

**TICKS OF THE GENUS *AMBLYOMMA* (ACARI:
IXODIDA: IXODIDAE) FROM A MANED WOLF,
CHRYSOCYON BRACHYURUS, WITH THE FIRST
REPORT OF *A. OVALE* FROM THIS
ENDANGERED CANID¹**

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ABSTRACT: Adults of the ixodid ticks *Amblyomma ovale* and *A. tigrinum* are reported from a young adult female maned wolf, *Chrysocyon brachyurus*, captured in Noel Kempff Mercado National Park, northeastern Bolivia. This is the first published record of *A. ovale* from *C. brachyurus*. Earlier collections of *A. auricularium* and *A. tigrinum* from Bolivian and Brazilian *C. brachyurus* are tabulated and discussed.

The maned wolf, *Chrysocyon brachyurus* (Illiger, 1815), is a Neotropical canid that somewhat resembles the red fox, *Vulpes vulpes* (L., 1758), but has conspicuously longer legs, and the hair along the nape of the neck and middle of the back may be both long and dark, suggesting a mane. A resident of grasslands, savannahs and swamps from eastern Bolivia and central and eastern Brazil through northern Argentina, Paraguay and, formerly, Uruguay, *C. brachyurus* is increasingly threatened by the annual burning of its habitats (Nowak 1999). It is currently classified as endangered under the U.S. Endangered Species Act, as vulnerable by the International Union for Conservation of Nature and Natural Resources, and is listed in Appendix 2 (species not necessarily threatened with extinction but that may become so unless trade is subjected to strict regulation) of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (Wilson and Reeder 1993). Though the maned wolf is often killed because of alleged predation on chickens and livestock, we are aware of only two published tick collections from this animal (Aragão 1918, Kohls 1956), plus one previously unpublished record (RML 39254) in the U.S. National Tick Collection, Georgia Southern University, Statesboro. Accordingly, we collected all visible tick specimens when one of us (SLD) was able to dart a free-ranging *C. brachyurus* at 0200 h on 15 February 2000 in Noel Kempff Mercado National Park (Parque Nacional Noel Kempff Mercado), in the northeastern corner of the Department of Santa Cruz, Bolivia.

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METHODS

Noel Kempff Mercado National Park is situated in lowlands between the Serranía de Huanchaca escarpment and the banks of the Río Itenez (Guaporé) and is remarkable for its spectrum of Amazonian flora and fauna, including about 140 species of mammals, 600 birds, 75 reptiles, 63 amphibians, 260 fishes, and some 4,000 vascular plants. The forest has been broadly classified as subhumid, but five distinct ecosystems are present: broadleaf evergreen forest, dry forest, inundated forest, dry savannah, and inundated savannah. This part of Bolivia is characterized by a marked dry season in the austral winter, a mean daily temperature of 25°C, and annual precipitation >1,500 mm (Killeen 1996, Robbins et al. 1998).

As part of a radiotelemetry study, a young adult female *C. brachyurus* (weight 21 kg, total length 137 cm) was immobilized with 100 mg telazol delivered by Telinject® rifle to the hind leg muscles by SLD from a shooter's blind after the animal had been baited with sardines into the Mangabalito Campsite (13.46.58S, 60.33.02W), left bank of the Río Itenez. During application of a radiocollar, a complete physical examination was performed and various biomaterials (ecto- and endoparasites, blood and urine samples) were collected. Among these were 66 adult ticks found attached all over the body, though most were on the ear pinnae. One tick was removed from the upper right eyelid. The skin and pelage were normal and no obvious clinical signs were noted at any of the tick attachment sites. Following recovery from anesthesia, the animal was released. All tick specimens were preserved in 70% isopropanol and shipped to RGR for identification and analysis.

RESULTS AND DISCUSSION

Adults of two species of ixodid ticks—*Amblyomma ovale* Koch, 1844 (1 ♀) and *A. tigrinum* Koch, 1844 (40 ♂, 25 ♀)—were found on our immobilized maned wolf. Though not previously reported from *C. brachyurus*, adults of *A. ovale* are known to parasitize numerous mammal species, including other canids (*Canis lupus* L., 1758, recorded as *C. familiaris* L., 1758; *Cercocyon thous* (L., 1766)), from Mexico to Argentina (Robinson 1926, Fairchild et al. 1966, Jones et al. 1972). In his review of Brazilian ticks, Aragão (1918) cited a collection of 18 ♂ and 3 ♀ of *A. maculatum* Koch, 1844 ex *Canis jubatus* Desmarest, 1820, a junior synonym of *C. brachyurus*. However, after examining numerous purported specimens of South American *A. maculatum*, including several collections lent by Aragão, Kohls (1956) concluded that this species occurs no farther south than Colombia and Venezuela, and that more southerly records of *A. maculatum* from canids are in every case *A. tigrinum*. The two tick species are superficially similar, but adults of *A. maculatum* possess a pair of spurs distally on the metatarsi of legs II, III and IV, whereas in adults of *A. tigrinum* only a single spur occurs on these metatarsi (Kohls 1956, Jones et al. 1972). A parasite of wild and domestic carnivores that rarely attacks other

hosts, *A. tigrinum* is known from every country of continental South America except Colombia, Ecuador, Guyana and Suriname (Jones et al. 1972).

The Field Veterinary Program, Wildlife Conservation Society, has assigned accession number CYB1 and MEDARKS (Medical Archives) number 2000-0048 to the Mangabalito Campsite collection, which is on long-term loan to RGR. Data for known tick collections from *C. brachyurus* are summarized in Table 1. The record of *A. auricularium* (Conil, 1878) is unusual because this species, in our experience and elsewhere (Jones et al. 1972), is most often associated with *Xenarthra* (*Dasypus* and *Tamandua*), though collections exist from a variety of unrelated mammals (Fairchild et al. 1966), and almost any tick species might temporarily transfer from prey animals to an omnivore like *C. brachyurus*. Because mated pairs of *C. brachyurus* defend territories averaging 27 sq. km in area (Nowak 1999), it may seem remarkable that only three tick species have been reported to date from this host. However, such a total effectively underscores our ignorance of mammal-ectoparasite relationships at this, the eleventh hour in the history of the biosphere.

Table 1. Known tick collections from *Chrysocyon brachyurus*.

Collection No.	Tick Species (Sex)	Location	Date	Collector
834*	<i>A. tigrinum</i> (18♂, 3♀)	BRAZIL: State of São Paulo	August 1912	unknown
RML 33248**	<i>A. tigrinum</i> (5♂, 2♀)	BRAZIL: State of Goiás, Anápolis	17 December 1936	R.M. Gilmore
RML 39254	<i>A. auricularium</i> (1♂, 3♀)	BOLIVIA: Beni, 17 km north of San Joaquín	10 April 1963	Middle America
	<i>A. tigrinum</i> (5♂)			Research Unit
CYB1	<i>A. ovale</i> (1♀)	BOLIVIA: Santa Cruz,	15 February 2000	S.L. Deem
	<i>A. tigrinum</i> (40♂, 25♀)	Noel Kempff Mercado Natl. Pk., Mangabalito Campsite		

*Aragão 1918; **Kohls 1956.

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BOOK REVIEW

BIOLOGY OF THE PLANT BUGS (HETEROPTERA: MIRIDAE) A. G. Wheeler, Jr. 2001. Comstock/Cornell Press, Ithaca, NY. 507pp. Cloth. \$90. ISBN 0-8014-3827-6.

This is a large book (8-1/2" x 11", over 500 pages) that is encyclopedic in scope. Its chapters cover the following subjects:

1. Introduction, classification, principle genera, history;
2. Identification, ecology, behavior, morphology, plant disease transmission;
3. Feeding habits;
4. Predation and scavenging;
5. Feeding trends, research needs;
6. Appendices: Latin names, authors, subfamilies; common names of mirids; plant names; Glossary; references to the literature (ca. 4,400 citations); and a large index.

This book is very well illustrated, with ca. 200 color photos of mirids and their damage to plants, and many black and white photos, line drawings, and graphs. Large amounts of information have been summarized in tables, including: plant bug "primer"; name changes; subfamilies, tribes, and genera; oviposition injuries to plants; mites parasitic on mirids; plant diseases transmitted; plant injuries caused by mirids; weed hosts; pollen feeders; mirids as predators; and mirids that have bitten humans. Many of the mirids discussed are not present in North America, so the book's scope is world wide. It is remarkably free of spelling errors, and the cost is reasonable, considering the size. This book will be an excellent reference for entomology libraries, and many entomologists who work with mirids will want their own copy.

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