



CHUMBE ISLAND  
CORAL PARK  
*Zanzibar Tanzania*

**Report from the survey of Ader's Duikers on  
Chumbe Island the 7-9 September 2007**



Participants in the survey. From left Rashid Hamad Shaib, Omari Nyange, Ali Mwinyi, and Gwae.

*By Frida Lanshammar, Conservation Co-ordinator, CHICOP  
Photos by Bou Peters  
Sept 2007*

## Introduction

A total of 6 Ader's Duikers were translocated from the Mtende Region to Chumbe Island in December 1998 (one female) and in February 2000 (3 males and 2 females). The initial monitoring system with cameras and ear tags did not function very long and the only monitoring that has been ongoing has been direct observations (sightings) of non tagged animals. The number of sightings have been more frequent in the last 1 ½ years and even juveniles have been observed, but to really know how the translocated animals have coped with the Chumbe environment a population size is needed.

After consulting with Duiker experts both on Zanzibar and Europe it was decided that the most suitable way to get a reliable estimate of the population size of Ader's Duikers on Chumbe was to arrange a "drive" across the island. This event was planned well ahead

and a group of 5 very experienced trackers from the central parts of Zanzibar were invited to Chumbe along with an expert from the Department of Forestry, Dr. Ali Mwinyi (many of them had been involved in the initial translocation and in previous monitoring activities). All participants went over to the island in the afternoon of September 7 and that evening a meeting was arranged (see picture 1) to plan the details of the drive and to inform all participants of their role.



Picture 1. Participants planning the drive with a map of Chumbe.

The second part of the survey was planned to be conducted in the afternoon of September 8, and the aim was to find as many scent marks and droppings as possible and mark them with a clearly visible band and measure the GPS positions. This part of the survey was only conducted by the experienced trackers, Ali Mwinyi, head ranger Omari Nyange and conservation coordinator Frida Lanshammar.

From this data CHICOP hope to be able to make out specific territories for the duikers. The trackers however said that Ader's duikers are not like other mini-antelopes because each scent mark can be used by more than one individual. To be able to analyse and decide where the borders of the territories are a combination of camera monitoring on the sites might be needed. This option will be followed up by the CHICOP conservation department.

If it turns out to be possible to collect and eventually send faeces samples to a laboratory for DNA analyses it is valuable to know the GPS positions for main faeces sites for easy collection.

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## Methods used

### Drive

It was decided that 12 persons would quietly sit (picture 2) on a line across the island (in the middle – where it is about 100-150 meters wide) and wait for the “walkers” to drive the animals in front of them and eventually through this line of people – and all animals passing the line would then be counted by the “sitters”. All sitters were to sit facing the west side of the island and only count the animals that passed in front of them (in order to minimize the risk of any animal being counted more than once and to minimize the risk of being blinded by the rising sun in the east).



Picture 2. Ali Mwinyi demonstrating how the sitters should be positioned in the forest.

First the walkers would start in the north and drive all animals to the middle of the island and then they would leave the island on the western side and take a boat down to the southern tip where they would climb up and drive all animals from the southern side up to the middle. It was assumed that the number would be larger the second time – and that would be the total number of duikers on the island.

In order to minimize the risk of not counting animals the most experienced people were evenly distributed along both the line of sitters and walkers (see list of participants and order). Also the walkers were encouraged to be alert and count any animals trying to turn around and to run back to where they came from through the line of walkers.



Picture 3. Participants climbing on to the rocky shore of Chumbe

All sitters were in their positions at 9:15 in the morning of September 8 and the walkers started walking from the northern side at 9:45. After one hour they reached the line of sitters and then left the island with a ladder down to shore on the western side. All sitters stayed quietly in their positions and the walkers were transported down to the south tip of the island. The walk from the southern tip started at 11:20 and this time it took the walkers almost 1 ½ hours to reach the sitters. In total the drive took less than 4 ½ hours and all participants were back at the main building for lunch at 1 pm.

### *List of participants in the “drive” (in this order from west to east):*

**Sitters:** 1. Waziri Sudi, 2. Nanette Hulshoff Pol, 3. Baker, 4. Godfrey Mloka, 5. Himid Fikirini, 6. Joseph Simon, 7. Bou Peters, 8. Buda, 9. Yussuf Mlabu, 10. Khamis Pandu (Ndorobo), 11. Frida Lanshammar, 12. Mwita (police)

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**Walkers from north to south:** 1. Ali Mwinyi, 2. Anders Knudby, 3. Juma Mussa, 4. Rashid Hamad Shaib, 5. Pandu Ame Vuaa, 6. Makame Ame, 7. Omar Nyange, 8. Khamis Shabaani, 9. Suleiman Mussa Jecha (Gwae)

**Walkers from south to north:** 1. Omari Nyange, 2. Khamis Shabaani, 3. Makame Ame, 4. Rashid Hamad Shaib, 5. Juma Mussa, 6. Anders Knudby, 7. Pandu Ame Vuaa, 8. Ali Mwinyi, 9. Suleiman Mussa Jecha (Gwae)

#### *GPS measuring*

The five trackers, Ali Mwinyi, Frida Lanshammar, and Omari Nyange walked into the forest on the southern side of the island (where most of the animals seemed to be at the moment) equipped with two GPSs, pink plastic ribbon, pen and paper in order to find, mark, and get the accurate positions for scent markings and piles of faeces.

#### **Results**

##### *Drive*

The drive did not work as well as we had planned (see further under Discussion and recommendations) and not even one Ader's duiker was driven through the line with people sitting and waiting. Through the observations done we could however conclude that there are at least 6 adult Ader's duikers present on Chumbe (see Table 1).

Table 1. Overview of the observations made of Duikers during the survey on Chumbe, September 8, 2007

<b>Observer</b>	<b>Time of observation</b>	<b>Number of animals</b>	<b>Description</b>
Mwita	9:40	1	One adult duiker passed through in front of him - from the south to the north. This individual was not seen coming back through the line so it must have managed to stay in the northern half of the island even after the "drive".
Gwae and Mwinyi	11:15	1	One adult duiker managed to get around on the southern side of all walkers when they were getting ready to start walking towards the north. This individual never left the southern tip of the island, hence was not seen again in the middle of the island at the end of the drive.
Waziri, Nanette, Baker, Godfrey, and Himid	12:05	1	One BIG animal came up to the line of "sitters" along the western side of the island and turned eastwards along the line of people. Many observers saw the same animal. It turned south and managed to pass through the line of walkers unseen.
Bou and Buda	12:10	2	Two adults together (one male and one smaller female) came straight towards Bou and Buda. They turned around and escaped south again, unnoticed by the line of walkers.
Bou	12:12	1	One single adult came towards the line of sitters and noticed that someone was there. The animal turned around and ran straight back south, unnoticed by the line of walkers.

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According to the local hunters and experts a duiker couple never separate, even when they are under great stress. That concludes us to believe that the single big animal seen at first is not the same male as seen later together with a female. For the same reasons the last single “smaller” animal would be a different individual than the same smaller animal which was seen in the pair before. These observations and discussions lead to the conclusion that there are at least 6 adult Ader’s duikers on Chumbe at the moment. Considering that so many animals managed to pass through the line of walkers unseen, there are probably more adults present. And the fact that no juveniles were observed during the drive also point to the fact that they have managed to hide during the survey.

### *GPS measuring*

In total the group looking for scent marks found and marked 14 scent marks with pink plastic ribbon. Due to difficulties to get good signal for one of the GPSs only one person could measure the coordinates of the positions and for one person to follow all 7 trackers turned out to be too difficult. Therefore, only 9 of the 14 point have been marked on the GPS and the results from the measurements can be found in Table 2. The 5 scent marks that were not measured this time will be relocated, measurements taken and then added to this data as soon as possible.

Table 2. GPS coordinates and height of duiker scent marks on Chumbe Island

<b>Scent mark</b>	<b>Coordinates (S)</b>	<b>Coordinates (E)</b>	<b>Height over the ground</b>	<b>Marker point number (on “seagrass” GPS)</b>
1	06°16'53,0"	039°10'41,4"	54.5 cm	959
2	06°16'51,1"	039°10'42,9"	54.5 cm	960
3	06°16'50,5"	039°10'41,5"	57.5 cm	961
4	06°16'49,5"	039°10'40,7"	57.5 cm	963
5	06°16'48,4"	039°10'40,9"	57.5 cm	965
6	06°16'46,6"	039°10'39,4"	57.5 cm	966
7	06°16'43,0"	039°10'38,2"	57.5 cm	968
8	06°16'38,6"	039°10'37,3"	55 cm	969
9	06°16'39,4"	039°10'37,5"	55 cm	972

The faeces piles were also recorded and the GPS positions noted (Table 3). There are at least two additional faeces piles which have been marked with the pink ribbon, but where the GPS positions still have to be recorded.

Table 3. GPS coordinates of piles of duiker faeces on Chumbe Island

<b>Point number</b>	<b>Coordinates (S)</b>	<b>Coordinates (E)</b>	<b>Marker point number (on “seagrass” GPS)</b>
1	06°16'49,7"	039°10'41,1"	962
2	06°16'49,5"	039°10'41,1"	964
3	06°16'45,6"	039°10'39,2"	967

## **Discussion and recommendations**

### *Drive*

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The drive did not quite work out as well as we had hoped. Some parts of the forest were very dense and extremely difficult to penetrate. This led to gaps in the line of walkers when some of them walked faster than others and the duikers could easily pass through these gaps without being seen by any of the walkers.

Not having enough people walking through the forest also increases the chances of missing juveniles which are more likely to just sit still and hide rather than run in front of the walkers.

The other problem was that we had over-estimated the number of people needed as sitters to cover the entire width of the island. Once the duikers arrived by the line of sitters they immediately noticed that something was wrong and refused to pass through. Instead they would turn around and somehow make it through the line of walkers.

If another drive is to be conducted in the future more people should be walking than sitting and the ones sitting should be only the most experienced duiker trackers. A suggestion is to have 5 people sitting on a line across the island (on the same level as this time – not far north of the police banda) and to have at least 15 people walking through the forest. The walkers should really pay attention to keep a straight line so that all animals are really “driven” forward in front of the line. If someone walks through a dense part of the forest the others should slow down their speed to avoid leaving any gaps in the line.

#### *GPS measuring*

One of the GPS had problems getting good signal in the forest so for next time measurements are done a long stick (bamboo?) should be brought to the forest so that the GPS can be extended up through the covering trees to get as accurate data as possible. With the pink ribbons to mark every point of interest it will hopefully not be too hard to find all the points back again. For the future each point of interest should be numbered and added on to the remote sensing map of the island.

#### **General comments and recommendations**

The trackers all agreed that the population on Chumbe seem to be in a very good health. The animals observed were relatively big and looked healthy. An over all concern is however that there seems to be more females than males. That can cause unnecessary stress to the males and the recommend that two more males should be transferred to Chumbe sometimes in the near future.

To make life easier for the existing population it was also suggested that the Chumbe management start putting out drinking water for the duikers on a few different locations in the forest. The water dishes could be placed next to monitoring cameras to increase the chances of capturing the animals on photos.

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