

First record of *Haemaphysalis juxtakochi* Cooley, 1946 (Acari: Ixodidae) from Peru

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Abstract

Twenty-four adult ticks were collected from South American alpacas, *Lama pacos* (Linnaeus, 1758), at Anexo Tambo Cañahuas (16°01'S, 71°26'W), distrito de Yanahuara, departamento Arequipa, Peru, altitude 4,300 m. Three male and 20 female ticks were identified as *Amblyomma parvitarsum* Neumann, 1901, a common parasite of camelids belonging to the genera *Lama* G. Cuvier, 1800, and *Vicugna* Lesson, 1842, in the Andean region of Argentina, Bolivia, Chile and Peru. The remaining tick was a female of *Haemaphysalis juxtakochi* Cooley, 1946. This is the first Peruvian record of *H. juxtakochi*, a species known from the Neotropical and southern Nearctic Zoogeographic Regions. *Lama pacos* is also a new host for this tick species.

Key words: Ixodidae, *Haemaphysalis juxtakochi*, *Lama pacos*, Peru

Introduction

Haemaphysalis Koch, 1844, is the second largest tick genus in the world. However, of about 160 described species (Horak *et al.*, 2002), only two, *H. leporispalustris* (Packard 1869) and *H. juxtakochi* Cooley, 1946, occur in the Neotropical Zoogeographic Region, and both are also found in the Nearctic Region (Guglielmone *et al.* 2003). Herein we report the first record of *H. juxtakochi* from Peru after its collection from an unusual host for this tick, the South American alpaca, *Lama pacos* (Linnaeus 1758) (Camelidae).

Materials and methods

Twenty-four adult ixodid ticks were collected from a herd of 30 *L. pacos* at Anexo Tambo Cañahuas (16° 01'S, 71° 26'W), distrito de Yanahuara, departamento Arequipa, Peru, altitude 4,300 m. All ticks were situated in the perineal region. They were identified using several keys and descriptions for Neotropical Ixodidae.

Results and discussion

Twenty-three of the 24 ticks were determined as *Amblyomma parvitarsum* Neumann, 1901 (3 males, 20 females), based on the description of Boero (1957). Six females and one male from this series have been deposited in the Instituto Nacional de Tecnología Agropecuaria Rafaela (INTA) tick collection (accession N° 1847); the remaining specimens are in the Facultad de Veterinaria de la Universidad Nacional de La Plata, Argentina. This tick species is most often found on South American camelids of the genera *Lama* G. Cuvier, 1800, and *Vicugna* Lesson, 1842, in Argentina, Bolivia, Chile and Peru (Guglielmone *et al.* 2003). The perineal area is the usual feeding site for adults (Food and Agriculture Organization, 1988).

A single female *Haemaphysalis* (INTA tick collection N° 1848) was determined as *H. juxtakochi*, based on the descriptions of Cooley (1946) and Boero (1957) and the key by Fairchild *et al.* (1966). This specimen constitutes the first record of *H. juxtakochi* from Peru. Females of *H. juxtakochi* can be separated from those of *H. leporispalustris* by the presence of a long retrograde spur on the ventral side of palpal article III, absence of ventral cornua, and a 4/4 dental formula (corresponding character states for *H. leporispalustris* are short retrograde spur, presence of ventral cornua, and dental formula 3/3).

A list of hosts of *H. juxtakochi* adults in the Neotropics compiled by one of us (Guglielmone, A.A., unpublished, available upon request) shows that Artiodactyla are the usual hosts of this tick species (75 of 96 records), but the great majority of artiodactyl records are from deer, mostly *Mazama* Rafinesque, 1817, which are probably the principal host of *H. juxtakochi* in nature. *Lama pacos* is a new host for *H. juxtakochi* but probably an atypical one, since our record is the first from a South American camelid. The only species of *Mazama* known from the Andean region of southern Peru is the dwarf brocket deer, *M. chunyi* Hershkovitz, 1959 (Trolle & Emmons 2004), but it is unclear whether this deer can sustain *H. juxtakochi* populations because its own population appears to be extremely low (Trolle & Emmons, 2004). Other deer species that are adapted to Andean habitats in Peru, such as *Odocoileus virginianus* (Zimmermann 1780), may also play a role in maintaining *H. juxtakochi* populations in nature (Grimwood 1969). Infestations of *O. virginianus* with *H. juxtakochi* have been observed in Costa Rica and Panama (Fairchild *et al.*, 1966; Carreno *et al.* 2001). The locality of our specimen of *H. juxtakochi* is also unusual because no previous collection of this tick has been made at such a great altitude; however, little is known about the ecology of this species or, indeed, of most ticks that occur in the Andes.

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References

- Boero, J.J. (1957) *Las garrapatas de la República Argentina (Acarina: Ixodoidea)*. Departamento Editorial, Universidad de Buenos Aires. 113 pp.
- Carreno, R.A., Durden, L.A., Brooks, D.R., Abrams, A. & Hoberg, E.P. (2001) *Parelaphostrongylus tenuis* (Nematoda: Protostrongylidae) and other parasites of white-tailed deer (*Odocoileus virginianus*) in Costa Rica. *Comparative Parasitology*, 68, 177–184.
- Cooley, R.A. (1946) The genera *Boophilus*, *Rhipicephalus*, and *Haemaphysalis* (Ixodoidea) of the New World. *Bulletin of the National Institute of Health*, (187), 1–54.
- Fairchild, G.B., Kohls, G.M. & Tipton, V.J. (1966) The ticks of Panama (Acarina: Ixodoidea). In: Wenzel, W.R.

- and Tipton, V.J. (eds.) *Ectoparasites of Panama*. Chicago, Field Museum of Natural History. pp. 167–219.
- Food and Agriculture Organization (1988) Garrapatoxis. In: *Manual de parasitología y parasitismo de camélidos sudamericanos*. Informe técnico del programa de cooperación técnica de enfermedades de camélidos de Chile. pp. 88–91.
- Grimwood, I.R. (1969) The distribution and status of some Peruvian mammals. *Special Publication of the American Committee for International Wildlife Protection and The New York Zoological Society*, (21), 1–86.
- Guglielmone, A.A., Estrada-Peña, A., Keirans, J.E. & Robbins, R.G. (2003) *Ticks (Acari: Ixodidae) of the Neotropical Zoogeographic Region*. Special Publication, International Consortium on Ticks and Tick-borne Diseases, Atalanta, Houten, The Netherlands. 173 pp.
- Horak, I.G., Camicas, J-L. & Keirans J.E. (2002) The Argasidae, Ixodidae and Nuttalliellidae (Acari: Ixodidae): a world list of valid tick names. *Experimental and Applied Acarology*, 28, 27–54.
- Trolle, M. & Emmons, L.H. (2004). A record of a dwarf brocket deer from lowland Madre de Dios, Peru. *Deer Specialist Group News*, (19), 2–5.

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