

1978

N. 25/3

MARCH 1978 GAME CENSUS
IN ETOSHA NATIONAL PARK, USING A HELICOPTER

RESPONSIBLE OFFICERS:

H. H. BERRY (Areas IV, V, VI, VII, VIII)
P. A. DE VILLIERS (Areas I, II, III, IV)
DR. J. M. HOFMEYR (Kaross - Khoabendes)

PILOT:

M. DE JAGER

RECORDING TRANSCRIPTION:

(Mrs.) C. BERRY
(Mrs.) L. DE VILLIERS

CONTENTS:

1. Introduction
2. Method
3. Results
4. Discussion
5. Cost
6. Conclusions and recommendations
7. Acknowledgements
8. References.

1. INTRODUCTION

In September 1973 and July 1974, Joubert et al. and Berry et al. carried out a census of Etosha by helicopter. During 1975 the helicopter was not available for a game census. In July 1976 the third winter census of large animals was done. The first summer census of Etosha was done by helicopter in March 1977 and the second summer census in March 1978.

2. METHOD

"Hughes 300 helicopter (see previous reports for method).

The main game reserve was censused from 1 - 10 March and Kaross - Khoabendes on 13 March. The pilot assisted with the counts.

Censusing was undertaken consecutively for 3 days with 1 day's interruption for rest and then continued for a further 5 successive days. Kaross - Khoabendes was censused separately on 1 day.

Table 1 reflects the time of day flown and the time allocated to each area. Shadow-effect was too pronounced before 08h00 and after 18h00 to count accurately.

The average air speed at which counts were done varied from hovering to 100 - 130 km/h, depending on the wind. Height above ground varied from 30m. when counting springbok on the plains to 100 m. when counting elephant in Mopane veld. Operating temperature ranged from 15°C at 08h00 to 32°C at 15h00.

3. RESULTS

Table II gives the species totals for Etosha National Park, subdivided into seven main areas. Table III shows some bird species counted. Table IV compares the grand totals of the helicopter censuses to date.

4. DISCUSSION

4.1 Burchell's Zebra:

Area of greatest concentration was Okaukuejo (84% of the total population occurred there).

Otjovasandu's number decreased sharply (1804 to 698) and zebra declined in total by 3%. There has been a substantial reduction in the number of zebra in Etosha since helicopter counts were begun in 1973, (14 550 to 9 618).

Zebra foals comprised only 9% of the total population (at peak foaling period).

4.2 Hartmann's Zebra: Percentage foals is 13%.

4.3 Blue Wildebeest:

There is a decrease in total population (3 059 to 2 493) and this is in part due to the emigration of wildebeest to Owambo. The census was conducted just after the calving season had ended. Percentage calves: 17%. Refer to the supplementary report on wildebeest for greater detail.

4.4 Hartebeest: Percentage calves is 16%.

4.5 Springbok:

A very definite increase from 20 643 (1977) to 26 238 (1978).

4.6 Gemsbok: Percentage calves is 4%

4.7 General: We were allowed 60 flying hours to complete the census (including the return ferry to Windhoek). Total time recorded on the helicopter's clock was 56 hours 20 mins (Table 1), but the actual census time was 47 hrs. 25 mins. because 8 hrs. 55 min. was allocated to ferrying and miscellaneous, such as warming up and testing helicopter. The 1973/74/76/77 censuses were $48\frac{1}{2}$, $55\frac{1}{2}$, $49\frac{1}{4}$ and $49\frac{1}{2}$ hrs. actual census time.

As in the previous years our figures are thus not a reflection of total animals with the exception of the wildebeest which we feel was totally censused. It is the most accurate count of the census, followed by plains zebra and springbok.

5. APPROXIMATE COST	R	c
Hire of helicopter (56,3 hrs. at R65/hr.)	3	378.00
Fuel truck (ca. 1 500km at 14,9c/km)		223.00
Nature Conservation personnel salary (2 Europeans for 9 days)		370.00
(1 non-European for 9 days)		31.00
S & T for personnel		200.00
TOTAL :		<u>4 202.00</u>

6. CONCLUSIONS

- 6.1 The summer census was fully warranted because of the variation in seasonal distribution of the animals which is evident.
- 6.2 Moreover, it has substantiated earlier predictions that on the plains surrounding the Pan there is a marked decrease in Burchell's Zebra, while springbok have reached numbers not previously recorded in the present day Etosha.
- 6.3 The Otjovasandu area, on the other hand, shows a sharp decrease in most large mammals. In all cases this may be due to emigration or mortality. In addition different pilots and observers were used in 1977 and 1978.

7. RECOMMENDATIONS

- 7.1 Two general censuses of Etosha should be conducted by helicopter every seasonal year: one at the height of the rainy season (Feb./Mar.) and one in the dry season before ambient temperatures begin increasing (July/Aug.).
- 7.2 In addition two interim censuses of the plains animals only should be done midway between the general censuses, namely May and November, using the helicopter.
- 7.3 The actual census time should be increased to 60 flying hours plus about 10 hours for ferry and warm-up, that is to say 70 hours for each general census. When Kaross/Khoabendes are included it will amount to 75 hours.

For the counts on plains animals only, 30 census hours are required, plus ferry and warm-up of about 10 hours = 40 hours total. Kaross/Khoabendes need not be counted during the interim censuses.

- 7.4 Observers and pilot should be kept constant to keep error in censusing to a minimum.

8. ACKNOWLEDGEMENTS

The pilot, Mr. M. de Jager is thanked for his assistance with the counts and Mrs. Berry and Mrs. de Villiers are thanked for undertaking the transcription of recordings. The tourist officers at all camps did their best to provide accommodation for the crew at short notice.

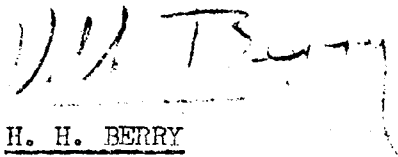
9. REFERENCES

BERRY, H. et al.

1974, 1976 and 1977 game census in Etosha National Park by helicopter. Dept. reports N. 25/3 dated 1975.08.08, 1976-10-16 and 1977.04.27

JOUBERT, E. et al.

Lugsensus van die wild in the Nasionale Etoshawildtuin gedurende September 1973 met behulp van 'n helikopter.
Dept. verslag N. 25/3 gedateer 1973.11.13.


H. H. BERRY

1978-04-19

TABLE I : TIME OF DAY FLOWN AND TIME ALLOCATED TO AREAS CENSUSED

DAY	AREA	TIME (HOURS)			
		START	END	FLIGHT TOTAL	DAY TOTAL ++
Section 1 : P. de Villiers					
1	IV, III, II and I (Ferry to Otjovasandu)	12h10	14h35	2 : 25'	4 : 00'
		16h45	18h20	1 : 35'	
2	I and II	08h00	10h25	2 : 25'	5 : 30'
		10h40	12h30	1 : 50'	
		16h15	17h30	1 : 15'	
3	II and III	08h35	10h30	1 : 55'	3 : 20'
		11h55	13h20	1 : 25'	
4	IV +	08h20	10h50	2 : 30'	3 : 55'
		12h15	13h40	1 : 25'	
5	IV	09h35	11h30	2 : 55'	3 : 30'
		11h35	12h00	0 : 25'	
Section 2 : H. Berry					
5	V	15h50	17h50	2 : 00'	2 : 00'
6	VI	08h00	10h30	2 : 30'	6 : 40'
		11h00	13h05	2 : 05'	
		15h50	17h55	2 : 00'	
7	IV	08h00	10h35	2 : 35'	6 : 40'
		11h10	12h50	1 : 40'	
		15h30	17h55	2 : 25'	
8	IV and VI	08h30	09h20	0 : 50'	5 : 30'
		10h45	12h30	1 : 45'	
		15h45	17h35	2 : 55'	
9	VI, VII and VIII	08h30	10h40	2 : 10'	6 : 20'
		11h20	13h40	2 : 20'	
		16h05	17h55	1 : 50'	
Miscellaneous	Time spent on poachers + Ferry to Okaukuejo Ferry ex Windhoek	-	-	-	8 : 55'
TOTAL					56 : 20'

KEY TO TABLE I:

- + = 30 minutes were used to locate a group of poachers.
- ++ = Gross total is 56 hours 20 minutes less 8 hours 55 minutes ferry and miscellaneous, therefore net census time is 47 hours 25 minutes (cf. 49 hours 30 minutes in 1977).

In addition Kaross - Khoabendes was censused on 13 March.

Refer Dr. Hofmeyr's report for details.

TABLE II: ANIMAL SPECIES TOTALS IN THE 7 MAIN AREAS OF ETOSHA NATIONAL PARK

SPECIES	10 7 8 7 AREA 0/3 1							KAROSS/KHOABENDES
	NAMUTONI	HALALI	GOBAUB	OKAUKUEJO	19th LATITUDE	OTJOVASANDU		
Burchell's zebra	674	0	0	8 083	163	698		
Hartmann's zebra	0	0	0	0	0	727		
Blue Wildebeest	795	4	19	1 637	0	38		
Red Hartebeest	29	0	1	73	76	22		
Springbok	873	77	140	24 564	317	267		
Roan antelope	0	0	0	0	0	1		
Gemsbok	174	74	51	854	110	823		
Black-faced impala	0	0	0	0	0	13		
Kudu	33	0	4	4	13	95		
Steenbok	6	1	4	4	2	5		
Grimm's duiker	0	0	0	0	0	0		
Southern Reedbuok	0	0	0	0	0	0		
Eland	0	0	0	32	0	97		
Giraffe	153	0	1	102	25	215		
Warthog	8	1	4	5	32	77		
Black rhino	0	0	0	3	1	7		
Elephant	1	1	1	132	510	179		
Lion	0	0	0	8	0	0		

REFER TO DR. HOFMEYER'S REPORT

TABLE II (continued)

SPECIES	A R E A							
	NAMUTONI	HALALI	GOBAUB	OKAUKUEJO	19th LATITUDE	OTJOVASANDU	KAROSS/KHOABENDES	
Cheetah	0	0	0	0	0	0		
African Wild Cat	0	0	0	0	0	0		
Honey Badger	0	0	0	0	2	0		
Brown Hyaena	0	0	0	0	0	0		
Black-backed Jackal	1	1	0	4	0	2		
Cape fox	0	0	0	0	0	0		
Bat-eared fox	0	0	0	0	0	0		
Baboon	0	0	0	0	0	0		
Total animals by area	2 747	159	225	35 505	741	3 266		

Total animals counted 42 643

REFER TO DR. HOFFMANN'S REPORT

TABLE III: SOME BIRD SPECIES COUNTED IN ETOSHA NATIONAL PARK

SPECIES	A R E A							T O T A L S
	NAMUTONI	HALALI	GOBAUB	OKAUKUEJO	19th LATITUDE	OTJOVASANTU		
Ostrich	133	67	25	453	85	107	870	
Kori Bustard	30	13	0	50	-	-	93	
Guineafowl +	20(1)	0	0	15(1)	0	-(1)	35(3)	
Blue Crane	15	7	0	2	-	-	24	
Saddlebill	1	0	0	0	-	-	1	
White-backed vulture	7	1	0	98	-	-	106	
Lappet-faced Vulture	1	1	0	1	-	-	3	
Vulture unidentified	0	0	0	12	-	-	12	
Black-breasted Snake Eagle	0	1	0	0	-	-	1	
Bataleur	1 + 1 Imm	0	0	4 Imm	-	-	6	
Secretary Bird	3	5	1	8	-	-	17	
Spoonbills	100's	0	0	0	-	-	100's	
Grey-headed Gull	100's	0	0	0	-	-	100's	
Red-bill Teal	1 000's	0	0	0	-	-	1 000's	
Maders	10 000's	0	0	0	-	-	10 000's	
Marabou	7	0	0	21	-	-	28	
Goliath Heron	1	0	0	0	-	-	1	

+ = Number of flocks given in brackets.

TABLE IV: COMPARISON OF 1973, 1974, 1976, 1977 AND 1978 CENSUSES

S P E C I E S	Y E A R				
	SEPTEMBER 1973	JULY 1974	JULY 1976	MARCH 1977	MARCH 1978
Wildebeest	12 496	14 550	10 418	9 985	9 618
Hartmann's Zebra	736	553	599	1 011	127
Blue Wildebeest	3 717	3 300	2 638	3 059	2 493
Red Hartebeest	549	234	179	262	201
Springsbok	5 262	7 011	10 433	20 643 - 24 180 +	26 238
Roan antelope	159	177	204	163	1
Gemsbok	3 788	2 537	2 382	3 967	2 086
Black-faced Impala	271	352	379	337	13
Kudu	2 101	1 223	1 267	838	149
Steenbok	156	25	11	42	22
Grimm's Duiker	29	3	0	1	0
Southern Reedbuck	1	0	0	1	0
Eland	423	289	527	445	129
Giraffe	935	963	735	887	496
Marthog	147	209	177	336	127
Black Rhino	63	36	45	40	11
Elephant	1 293	835	1 170	836	824
Lion	137	80	70	46	8
Black-backed Jackal	99	77	36	28	8
Bat-eared Fox	8	10	1	15	0
Baboon	-	15	70	30	0

TABLE IV (Continued)

S P E C I E S	Y E A R					
	SEPTEMBER 1973	JULY 1974	JULY 1976	MARCH 1977	MARCH 1978	
Ostrich	712	757	751	1 382	870	
Kori Bustard	202	128	138	209	93	
Guineafowl (flocks)	-(45)	2 120(44)	1 610(28)	360(8)	35(3)	
Secretary Bird	7	19	17	33	17	
Blue Crane	16	18	138	56	24	
White-backed Vulture	-	22	73	269	106	
Lappet-faced Vulture	-	12	4	21	3	
White Pelican	-	1 712	251	0	-	
Flamingoes	-	187 200	10 507	24 900	-	

⊕ 1978 totals do not include Kaross -- Khoabendes