal of I.Z.W.L.V.A dedicated to
the profession of zoo and wildlife medicine)

FOR PRIVATE CIRCULATION ONLY

VOL. IV

JAN / JULY 1986

NO. I & II

EDITOR

Dr. MIR GOWHER ALI KHAN B.V.Sc.

JOINT EDITORS

Dr. L.N. ACHARJYO M.V.Sc.

Dr. C.J. CHANDRA B.V.Sc.

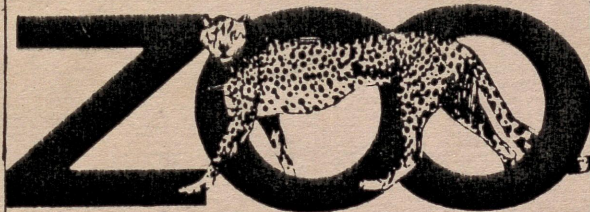
EDITORIAL ADVISORY BOARD

Dr. R.L. LAHIRI B.V.Sc. M.Sc.

Dr. Y. KRISHNA MURTHY B.V.Sc.

Dr.R.K. DAS B.V.Sc.

PRINTED BY



ZOO OUTREACH ORGANISATION

With financial assistance from
Dr.Nan Schaeffer,DVM, Reproductive
Physiology, Chicago Area
Zoos, Chicago Ill. USA.

IN THIS ISSUE

PAGE NO

- | | |
|----------------------------------------------------------------------------------------------------------------------|----|
| 1. Principles of Necropsy
Techniques in Wild animals
and Birds.
by Dr.L.N.Acharjyo & Dr.A.T.Rao | 1 |
| 2. Gastro Intestinal Parasites of
zoo animals, their impact,
treatment and control.
by Dr. H.K.Gairola. | 4 |
| 3. Breeding of Indian Rhinoceros
in N.Z.P. Hyderabad, India.
by Dr.Mir Gowher Ali Khan &
Mr.B.C. Choudhury. | 11 |
| 4. A note on Elephant diseases.
by Dr.D.K.Ray. | 15 |
| 5. News Corners. | 17 |

COVER DRAWING SAMBER STAG (CERVUS UNICOLOUR). DRAWING BY DR. MIR GOWHER ALI KHAN.

THE SECOND OPINION

How to sympathise with one who intentionally looses what he possesses and then cries out for it? It can't be said, "He is crying for the Moon". The same is true of the zoo management in our country.

It has come to my notice that many experienced and devoted zoo veterinarians, even after undergoing special training and post graduation in Wildlife Disease Management have been transferred back to their parent departments, either by their Heads or by the zoo management. The reason they say is that the veterinarian got promoted to the next higher rank as per his seniority in the Department. This is not always the case. Even in such cases it is wise to create the same cadre post and to retain him in the zoo.

If the zoos go on loosing experienced vets. in this way, it is the zoo live stock which suffers most. A case of Feline distemper which could be diagnosed in no time and treated quickly and successfully by a vet. having a long stay in a zoo, will otherwise end up in an outbreak taking a heavy toll of the big cats. A new zoo vet will hesitate to supplement the diet of Crocs. with vitamin 'A' and calicium salt, and may not administer Broader Spectrum antibiotics and dextrose to the deer and antelope (to save the lungs and gastro-intestinal tract) which have been caught after a long chase by the Keepers. Imagine the consequences! This matter does not end here. Much can be said about it!

Hence it is expected from this "ONE" to rise to the occasion and the need of the hour and to keep this Valuable Possession firmly and safely with him!

EDITOR

PRINCIPLES OF NECROPSY TECHNIQUES IN WILD ANIMALS AND BIRDS

by

Dr.L.N.Acharjyo, Nandankanan Biological Park, P.O.Barang, Dist. Cuttack, Orissa - 754005 and Dr.A.T.Rao, Department of Pathology, Orissa Veterinary College, Bhubaneswar - 751003, Orissa.

Necropsy or postmortem examination is not only important for determining the cause of death but also for intelligent and scientific understanding of the disease process. The history, clinical signs, morbid changes and laboratory tests contribute to an accurate diagnosis of the disease. For various reasons, the determination of cause of death among wild life specially in the free-living state is rather a difficult task. The wild animals are usually found dead without providing any history or signs of illness unless they are extremely weak to walk, crawl or fly. Further, the anatomy physiology, behaviour and habits of a large variety of wild animals and birds are sometimes not well known. Since there is paucity of information on diseases of Indian wildlife, postmortem examination of all animals and birds which die in zoos, sanctuaries and national parks is absolutely necessary to gain information on wild life diseases which in turn will help to formulate control measures. As in domestic animals, the wild animals suspected, the wild animals suspected to have died of anthrax are not opened for postmortem examination for reasons known to all Veterinarians.

Prior to opening the carcasses, a fair idea about the food habits, anatomical features etc. of a particular species in question is necessary. Many wild animals have their domestic counterparts, the examples of some of them are given below. The well known necropsy techniques used in domestic animals can also be followed for their wild counterparts.

<u>Wild animals/birds</u>	<u>Domestic counterparts</u>
Deer, antelopes, wild bovids, etc.	Cattle
Black-buck, wild goats and sheep, etc.	Sheep and goat
Wild ass, zebras, wild horses, elephants, hippopotamuses, rhinoceroses, etc.	Horse
Wild boar, warthog, giant forest hog, peccaries, etc.	Pig
Tiger, lion, panther, golden cat, jungle cat, etc.	Cat
Fox, jackal, wolf etc.	Dog
Peafowl, jungle fowls, guinea fowls, etc.	Poultry
Geese, swans, wild ducks, etc.	Duck

But there are some other animals like apes and monkeys (primates), pangolins and reptiles, etc. for which there are no domestic counterparts. The necropsy procedure of human beings, however, can be followed for the primates. The dead primate is placed in the dorsal recumbency and then a midline

incision from the mandibular symphysis to the symphysis pubis is made (except umbilical region where it is made to one side) for opening the body cavity. The pangolin can be placed in dorsal recumbency and a ventral midline incision through the softer tissue can be made for opening the body cavity. After external examination of mouth for rot and necrotic stomatitis (which are frequently observed in reptiles), presence of ulcerations and ecto-parasites, the snakes and lizards are placed on their back and a midline incision from the anterior cervical extremity to the cloaca is made to expose the visceral organs. The turtles, terrapins and tortoises are placed on their back in a concave surface to hold the carcass properly. Then with the help of a saw, longitudinal incisions are made on each side of the junctures of plastron (ventral shell plate) and carapace (dorsal shell). Then all the soft tissues adhering to the plastron can be cut and the plastron can be removed out exposing the internal organs for examination. The dead crocodilians can be placed in the dorsal recumbency and a mid-ventral incision from the mandibular symphysis to the cloaca and beyond can be made to expose the viscera for necessary examination.

Some of the numerous peculiar anatomical features observed in some of the species of wild animals and birds are given below so that the pathologist can be cautious in his approach at the time of necropsy examination.

1. The lungs of an elephant are diffusely adhered to the chest wall without any pleural cavity which gives a false impression of pleurisy. In addition, the heart of an elephant presents two points in the apex instead of the usual one.

2. Gall-bladder is absent in all species of deer except the musk deer.

3. The mouse-deer though a ruminant has a three chambered stomach.

4. The lung of snake is single and elongated.

5. The male copulatory organ is paired (Hemipenes) in snakes.

6. All the reptiles except the Crocodilians have a three chambered heart (Two auricles and one ventricle). The crocodilians have the usual four-chambered heart.

7. The trachea of cranes is long and tortuous, a part of which remains inside the hollow breast bone (keel bone).

8. The stomach of free-living sea lion usually contains few stones which act as ballast to help the animals dive.

9. Diffuse subcutaneous air spaces which crepitate on palpation are normally present in certain neotropical birds known as screamers. This anatomical peculiarity is usually confused for gas gangrene.

10. Some fish eating birds like penguins usually have reddish-black breast muscles.

11. Physiological accumulation of fat is beneficial to some animals just before hibernation or fasting periods. This should not be confused as a pathological phenomenon.

THE PERCENTAGE OF FAT IN MILK OF "WILD MUMMIES"

1. Bison	1.7	11. Buffalo	7.9
2. Llama	3.2	12. Rabbit	13.1
3. Camel	3.4	13. Elephant	17.6
4. Orangutan	3.5	14. Deer	19.7
5. Hippo	4.5	15. Ant eater	20.0
6. Zebra	4.8	16. Reindeer	20.3
7. Fox	5.9	17. Whale	21.2
8. Cat	6.3	18. Dolphin	34.9
9. Sheep	6.4	19. Seal	42.0
10. Guinea Pig	7.2		

NEW MEMBERS

INDIAN ZOO AND WILD LIFE VETERINARIANS ASSOCIATION (EST. 1982)

NAME

ADDRESS

1. DR. SURINDER SING MAINI (M.V.Sc)

C/O SINGH POULTRY
ABID ROAD, HYDERABAD, A.P.

GASTRO INTESTINAL PARASITES OF ZOO ANIMALS. THEIR IMPACT TREATMENT AND CONTROL

By Dr.H.K.GAIROLA

(Report from Kanpur Zoological Park, Kanpur)

INTRODUCTION:-

It has been well established that, disease, acting with other ecological phenomena, can have extensive impact on Wild Life population. Parasites of wild animals are so perfectly adapted to their hosts that under natural conditions they would not cause disease. But this attitude is now undergoing a radical change, as specialists turn their attention increasingly to the problems of parasitic disease. More and more examples are being unearthed to show that parasites are significant pathogens of wild animals. There are varying opinions whether debilitated animals lead to parasitic disease or parasitic disease lead to debilitated animals? Perhaps the answer is inbetween.

There is some evidence that heavily parasitized animals are more likely to succumb to predation or other environmental pressures than uninfected or lightly infected animals. It does not have a deleterious effect on population size but may affect adversely the quality of population. Changes in the distribution of animals may however, produce disease situation.

Zoological Parks are collections of wild animals. Howsoever natural conditions are provided, they are always under stress of captivity. The effects of disease due to parasites at individual level are pronounced and may occasionally turn epizootic. Zoo animals are more prone to infestation and reinfestation with parasites due to limitations of confinement and proximity to infections. Losses due to parasites have been minimised or even can be completely avoided by improving the management and feeding practices of wild captive animals, and of the development of effective medications. Optional management and feeding practices enable the animals to maintain balance between host and parasite but control programmes are also very necessary to control parasite levels in animal enclosures.

PROCEDURE:-

To evaluate the nature and type of parasitic infestation in a Zoo, regular and reliable qualitative and quantitative fecal examinations must be performed repeatedly either in the zoo or by other institutions using proven standardized methods. The fecal samples should be collected possibly from individual animal even if it necessitates separation of the animal for a few days. Pooled samples of herd, group or pairs, however can be collected from various sides of the enclosures. The result of examinations should be noted as "occasional, moderate and severe". In the recent years the availability of broadspectrum anthelmintics has contributed considerably to the efficacy of current control measures against parasites.

There are two school of thoughts regarding deworming of zoo animals. A section of experts are of the opinion that they should be dewormed only when they or their fellow species are found moderately or severely positive during routine or special fecal examination, while others advice a routine deworming

programme for zoo animals.

Dependence on positive findings only can not be relied upon completely as three negative fecal examinations, each 72 hours apart, are a minimum for regarding a patient as being free of endoparasites. Routine deworming programme of judicious frequency to control parasite levels are therefore necessary treatment of positive cases however, and is to be resorted to instantly.

For framing a deworming schedule, all zoo animals are first divided into five groups as following:-

1	Meat Eaters	All Carnivores
2	Fruitarian (Omnivores)	Marsupials, Primates Lagomorphs & Rodents
3	Herbivores	Proboscids, Perissodactyles and Artiodactyles
4	Aves	All Birds
5	Reptiles	Crocodiles, Tortoises and Snakes.

(Table - 1)

All the positive results of routine fecal examination of last five years are summarised groupwise and type, quantum and frequency of infestation noted against each. The results of pooled samples of herd or groups are also analysed for noting the type of infestation prevailing in zoo animals. Frequency of deworming each group of zoo animals is determined on the basis of frequency of deworming each group of zoo animals is determined on the basis of frequency of find pathogenic parasitic infestations in that group. The selection of drugs for deworming is based on the types of infestation found in fecal examinations together with their efficacy, odour, taste and dose volume. The tolerance and the dose rate for each species is known from available literatures and past experiences. Doses are calculated on correctly estimated weights of each animal of the species. Variety of drugs are used and changed for each group every time in repeating the deworming. There is a great problem of applying medication also. Method of giving deworming medicines to individual or group of animals is skilfully designed on the basis of experience to ensure their proper and complete intake.

METHODS AND MATERIALS:-

Kanpur Zoological Park is quite a new Zoo, established in year 1913, by Mr.G.B.Allen, within the corporation limits of Kanpur city.

Recording of various data on proper lines regarding the welfare and health care of animals started from the year 1979, when the work of regular examination of fecal samples was undertaken in the zoo laboratory. The details of such samples examined and numbers found positive for parasites each year are given below:-

Sl. No.	Year	Fecal samples examined			Samples found positive		
		Mammals	Birds	Total	Mammals	Birds	Total
1.	1979-80	36	6	42	13	3	16
2.	1980-81	65	11	76	24	5	29
3.	1981-82	158	17	175	28	10	38
4.	1982-83	109	9	118	21	4	25
5.	1983-84	151	17	168	25	5	30
6.	1984-85	82	23	105	22	6	28
TOTAL		601	83	684	133	33	166
PERCENTAGE OF POSITIVE CASES					22.13	39.75	24.27

Summary detailing the type, quantum and frequency of positive finding in fecal examinations as above is given as following, separately for each group of animals.

GROUP I (CARNIVORES)

FECAL EXAMINATION				
Sl. No.	Animal	Type of Parasite	Quantum	Frequency
1.	WOLF	Ancylostoma sp. Toxocara sp.	severe moderate	rare frequent
2.	JACKAL	Toxocara sp. Ancylostoma sp. Dipeledium sp. Isospora occyst	moderate -do- -do- occasional	frequent rare rare -do-
3.	BEARS	Ascaris sp. Tape worms	moderate -do-	frequent rare
4.	HYENA	Toxocara sp.	moderate	frequent
5.	TIGERS	Toxocara sp. Ancylostoma sp. Strongloide sp. Cestode sp.	severe moderate moderate severe	frequent frequent rare rare
6.	AFRICAN LION & LEOPARD	Toxocara sp. Oocyst of Eimeria	moderate occasional	rare rare
7.	JAGUAR	Ancylostoma sp. Oocyst of Isospora	moderate moderate	frequent rare
8.	CHEETAH	Ancylostoma sp. Toxocara sp.	moderate -do-	frequent -do-
9.	LEOPARD CAT	Strongyloide sp. Ancylostoma sp. Trichuris sp.	severe moderate occasional	rare frequent rare

GROUP II (MARSUPIALS & PRIMATES)

FECAL EXAMINATION				
Sl. No.	Animal	Type of Parasite	Quantum	Frequency
1.	BENNETTS WALLABY	Tape worm	moderate	rare
2.	LANGURS & MONKEYS	Enterobius sp. Trichuris sp. Stronglyloides sp. Oesophagastomun Physaloptera sp. Trophozoite & cyst of entameoba	severe -do- moderate moderate occasional severe	frequent -do- -do- rare rare rare
3.	BABOONS	Trichuris sp.	moderate	rare
4.	GIBBONS	Ascaris sp. Trichuris sp.	moderate moderate	frequent rare
5.	CHIMPANZEES	Trophozoite of entemeoba	moderate	frequent
6.	ORANGUTANS	Cyst & Trophozoite of entameoba Trichuris sp.	severe moderate	frequent rare

GROUP III (PROBOSCIDS, PERISSODACTYLIDS & ARTIODACTYLIDS)

FECAL EXAMINATION				
Sl.No.	Animals	Type of Parasite	Quantum	Frequency
1.	Indian Rhinoceros	Ascaris sp. Stronglyloide sp.	moderate occasional	rare rare
2.	Deer	Ascaris sp. Stronglyloide sp. Oocyst of coccidia	moderate moderate occasional	rare rare rare
3.	Giraffes	Trichuris sp. Stronglyloide Ascaris sp. Oesophagostomum sp.	moderate occasional -do- -do-	rare rare rare rare
4.	Bovids	Ascaris sp. Oesophagostomum sp.	moderate occasional	rare rare

GROUP IV (BIRDS)

<u>FECAL EXAMINATION</u>				
Sl.No.	Animal	Type of Parasite	Quantum	Frequency
1.	Emus	Oocyst of Eimeria sp.	moderate	rare
2.	Parakeets	Amoebotaenia sp. Hetrakis sp.	severe (not pathogenic)	frequent
		Tape worm	occasional moderate	rare frequent
3.	Hornbills	Capillaria sp. Tape worm	occasional moderate	rare rare

GROUP V (REPTILES) :- With quite a limited number of reptiles in the collection of Kanpur Zoological Park, work with their endoparasites could not be undertaken so far.

TREATMENT:-

Treatment is at once adopted in positive cases as evidenced in the routine fecal examination. The infestation may be single or mixed and the worm load may not be high enough to cause disease symptoms but treatment of the whole flock is necessary to check and eradicate the parasite. Choice of the anthelminthic drug is based on the fact that:-

1. It is effective against the parasite infestation.
2. It is well tolerated by the host species.
3. It is easily taken by the affected animals.

CONTROL

There are direct and indirect measures for controlling parasitic infestation. Direct control is by regular use of anthelminthic drugs which keep check on parasite level in the body of the animals. A deworming schedule for the zoo is chalked out on the basis of quality and quantity or frequency of infestation as noted in the routine fecal examination of past five years in each group of animals, in such a way that all the animals are covered and followed regularly all round the year. Each time the anthelminthic drug is changed to avoid possibility of development of resistance by the worms. However at the evidence of worm infestation by way of positive cases, the treatment of whole flock is taken irrespective of deworming schedule. In cases of new arrivals, three fecal samples at intervals of 72 hours are taken and examined during quarantine period. It is declared free from parasites only if found negative in all the three samples. Otherwise treated for the type of infestation found. All positive cases are repeated after 2-3 weeks, again with the appropriate anthelminthic. For coccidiosis, Coccidiostats are used on finding positive cases, in whole of the flock as mass treatment. Young chicks are regularly kept on preventive dose level in feed or water.

Indirect control is aimed at improved feeding and management practices and breaking of life cycles of the parasites outside the host body.

ACKNOWLEDGEMENT

The undersigned is thankful to Dr.B.M. Arora, Scientist Wildlife, I.V.R.I. Izatnagar, Bareilly with whose interest and efforts, the analysis of fecal samples of animals of Kanpur Zoological Park is undertaken at I.V.R.I.

Due thanks to Sri G.C. Mishra Director of Kanpur Zoological Park for the encouragement and facilities he provided to undertake the work and write the paper at Kanpur Zoo.

H.K. Gairola
Veterinary Officer
Kanpur Zoological Park
Kanpur

REFERENCES

1. Anderson, R.C. International Wildlife Disease Conference, 3rd Munich, 1975 Wild Life Diseases.
2. Davis, J.W. & R.C.Anderson (Eds), 1971 Parasite Disease of Wild Mammals-Iowa State University Press.
3. Ettinger, Stephew J., Text Book at Veterinary Internal Medicine Vol-2 pages 1179, 1982.
4. Forrester, D.J. International Wild Life Disease Conference, 3rd Munish, 1975 Wild Life Diseases.
5. Fowler Murray E., Zoo and Wild Animal Medicine.
6. Herman C.M., 1969. The Impact of Disease on Wild Life Populations, Bioscience 19:312-325.
7. KLO-LANG, - Hand Book of Zoo Medicine.
8. Smith, Jone, Hune-Veterinary Pathology, pages 730-31.
9. Soulsby, E.J.L., Helminth, Arthropods and Protozoa of Domestic Animals, pages 243-44.

**BREEDING OF INDIAN RHINOCEROS (Rhinoceros unicornis) IN
NEHRU ZOOLOGICAL PARK, HYDERABAD, INDIA.**

By

- i) Dr. Mir Gowhar Ali Khan, Deputy Director (A.H.) (Retd) Nehru Zoological Park, Hyderabad, India. &
- ii) B.C.Choudhury, Asstt. Director, Crocodile Research Centre, Hyderabad, A.P.

The Nehru Zoological Park, Hyderabad, India has so far recorded birth of three male Great Indian Rhinoceros and one abortion, from a single pair within a period of nine and one half year of rearing of the species in captivity. The conditions provided for successful breeding in this zoo are as follows:

- a) Large open enclosure with arrangement for wallowing, and spacious night houses or compartments for immediate separation of the pairs if they are found irreconcilable during courtship and mating.
- b) Proper nutritious diet.
- c) Timely health care and disease management.

The animals and the enclosures:

A sub-adult male estimated to be two and one half years old was purchased and brought to the zoo in April 1964 from the Kaziranga Reserve Forests of Assam - the natural home range of the species. The animal is kept in a 0.20 ha dry moated oval shaped enclosure with two night houses and an open backyard. The night houses act as feeding room, isolation chamber for treatment and for close observation. The rooms measure 9mx6m with a 2m wall on all three sides. The open exhibit area separates the visitors from the animal by a 2m deep and 2m wide dry moat gently sloping towards the land area for easy accessibility of the animal into the moat. A pool of water in the middle of the enclosure serves both for drinking and wallowing purposes. A few tall Acacia trees provide the required shade. (Fig I).

In June 1968 a female aged about four years was purchased from Kaziranga Reserve Forest of Assam and was housed in a newly constructed extension moated enclosure (Fig 1). The new female shared the common night house and backyard of the male's enclosure. This separate enclosure for the female was later found convenient for separating the animals whenever they were found to be antagonistic to each other during the time of courtship and mating. A pool of clean water has also been provided in both the enclosures. These pools are not deep and the overflow of tap water forms a slush where the animals enjoy to wallow.

Feed and feed supplement:-

Initially the animals were fed with a diet of boiled rice, pulses, banana and milk to which they were used to in the Kaziranga Reserve Forest. All this was mixed up and sweetened by adding jaggery (brown sugar) and hand fed.

Gradually the diet was changed to cattle feed pellets, consisting of wheat bran, rice bran, broken maize, powdered ground nut cakes and mollasses. To this concentrate mixture vitamins and mineral supplement is also added. The quantity of the concentrate varied with age. An adult animal is given 8 kg/day divided into two meals given in the morning and afternoon. 50 kilos of green consisting of Ficus leaves, Lucerne (Alfa Alfa) grass and carrots are also given.

Health care and Hygiene

Besides the vitamin and mineral mixture broad spectrum antibiotics are also added in the feed to check the condition of stress during inclement weather, shifting and during transfer.

Faecal samples are screened under the microscope once a month to detect the worm load of helminthic parasites and the animals are dewormed once in every three months.

BREEDING

Courtship and mating:

The female was observed on estrus for the first time at an estimated age of 5 years and two months. When in estrus the female behaved very restlessly, with switching of the tail, micturation at short intervals; emitted low grunting noises and approached the partition wall of the male's enclosures frequently. The average interval inbetween two estrus is 48 days and the duration of each cycle is about 24 hours.

Estrus cycle of the female was observed on 27th August 1970 and the first calving took place on 25th November 1971. Courtship and mating was not observed. However, observations of courtship and mating during the next three breedings resulted in the recording of the following. The male and female were allowed to mate only after the calf has been totaly weaned from the mother at an age of three years.

On the morning of 7th November 1974 the female was observed in estrus and the male was introduced into the female enclosure at 12.50 hrs. Mating was observed between 13.10 hrs to 14.22 hrs. Initially, the male charged at the female, mounted and after a few unsuccessful attempts was able to copulate. Interestingly, it was the female's pushing backward that helped in mating and not the pelvic thrust by the male. At 14.22 hrs the female became extremely aggressive and the animals were separated. On 12th May 1975 the female aborted and a still calf was born.

A month later on 11th June 1975 the female was observed in estrus and the male was introduced. The male was extremely violent and inflicted several injuries on the female within 5 to 10 minutes, before she turned back and charged in return to ward off the male. This combat and injury made us defer the breeding programme till 23rd July 1977.

On 23rd July 1977 the male and the female were left together and allowed to fight. It was the female that charged first. The combat took place for 62 minutes. The third calf was born on 12th November 1978 after a gestation period of 478 days. The new born was a male. Estrus and mating for the fourth

time was observed on 16th January 1980 and after a gestation period of 484 days a male calf was born on 15th May 1981. The first calf was born to this pair when the estimated age of the male was nine years and the female was seven years of age.

The breeding details are given in Table 1. During the weaning period of the calf which is usually initiated after one year the female has been observed to have come to estrus several times, but she was not allowed to mate to avoid injuries and to maintain a healthy growth of the calf. The shortest time gap for mating allowed by us is 18 months.

TABLE I
DETAILS OF BREEDING RECORD OF INDIAN RHINOCEROS (Rhinoceros unicornis)
IN NEHRU ZOOLOGICAL PARK, HYDERABAD, INDIA.

Date and time of Estrus mating	Date of Parturation	Gestation period	Sex of calf	Inter-calving period	First estrus after calving	Remarks
27.8.1970 27.8.1970	25.11.1971 10.30 hrs	459 days	Male	Y M D	7.7.1972	
7.11.1974 7.11.1974 13.10 hrs	-	-	-	3.6.15	11.6.1975	X
23.7.1977 23.7.1977 morning 14.55 hrs	12.11.1978 01.05 hrs	478 days	Male	3.6.0	1.7.1979	
16.1.1980 16.1.1980	15.5.1981	484 days	Male	2.6.3	17.7.1981	

The female aborted a six months old foetus on 12.5.1975.

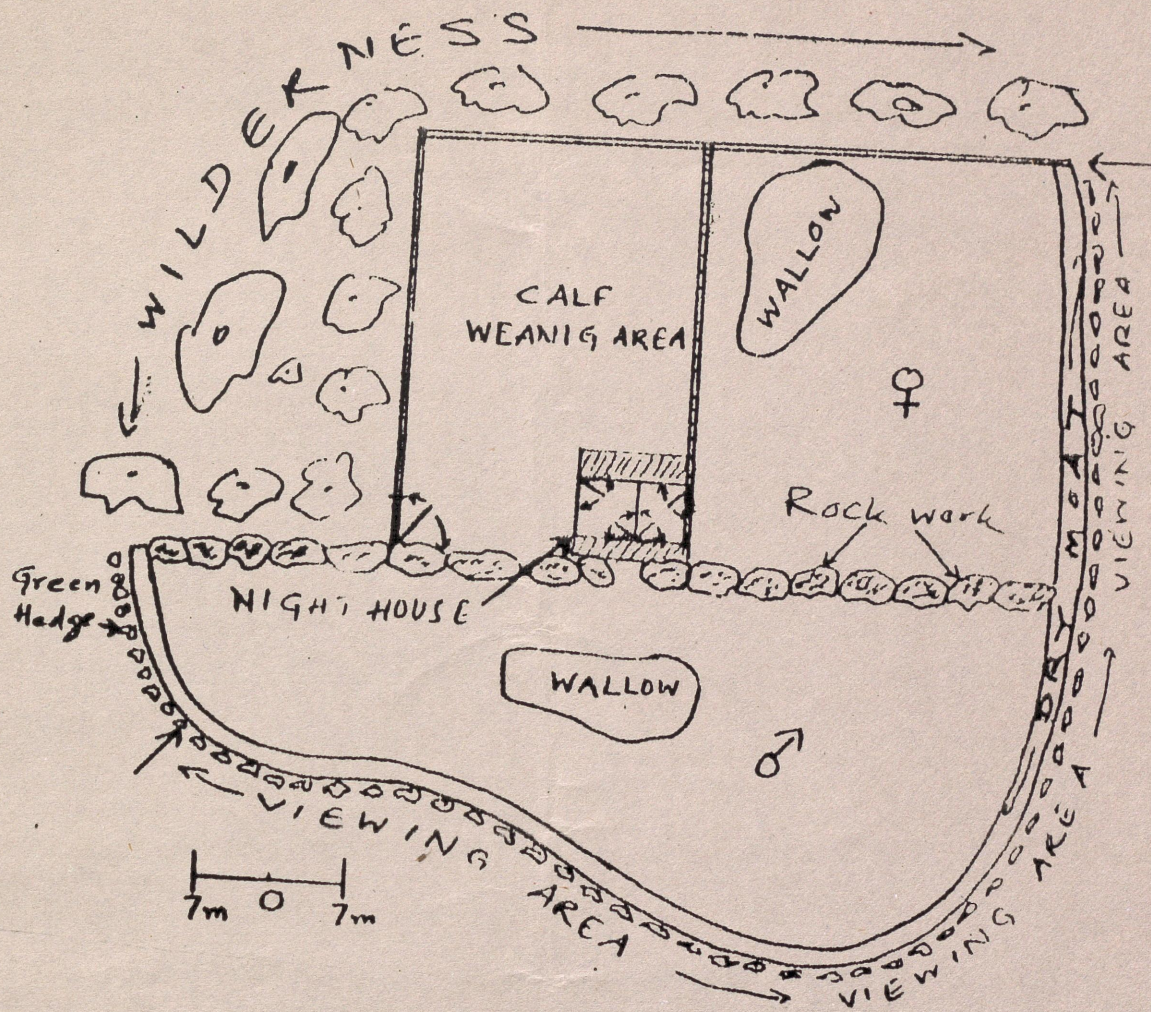


Fig I : THE 0.20 ha GREAT INDIAN RHINOCEROS ENCLOSURE AT NEHRU ZOOLOGICAL PARK, HYDERABAD. NOTE THE DRY MOAT IN FRONT, COMMON NIGHT HOUSE WITH INDEPENDENT ENTRANCE FOR ANIMALS AND SEPARATE EXHIBIT AREA FOR MALE, FEMALE AND WEANING AREA FOR THE GROWING CALF. DESIGNED TO AVOID THE ANTAGONISM OF ANIMALS IN THE BREEDING SEASONS.

A NOTE ON ELEPHANT DISEASES

BY DR. D.K. Ray, Scientist -Sl, Division of Veterinary Public Health, Indian Veterinary Research Institute, Izathnagar, U.P.

The author in order to study the diseases of elephant (Elephas maxima) has referred available literature exhaustively, toured many Zoological parks and Sanctuaries of the country extensively, and has conducted research in the laboratory of Indian Veterinary Research Institute at Izathnagar, where he is presently working. The findings are presented below:

I. NON-INFECTIOUS DISEASES

Sl. No.	Name of the disease	Author's References
1.	Arteriosclerosis	McCallagh and Lewis (1967)
2.	Neoplasm	Vety Bull (1961) 31:4090
3.	Eye Infection	Menon (1939)
4.	Benign Neoplasm on trunk	Ray (1966)
5.	Urticaria	Ray (1967)

II. INFECTIOUS DISEASES

(a) Bacterial

Sl.No.	Name of disease	Author's References
1.	Pasteurella multocida	McGaughey C.A. (1961)
2.	Anthrax	"
3.	Tetanus	"
4.	Salmonellosis	"
5.	Tuberculosis	McGaughey C.A. and Ray (1986)
6.	Streptococcus Infection	McGaughey C.A. (1961)
7.	Staphylococcus Infection	"
8.	Leptospirosis	Upadhaya (1979)
9.	Corynebact diphtherica	Kalb flesch (1935)

- | | | |
|-----|-------------------------------------------|------------------------|
| 10. | Clostridial Infection
(Except Tetanus) | McGaughey, C.A. (1961) |
| 11. | Glanders | McGaughey, C.A. (1961) |

(b) VIRAL DISEASES

Sl.No.	Name of the disease	Author's References
1.	Rabies	Ramiah 1932
2.	Foot & Mouth Disease	McGaughey, C.A. (1961)
3.	Pox	McGaughey, C.A. & Baxbay (1979)
4.	Viral Conjunctivitis	McGaughey, C.A. (1961)
5.	Rinderpest	McGaughey, C.A. (1961)

(c) HELMINTHES DISEASES

1.	T. Evansi	McGaughey, C.A. (1961)
2.	Schistosoma Sp. Infection	Vety Bull. (1955), 25:
3.	Fasciola Jacksoni	Caple etal (1978)
4.	Stephanofilaria assamensis	Chaterjee etal (1983)
5.	Amphistomiasis	Chandra Sekaran <u>et al</u> (1982)
6.	Syngamus indicus	Monning (1932)
7.	Piroplosomesis	McGaughey, C.A. (1961)
8.	Filariasis	Condy Hell (1970) & Ray 1982

(d) ECTOPARASITES

1.	Dermatitis	Raghavan <u>et al</u> (1968)
2.	Dermatitis	Ray (1982)
3.	Acariasis	Chatterjee (1983)

NEWS CORNER

(1)

A project for studying the lesser known facts of "TIGER COLONY" will soon be launched in JASHIPUR, MAYURBHANU district of Orissa.

The unique endeavour, to be headed by Dr. R.L. BRAHMACHARY of the Indian Statistical Institute (ISI) in Calcutta will involve an in-depth research of "Pheromones" a hormone like secretions of Tiger that is said to control its behaviour.

Two tiger cubs will be purchased from the Nandankanan Biological Park for probing the unexplored field.

The study is likely to reveal details of the ecology of the "Great Cat" and establish the role of pheromones in Tigers.

(Indian Express)

(2)

Uncontrolled shooting, netting and snaring of birds by the local people as well as fishermen continue unabated in the CHILKA LAKE region of Orissa though the area was declared as a Sanctuary in October 1979. This was the finding of the Bombay Natural History Society while studying the Avifauna of the region.

(The Hindu)

(3)

The re-discovery of the Yellow fronted gardener bower bird in a remote rain forest in New Guinea by American ornithologist JARED DIAMOND is more than just the end of a search for a species thought to be extinct. The bird supports the idea scientists have long had : the brighter the feathers, the less work it takes to attract a Male.

(Readers Digest)

(4)

In FENGXIANG, a remote village in one of the Chinese Far Provinces, people are awakened at 6.30 A.M. by a sound of a gong and some one shouting from across the valley. It is merely the man incharge of environmental protection propaganda.

He announces the new tree-protection policy in a way that every one would notice, as morning being the most peaceful time in the village and one can be sure that all will pay attention to the message.

(National Geographic)

(5)

The magnificent Grey Pelicans at the Children's Park GUINDY have bred successfully and two Chicks have survived far more than a week. Perhaps it is for the first time that it is happening in captivity. "It is a rare thing to happen and we are happy about it" said Mr.K.R. RAMANATHAN, Wild Life Warden Madras, who is incharge of the park.

Captive breeding of Grey Pelicans began at the Park in 1980. But the eggs never hatched or the young ones died soon after emerging from the egg. It is only now that the chicks have survived.

(The Hindu)

(6)

The Nehru Zoological Park, Hyderabad has added to its ape population one male and two female orangutans, gifted by PERTH ZOO, Australia.

They were brought here in March 1986 and are being trained for public viewing. A big beautiful island is ready to become their "Home".

(7)

Mr.Romulus Whitaker, herpetologist based in Madras, plans to produce wild life films for Television. He announced his decision during talks at two snake show at SUNDARVAN in Ahmedabad recently which were attended by more than 2,000 people.

(Live Stock Advisor)

(8)

An article titled "Impact of Gross and histopathology" on "Diagnosis of diseases in Indian wild ruminants" by Dr. L.N. Acharjyo and Dr. A.T. Rao, was accepted for presentation in the IV International Symposium of Veterinary Laboratory Diognosticians held at Amsterdam (The Netherlands) on 2.6.1986.

(9)

Rosy, a six year old Rhinoceros of National Zoological Park Delhi, died here of DYSTOKIA, in June 1986. It was a BREECH Presentation. Dr. S.D. SHARMA, Consultant to the zoo park and Chief Patron of I.Z.W.L.V.A.; Dr. MATHEWS Ph.D. who has worked with Wildlife in Africa and Dr. D.D.KHORANA, Ex.Vety. Officer of the Delhi Zoo, along with the Field Staff fought bravely to save the animal's life, but in vain.

The full grown dead foetus, weighing 5.5 kilos has been removed and is to be displayed in a glass cage at the Zoo. Taxidermists are at work to stuff and mount replicas of ROSY which will be kept at the Natural History Museum. Small blunted horn will however be kept at the Zoo Museum.

(Dr. Abul-Onasim, Asstt. Professor,
Bihar, Vety. College)

INDIAN ZOO AND WILDLIFE VETERINARIANS ASSOCIATION.

(Established 1982)

INDIAN ZOO & WILD LIFE VETERINARIANS ASSOCIATION	I.Z.W.L.V.A OFFICIALS
The Objective of the Indian Zoo Veterinarians Association are:	Dr.S.D.Sharma, Honorary Life Member and Chief Patron
1. To advance programme for preventive medicines, husbandry and scientific research in the field of Veterinary medicines dealing with wild animals in captivity and in free state.	Dr.R.K.Lahiri, President
2. To provide a forum for the presentation and discussion of problems related to the health care and disease management of the wild Life.	Dr.L.N.Acharjyo, Vice President.
3. To publish and distribute Scientific information related and pertaining to the Veterinary medicines dealing with captive wild animals.	Dr.V.Krishna Murthy, Vice President.
	Dr.Mir Gowher Ali Khan, Secretary cum Treasurer.
	Dr.R.K.Das, Joint Secretary.

ANY ZOO VETERINARIAN WORKING WITH THE ZOO & WILD LIFE MEDICINE IS WELCOME TO JOIN THE ASSOCIATION. THE MEMBERSHIP IS ALSO OPEN TO OTHER VETERINARIANS INTERESTED IN WELFARE OF WILD LIFE.

- | | |
|--------------------------|-----------|
| 1. Life Membership fee | Rs.200/00 |
| 2. Annual Membership fee | Rs. 20/00 |

Membership Fee should be sent to :

DR. MIR GOWHER ALI KHAN
DY. DIRECTOR (A.H) (RETIRED)
NEHRU ZOOLOGICAL PARK
HYDERABAD - 500 264 (A.P.)

WILD LIFE HEALTH

VOL. II NO. I & II

NOTICE

pl: renew your membership with out
loosing any work time.

W

EDITOR.