

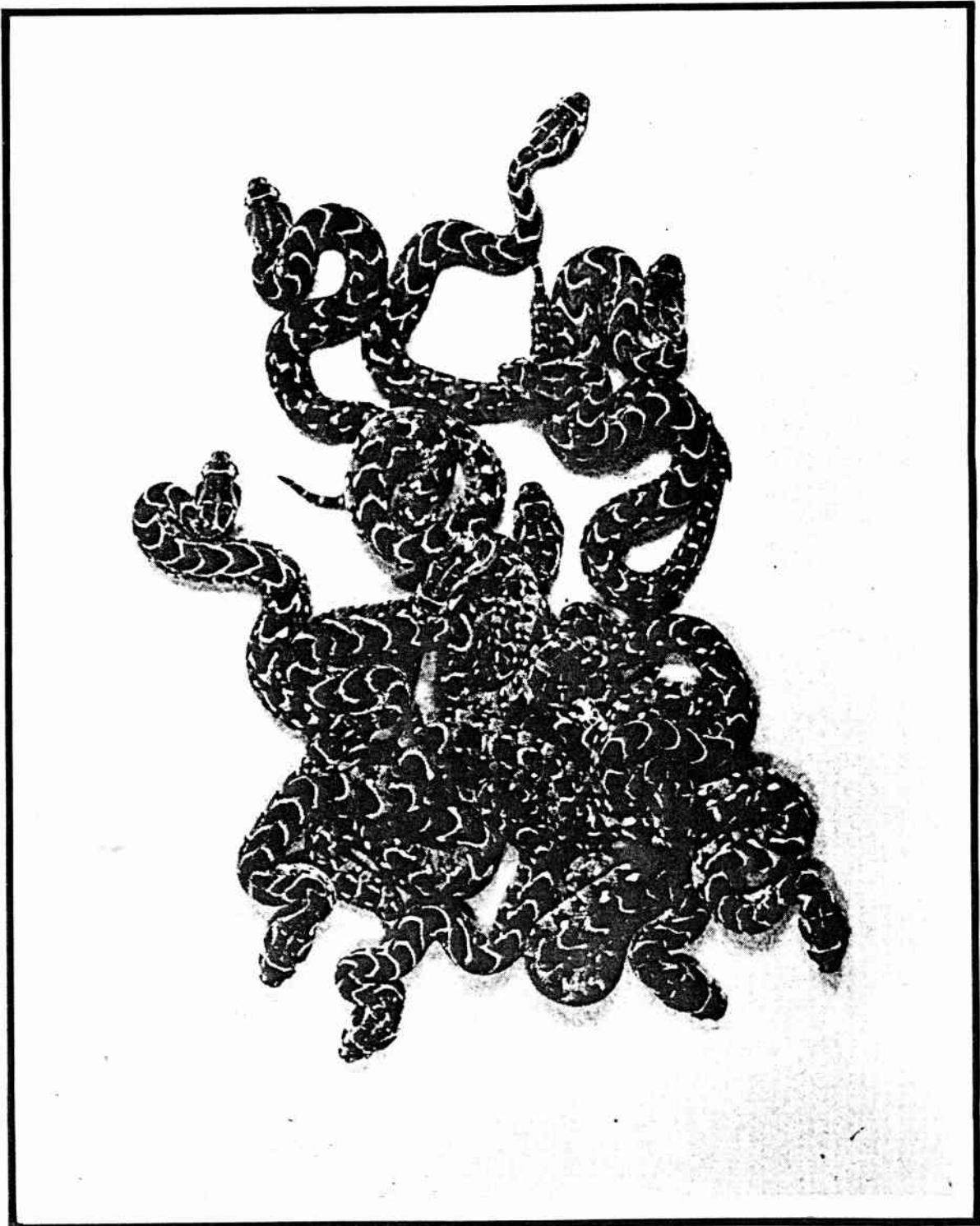
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A NOTE ON THE EFFECT OF FIRE ON A POPULATION
OF ANGULATE TORTOISES, *CHERSINA ANGULATA*
(CRYPTODIRA: TESTUDINIDAE), WITH AN
ESTIMATE OF BIOMASS

INTRODUCTION

A fire which destroyed approximately 10ha of mixed fynbos and rooikrans (*Acacia cyclops*) scrub during December 1981, at the Pearly Beach coastal resort (3419 DA and DC Baardskeedersbos), made it possible to count dead and living angulate tortoises (*Chersina angulata*). The count was made 15 days after the fire. Virtually all ground cover was destroyed and surface visibility was good, thus enabling the authors to make a reasonably accurate estimate of the number of tortoise shells and the number of living tortoises.

Approximately 4,64ha was surveyed, as this area could be easily defined (presence of fence lines and roads) and the size fairly accurately estimated. The area surveyed consisted almost entirely of indigenous coastal fynbos with a few isolated stands of rooikrans. The topography of the plot consists of three low ridges and three shallow valleys. Apart from the general mention of Cape tortoises killed by fire (Greig and Boycott, 1980), no specific work appears to have been published.

The authors walked a total of five transects. A centre line was estimated for each transect and each observer walked to the side of the centre line, each within sight of the other. It is felt that this gave a satisfactory coverage of the survey area. The weather was warm and clear and tortoises were active throughout the period the count was carried out.

Live and dead tortoises were recorded separately as were males and females; badly burnt shells were recorded as sex unknown.

RESULTS

A total of 31 tortoises were counted, of which seven were living. The results of the count are summarised in the Table. At least three of the dead tortoises appeared to have died before the fire, as they were shattered and most of the scales were absent. In addition to the live tortoises, ten sets of fresh tortoise tracks were also noted. It is likely that most were made by tortoises actually included in the count. Two of the tortoises were large juveniles (one dead and one alive).

The surveyed area being approximately 4,6ha, with a total of 31 tortoises (24 dead and 7 alive) having been counted, had an estimated population of 6,68 angulate tortoises per hectare. A total of seven living tortoises were randomly collected and weighed, giving a mean mass of 466gm (75-800gm). Therefore the estimated biomass of angulate tortoises for the surveyed area would have been in the region of 3,11kg/ha or 14,44kg for the 4,64ha.

DISCUSSION

The angulate tortoise is the most numerous tortoise along the coastal belt of the Cape Province and the effect of fire, except on a localised basis,

is probably not serious. It is of interest that a total of three tortoises were observed (Ian Bell, pers. comm.) to bury themselves in the sand ahead of the fire and in one instance after one tortoise moved onto a freshly burnt patch. Emergence time after the fire varied from ten minutes to approximately one hour. It is not known whether the tortoises observed during the count were survivors of the fire or recruits from outside the burnt area. It is possible that some burnt tortoises could have been removed by scavengers, particularly small juveniles.

Western (1974) estimated lizard biomass in an area of northern Kenya (Turkana) by walking transects and counting all lizards of each species seen and then calculating mean masses from collected specimens. If the results of the present survey are used as a basis for the estimation of angulate tortoise biomass in the coastal belt from the Uilenkraals River to the east of Gansbaai and the Rattel River to the east of Quoin Point (a total of 203km²), a figure of 311,3 kg/km² is obtained, or a total of 63194kg for the entire area.

Angulate tortoises occur throughout this area, although pure stands of the exotic *A. cyclops* appear to have the lowest tortoise densities. Unfortunately it was not possible, with the time available, to estimate densities for the total area covered by exotics.

REFERENCES

GREIG, J.C. and BOYCOTT, R.C. 1980. The Eastern Cape - a tortoise paradise. *The Eastern Cape Naturalist*, 69: 8-10.
 WESTERN, D. 1974. The distribution, density and biomass density of lizards in a semi-arid environment of northern Kenya. *E. Afr. Wildl. J.*, 12: 49-62.

Table 1: Angulate tortoises counted in the surveyed burnt area at Pearly Beach.

DEAD			ALIVE		TOTAL
MALE	FEMALE	UNKNOWN	MALE	FEMALE	
6	14	4	4	3	31

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Chersina angulata

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