

AMBLYOMMA TICKS FOUND ON CATTLE IN THE NORTHWEST OF ARGENTINA

Preliminary Report¹

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SUMMARY. The phytogeographical and seasonal distributions of three species of *Amblyomma* ticks found on cattle are presented. The material studied was collected during a four-year survey in the Northwest of Argentina. *Amblyomma neumanni* shows predilection for the Chaqueno Serrano district although it was also found in ecotones (phytogeographical transition zones) of the adjacent Western Chaqueno district and the province of Las Yungas. *Amblyomma cajennense* was found in the Western Chaqueno and Chaqueno Serrano districts as well as in the province of Las Yungas. *Amblyomma parvum* was found in all the Western Chaqueno district and in the northern driest part of the Chaqueno Serrano district. *Amblyomma neumanni* seems to be inactive in summer while *A. parvum* adults predominate in summer and disappear in winter. The scarcity of the preimaginal stages of *A. parvum* on cattle suggests that these stages prefer non-bovine hosts.

Les tiques du genre *Amblyomma* trouvées sur les bovins dans le Nord-Ouest de l'Argentine. — Rapport préliminaire.

RÉSUMÉ. Les distributions phytogéographiques et saisonnières de trois espèces de tiques de genre *Amblyomma* rencontrées sur les bovins sont décrites. Le matériel a été récolté au cours d'une étude de quatre ans réalisée dans le Nord-Ouest de l'Argentine. *Amblyomma neumanni* a surtout été observée dans le district du Chaco Serrano, mais a été également trouvée dans les zones phytogéographiques de transition (ecotones) limitrophes du district du Chaco de l'Ouest, ainsi que dans la province de Las Yungas. *A. cajennense* a été trouvée dans le district du Chaco de l'ouest et dans celui du Chaco Serrano, ainsi que dans la province de Las Yungas. *A. parvum* a été trouvée dans tout le district du Chaco de l'ouest et dans la partie la plus sèche du district du Chaco Serrano.

A. neumanni semble inactive en été, alors que *A. parvum* à l'état adulte prédomine en été et disparaît en hiver. La rareté des stades pré-imaginaux de *A. parvum* sur les bovins permet de penser que ces stades préfèrent des hôtes autres que les bovins.

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Introduction

The Northwest of Argentina covers an area of 505,600 km² and is approximately delimited by 22° and 30° latitude South and 62° and 68° longitude West. The bovine population is about 4 million.

Various species of *Amblyomma* ticks have been reported from cattle in the Northwest of Argentina (Boero, 1949, 1954, 1957; Dios and Knopoff, 1934; Guglielmo and Hadani, 1980; Ivancovich; Joan, 1920, 1928; Lahille, 1927). However, their geographical distribution has hardly been analyzed in relation to the phytogeographical zones of this area. Such an analysis should provide valuable information as to the ecological requirements of the *Amblyomma* species studied determining their distribution in space.

The present communication describes the distribution of some *Amblyomma* tick species recorded from cattle in the Northwest of Argentina in relation to the phytogeographical division of this area. Some findings on the seasonal distribution of these tick species are given as well.

Materials and Methods

According to Cabrera (1976), the Northwest of Argentina consists of 3 phytogeographical dominions, namely: Andino-Patagonic, Amazonic and Chaqueño (*fig. 1*).

I — The *Andino-Patagonic dominion* is represented by 2 phytogeographical provinces, the *Alto-Andina* and the *Puneña*. The climate is cold and dry with an annual rainfall below 350 mm. Frost may occur throughout the whole year and snow falls in winter. The dominant vegetation is shrubs and grasses.

II — The *Amazonic dominion* has one phytogeographical province, Las Yungas. The climate is hot and humid with mainly summer rainfall and frost in winter. The annual average rainfall ranges between 900 and 2,500 mm. The dominant vegetation is tropical forest.

III — The *Chaqueño dominion* is represented by 2 phytogeographical provinces:
1 — The *Del Monte province* has a hot, dry climate with an annual rainfall of 80 - 200 mm which falls in summer. The dominant vegetation consists of xerophytic, psammophytic and halophytic bushes.

2 — The *Chaqueño province* has a hot climate with mainly summer rainfall. The dominant vegetation consists of deciduous xerophytic forest. This province, which is the only part of the Northwest of Argentina where cattle breeding assumes importance, has 2 phytogeographical districts:

a) *The Chaqueño Serrano district* is characterized by a dominant vegetation of xerophytic forest largely composed of *Schinopsis hankaena* and patches of hard grasses. The mainly summer rainfall is 400-800 mm, annually.

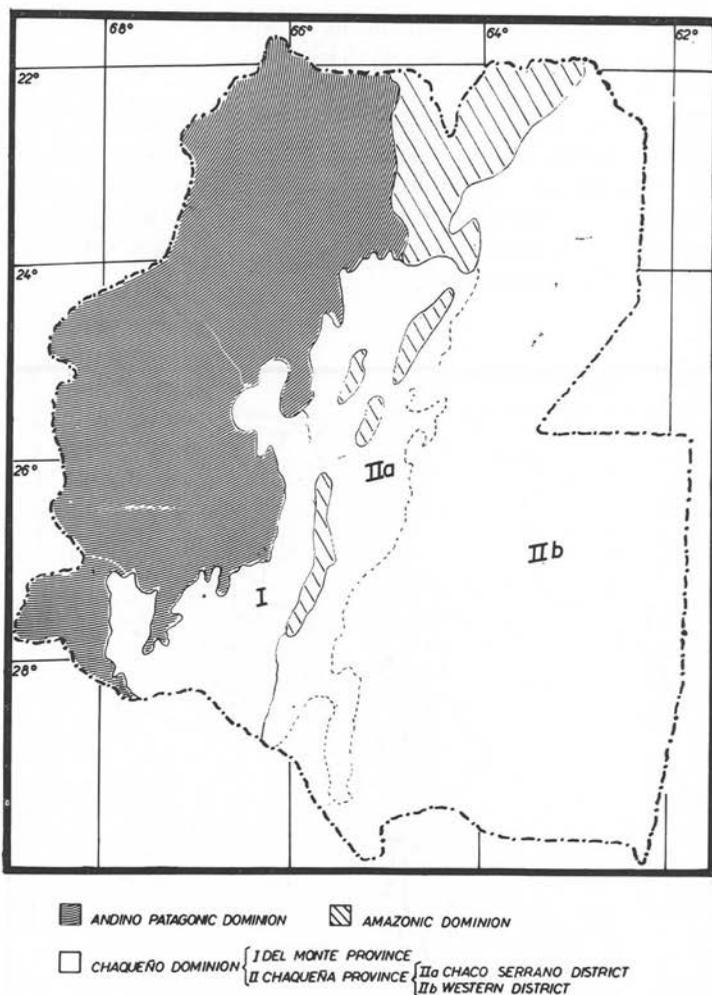


FIG. 1. — Phytogeographical division of the northwest of Argentina (Compiled from Ragonese, 1967 and Cabrera, 1976)

b) The *Western Chaqueño district* has an annual rainfall of 500-800 mm. The vegetation consists of xerophytic forest. The climax plant society is formed by *Schinopsis lorentzii* and *Aspidosperma quebracho blanco*. The structure of this plant society has been changed by cattle grazing and forest exploitation (Morello y Saravia Toledo, 1959).

Ticks were frequently collected from cattle in the study area, by the authors and field veterinarians during the period of July 1976 - June 1980. These tick

collections were carried out irregularly during all seasons of the year. Each sample was recorded by number and species of ticks, stage of development, geographical location and date of collection.

Adult ticks were classified according to the keys of Jones *et al.* (1972) and Guglielmono and Hadani (in preparation). Nymphs were identified according to a key based on the authors' unpublished data. Engorged larvae were allowed to moult into nymphs and identified by the same key used for nymphal identification. Previous findings of *Amblyomma* tick species in the area studied recorded in the literature were included as well.

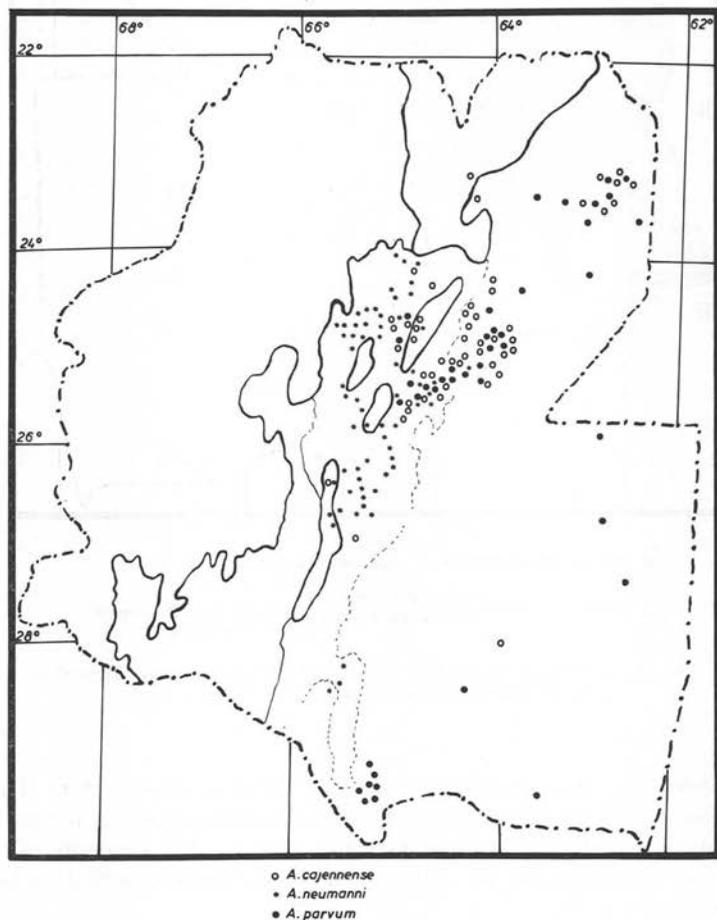


FIG. 2. — Distribution of amblyomma tick species on bovines in the northwest of Argentina (Compiled from various sources and authors' findings)

Results and Discussion

The phytogeographical distribution of *Amblyomma* tick species based on the authors' findings and on previous reports is shown in figure 2.

Amblyomma neumanni shows a marked predilection for the Chaqueño Serrano district. The findings of Joan (1920, 1928) and of Boero (1957) of *A. neumanni* in other parts of Argentina indicate that the predilection for the Chaqueño Serrano district also occurs beyond the Northwest. Only a few findings were reported from outside the Chaqueño Serrano district. These were all located in the transition zones (ecatones) between that district and the neighbouring areas such as the Western Chaqueño district and the province of Las Yungas.

Amblyomma parvum has been found only in the Chaqueño province (Guglielmo and Hadani, 1980). This tick species is present in both districts of this province but in the Chaco Serrano district it is restricted to the northern drier part. The predilection of *A. parvum* for dry areas had also been mentioned by Fairchild (1966) and Guglielmo and Hadani (1980).

Amblyomma cajennense has been found in both districts of the Chaqueño province as well as in the province of Las Yungas. Boero (1949, 1954) and Ringuet (1948) reported finding *A. cajennense* south of 26° latitude South but this could not be confirmed by the present authors.

Amblyomma cajennense has been reported by various authors (Boero, 1949, 1954; Fairchild *et al.*, 1966; Jones *et al.*, 1972; Lahille, 1927; Prieto, 1974; Ringuet, 1948; Smith, 1975; Varma, 1973) from widely different biotopes both in Argentina and in other countries, which indicates the versatility of *A. cajennense* ticks and their adaptability to a wide variety of ecological zones.

TABLE I. — Seasonal distribution of amblyomma tick species collected from bovines in the northwest of Argentina.

		Summer	Autumn	Winter	Spring
<i>A. cajennense</i>	Adults	3797	542	78	185
	Nymphs	0	3	92	159
	Larvae	0	5	20	0
<i>A. neumanni</i>	Adults	4	1295	2090	919
	Nymphs	0	22	240	210
	Larvae	0	199	27	0
<i>A. parvum</i>	Adults	823	87	1	325
	Nymphs	0	0	4	0
	Larvae	0	0	0	0

Boero (1957) recorded *A. parvitarsum* on cattle in the Andino-Patagonic dominion. This species was not found in the present study.

The seasonal distribution of larvae, nymphs and adults of the 3 species of *Amblyomma* found on cattle is summarized in Table I.

Adults of *A. cajennense* were found throughout the year although in greater numbers in summer. Larvae and nymphs were found only in the dry season which agrees with reports of Aragao (1936) and Fairchild (1966).

All stages of *A. neumanni* were found during autumn and winter. In the spring no larvae could be found. Very few *A. neumanni* ticks were found in summer, indicating that this tick species is inactive during this season. *A. parvum* adults were commonest in summer and almost completely disappeared in winter. The seasonal behaviour of both species deserves further study, and might provide information with regard to the number of generations/year ratio.

The scarcity of preimaginal stages of *A. parvum* on cattle suggests that this ill-known species prefers non-bovine hosts.

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