

NOTE

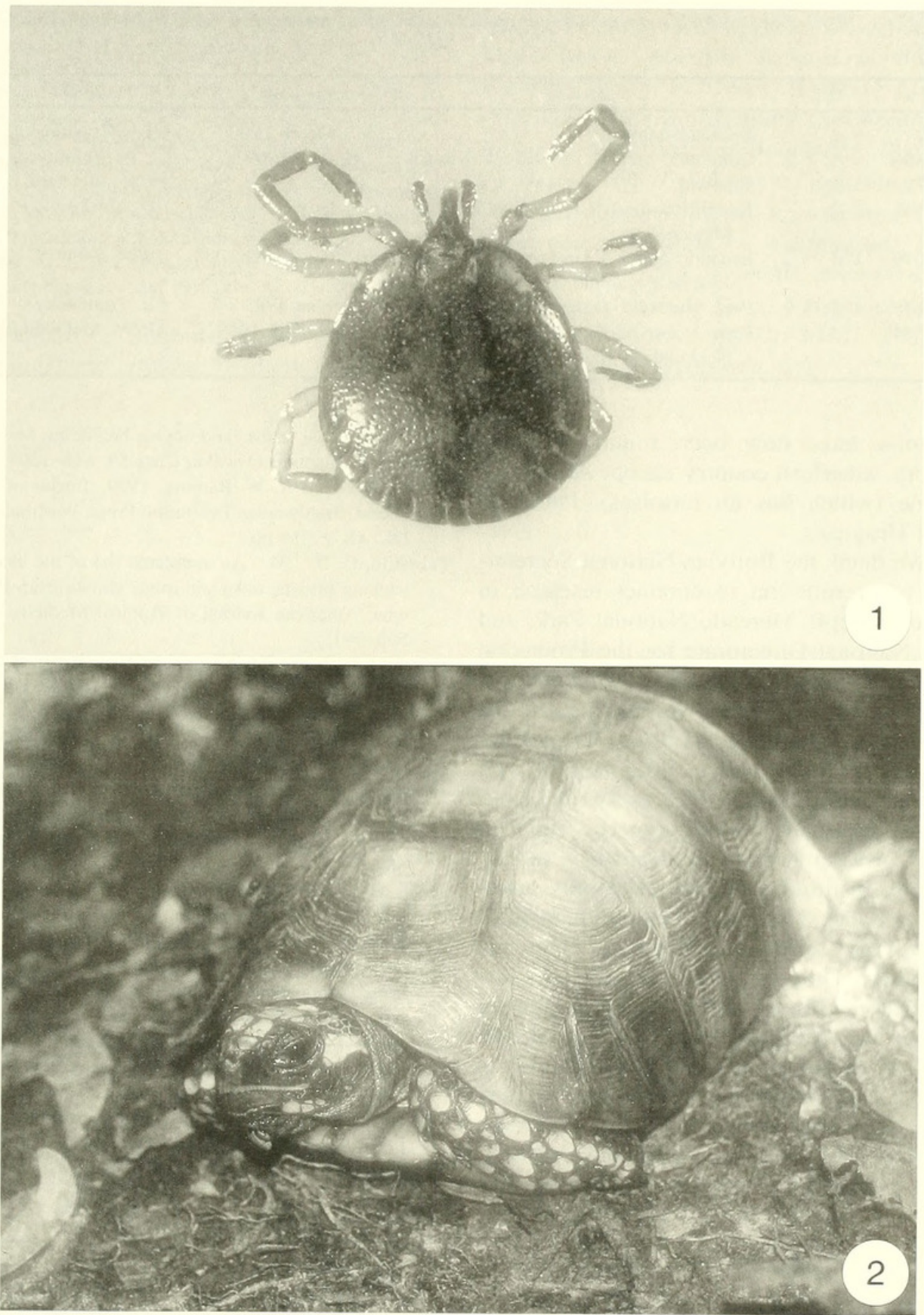
First Report of *Amblyomma humerale* Koch (Acari: Ixodida: Ixodidae) from Bolivia, with a Synopsis of Collections of this Tick from the South American Yellow-footed Tortoise, *Geochelone denticulata* (L.) (Reptilia: Testudines: Testudinidae)

Over most of the Neotropical Zoogeographic Region, turtles and tortoises are commonly parasitized by a complex of three morphologically similar tick species whose biosystematic relationships to one another are unclear: *Amblyomma sabanerae* Stoll, which ranges from southern Mexico through Central America and perhaps into Colombia (Fairchild et al. 1966, Robbins et al. 2001); *A. humerale* Koch, which occurs on Trinidad and across the whole of northern South America southward through Brazil and westward into Peru (Floch and Fauran 1958, Aitken et al. 1968, Walter 1990, Guerrero 1996, Verhaagh and Podlousky 1997); and the seldom-collected *A. crassum* Robinson, which appears to occupy a transition zone between *A. sabanerae* and *A. humerale*, having been recorded from Colombia, Peru and Venezuela (Robinson 1926, Fiasson 1949, Fairchild et al. 1966, Jones et al. 1972). However, published descriptions of these species are often vague, leading Fairchild (1943) to speculate that all three may merely be varieties of one widespread polytypic species. Whatever their systematic standing, these ticks are apparently capable of feeding on any terrestrial or semiaquatic testudine. Thus, it is not surprising that *A. humerale* has previously been collected from the South American yellow-footed tortoise, *Geochelone denticulata* (L.), the largest tortoise on the continental mainland, with a range extending from Trinidad and southeastern Venezuela through the Caribbean lowlands of the Guianas to Brazil, where it is known from the entire Amazon Basin, including those portions in adjacent eastern Colombia and Ecuador, northeastern Peru, and northern

and eastern Bolivia (Aragão and Fonseca 1961, Aitken et al. 1968, Ernst and Barbour 1989). On 6 February 2000, one of us (SLD) removed 11 male specimens of *A. humerale* (Fig. 1) from the axillae of a single *G. denticulata* (sex unrecorded; actual host animal shown in Fig. 2) captured in Noel Kempff Mercado National Park (Parque Nacional Noel Kempff Mercado), in the northeastern corner of the Department of Santa Cruz, Bolivia. We believe that these are the first specimens of *A. humerale* ever reported from Bolivia.

Noel Kempff Mercado National Park is situated in lowlands between the Serranía de Huanchaca escarpment and the banks of the Río Itenez (Guaporé) and has been described elsewhere (Robbins and Deem 2002). Our specimen of *G. denticulata* was sighted alongside a trail running through seasonally inundated forest within the park (13.48.14S, 60.32.44W). The animal was approached on foot and manually restrained for physical examination. All tick specimens were preserved in 70% isopropanol and shipped to RGR for identification and analysis.

The Field Veterinary Program, Wildlife Conservation Society, has assigned accession number GCD1 and MEDARKS (Medical Archives) number 2002-0004 to the Noel Kempff Mercado collection of *A. humerale*, which is on long-term loan to RGR. Seven additional collections of *A. humerale* from *G. denticulata* are in the U.S. National Tick Collection, Georgia Southern University, Statesboro (Table 1). It seems likely that the range of *A. humerale* will eventually prove to be almost coextensive with that of *G. denticulata*, since both tick and



Figs. 1–2. 1, One of 11 male specimens of *Amblyomma humerale* collected from *Geochelone denticulata* in Noel Kempff Mercado National Park, Department of Santa Cruz, Bolivia. 2, The Noel Kempff Mercado specimen of *Geochelone denticulata*.

Table 1. Collections of *Amblyomma humerale* from *Geochelone denticulata* in the U.S. National Tick Collection.

RML No.	Ticks	Location	Date	Collector
36571	8 ♂	Trinidad: Mayaro	17 March 1960	T.H.G. Aitken
52486	6 ♂, 1 ♀	Colombia: Meta, La Macarena, Rio Cafre	29 June 1969	C.A. Velasquez
64672	1 ♂	Trinidad	August 1974	J.W. Bickham
116157	2 ♂	Brazil: Roraima, Estação Ecológica de Maracá	17 November 1981	D. Moskovits
117079	1 ♂	Ecuador: Napo, 1 km S, 6 km W of San José de Payamino	15 November 1983	R.M. Timm
117518	1 ♂, 1 ♀	Peru: Huánuco, Panguana	October 1983	R. Podloucky
119584	1 ♂	Peru: Madre de Dios, Pakitza, Parque Nacional del Manu, Rio Manu	1 February 1989	R.W. McDiarmid

tortoise have now been found in every South American country except Argentina, Chile (which has no tortoises), Paraguay and Uruguay.

We thank the Bolivian National Secretariat for permission to conduct research in Noel Kempff Mercado National Park, and the National Directorate for the Protection of Biodiversity for help in securing the necessary permits. Others who assisted in this investigation included John L. Behler, Wildlife Conservation Society; Carl H. Ernst, George Mason University; and Louise H. Emmons and George R. Zug, National Museum of Natural History, Smithsonian Institution. We are especially grateful to Lance A. Durden, Institute of Arthropodology and Parasitology, Georgia Southern University, for counsel concerning the distribution of *A. humerale* and for generously providing copies of the tick collection records in his care. Thanks also to Veronica Greco, Field Veterinary Program, for facilitating the shipment and accessioning of tick specimens. Funding for SLD was provided by the Field Veterinary Program, Wildlife Conservation Society.

LITERATURE CITED

Aitken, T. H. G., C. B. Worth, and E. S. Tikasingh. 1968. Arbovirus studies in Bush Bush Forest, Trinidad, W.I., September 1959–December 1964. *American Journal of Tropical Medicine and Hygiene* 17: 253–268.

Aragão, H. de B. and F. O. R. da Fonseca. 1961. Notas de ixodologia. VIII. Lista e chave para os repre-

sentantes da fauna ixodológica brasileira. *Memórias do Instituto Oswaldo Cruz* 59: 115–130.

Ernst, C. H. and R. W. Barbour. 1989. *Turtles of the World*. Smithsonian Institution Press, Washington, DC. xii + 313 pp.

Fairchild, G. B. 1943. An annotated list of the blood-sucking insects, ticks and mites known from Panama. *American Journal of Tropical Medicine* 23: 569–591.

Fairchild, G. B., G. M. Kohls, and V. J. Tipton. 1966. The ticks of Panama (Acarina: Ixodoidea), pp. 167–219. *In* Wenzel, R.L. and V.J. Tipton, eds. *Ectoparasites of Panama*. Field Museum of Natural History, Chicago, Illinois.

Fiasson, R. 1949. Contribución al estudio de los ácaros de Venezuela. *Revista Grancolombiana de Zootecnia, Higiene y Medicina Veterinaria* 3: 567–588.

Floch, H. and P. Fauran. 1958. Ixodidés de la Guyane et des Antilles Françaises. *Archives de l'Institut Pasteur de la Guyane*, No. 446. 94 pp.

Guerrero, R. 1996. Las garrapatas de Venezuela (Acarina: Ixodoidea). Listado de especies y claves para su identificación. *Boletín de la Dirección de Malariología y Saneamiento Ambiental* 36: 1–24.

Jones, E. K., C. M. Clifford, J. E. Keirans, and G. M. Kohls. 1972. The ticks of Venezuela (Acarina: Ixodoidea) with a key to the species of *Amblyomma* in the Western Hemisphere. *Brigham Young University Science Bulletin, Biological Series* 17: 1–40.

Robbins, R. G. and S. L. Deem. 2002. Ticks of the genus *Amblyomma* (Acari: Ixodida: Ixodidae) from a maned wolf, *Chrysocyon brachyurus*, with the first report of *A. ovale* from this endangered canid. *Entomological News* 113: 25–28.

Robbins, R. G., S. G. Platt, T. R. Rainwater, and W. Weisman. 2001. Statistical measures of association between *Amblyomma sabanerae* Stoll (Acari: Ixodida: Ixodidae) and the furrowed wood turtle, *Rhinoclemmys areolata* (Duméril and Bibron)

- (Testudines: Emydidae), in northern Belize. Proceedings of the Entomological Society of Washington 103: 54–59.
- Robinson, L. E. 1926. Ticks. A Monograph of the Ixodoidea. Part IV. The Genus *Amblyomma*. Cambridge University Press, London. xii + 302 pp.
- Verhaagh, M. and R. Podlousky. 1997. Zum Parasitenbefall von *Geochelone denticulata* (Linnaeus, 1766) im peruanischen Regenwald (Testudines: Testudinidae). Salamandra 33: 241–254.
- Walter, G. 1990. Zeckenfunde (Ixodoidea, Ixodidae) aus Paraguay und Peru. Andrias 7: 169–170.
- Richard G. Robbins, *Armed Forces Pest Management Board, Walter Reed Army Medical Center, Washington, DC 20307-5001, U.S.A. (e-mail: richard.robbins@osd.mil)*, Sharon L. Deem, formerly *Field Veterinary Program, Wildlife Conservation Society, 2300 Southern Boulevard, Bronx, NY 10460-1099, U.S.A., now Department of Animal Health, National Zoological Park, Smithsonian Institution, Washington, DC 20008-2598, U.S.A. (e-mail: deems@nzp.si.edu)*, and James L. Occi, *5 Hemlock Circle, Cranford, NJ 07016-2045, U.S.A. (e-mail: jimocci@comcast.net)*.



Robbins, Richard G., Deem, Sharon L., and Occi, James L. 2003. "First report of *Amblyomma humerale* Koch (Acari: Ixodida: Ixodidae) from Bolivia, with a synopsis of collections of this tick from the South American yellow-footed tortoise, *Geochelone denticulata* (L.) (Reptilia: Testudines: Testudinidae)." *Proceedings of the Entomological Society of Washington* 105, 502-505.

View This Item Online: <https://www.biodiversitylibrary.org/item/54811>

Permalink: <https://www.biodiversitylibrary.org/partpdf/55352>

Holding Institution

Smithsonian Libraries and Archives

Sponsored by

Smithsonian

Copyright & Reuse

Copyright Status: In copyright. Digitized with the permission of the rights holder.

Rights Holder: Entomological Society of Washington

License: <http://creativecommons.org/licenses/by-nc-sa/3.0/>

Rights: <https://biodiversitylibrary.org/permissions>

This document was created from content at the **Biodiversity Heritage Library**, the world's largest open access digital library for biodiversity literature and archives. Visit BHL at <https://www.biodiversitylibrary.org>.