

# IXODIDAE (Acari) ON HORSES, MULES AND ASSES IN THE STATE OF PARANÁ, BRAZILS

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**SUMMARY:** Tick infestations on horses, mules and asses throughout  
the State of Paraná, Brazil, were analyzed according to their distri-  
bution in relation to the geographical regions; the localization of  
parasites on hosts was also studied.

**UNITERMOS:** Equines\*; Ixodidae\*; Ticks\*

## INTRODUCTION

Ticks are important ectoparasites of domestic animals. Those observed in equines are taxonomically well known in the Southern States of Brazil. Extensive revisions have been published: ARAGÃO<sup>1</sup> (1936), ARAGÃO and FONSECA<sup>2</sup> (1961), FALCE<sup>3</sup> (1982), FREIRE<sup>4,5</sup> (1958, 1972) and RIBEIRO<sup>7</sup> (1965) concerning them. However, little is known about their ecology. Therefore, tick infestation on horses, mules and asses throughout the State of Paraná were analyzed according to their geographic distribution; the localization of parasites on hosts was also studied.

## MATERIAL AND METHODS

Ticks (all developmental stages) were collected from 904 animals used in farm work: 814 horses, *Equus caballus*; 84 mules, *E. caballus* x *E. asinus*; and, 6 asses, *E. asinus*; these animals were poorly treated and belonged to different regions of Paraná State (Fig. 1) and had never received tickcides.

The parasites were preserved in 70% ethanol for further examination under stereoscope in laboratory.

Ticks were taken from hosts in different regions in the State of Paraná (Fig. 1); these regions are characterized in Tab. 1, according to MAACK<sup>6</sup> (1968).

## RESULTS AND DISCUSSION

Results show that 50.3% of the horses, 27.3% of the mules and 16.7% of the asses were founded with ticks.

A total of 4076 ticks were collected (January through May 1979) and identified as: *Anocentor nitens* (Neumann, 1897 51.6%); *Boophilus microplus* (Canestrini, 1887 44%) and *Amblyomma cajennense* (Fabricius, 1787 4.4%). These findings are in partial agreement with those of RIBEIRO<sup>7</sup> (1965) who also reported *Rhipicephalus sanguineus* (Latreille, 1828) in horses in the State of Paraná. However, no ticks of this species were now collected.

The relative distribution of ticks according to their species and regions is given in Tab. 1. Thus, *Boophilus microplus* was widely found in the 5 regions being the second specie in abundance; *Anocentor nitens*, the most abundant specie, was absent in region 1, the coastal plain, where *Amblyomma cajennense*, the less frequent, was also absent.

This large distribution of *B. microplus* throughout the State of Paraná emphasizes the necessity of including the equines in the control for *B. microplus*. Furthermore untreated equines, sharing this environment with another animals might be a potential source of infestation, contributing to reduce the efficiency of tick control measures.

§ This paper is part of a Thesis submitted by the senior author to the Universidade Federal do Paraná in partial fulfillment of the requirements for the PhD degree.

The relative distribution of the ticks to their preferred attachment site is presented in Tab. 2.

*Amblyomma cajennense* was found in all part of regions host's body; the preferred site of attachment for *Anocentor nitens* was inside the ears, although this species was found over the entire body of the host. *Boophilus microplus* exhibited a slight preference for attachment on the armpits and inguinal regions and was less frequente inside the ears.

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**RESUMO:** Infestações por carrapatos em cavalos, muares e asininos no estado do Paraná, Brasil, foram analisadas de acordo com sua distribuição geográfica e regiões anatômicas do hospedeiro.

**UNITERMOS:** Carrapatos\*; Equinos\*; Ixodidae\*

FIGURE 1 – Localization of the State of Paraná in Brazil, and its regions.

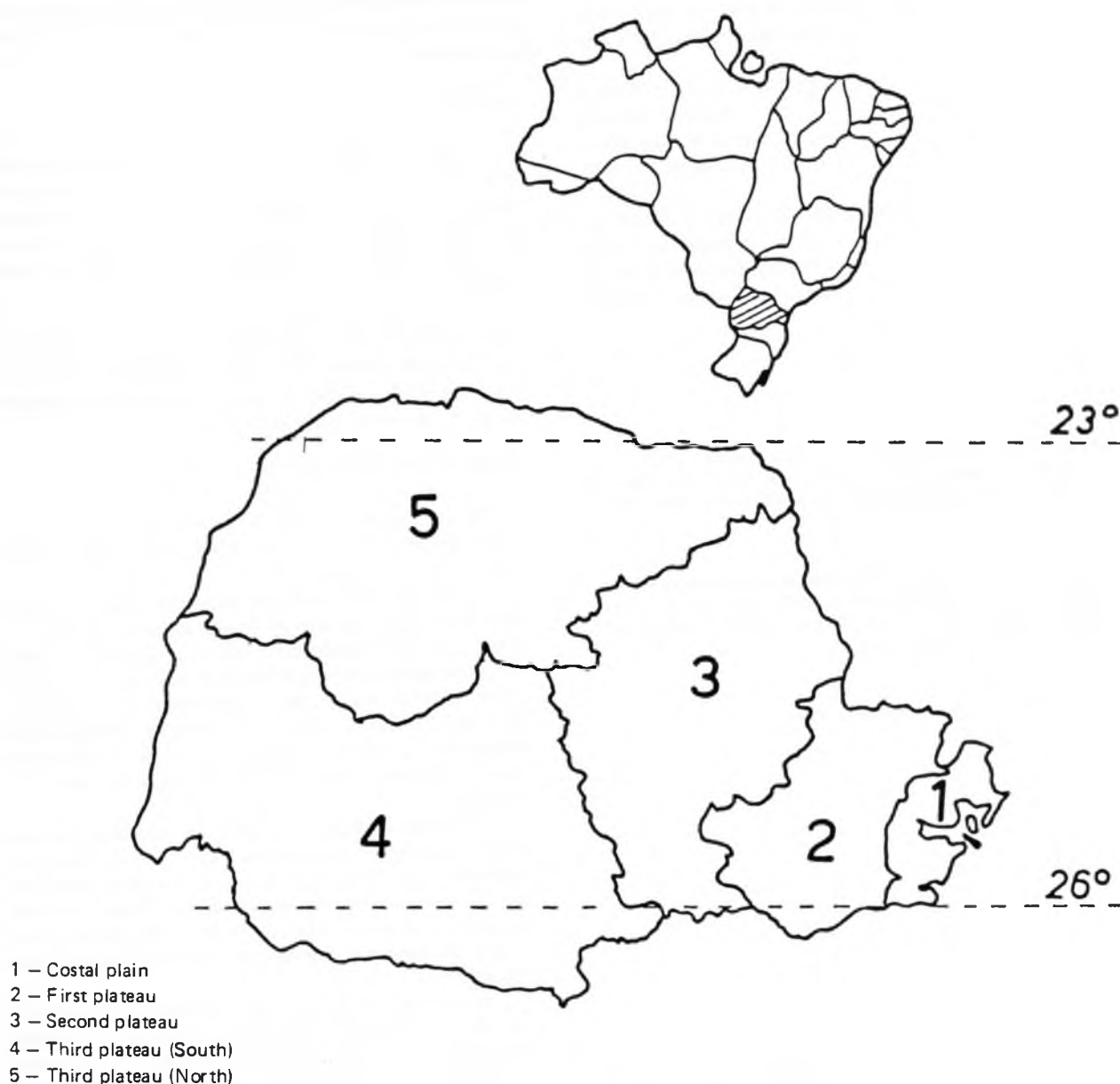


TABLE 1 — Characterization of Paraná State regions, Brazil, according to altitude (m) temperature (°C) pluviometric index (mm) and ticks species in equines.

Regions	Altitude m	Temperature °C			Annual rainfall mm	Total nº ticks	Anocentor nitens		Boophilus microplus		Amblyomma cayennense	
		mean annual	Max.	Min.			Nº	%	Nº	%	Nº	%
1. Coastal plain	0 - 20	21.1	33.2	10.7	1976.4	148	—	—	148	100.0	—	—
2. First plateau	780 - 945	16.5	29.6	2.8	1451.8	1047	421	40.2	522	49.9	104	9.9
3. Second plateau	820 - 952	17.6	28.7	2.4	1422.8	1135	588	51.8	507	44.7	40	3.5
4. Third plateau (south)	162 - 1085	20.6	29.5	1.8	1653.7	966	436	45.8	508	52.6	22	2.3
5. Third plateau (north)	350 - 586	21.5	34.8	4.3	1584.0	780	658	84.3	107	13.7	15	2.0

TABLE 2 — Preferred site for ticks attachment on equine hosts in the State of Paraná, Brazil.

Body regions	Total no. ticks	Anocentor nitens		Boophilus microplus		Amblyomma cayennense	
		No.	%	No.	%	No.	%
Inside ears	1049	820	39.0	204	11.4	25	13.8
Poll and mane	506	506	24.1	—	—	—	—
Throat	586	270	12.8	286	15.9	30	16.6
Neck	366	—	—	355	18.7	31	17.2
Breast	466	—	—	428	23.9	38	20.9
Armpits and Inguinal region	766	338	16.1	387	21.6	41	22.6
Other regions	337	169	8.0	152	8.5	16	8.9
TOTAL	4076	2103	51.6	1792	44.0	181	4.4

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