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RESEARCH NOTE

TICKS FROM THE AFRICAN BUFFALO (*SYNCERUS CAFFER*) IN NGAMILAND, BOTSWANA

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ABSTRACT

CARMICHAEL, I. H., (1976). Ticks from the African buffalo (*Syncerus caffer*) in Ngamiland, Botswana. *Onderstepoort J. vet. Res.* 43 (1), 27–30 (1976).

In November 1972, 93 out of 100 African buffalo from 3 areas in Ngamiland, Botswana, were found to be infested with ticks. The tick species present and the percentage of buffalo infested by each were: *Hyalomma truncatum* (63%), *H. rufipes* (54%), *Rhipicephalus evertsi evertsi* (68%), *R. tricuspis* (11%), *R. simus* (4%) and *Boophilus decoloratus* (1%).

The mean number of ticks per animal was 8,6 (standard deviation ±4,1), representing a mean of 6,5±3,4 male and 2,1±1,9 female ticks.

The incidence of infestation with *H. truncatum* and the number of ticks of this species on infested animals were lowest in areas where plentiful surface water was responsible for an increase in humidity.

Résumé

CARMICHAEL, I. H., (1976). *Tiques du buffle africain* (Syncerus caffer) *en Ngamiland au Botswana.* Onderstepoort J. Vet Res. 43 (1), 27–30 (1976).

Au mois de novembre 1972, 93 *sur* 100 *buffles africains provenant de* 3 *régions de Ngamiland, se sont averés infestés de tiques. Les espèces de tiques identifiées et le pourcentage de buffles infesté ont été les suivants:* Hyalomma truncatum (63 *p.* 100), H. rufipes (54 *p.* 100), Rhipicéphalus evértsi evértsi (68 *p.* 100), R. tricuspis (11 *p.* 100), R. simus (4 *p.* 100) *et* Boophilus décoloratus (1 *p.* 100).

Le nombre moyen de tique par animal a été 8,6 ± 4,1 *comprenant* 6,5 ± 3,4 *mâles et* 2,1 ± 1,9 *femelles.*

La fréquence d'infestation à H. truncatum *et le nombre de tiques de cette espèce nur le animaux infestes étaient minimales dans les régions où abondent des étendues d'eau amenant une augmentation d'humidité.*

In November 1972, incidental to a foot and mouth disease investigation in Ngamiland, Botswana, a total of 100 African buffalo from 3 regions were examined for ticks (Fig. 1). The buffalo were immobilized with M99*, and all visible ticks were collected, usually within 15 minutes of immobilization. Particular attention was paid to the perineum, the switch of the tail, the ears, the groin and the plantar aspect of the fetlocks.

Ninety-three buffalo were infested with ticks belonging to 6 species (Table 1). Overall, 68% of buffalo were infested with *Rhipicephalus evertsi evertsi,* 63% with *Hyalomma truncatum,* 54% with *H. rufipes,* 11% with *R. tricuspis,* 4% with *R. simus* and 1% with *Boophilus decoloratus.* The mean number of ticks per animal was 8,6 (standard deviation ±4,1), representing a mean of 6,5 ±3,4 male and 2,1 ±1,9 female ticks. More male than female ticks are to be expected, as female ticks become engorged after approximately 7–10 days and drop off the host, whereas male ticks may remain for much longer periods.

The most numerous ticks were *H. truncatum, H. rufipes* and *R. e. evertsi,* which together constituted 95,5% of the 860 ticks collected. The remainder comprised 32 *R. tricuspis,* 6 *R. simus* and a single female *B. decoloratus.*

All the species have previously been recorded from cattle in Ngamiland and from buffalo in other countries (Theiler, 1962). There are, however, no previous reports of their occurrence on buffalo in Botswana.

Although the incidence of infestation was quite high, the number of ticks found was surprisingly low. By contrast, Dinnik, Walker, Barnett & Brocklesby (1963) remarked that buffalo in Uganda "were so heavily parasitized (with ticks) that it proved impracticable to make total collections of these parasites"; similarly buffalo in the Kruger National Park, South Africa, are often very heavily infested (Pienaar, personal communication, 1974). In the present survey, the buffalo were examined promptly after immobilization so that it is unlikely that any ticks escaped from them.

The light tick burdens may be ascribed, in part, to the time of year, as the collection was made before the onset of rains at the end of the prolonged 'winter' dry period. Greater numbers of *R. e. evertsi* and *B. decoloratus* may be expected in the early rainy months of the year, and in years with unusually high rainfall when warm moist conditions favour tick survival (Theiler, 1949; 1950). Nevertheless, the author did not observe heavy tick burdens on buffalo in Ngamiland at any time of the year between 1970 and 1973. It appears, therefore, that the climate is sufficiently harsh throughout most of the year to prevent the build up of large numbers of ticks.

There are interesting differences in the incidence of infestation and total numbers of *H. truncatum* in the 3 areas. Although the unequal samples and low numbers of ticks preclude a satisfactory statistical analysis, only 4 (18%) of 22 buffalo from Matsebe harboured *H. truncatum,* while it was present on 45/60 (75%) of the buffalo from Savuti, and 14/18 (78%) from Maquee. Furthermore, the mean burden of *H. truncatum* per infested animal was 1,5 for Matsebe, compared with 3,9 for Maquee and 7,7 for Savuti.

* Etorphine hydrochloride. Reckitt & Colman, United Kingdom

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TABLE 1 Incidence of infestation and tick burdens on buffalo in three different areas in Botswana

Area	Number of animals examined	*B. decoloratus*			*H. rufipes*			*H. truncatum*			*R. e. evertsi*			*R. simus*			*R. tricuspis*		
		Buffalo infested (%)	Total(1) No. of ticks	Max. (2)	Buffalo infested (%)	Total No. of ticks	Max.	Buffalo infested (%)	Total No. of ticks	Max.	Buffalo infested (%)	Total No. of ticks	Max.	Buffalo infested (%)	Total No. of ticks	Max.	Buffalo infested (%)	Total No. of ticks	Max.
Maquee...	18	0	0	0	72	36	6	78	54	10	83	38	12	0	0	0	33	25	10
Matsebe...	22	0	0	0	45	49	14	18	6	2	77	106	13	16	5	2	0	0	0
Savuti.....	60	2	1	1	52	96	7	75	333	24	60	103	12	2	1	1	8	7	2
Total.....	100	1*	1		54*	181		63*	393		68*	247		4*	6		11*	32	

(1) Total number of ticks collected
(2) Maximum single infestation
* Mean percentage of buffalo infested

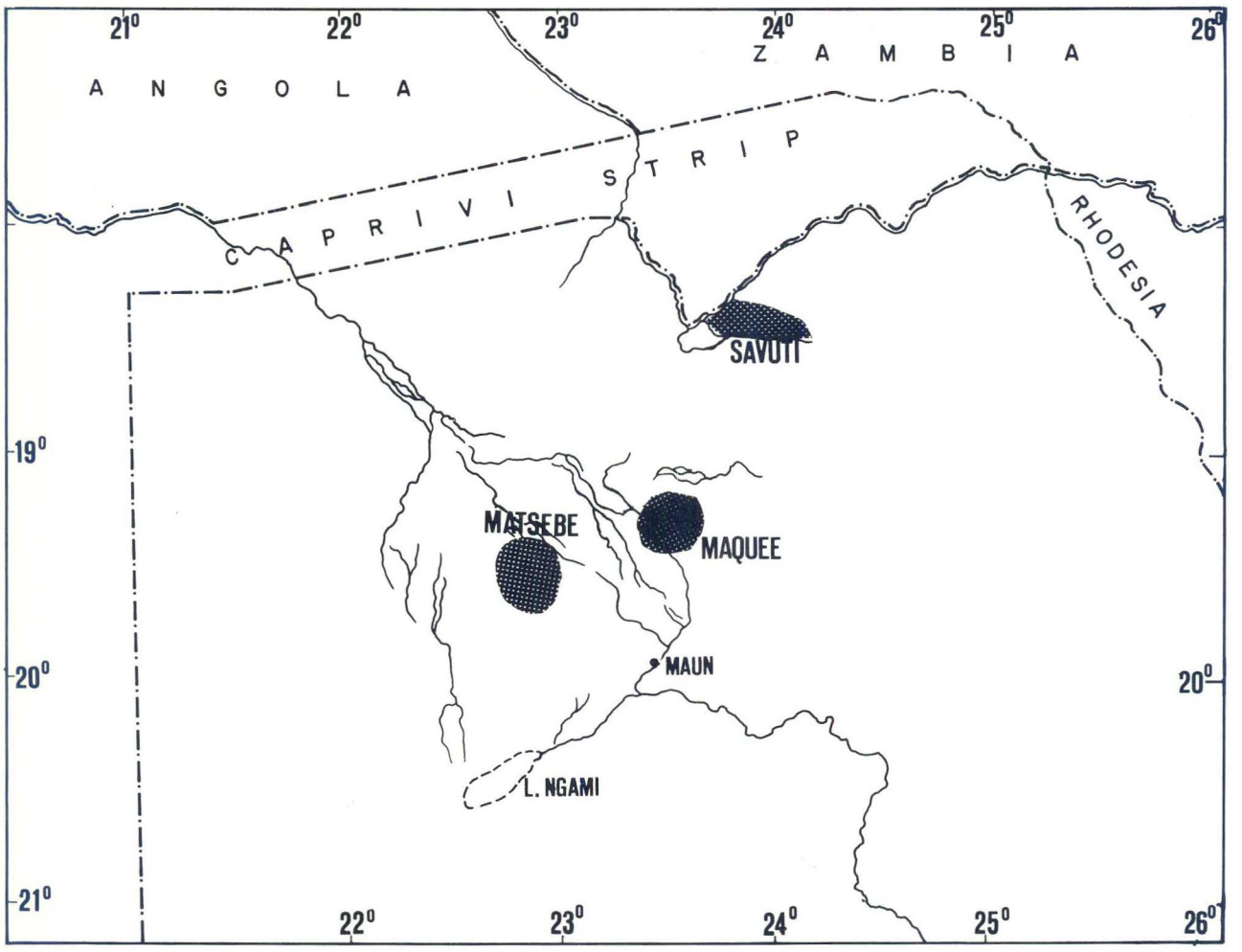

FIG. 1. NGAMILAND, BOTSWANA, SHOWING THE AREAS WHERE BUFFALO WERE SAMPLED

The difference between Matsebe and Savuti, both in incidence of infestation and tick burden per infested animal, appears to be associated with the type of vegetation, which in turn is related to the presence of water. Theiler (1956) mentions an increase in humidity as the most important limiting factor to the distribution of dry-area-adapted *H. truncatum*. According to Weare & Yalala (1971), Savuti falls within the physiognomic vegetation classification of "Ngamiland Tree Savannah"; Matsebe, although partly "Ngamiland Tree Savannah", is largely "Swamp Grassland", the area in which most of the buffalo were sampled. In the latter area, an increase in humidity, particularly under bushes and trees where ticks would accumulate to escape direct sunlight and heat, is probably the main limiting factor. Although buffalo from both vegetation zones are represented in the sample from Maquee, the fact that the humidity is higher in this area (Andersson, personal communication, 1975) may have contributed to the reduction of the burdens of *H. truncatum* to approximately half those at Savuti.

An important consideration is the possible rôle of the buffalo as a reservoir of arthropod-borne diseases transmissible to domestic stock. Carmichael & Hobday (1975) reported *Anaplasma marginale* and unidentified theilerial piroplasms in the same buffalo as those examined in this survey. In the present survey, potential vectors of 4 diseases were found, namely, East Coast fever (*R. evertsi, R. simus*), anaplasmosis (*B. decoloratus, R. simus*) babesiosis (*B. decoloratus, R. e. evertsi*) and sweating sickness (*H. truncatum*).

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