N. 18/2/2/1

HELICOPTER CENSUS OF WESTERN ETOSHA NATIONAL PARK DURING MAY 1984

2303

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1. INTRODUCTION

The purpose of this census was to do a total count of the large animal species in the Otjovasandu area of Etosha. These counts serve as a guideline to Management for possible capture and culling procedures in this area during 1984.

In the case of elephant the counts carried out by us have been incorporated in the elephant census report (N. 18/2/1/9 : M. Lindeque , 1984).

2. METHOD

2.1. Using a Bell 47 helicopter in which two observers sat abreast of the pilot, we divided the area to be censussed into 3 major blocks bounded by the Etosha fence, powerline and roads. (Fig. 1).

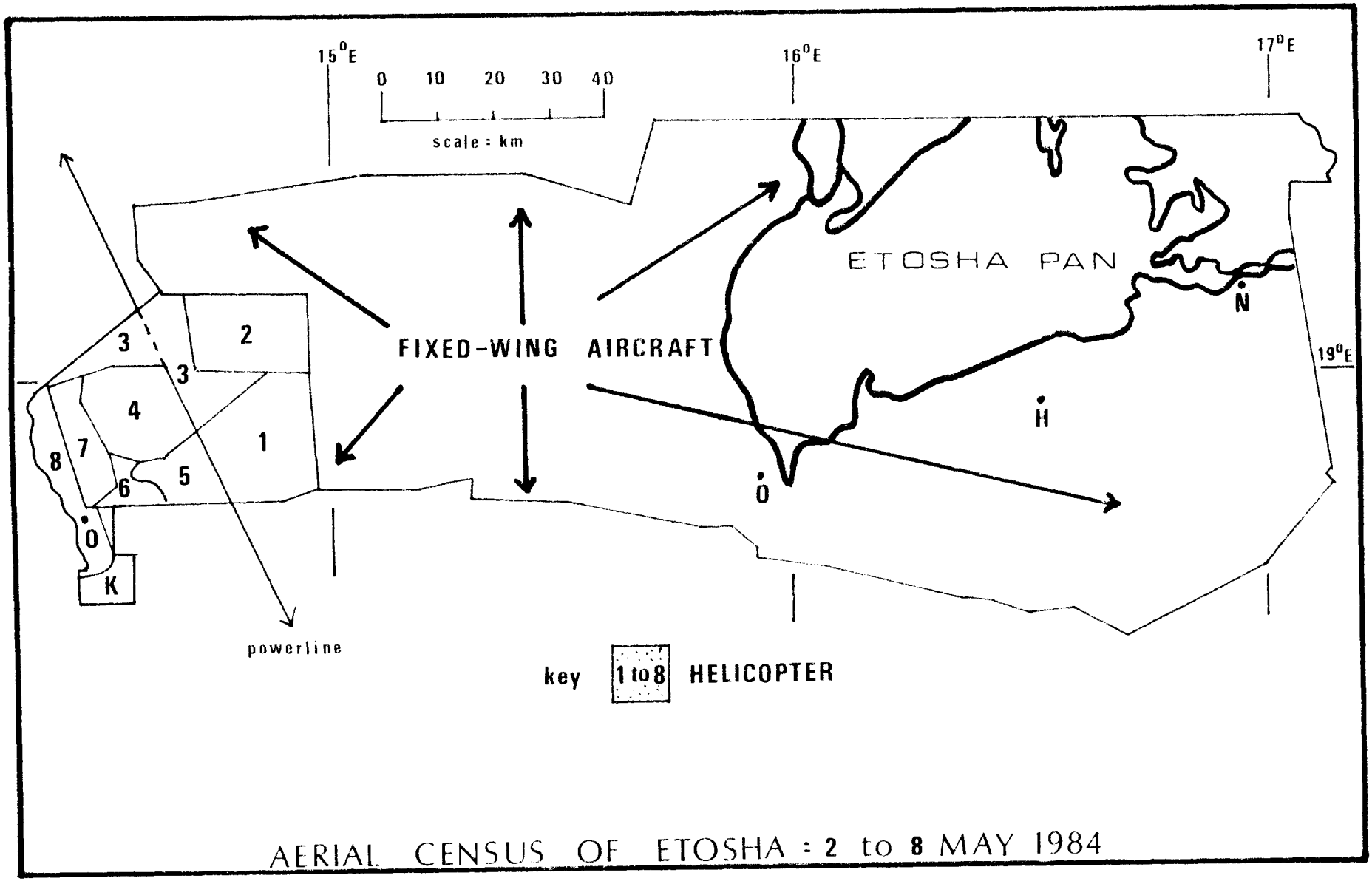

Fig. 1 : Map of Etosha showing 8 blocks which were censused by helicopter.

2.2. The pilot navigated and assisted in locating animals. One observer was responsible for scanning the area to the left of the helicopter and the second observer concentrated on the right hand side area.
All animals counted were recorded on tapes which were transcribed onto count sheets after each day's censussing. The helicopter flew at a height of 50 - 80 m depending on the vegetation density. Airspeed was approximately 50 -60 knots (100-120 km/h). Parallel transects of about 1 km in width were flown in all blocks.

2.3. The following data were recorded during each flight :

total flying time
time spent counting in each block
direction of transects
direction of movement
temperature
windspeed and direction
cloud cover
visibility
vegetation type
presence of seasonal, rain water pans

2.4. Censussing was done between 06h00 and 13h00 except in Blocks 1 and 4 where the size of the area made it necessary to fly during the afternoon.

3. RESULTS

3.1. The totals for each species counted are given in Table 1 and a comparison is made with the 1982 census by helicopter.

3.2. Mean group size, range in group size and its standard deviation are shown for the major species in Table 2.

3.3. The recorded number of seasonal pans, pools and gravel pits holding rain water in the census blocks are shown in Fig. 2.

Table 1 : Number of animals and birds counted during the total censusses of the Otjovasandu area (May 1984 and April/May 1982).

SPECIES	DATE	
	May 1984	April/May 1982
Burchell's zebra	1 044	1 773
Hartmann's zebra	1 027	2 654
Gemsbok	1 528	2 011
Springbok	752	982
Giraffe	300 (+2 skeletons)	411
Wildebeest	11	5
Kudu	22	201
Eland	250	209
Red Hartebeest	112	87
Steenbok	11	15
Black-faced Impala	2	42
Roan Antelope	0	11
Grimm's Duiker	1	0
Damara Dik-Dik	0	0
Klipspringer	0	0
Warthog	40	98
Black Rhino	54 (+1 skeleton)	66
Elephant	364	548
Elephant carcases/ skeletons	12	20
Lion	21	9
Leopard	0	0
Cheetah	0	0
Caracal	1	0

Table 1 (continued)

SPECIES	DATE	
	May 1984	April/May 1982
Black-backed Jackal	5	5
Spotted Hyaena	0	1
Brown Hyaena	0	0
Bat-eared Fox	11	0
Aardwolf	0	0
Honey Badger	0	0
Porcupine	0	3
Baboon	0	23
Ostrich	499	459
Marabou Stork	306	-
Vultures: unidentified	25	-
" : lappet-faced	2	-
" : white-backed	6	-
Eagles: general	(1 tawny + 10 unidentified)	(1 black, 2 martial)
" : bataleur	1	1
" : secretary bird	11	1
Chanting goshawk	4	-
Kori bustard	1	1
Guinea fowl	-	-
Temporary rain water pans	785	168

Table 2 : Mean group size, range and standard deviation of the major species counted in the Otjovasandu area (May 1984).

SPECIES	NO. OF OBSERVATIONS (n)	MEAN GROUP SIZE	RANGE	± S.D.
Burchell's zebra	83	14	1 - 51	14
Hartmann's zebra	103	15	1 - 48	19
Gemsbok	207	7	1 - 110	13
Springbok	26	52	1 - 450	90
Giraffe	56	9	1 - 23	13
Kudu	12	2	1 - 5	1
Eland	12	19	1 - 78	22
Hartebeest	32	4	1 - 16	5
Warthog	10	5	1 - 10	5
Rhino	27	1,5	1 - 5	0,5
Lion	4	5	2 - 9	4
Ostrich	90	13	1 - 24	21

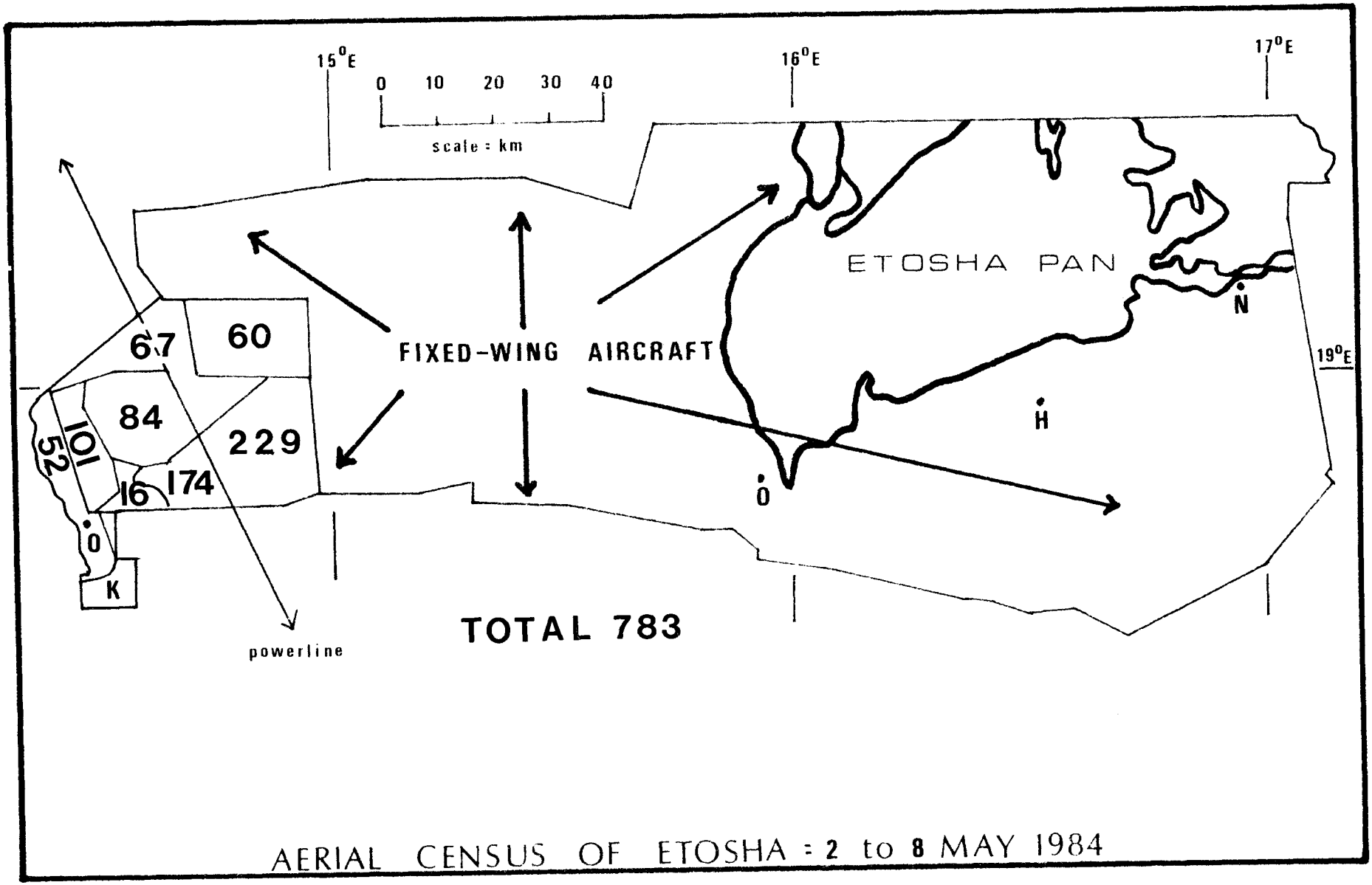

Fig. 2 : Map of Etosha showing the number of seasonal pans, pools and gravel pits containing rainwater, in the census blocks.

3.4. Distribution maps for the five species which may require management action, namely Burchell's and Hartmann's zebra, gemsbok, springbok and giraffe are given in Figs. 3 to 7.

4. DISCUSSION

4.1. Burchell's zebra (Fig. 3) :
The difference of 1 775 (1982) and 1 044 (1984) zebra, namely 729 fewer, can partly be ascribed to the 509 captured (Nowers, 1983) and 128 culled (Scheepers, 1983) which gives a total of 637 removed. Berry and Nott (1983) recorded at least 1 483 zebra at waterholes. Furthermore, 499 were captured in 1982 after the census, giving a total of 1 136 zebra removed from this area in 2 years.

4.2. Hartmann's zebra (Fig. 4) :
The difference of 2 654 (1982) and 1 027 (1984) zebra, namely 1 627 fewer, can partly be ascribed to the 587 captured (Nowers, 1983) and 310 culled (Scheepers, 1983) which gives a total of 897 removed. Moreover, Berry and Nott (1983) counted 1 661 Hartmann's zebra at waterholes, an absolute minimum figure. If the 1 088 captured in 1982 after the census are added to the removal of 897 in 1983, then 1 985 zebra have been removed in this area in 2 years.

4.3. Gemsbok (Fig. 5) :
In 1982 Berry and de Villiers reported 2 011 gemsbok in the same area, which is 683 less than the 1984 count of 1 328. In 1983 a total of 200 were culled (Scheepers, 1983) which partly accounts for the decrease, but gemsbok are highly mobile and the likelihood of emigration exceeds that of heavy mortality.

4.4. Springbok (Fig. 6) :
There were 984 springbok recorded in 1982 in the same area and 822 were culled (Scheepers, 1983), therefore the 754 counted in 1984 reflect a nett total decrease of 460 over 1982. However, the 1984 total indicates an anility to recolonise the area by reproduction and/or immigration.

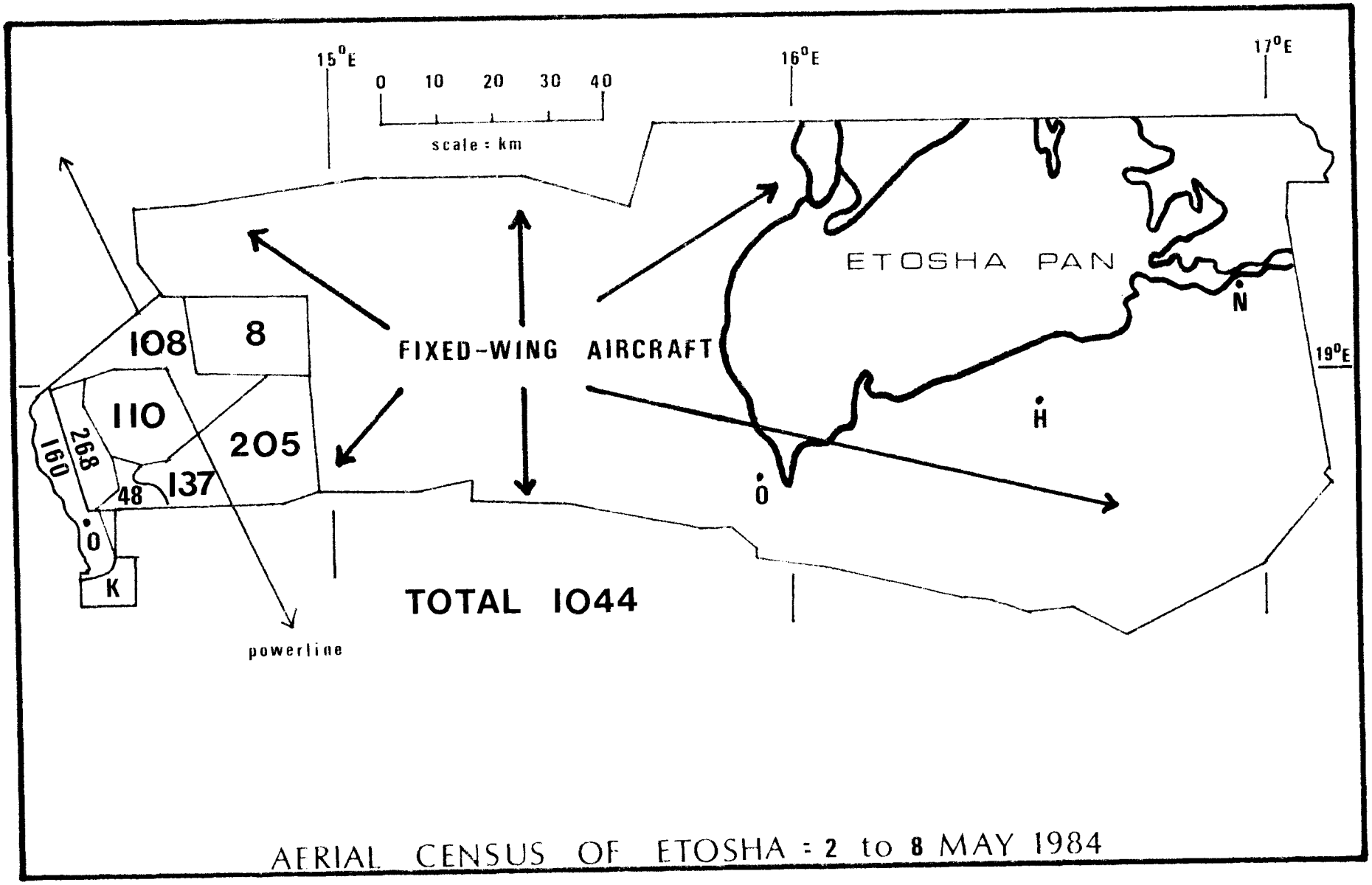

Fig. 3 : Distribution and numbers of Burchell's zebra recorded per census block.

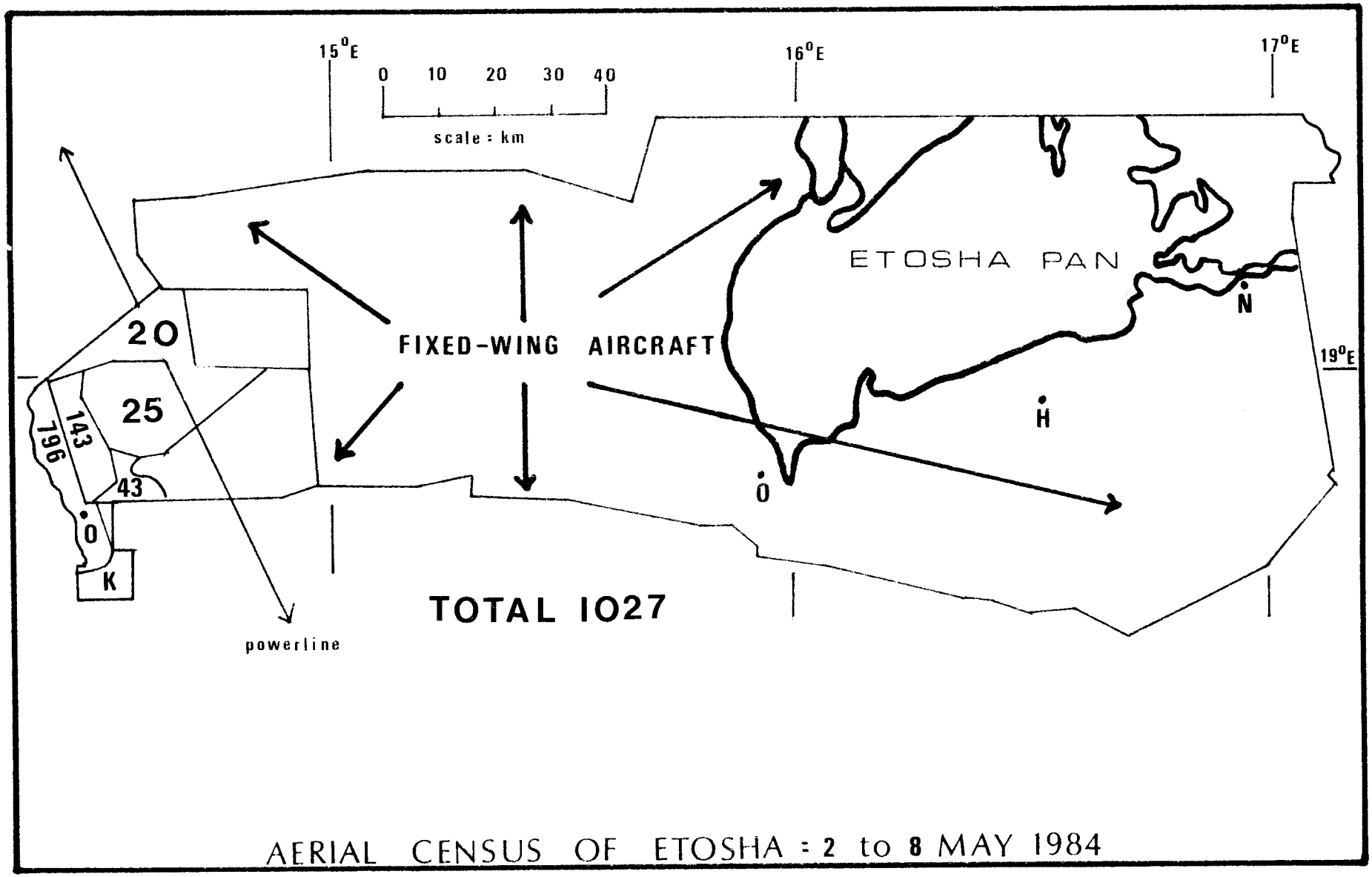

Fig. 4 : Distribution and numbers of Hartmann's zebra recorded per census block.

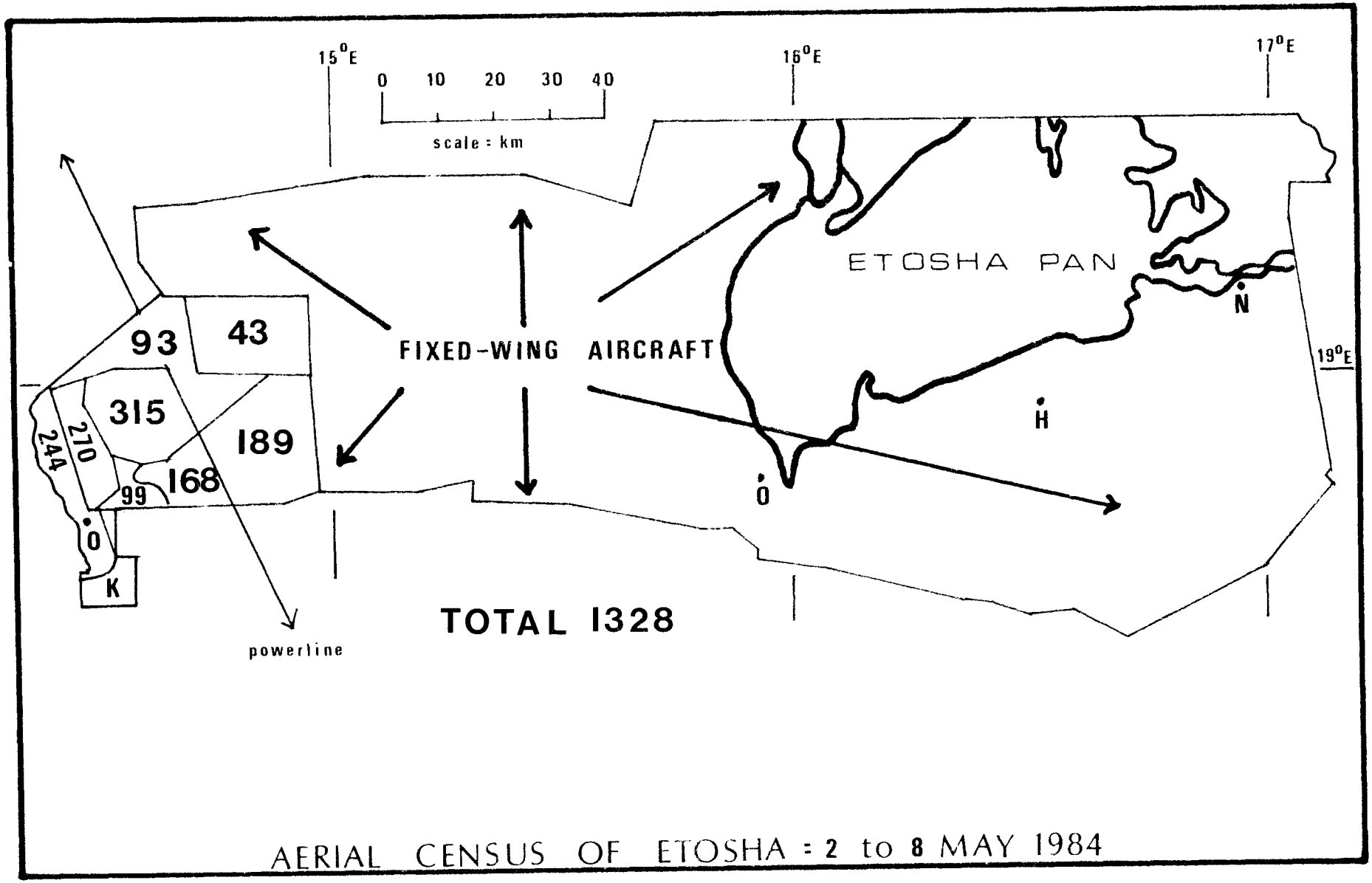

Fig. 2 : Distribution and numbers of gemsbok recorded per census block.

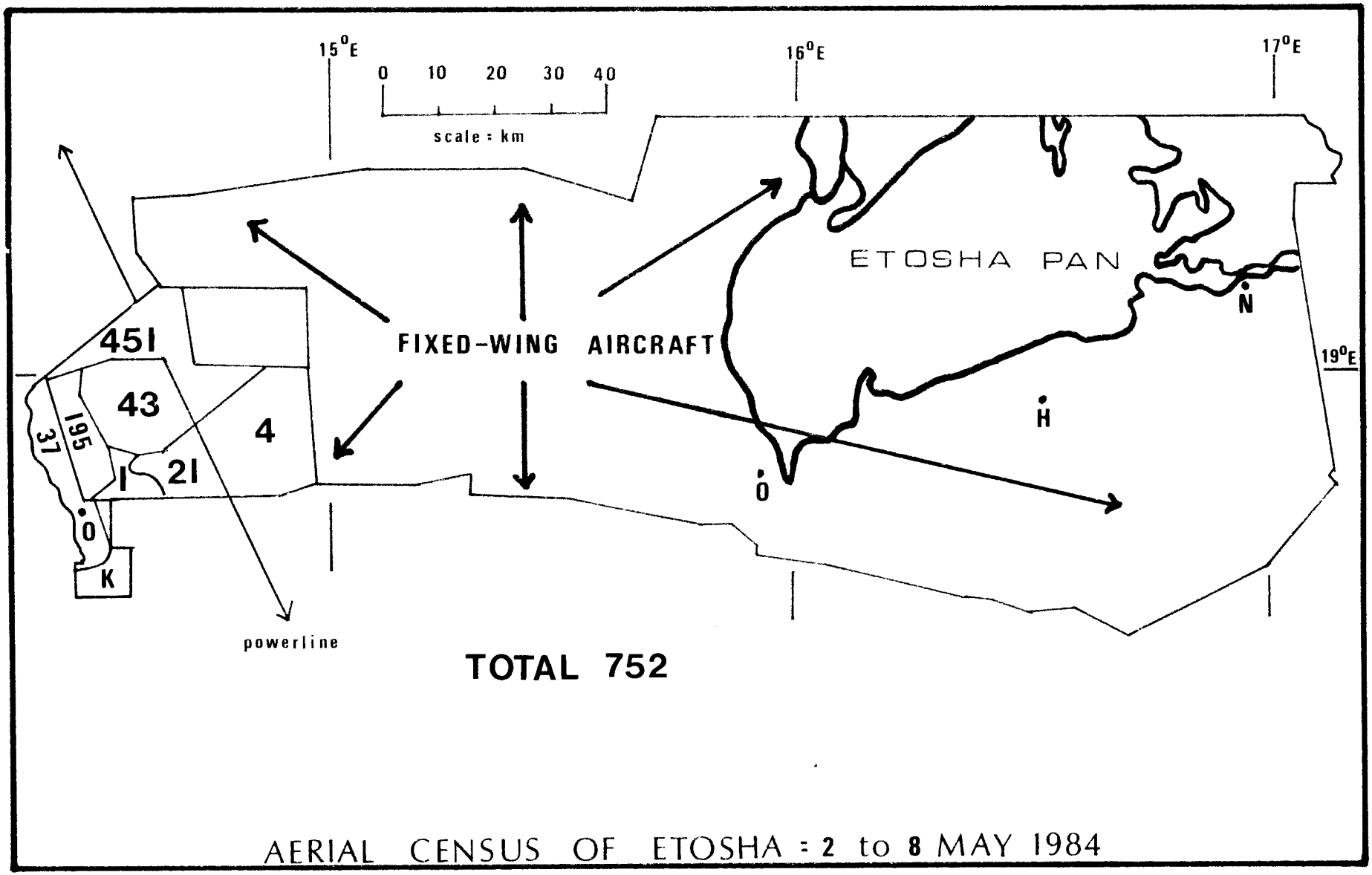

Fig. 6 : Distribution and numbers of springbok recorded per census block.

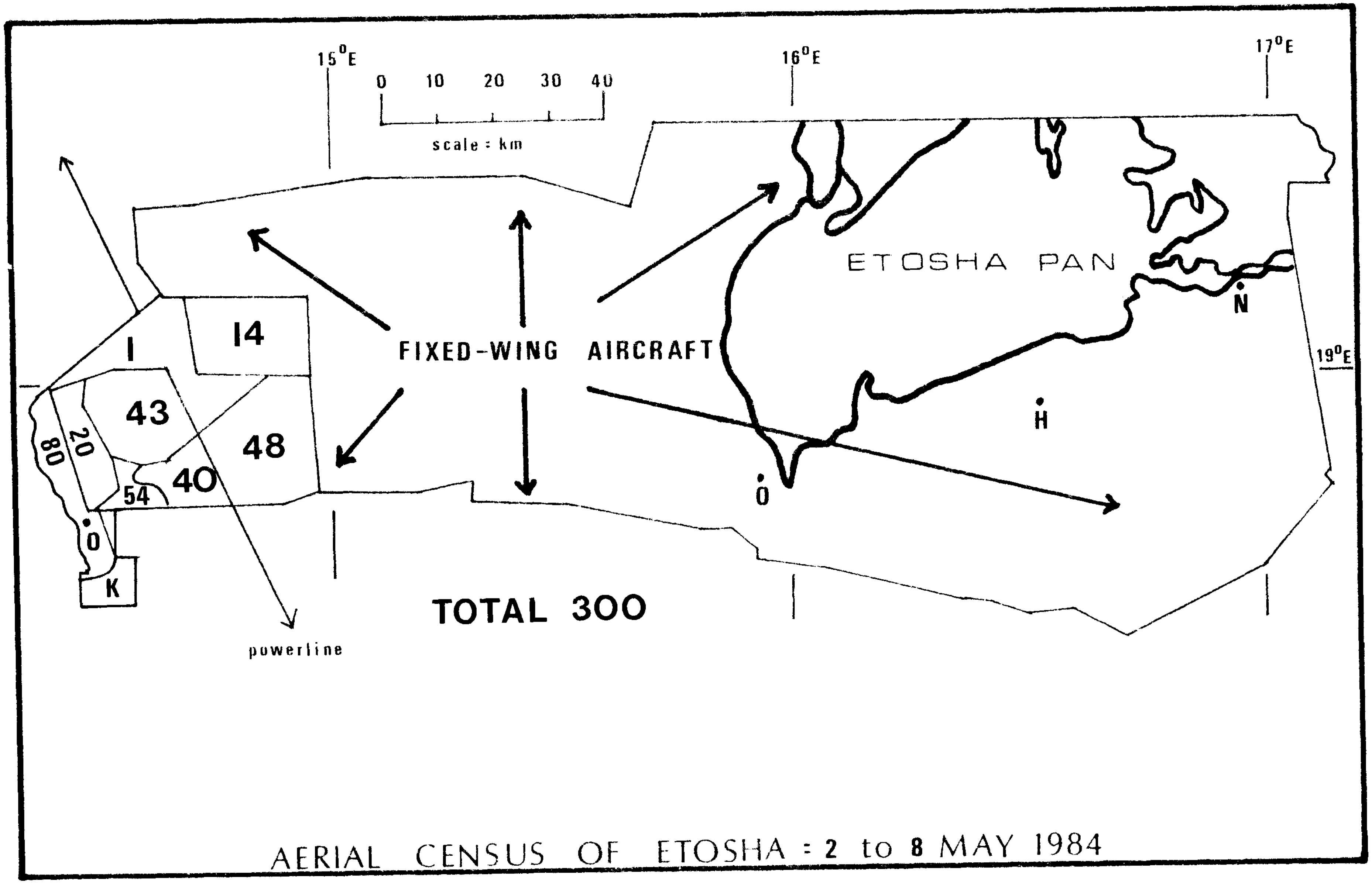

Fig. 7 : Distribution and numbers of giraffe recorded per census block.

4.5. Giraffe (Fig. 7) :
411 giraffe were counted in 1982 in the same area, thus the present census of 300 indicates a decline of 111 (27 %). This can only be ascribed to emigration or mortality, because no giraffe were captured or culled in the interim period.

4.6. General :
By comparing the 1982 and 1984 counts (Table 1) in respect of other species, the following is noteworthy :

4.6.1. Kudu : Only 22 were seen in 1984 compared to 201 in 1982.

4.6.2. Eland: Reasonably constant at 230 in 1984 compared to 209 in 1982.

4.6.3. Hartebeest: Favourable, with 112 in 1984 compared to 87 in 1982.

4.6.4. Impala : A strong discrepancy, with 2 seen in 1984 as against 42 in 1982.

4.6.5. Roan : None seen in 1984 as against 11 sighted in 1982.

4.6.6. Rhino : An apparent decrease, with 34 seen in 1984 as against 66 sighted in 1982 ; however Hofmeyr (1982) flew 30, 55 and 74 transects in Blocks 6, 7 and 8 respectively during 1982, compared to the 25, 30 and 34 transects flown over the same blocks in 1984. This may account for the difference although mortality and emigration could also play a role.

4.6.7. Lion : 21 were sighted in 1984 as against 9 in 1982, which may be related to the apparent increase in numbers reported by members of the night culling team and other casual observations on nature conservation punch cards.

4.6.8. Ostrich : A decline from 469 in 1982 to 299 in 1984, but as in the case of gemsbok this could be due to emigration or (unlikely) heavy mortality.

4.7. Rainwater availability:

During the same period in 1982 a total of 156 temporary drinking places were sighted, and in 1983 a total of 58. However, the 1984 census recorded 783 such drinking points, due to the good, late rains which fell in April. The census consequently reflects a wet season dispersal of the animals.

5. ACKNOWLEDGEMENTS

We appreciate the interest, enthusiasm and capabilities of the pilot, Mr. John Lawson, throughout the census.

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