

Ixodid ticks on domestic dogs in the Northern Cape Province of South Africa and in Namibia

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ABSTRACT

The objective of this study was to determine the species composition of ixodid ticks infesting domestic dogs in the northwestern region of the Northern Cape Province of South Africa and in Namibia. Ticks were collected from February 2008 to January 2009 from dogs presented for a variety of reasons at a veterinary clinic in the Northern Cape Province and at 3 clinics in Namibia. The ticks collected at each place were pooled separately for each month at each locality. Eleven ixodid tick species were collected from dogs in the Northern Cape Province and new locality records for *Haemaphysalis colesbergensis* and *Ixodes rubicundus*, new locality and host records for *Hyalomma glabrum*, and a new host record for *Rhipicephalus neumanni* are reported. Six tick species were collected from dogs at the 3 clinics in Namibia. The most numerous species on dogs in both countries was *R. sanguineus*. The present results increase the total number of ixodid tick species collected from dogs in South Africa from 25 to 28.

Keywords: dogs, ixodid ticks, Namibia, Northern Cape Province, South Africa.

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Surveys to determine the species composition, host spectrum and geographical distribution of ticks infesting domestic and wild animals in South Africa have been conducted since the 1940s. Because domestic dogs are readily available and usually easy to handle, they have been included in a large number of these surveys. Horak and co-workers collected a total of 25 tick species during 7 surveys conducted on dogs in South Africa^{4,9,12,13,16,18,20}. The present surveys were initiated when a veterinarian in the Northern Cape Province and 3 in Namibia expressed their willingness to participate. No systematic surveys of the ticks infesting dogs have been conducted in these regions before.

The towns in which ticks were collected

from dogs were Springbok (29°40'S, 17°52'E), Northern Cape Province, South Africa, and Rosh Pinah (27°58'S, 16°45'E), Mariental (24°37'S, 17°58'E) and Gobabis (22°26'S, 18°57'E) in Namibia. The veterinarians, or their assistants, collected ticks from dogs presented at their clinics for any of a variety of reasons from February 2008 to January 2009. Ticks were collected at Gobabis for only 7 months before the veterinarian involved moved to another locality. The ticks were stored in 70 %

ethanol and those collected at each clinic were separately pooled for each month. The ticks were sent to the Faculty of Veterinary Science, University of Pretoria, where they were identified and counted under a stereoscopic microscope.

Eleven tick species, of which 3 have not previously been recorded on dogs, were collected in the Northern Cape Province (Table 1), increasing the number of species collected from dogs in South Africa to 28. Six species were taken from the dogs in Namibia (Table 2).

Four species belonging to the genus *Haemaphysalis* were identified on the dogs in the Northern Cape Province. *Haemaphysalis colesbergensis* has recently been described from domestic cats and a dog, caracals (*Caracal caracal*) and a wild cat (*Felis silvestris*) in arid Karoo-like regions of the Eastern, Western and Northern Cape provinces of South Africa². The present collection from a dog in the northwestern Northern Cape Province extends the known geographical distribution of this tick. The arid climate and shrub-like vegetation in the Springbok region is not unlike that in the regions in which *H. colesbergensis* had previously been collected.

Haemaphysalis elliptica is one of the most regularly encountered ticks on domestic dogs and large wild felids in South Africa^{12,14,16} and its status as a valid species

Table 1: Ticks collected from domestic dogs at Springbok, Northern Cape Province, South Africa (February 2008 – January 2009).

Tick species	Number of ticks collected				No. of months during which tick spp. were present
	NN	MM	FF	Total	
<i>Haemaphysalis colesbergensis</i>	0	1	2	3	1
<i>Haemaphysalis elliptica</i>	0	0	3	3	2
<i>Haemaphysalis spinulosa</i>	0	1	1	2	1
<i>Haemaphysalis zumpti</i>	0	5	32	37	5
<i>Haemaphysalis</i> sp.	0	0	1	1	1
<i>Hyalomma glabrum</i>	0	5	11	16	2
<i>Hyalomma truncatum</i>	0	4	4	8	4
<i>Ixodes rubicundus</i>	0	4	9	13	3
<i>Rhipicephalus nuttalli</i>	0	1	6	7	4
<i>Rhipicephalus gertrudae</i>	0	2	5	7	4
<i>Rhipicephalus neumanni</i>	0	1	1	2	1
<i>Rhipicephalus sanguineus</i>	30	193	210	433*	12

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NN = nymphs; MM = males; FF = females.

*Excluding 2 larvae.

Table 2: Ticks collected from domestic dogs at Rosh Pinah, Mariental and Gobabis, Namibia (February 2008 – January 2009).

Tick species during which	Number of ticks collected				No. of months tick spp. were present
	NN	MM	FF	Total	
<i>Haemaphysalis</i> sp.	0	1	0	1	1
<i>Hyalomma rufipes</i>	1	0	0	1	1
<i>Hyalomma truncatum</i>	0	1	0	1	1
<i>Rhipicentor nuttalli</i>	0	0	1	1	1
<i>Rhipicephalus follis</i>	0	1	0	1	1
<i>Rhipicephalus gertrudae</i>	0	2	0	2	2
<i>Rhipicephalus sanguineus</i>	88	411	393	892*	12

NN = nymphs; MM = males; FF = females.
*Excluding 43 larvae.

distinct from *Haemaphysalis leachi*, with which it had been confused previously, has recently been confirmed³. Only 2 collections of *H. elliptica* were made from dogs in the Northern Cape Province, while none were made in Namibia. The taxonomic status of ticks identified as *H. spinulosa* in this and other surveys in South Africa is doubtful. The adults have been collected from dogs and cats and smaller species of wild carnivores²⁷. *Haemaphysalis zumpti* infests smaller wild carnivores²⁷ and has also been encountered on domestic dogs^{12,13}.

Hyalomma glabrum has recently been reinstated as a valid species and is the only *Hyalomma* species with a strictly southern hemisphere distribution¹. The adults (as *Hyalomma marginatum turanicum* as it was previously known) infest large wild and domestic herbivores and the immature stages infest hares and ground-frequenting birds^{1,15}. Dogs are thus a new host record for this tick. Its geographical distribution (as *H. marginatum turanicum*) has previously been mapped¹⁷ and the town of Springbok represents a new locality record, considerably to the north of the current most northwesterly record¹¹.

The collection of a nymph of *H. rufipes* from a dog in Namibia is unusual, in that the immature stages of this tick normally infest hares and ground-frequenting birds^{10,25}. Although the adults of *H. truncatum* prefer large herbivores as hosts¹⁵, they are fairly frequently encountered on dogs, on which they may cause extremely painful penetrating wounds⁵.

Most early records of the adults of *Ixodes rubicundus* are from domestic and wild ruminants and caracals^{11,16,23,27}. More recently, however, a total of 40 adult ticks were collected from domestic dogs in surveys in the Free State and Western Cape provinces, South Africa^{12,18}. The presence of adult ticks on dogs at Springbok in the present survey should therefore not be considered unusual. Springbok lies to the northwest of the currently

accepted distribution range of *I. rubicundus*^{17,22} and can thus be considered a new locality record. The 3 collections from dogs at Springbok were made during the winter months of June, July and August, a seasonal pattern similar to that observed on sheep in the Northern Cape Province¹¹.

The adults of *Rhipicentor nuttalli* are apparently common on dogs in the Clanwilliam district of the Western Cape Province in late summer²⁴. They have also been collected from various wild carnivores¹⁴ and are also common on South African hedgehogs (*Atelerix frontalis*)²⁷. Infestation of dogs may result in paralysis²¹.

Rhipicephalus follis and *R. gertrudae* are similar morphologically and in their host preferences²⁸. The adults infest large monogastric animals such as equids, suids, canids and felids, but are also encountered on cattle and sheep^{7,11,12,15,27}. Their immature stages utilise murid rodents as hosts^{6,19}. In the most recent comprehensive list of tick/host records for *R. gertrudae*, only 3 collections of adult ticks of this species were reported from domestic dogs²⁸. Published records now exceed 80 collections.

The adults of *R. neumanni* attach to the feet of sheep (and probably other cloven-hooved animals) and this may lead to lameness in infested sheep²⁶. Adult ticks have, however, apparently not previously been collected from domestic dogs²⁸.

In South Africa all stages of development of *R. sanguineus* feed on domestic dogs²⁸, and are associated with anthropogenic structures⁸. Infestations of other host species are rare, and probably only occur on animals closely associated with dogs or utilising the same sleeping quarters, or they could be mistaken identifications of *Rhipicephalus turanicus*, of which some specimens are remarkably similar to *R. sanguineus*²⁸. The large number of collections currently recorded suggests that the dogs were confined to the properties of their owners or were

chained or kennelled there at night⁴. The exceptionally large variety of tick species, other than *R. sanguineus*, collected at Springbok is an indication that a number of the dogs sampled there were from farms, or were allowed to roam fairly freely.

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