TARANGIRE LION PROJECT (TLP)

RADIOCOLLARS - PRELIMINARY RESULTS

INTRODUCTION

The lion can be considered a key species in Tarangire both for its ecological role and for its value in tourist game viewing and hunting, all factors impacting the lions are obviously extremely important to sustain a healthy population and preserve the species in the Tarangire ecosystem. Although the rainy season officially runs from November to May, comparatively speaking the total rainfall in the park per year is low, at about 600mm (Lyogello, 1988). Nevertheless, most migratory species such as zebra and wildebeest leave the Park at the beginning of the short rains in early November (Snelson, 1992), leaving only the resident species such as impalas, warthogs, and dik diks behind. Because of these factors: herbivore migration, deterioration of habitat, and nearby hunting camps, it has been said that TNP is not a self-sustaining ecosystem (TLP, 2000). The Park's narrow width (about 40 km at its widest point) means that wildlife, including the resident lion population, often moves in and out of the Park boundaries, thereby interacting with nearby human populations.

The Tarangire Lion Project has been identifying individual lions within the Park boarders since June 1998 but only after the application of 6 radio-collars in August 2003 it has been possible to monitor the population on a regular basis.

METHODS

In collaboration with TAWIRI and TANAPA five females belonging to different resident prides and a resident male have been collared and monitored between August and December 2003. The prides chosen usually reside further away from the main tourist areas and closer to the park boundaries and are the ones which most probably will move outside of the Park.

All animals are individually identified using the whisker-spot identification method.

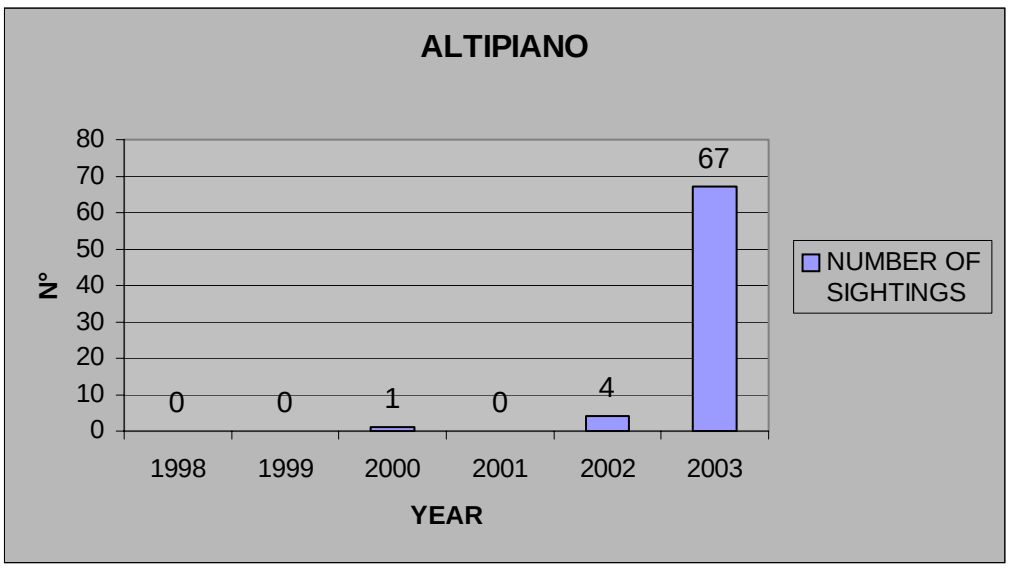
RESULTS

Following the lions on a regular basis has always been very difficult. The woody habitat of Tarangire and the tall grass are good hiding places for lions especially for hunting purposes and in hot weather when they are seeking for shade. The application of radio-collars has made it possible to find the lions even when they were far away from the main roads improving greatly all monitoring aspects. The number of sightings has increased greatly and specific observations, such as the feeding habits and interactions with other major species within the park such as elephants, have significantly improved. The following tables and graphs show the group composition (MA = male adult, FA = female adult, MSA = male sub-adult, MJ= male juvenile, FJ = female juvenile), number of sightings between 1998 and 2003 and the preyed animals (when present) for 5 different collared prides.

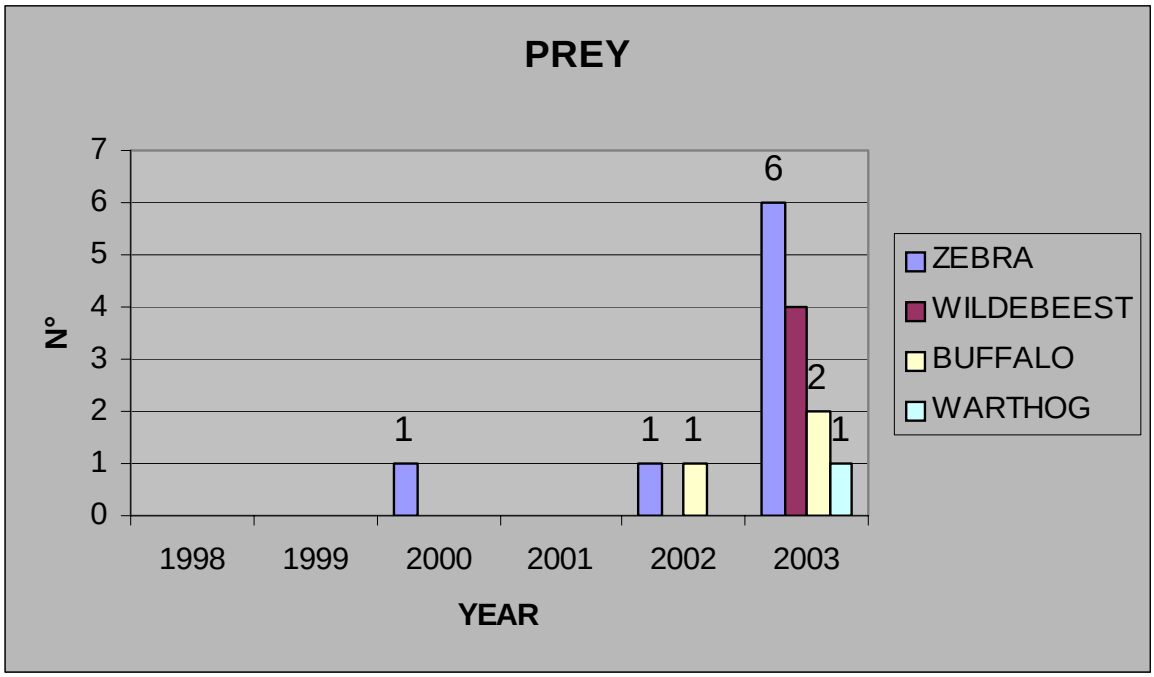
ALTIPIANO PRIDE

GROUP COMPOSITION					
MA	FA	MSA	FSA	MJ	FJ
4	6	1		5	3

	NUMBER OF SIGHTINGS
1998	0
1999	0
2000	1
2001	0
2002	4
2003	67



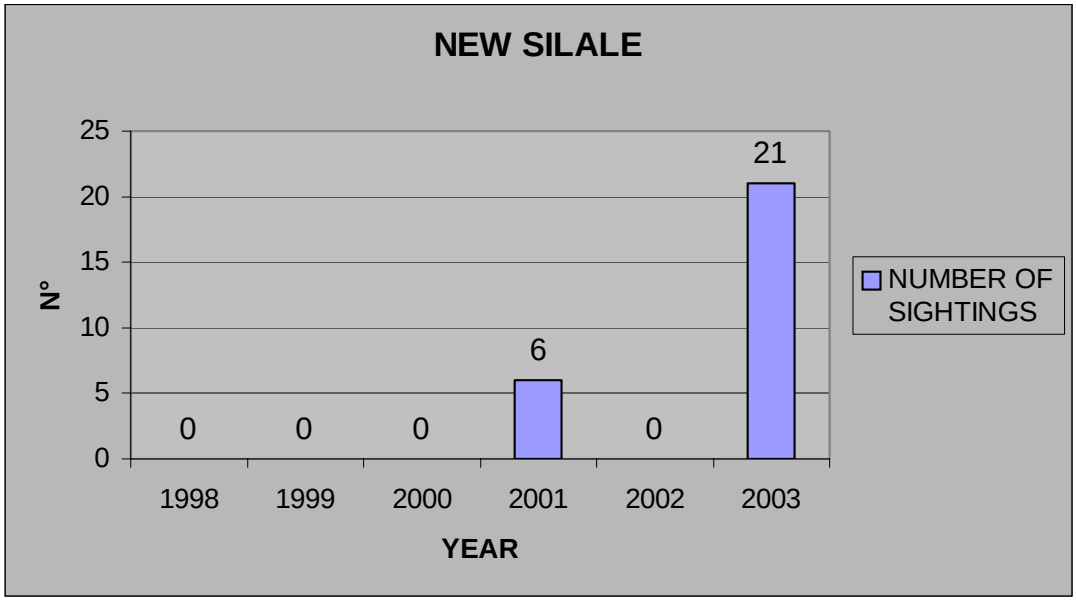
	PREY			
	ZEBRA	WILDEBEEST	BUFFALO	WARTHOG
1998				
1999				
2000	1			
2001				
2002	1		1	
2003	6	4	2	1



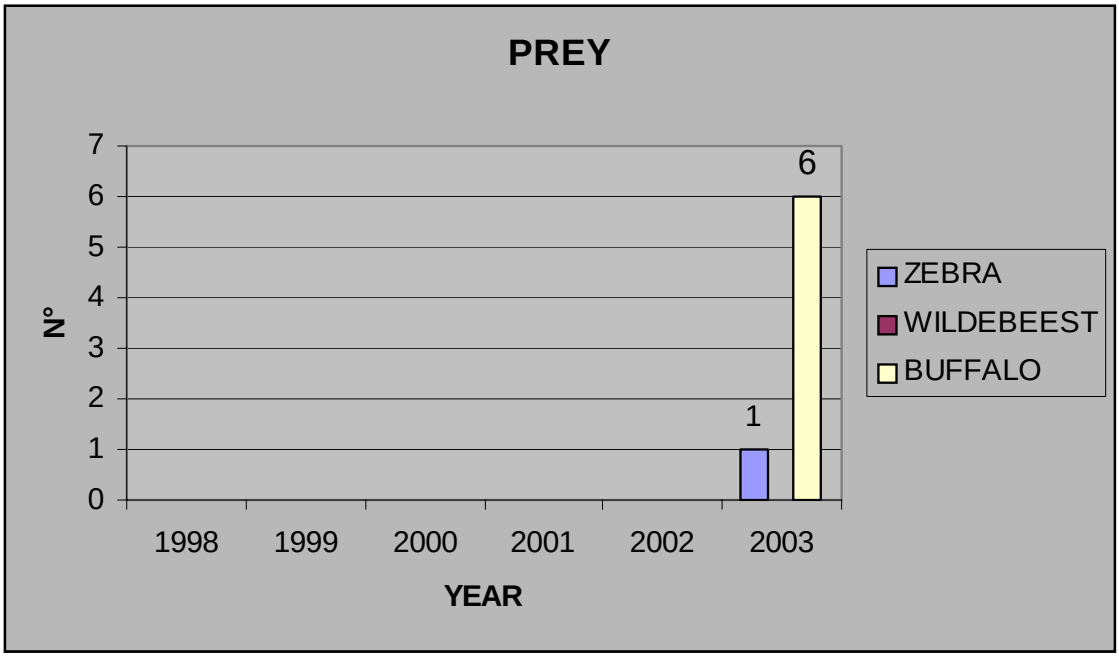
NEW SILALE

GROUP COMPOSITION						
MA	FA	MSA	FSA	MJ	FJ	UND
1	5			1	5	1

	NUMBER OF SIGHTINGS	
1998	0	
1999	0	
2000	0	
2001	6	
2002	0	
2003	21	



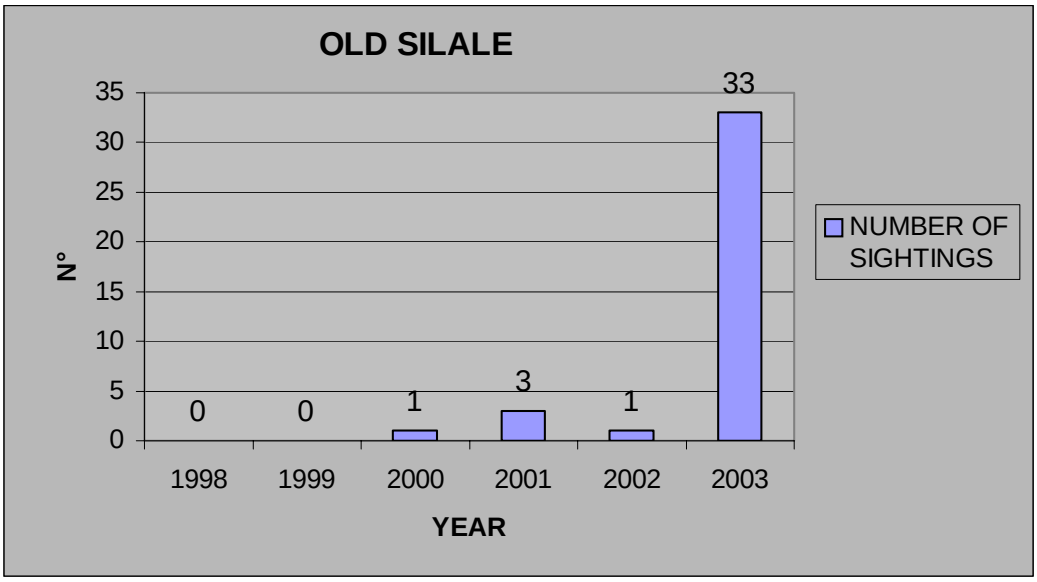
	PREY				
	ZEBRA	WILDEBEEST	BUFFALO	WARTHOG	IMPALA
1998					
1999					
2000					
2001					
2002					
2003	1		6		



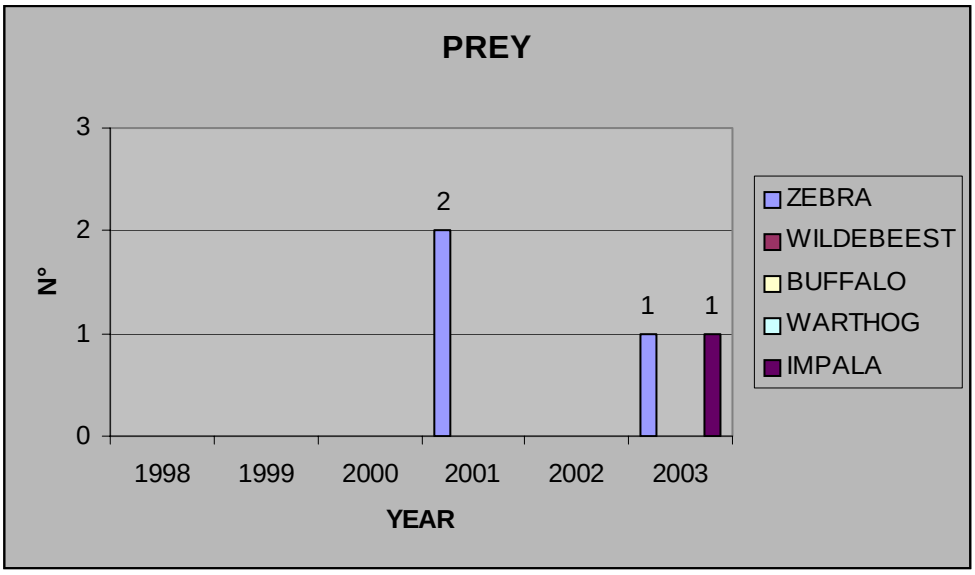
OLD SILALE

GROUP COMPOSITION					
MA	FA	MSA	FSA	MJ	FJ
2	4			3	1

	NUMBER OF SIGHTINGS	
1998	0	
1999	0	
2000	1	
2001	3	
2002	1	
2003	33	



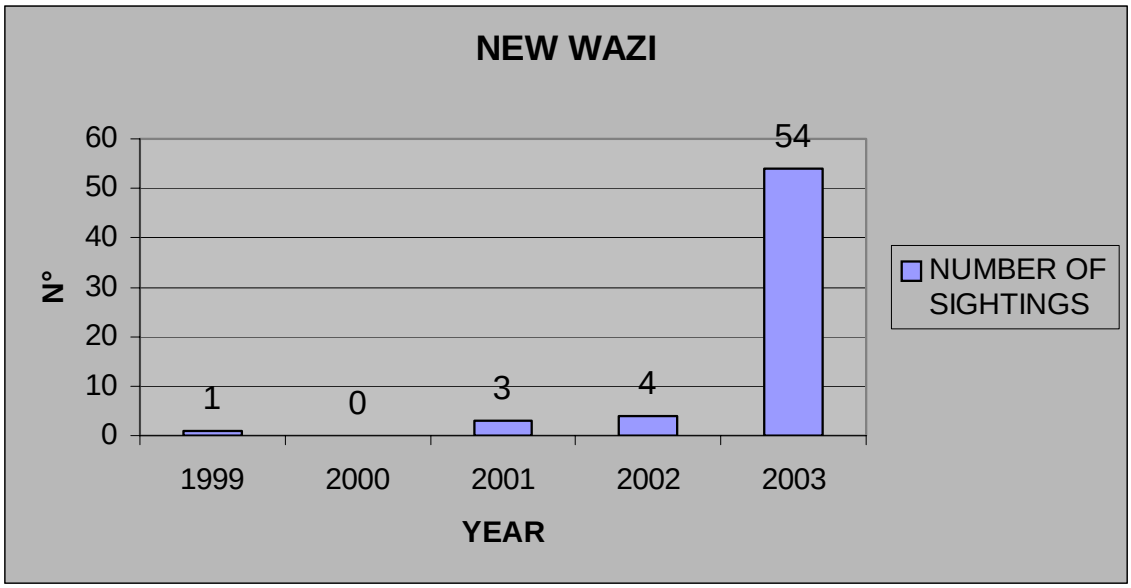
	PREY				
	ZEBRA	WILDEBEEST	BUFFALO	WARTHOG	IMPALA
1998					
1999					
2000					
2001	2				
2002					
2003	1				1



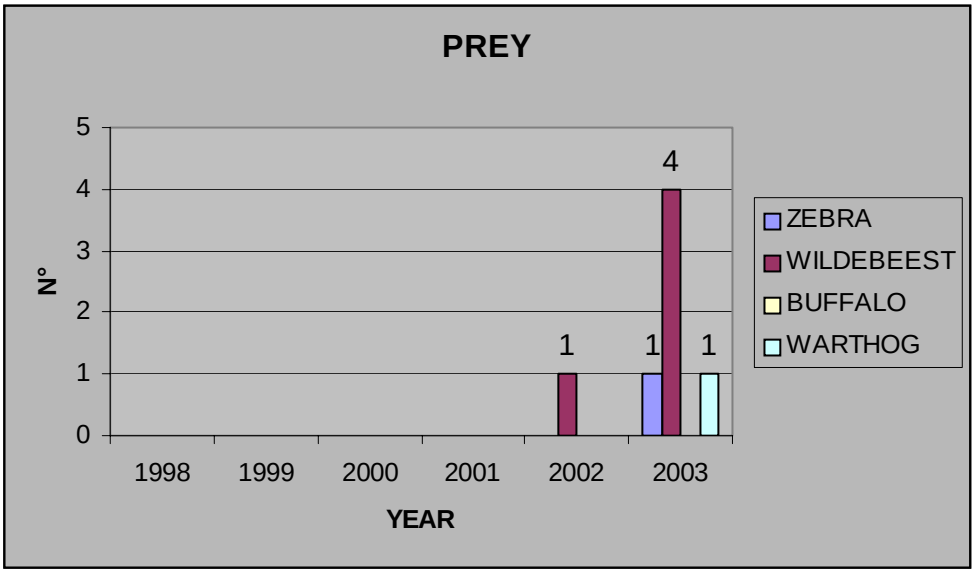
NEW WAZI

GROUP COMPOSITION					
MA	FA	MSA	FSA	MJ	FJ
4	2				3

	NUMBER OF SIGHTINGS
1999	1
2000	0
2001	3
2002	4
2003	54



	PREY			
	ZEBRA	WILDEBEEST	BUFFALO	WARTHOG
1998				
1999				
2000				
2001				
2002		1		
2003	1	4		1

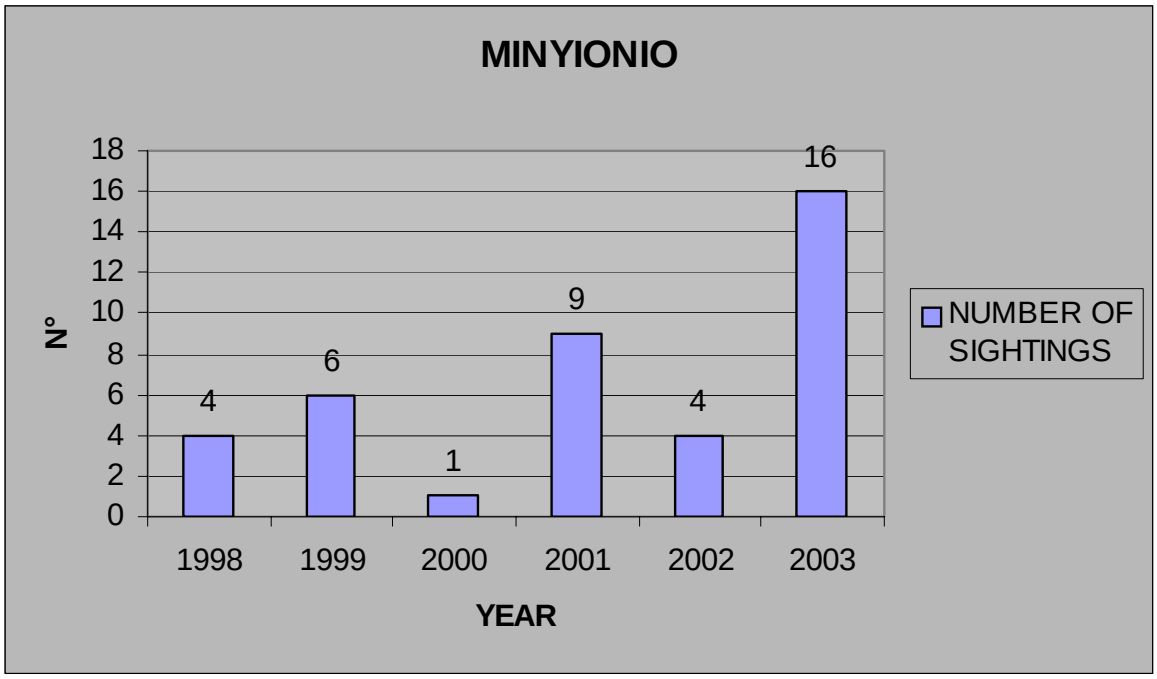


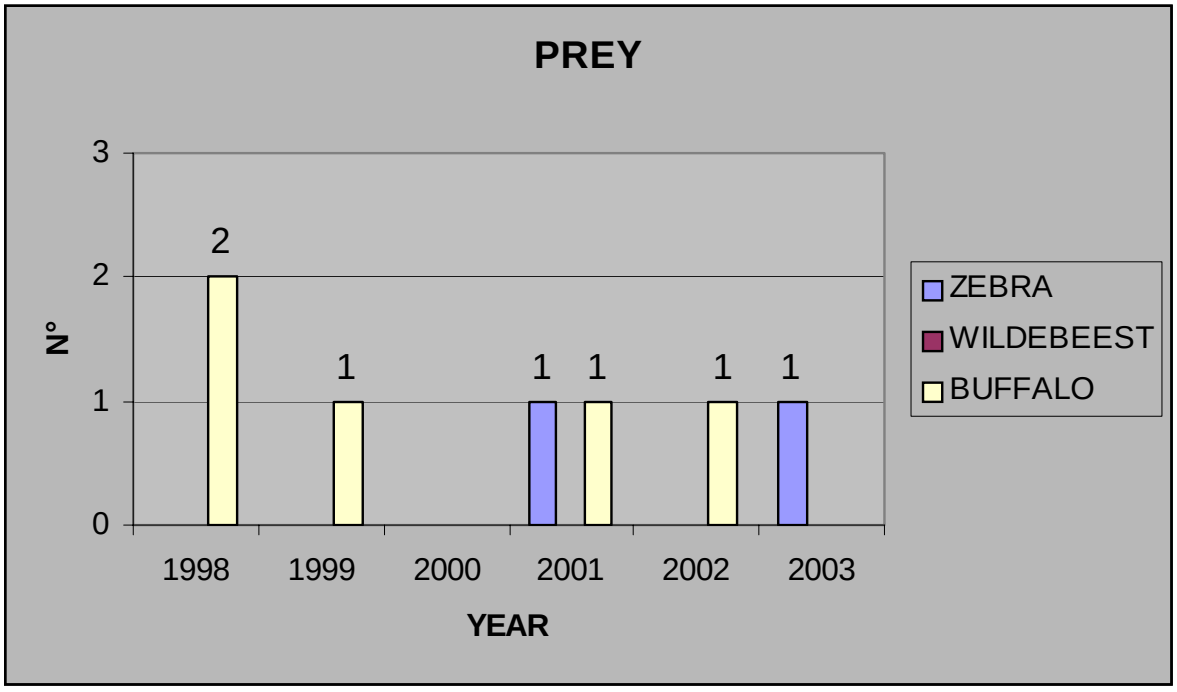
MINYYIONIO

Group composition still uncertain.

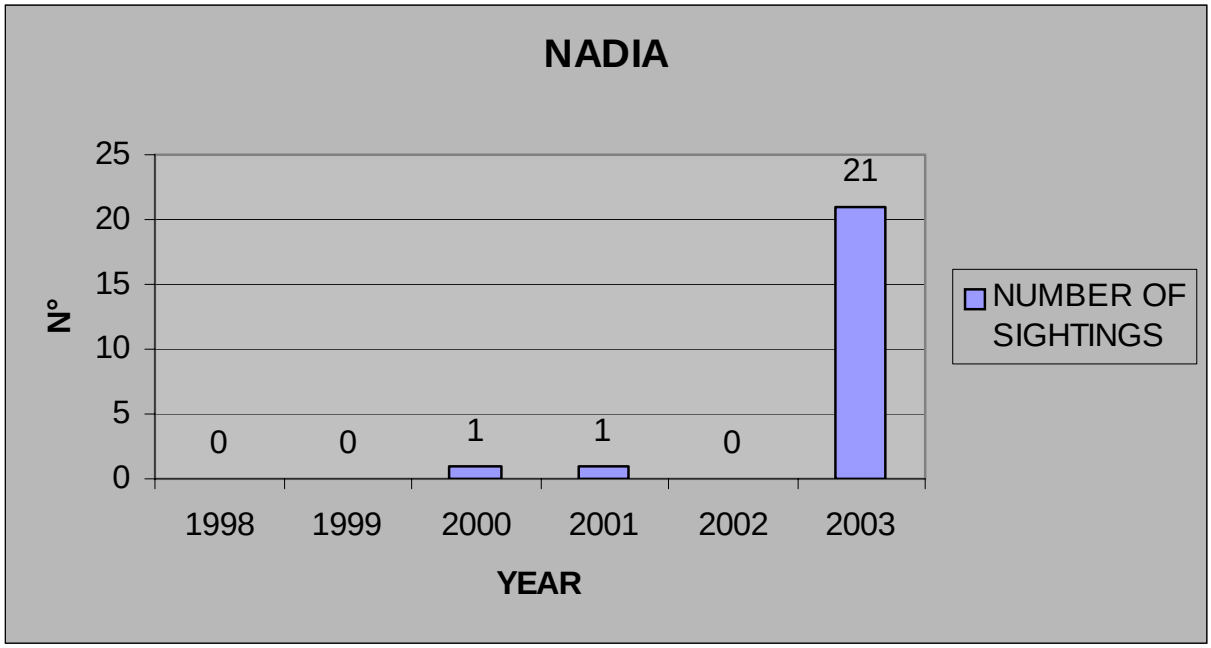
	NUMBER OF SIGHTINGS
1998	4
1999	6
2000	1
2001	9
2002	4
2003	16

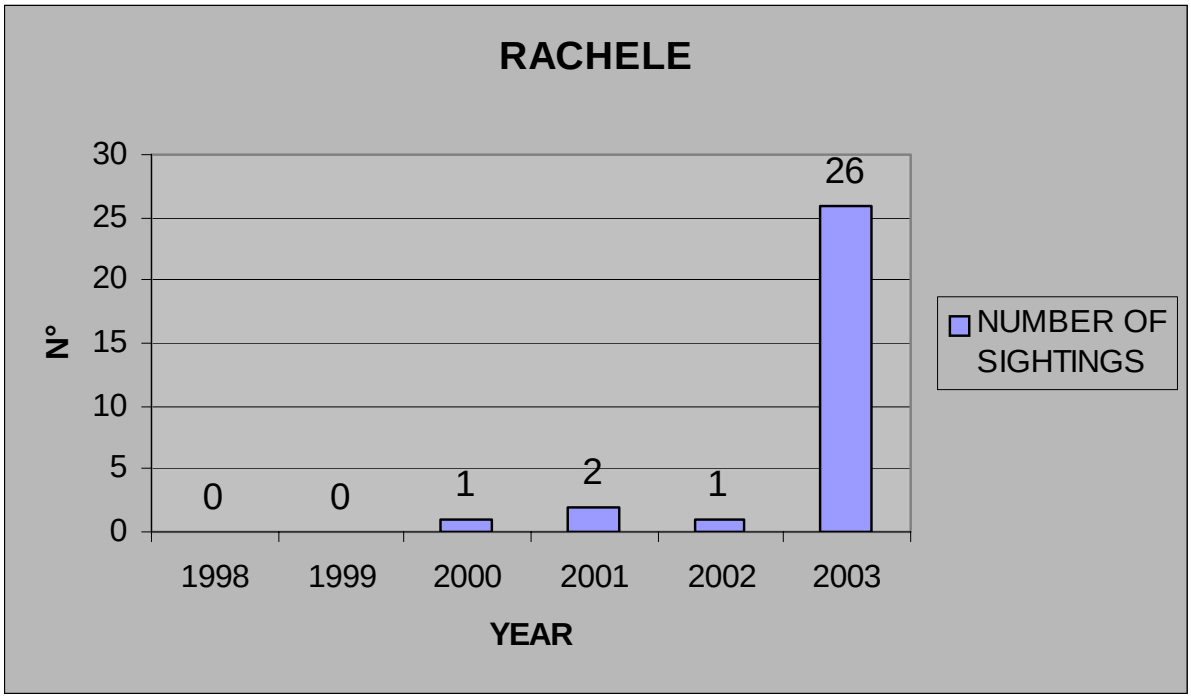
	PREY		
	ZEBRA	WILDEBEEST	BUFFALO
1998			2
1999			1
2000			
2001	1		1
2002			1
2003	1		

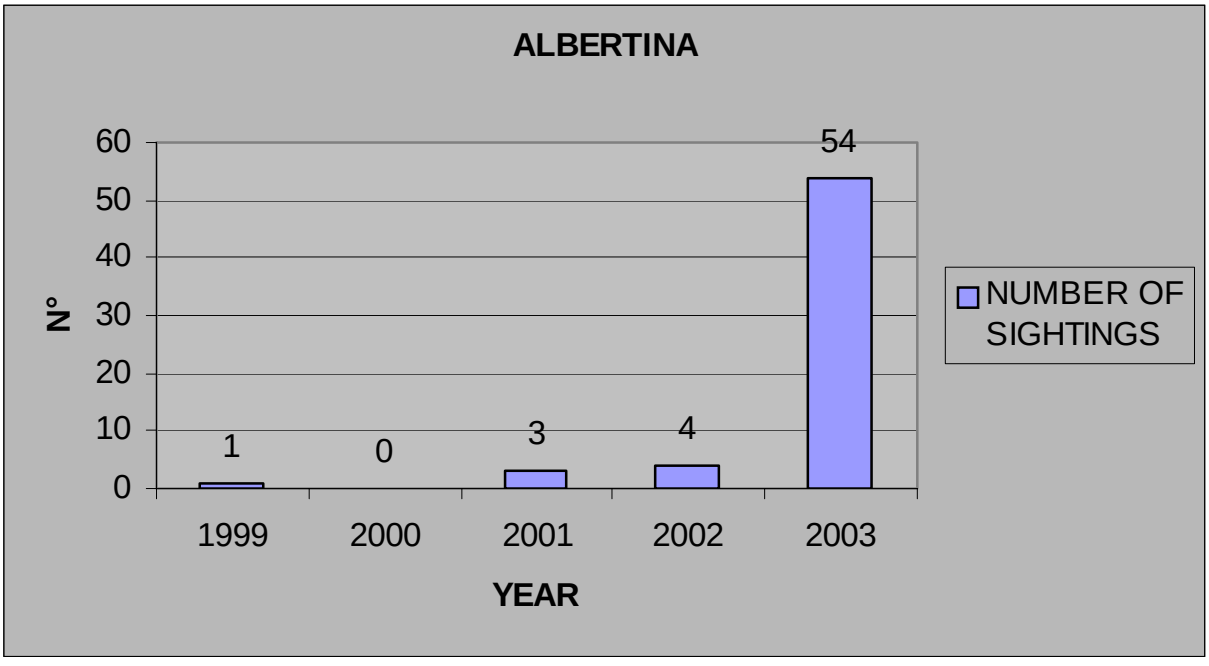


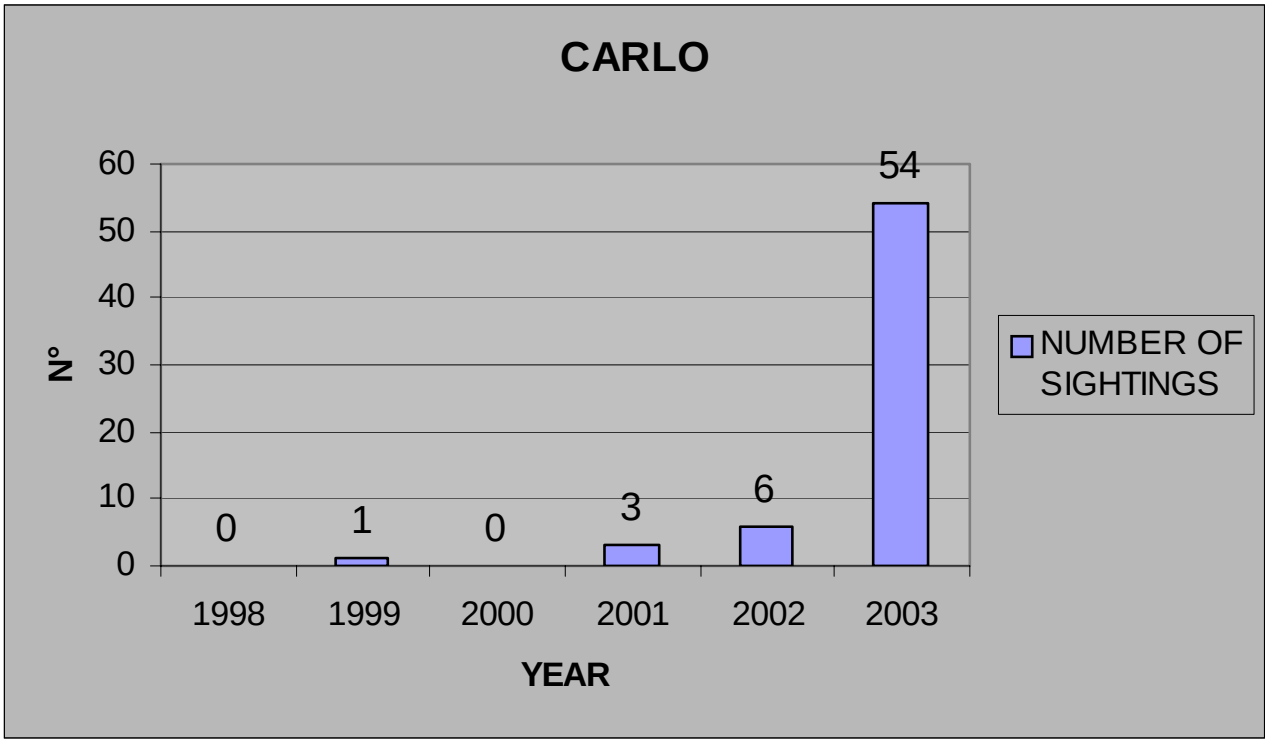


If we have a close look at some of the single collared individuals, see figures below, we can notice that the number of sightings reflects the overall trend observed for the prides. Albertina, Nadia and Rachele are the collared females of the New Wazi Pride, New Silale and Old Silale respectively whereas Carlo was the only collared male.

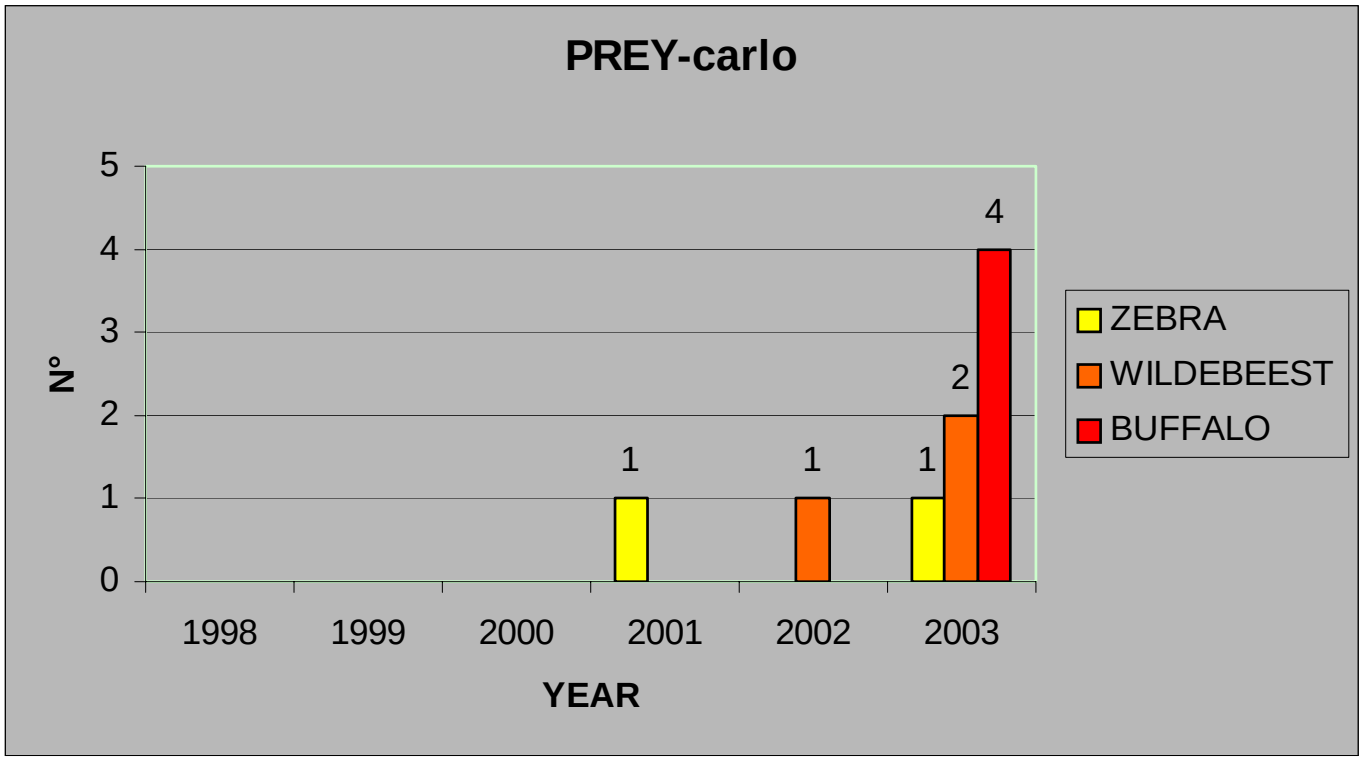

NADIA
25
20
15
10
5
0
N°
0
0
1
1
0
21
1998
1999
2000
2001
2002
2003
YEAR
NUMBER OF SIGHTINGS


RACHELE
30
25
20
15
10
5
0
N°
0
0
1
2
1
26
1998
1999
2000
2001
2002
2003
YEAR
NUMBER OF SIGHTINGS


ALBERTINA
60
50
40
30
20
10
0
N°
1
0
3
4
54
1999
2000
2001
2002
2003
YEAR
NUMBER OF SIGHTINGS



Carlo died unfortunately at the end of October and the causes of his death are still uncertain although it was most probably killed in a fight with another male or by buffaloes. To support this hypothesis we can have a look at the following graph which shows his preference to feed on buffaloes. Males of the same coalition don't stay together all the time, Carlo might have been by himself at the time and might have got injured during a hunting attempt. Furthermore, his body was found along the river in a densely populated buffalo area. The collar on this male allowed us to collect precious data for 3 months as he made part of a coalition composed of other 4 males which controls 5 different prides in the North of the park.



DISCUSSION

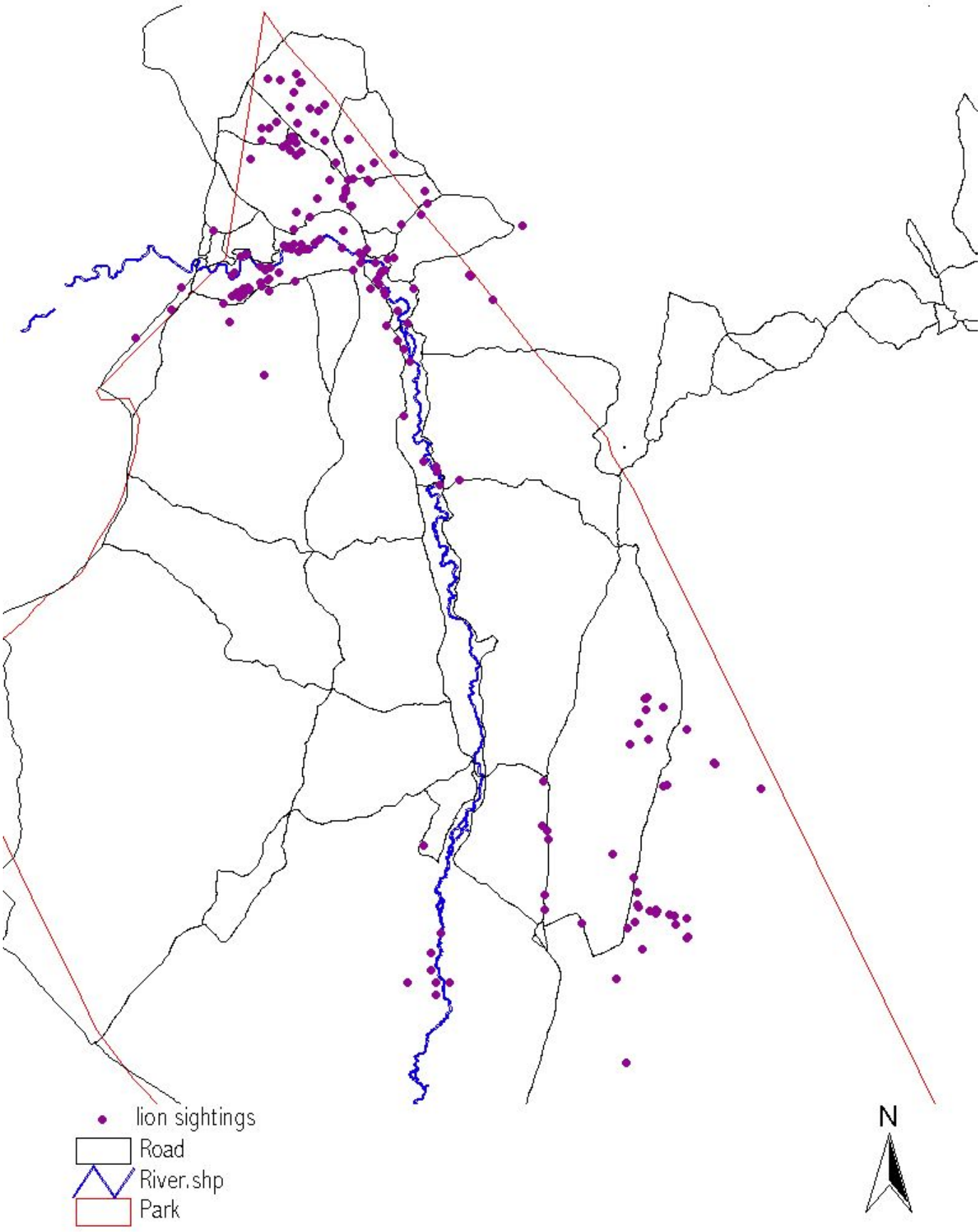
All the graphs have shown clearly an amazing increase of the number of sightings as soon as the radio-collars were applied. If we consider that some individuals, such as Nadia from the New Silale pride, was seen just 2 times in five years (1998-2002) and 21 times between August 2003 and November 2003 this increase has been enormous. The same was observed for Carlo, 10 times between 1998-2002 and 54 times between August 2003 and October 2003, and Albertina, 9 times between 1998-2002 and 54 times between August 2003 and October 2003. Monitoring lions on a regular basis will be essential to verify their movements outside of the park as soon as it starts raining. No data has ever been collected in the past years during the wet season due to the impossibility to follow and find lions without the use of radio-collars. Looking at the map that follows it is possible to notice that some prides are already using areas very close to the park boarders even during the dry season when prey availability is high and home ranges are consequently reduced. These are the animals which will be of greater interest during the wet season and the radio-collars will allow us to verify to which extent their home ranges are expanded as soon as the herbivores migrate outside of the park.

Finding lions with such frequency and on a regular basis allows longer observations on behaviour, feeding habits and lion – elephant interaction. Between August and December 2003 all groups of elephants encountered within a 200m corridor from either side of the car were noted as well as any particular behaviour observed whenever lions and elephants were within 100m from one another. The second map that follows shows the lion sightings in relation to the elephants. Interesting interactions were observed between lions and elephants although the sample is still too small for any conclusion.

The Tarangire Lion Project is looking forward to replace the collar of the dead male in order to have a continuity of the data collected so far. Furthermore, finding the dead male was possible just because of the collar and it is very important to underline that he died within the park boarders and in the core area of his home range. This means that males are not only harassed outside the park because of Trophy Hunting and interaction with local communities but they might get killed also within the protected area. It is therefore essential to have another collared male in the near future.

For the first time data will be collected during the wet season.

Radiocollars August 2003 - November 2003



Lion - Elephant sightings