

## Introduction

The African Wild Dog (*Lycaon pictus*) is an extremely endangered species. Its existence is threatened by human influence and diseases. Because of lack of game, the dogs have to follow livestock to stay alive. As a consequence they are poisoned. Getting close to human settlements means regular contact with domesticated dogs. The African Wild Dog is extremely susceptible to diseases transmitted by the domesticated dog, like distemper, rabies and parvo. Many wild dogs die as a result of infection with these viruses.

The George Adamson Wildlife Preservation Trust decided to assist with the future of the African Wild Dog in Tanzania. For this purpose pups were caught in a non protected area (Masaaai Steppe), which meant no dogs were taken from the already very low numbers in protected areas. At the same time they were saved from a certain death (poisoning). It is the intention that the dogs will breed in the future and the off-spring will be reintroduced in the wild.

## Material

In early August 1995, 25 pups were lifted from three different dens in the Maasai Steppe. They were independent of their mother. They ranged in age from, approximately, three to five weeks. According to the place where they were found, they were called the Landanai group (sex 1,3), Llondirrigiss group (sex 7,1) and Najo group (sex 7,6). The pups were flown to Mkomazi Game Reserve (Kisima Camp) September 3rd 1995. They were housed in a big compound, divided in three compartments, each of them containing an artificial den, providing a hide and shelter from rain. The different groups were kept apart, until they could be fully identified.

## Veterinary Work

December 1995 and February 1996 all the dogs were sedated in order to:

- ✘ Insert transponders for identification
- ✘ Vaccinate against distemper, rabies, parvo and leptospirosis
- ✘ Take blood samples

## Transponders

All transponders were placed subcutaneously on the left side of the neck (December 17-19 1995). They were inserted in a dorso-ventral direction. Before and after insertion the transponders were checked with the reader for proper action. All the numbers start with NLD093500110, followed by three numbers to identify the individual dog. The reader and the transponders were supplied by Datamars, Switzerland

On 19 February 1996 all the transponders proved to be in place and were working properly. Photographs were taken of both sides of the dogs as an extra means of identification. After the transponders were put in place the three groups of dogs were brought together on the 20th December 1995. No problems at all were experienced during or after this action. Behaviour was normal and friendly

## Vaccinations

The African Wild Dog is extremely susceptible to diseases like distemper, parvo and rabies. Although the dogs are kept pretty isolated (28 km to the next village), there is always the chance of a stray dog passing by (which actually happened on one occasion) and wild animals transmitting diseases. As a common rule only inactivated (killed) vaccines were used for two reasons: to prevent spreading of viruses in the field and to prevent unwanted side-effects in the dogs. As there is no commercially available inactivated distemper vaccine, the vaccine was kindly donated by Prof. Osterhaus, Department of Virology, Erasmus University, Rotterdam. The only problem with the CDV-ISCOM vaccine is, that it should be kept frozen until just prior to use. For rabies vaccination : Dohyrab (Solvay Duphar) was used. For parvo and leptospirosis vaccination : Dohyvac I-LP (Solvay Duphar) was used. On December 17,18 or 19,1995, the dogs were vaccinated for the first time against distemper, rabies, parvo and leptospirosis.

Because the dogs were sedated, all vaccines were injected subcutaneously, with the exception of rabies which was injected intramuscularly. On January 3rd and February 14th they were vaccinated a second and third time against distemper, this time using a blowpipe, as they were not sedated. On February 15th 1996 vaccination took place for the second time against parvo and leptospirosis, by means of a blowpipe. None of the dogs showed any side-effects after vaccination. Because there is no inactivated vaccine for hepatitis available, they were not vaccinated against hepatitis.

## Blood samples

On both occasions of sedation blood samples were taken; in December 1995 samples were taken just prior to vaccination, but not from all dogs. From 12 dogs, serum was collected for anti-bodies testing for distemper, also EDTA-blood for DNA research at the University of Groningen, Vakgroep Genetica. On February 29 1996, serum was collected from all 25 dogs for distemper, rabies and parvo anti-bodies testing. Also the missing blood samples for DNA research were taken, which ensures that there is a blood sample of every dog for DNA research. DNA research is undertaken, to know how closely related the three different groups of dogs are. This information will be taken into account when the breeding groups are formed. The anti-bodies tests were kindly performed at the Department of Virology, Erasmus University, Rotterdam. For results see Appendix I, II and III.

## Sedation

Drugs used were Domitor and ketamine HCL. Domitor was used alone or in combination with ketamine HCL. The drugs were administered by blowpipe, intramuscularly, in the hindquarters. For that purpose the dogs were enclosed in a small cage, two or three at a time, to prevent mixing dogs up.

On December 17-19 1995, the Llondirrigiss group was the first to be sedated. For bodyweight see Appendix IV. The initial dose of Domitor was 0.8 ml and proved unsatisfactory. Even after an extra dose of 0.4 ml Domitor, the dogs looked sufficiently immobilised, but were still able, after touching, to stagger away. With 10 mg (= 0.1 ml) ketamine HCL added to the 0.8 ml Domitor the sedation was excellent. Induction time varied from 10-15 minutes. The Najo group received the same dosage and mixture. As an antidote to the Domitor, 0.4 ml Antisedan was administered, intramuscularly, 30 minutes

after the Domitor / ketamine mixture. Recovery took place within 5 minutes, with hardly any effects remaining from the ketamine HCL.

The Landanai group was administered 1.5 ml Domitor + 10 mg ketamine per dog. Probably they could have done with less Domitor, because of miscalculation of their bodyweight. They were estimated at 15 kg. Later on it showed that their bodyweight was 12-13 kg. As an antidote these dogs received 0.7 ml Antisedan intramuscularly and recovered also within 5 minutes and hardly any effects remaining from the ketamine HCL.

On February 29 1996, all the dogs were sedated with the Domitor / ketamine HCL mixture. Initially 1.6 ml Domitor alone was used. Once again this proved to be unsatisfactory; the dogs were still able to stand up. Thereafter the combination Domitor / ketamine HCL was used again. The dosages varied from 1.6 to 1.8 ml Domitor + 10 mg ketamine HCL, depending on the size of the dog. All were sedated well and received 1.0 ml Antisedan after the bloodsamples were taken. Recovery took place within 5-10 minutes with hardly any effects remaining from the ketamine HCL. The dogs could probably have done with less Domitor, but once again their bodyweight was overestimated. Despite that, they showed no adverse side effects. Apparently the combination Domitor/ketamine HCL is very safe and effective in the African Wild Dog. Domitor + Antisedan (Pfizer).

#### Bodyweight

See Appendix IV. It is only possible to measure the bodyweight of the dogs when they are sedated. Their bodyweight was taken on both occasions of sedation. The time lapse in between the two actions was about 2 ½ months. The increase in bodyweight was most in the Llondirrigiss group: 2.7 - 4.4 kg, the least in the Landanai group: 0.9 - 1.7 kg, and in between the Najo group: 0.9 - 3.0 kg. To the best of our knowledge, there are no data available about growth and bodyweight in the African Wild Dog.

The disappointing bodyweight of the Landanai group is probably due to the fact that most of them are female (1,3). At the time of the first measurements the groups were living separated. After the transponders were inserted into the dogs, the three groups were put together and from that time on they were fed together and competition was much heavier.

#### Endoparasites

The dogs have their own keeper. His only job is to look after the dogs day and night. Several times a day he removes the faeces from the enclosure, to prevent re-infection. Once a month an anthelmintic is added to their food. The anthelmintic used is Drontal plus, 1 tablet per 10 kg bodyweight. Drontal plus (Bayer).

#### Acknowledgement

My deep gratitude goes to Prof. A.D.M.E. Osterhaus and Dr. J.Groen, Department of Virology, Erasmus University, Rotterdam, for supplying the CDV-ISCOM vaccines, performing the antibodies testing and most of all, their advice. For the fieldwork I could not do without the help of Tony Fitzjohn (Field Director George Adamson Wildlife Preservation Trusts), Elisaria Nko (Manager Kisima Camp) and Sangito (Keeper of the dogs)

## Appendix 1

### Distemper antibody level (VNT) African Wild dogs Mkomazi Game Reserve

Identification	Sex	Date	D-0 NT-titer	Date	D-80 NT-titer	
Landanai	261	F	19/12/1995	540/++	29/02/1996	20/±
Landanai	262	F	19/12/1995	20/+	29/02/1996	60/+
Landanai	263	M	19/12/1995	540/++	29/02/1996	60/+
Landanai	264	F	19/12/1995	< 20/-	29/02/1996	60/+
Llondirrigiss	289	M	17/12/1995	20/-	29/02/1996	< 20/-
Llondirrigiss	291	M	18/12/1995		29/02/1996	180/+
Llondirrigiss	293	M	18/12/1995	< 20/-	29/02/1996	60/+
Llondirrigiss	294	M	18/12/1995		29/02/1996	20/±
Llondirrigiss	296	M	18/12/1995		29/02/1996	60/+
Llondirrigiss	297	F	18/12/1995		29/02/1996	< 20/-
Llondirrigiss	298	M	18/12/1995		29/02/1996	20/±
Llondirrigiss	299	M	18/12/1995	180/+	29/02/1996	60/+
Najo	265	F	19/12/1995	20/-	29/02/1996	20/±
Najo	273	M	19/12/1995		29/02/1996	60/+
Najo	274	M	19/12/1995		29/02/1996	< 20/-
Najo	275	F	19/12/1995	60/+	29/02/1996	60/+
Najo	276	F	19/12/1995		29/02/1996	180/+
Najo	284	F	19/12/1995		29/02/1996	60/+
Najo	285	F	19/12/1995		29/02/1996	180/+
Najo	288	M	19/12/1995		29/02/1996	540/++
Najo	300	M	19/12/1995	60/+	29/02/1996	20/±
Najo	303	M	19/12/1995	< 20/-	29/02/1996	20/±
Najo	305	M	19/12/1995	20/-	29/02/1996	60/+
Najo	308	F	19/12/1995		29/02/1996	20/±
Najo	310	M	19/12/1995		29/02/1996	60/+

Neutralizing antibodies were tested. 20 and up means well protected.

## Appendix II

### Parvo antibody level

#### African Wild dogs Mkomazi Game Reserve

Identification	Sex	Date	Ig G	Ig M
Landanai	261	F	29/02/1996	13.500/+ <30/-
Landanai	262	F	29/02/1996	1.500/+ <30/-
Landanai	263	M	29/02/1996	4.500/+ <30/-
Landanai	264	F	29/02/1996	1.500/+ <30/-
Llondirrigiss	289	M	29/02/1996	1.000/+ <30/-
Llondirrigiss	291	M	29/02/1996	13.500/+ <30/-
Llondirrigiss	293	M	29/02/1996	1.500/+ <30/-
Llondirrigiss	294	M	29/02/1996	1.500/+ <30/-
Llondirrigiss	296	M	29/02/1996	500/+ 500/+
Llondirrigiss	297	F	29/02/1996	4.500/+ <30/-
Llondirrigiss	298	M	29/02/1996	1.500/+ <30/-
Llondirrigiss	299	M	29/02/1996	1.500/+ <30/-
Najo	265	F	29/02/1996	1.500/+ <30/-
Najo	273	M	29/02/1996	1.500/+ <30/-
Najo	274	M	29/02/1996	1.000/+ <30/-
Najo	275	F	29/02/1996	1.500/+ <30/-
Najo	276	F	29/02/1996	500/+ 100/+
Najo	284	F	29/02/1996	500/+ <30/-
Najo	285	F	29/02/1996	1.500/+ <30/-
Najo	288	M	29/02/1996	1.500/+ <30/-
Najo	300	M	29/02/1996	1.500/+ <30/-
Najo	303	M	29/02/1996	13.500/+ <30/-
Najo	305	M	29/02/1996	1.500/+ <30/-
Najo	308	F	29/02/1996	4.500/+ <30/-
Najo	310	M	29/02/1996	100/+ <30/-

All dogs well protected. Nos. 296 and 276 have a positive Ig M, which might mean that the dogs were at the point of having a Parvo-infection

## Appendix III

### Rabies antibody level

#### African Wild dogs Mkomazi Game Reserve

Identification	Sex	Date	Antibodies	Date	Antibodies	I.U.	
Landanai	261	F	19/12/1995	50	29/02/1996	25	0
Landanai	262	F	19/12/1995	25	29/02/1996	25	0
Landanai	263	M	19/12/1995	25	29/02/1996	25	0
Landanai	264	F	19/12/1995	25	29/02/1996	25	0
Llondirrigiss	289	M	17/12/1995	50	29/02/1996	100	0
Llondirrigiss	291	M			29/02/1996	25	0
Llondirrigiss	293	M	18/12/1995	100	29/02/1996	100	0
Llondirrigiss	294	M			29/02/1996	25	0
Llondirrigiss	296	M			29/02/1996	25	0
Llondirrigiss	297	F			29/02/1996	25	0
Llondirrigiss	298	M			29/02/1996	50	0
Llondirrigiss	299	M	18/12/1995		29/02/1996	25	0
Najo	265	F	19/12/1995	25	29/02/1996	25	0
Najo	273	M			29/02/1996	25	0
Najo	274	M			29/02/1996	100	0
Najo	275	F	19/12/1995	25	29/02/1996	50	0
Najo	276	F			29/02/1996	50	0
Najo	284	F			29/02/1996	50	0
Najo	285	F			29/02/1996	100	0
Najo	288	M			29/02/1996	25	0
Najo	300	M	19/12/1995	50	29/02/1996	100	0
Najo	303	M	19/12/1995		29/02/1996	100	0
Najo	305	M	19/12/1995	25	29/02/1996	50	0
Najo	308	F			29/02/1996	100	0
Najo	310	M			29/02/1996	50	0

Resistance against rabies is measured in International Units (I.U.). As the table shows, there was no response 2½ months after the rabies vaccination. Therefore the quantity of antibodies was tested. Only 13 out of 25 dogs showed some result (>25). For that reason vaccination policy will be adjusted. In 1997 they will be vaccinated 3 times: the second vaccination 4 weeks after the first one and the last one after half a year

## Appendix IV

### Body weight in kilograms (kg) African Wild dogs Mkomazi Game Reserve

Identification	Sex	Date	kg	Date	kg	
Landanai	261	F	19/12/1995	12	29/02/1996	13.1
Landanai	262	F	19/12/1995	11.1	29/02/1996	12
Landanai	263	M	19/12/1995	13.3	29/02/1996	14.5
Landanai	264	F	19/12/1995	12.4	29/02/1996	14.1
Llondirrigiss	289	M	17/12/1995	- - -	29/02/1996	13.7
Llondirrigiss	291	M	18/12/1995	9.2	29/02/1996	11.9
Llondirrigiss	293	M	18/12/1995	10	29/02/1996	12.7
Llondirrigiss	294	M	18/12/1995	10.5	29/02/1996	14
Llondirrigiss	296	M	18/12/1995	10	29/02/1996	12.8
Llondirrigiss	297	F	18/12/1995	9.1	29/02/1996	13
Llondirrigiss	298	M	18/12/1995	11.1	29/02/1996	15.5
Llondirrigiss	299	M	18/12/1995	10.5	29/02/1996	14.3
Najo	265	F	19/12/1995	8.1	29/02/1996	9
Najo	273	M	19/12/1995	9.1	29/02/1996	10.5
Najo	274	M	19/12/1995	9.8	29/02/1996	12.4
Najo	275	F	19/12/1995	9.2	29/02/1996	11.5
Najo	276	F	19/12/1995	8.7	29/02/1996	10.5
Najo	284	F	19/12/1995	8.1	29/02/1996	9.8
Najo	285	F	19/12/1995	8	29/02/1996	9.5
Najo	288	M	19/12/1995	10.1	29/02/1996	12
Najo	300	M	19/12/1995	9.8	29/02/1996	11.8
Najo	303	M	19/12/1995	9.7	29/02/1996	11.9
Najo	305	M	19/12/1995	9.5	29/02/1996	11.2
Najo	308	F	19/12/1995	8.3	29/02/1996	10.7
Najo	310	M	19/12/1995	8.8	29/02/1996	11.8