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First report of adult *Amblyomma longirostre* (Acari: Ixodidae) in Oklahoma

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The movement of ticks into North America has occurred for many years, due to the importation of exotic reptiles and mammals (Becklund 1968; Keirans and Durden 2001) as well as through the annual spring migration of birds from South and Central America (Scott *et al.* 2001; Hamer *et al.* 2012; Mukherjee *et al.* 2014). The focus of this paper is on the discovery of an adult female *Amblyomma longirostre* (Koch, 1844) in Oklahoma, an exotic tick normally reported on birds and mammals in South and Central America.

On 24 September 2005, a homeowner discovered a large, odd looking tick crawling on a propane tank in Pittsburg County, south of Hartshorne, Oklahoma. The tick was collected, brought to the Pittsburg County Oklahoma Cooperative Extension Service office where it was sent by mail to the Plant Disease and Insect Diagnostic Lab (PDIDL) in the Department of Entomology and Plant Pathology at Oklahoma State University. The tick was identified on 3 October 2005 using an established key (Jones et al. 1972) (Figs 1, 2) as an adult female *A. longirostre* and given an ascension number (#200501316). It was later verified using detailed descriptions by Voltzit (2007).



FIGURE 1. Dorsal view of adult *A. longirostre* female found in Oklahoma, note the elongated scutum.

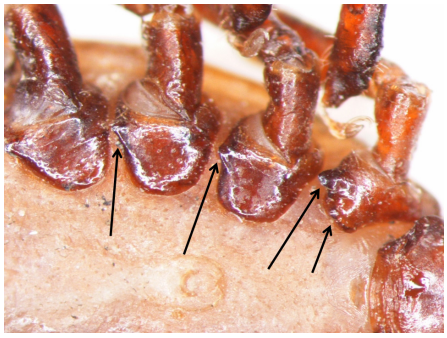


FIGURE 2. Ventral view of adult *A. longirostre* female, focused on identifying coxal spurs.

Amblyomma longirostre is native to South and Central America (Voltzit 2007) and is associated with a variety of bird and mammal species (Nava et al. 2010), including porcupines. There have only been 4 reports of this tick feeding on humans (Guglielmone *et al.* 2006; Nava *et al.* 2010). In North

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America, *A. longirostre* have been reported in Pennsylvania (Jones *et al*. 1972), Tennessee (Durden and Kollars 1992), Michigan (Becklund 1968), Illinois (Hamer *et al.* 2012), and Canada (Scott *et al.* 2001). All reports have been larval and nymphal ticks on migrating passerines except for Michigan where an adult male was discovered on an exotic porcupine being imported into Detroit (Becklund 1968). Most notably, Scott *et al*. (2001) discovered two *A. longirostre* larvae on a Traill's flycatcher in Delta, Manitoba, a distance of at least 5,000 km from where it began its migration. Oklahoma is in the central portion of the Central flyway, receiving many species of birds from Central and South America (FWS 2012).

The discovery of an adult female *A. longirostre* collected off a host is noteworthy and the time of discovery in late September may provide a clue as to the timeline of events. Immature *A. longirostre* are normally found on birds in North America during the spring migration period from Central and South America (Hamer *et al.* 2012; Scott *et al*. 2001; Mukherjee *et al.* 2014). Several studies have reported finding engorged nymphs on migrating birds (reviewed by Durden and Kollars 1992). It is highly probable, then, that during spring migration, an engorged nymph dropped off of a migrating bird on or close to the propane tank on which the tick was found. Given the warm, humid environment of eastern Oklahoma, the tick could have found a suitable environment in which to molt into an adult female. While this species is also associated with a variety of *Rickettsia* species in South and Central America (*R. amblyommii*, *R. belli*, and *R. parkeri*) (Labruna *et al.* 2004; Ogrzewalska *et al*. 2008), it is highly improbable that the tick species has established in Oklahoma as no subsequent individuals have been found since 2005.

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References

Becklund, W.W. (1968) Ticks of veterinary significance found on imports in the United States. *Journal of Parasitology*, 54, 622–628. http://dx.doi.org/10.2307/3277097

Durden, L.A. & Kollars, T.M. (1992) An annotated list of the ticks (Acari: Ixodoidae) of Tennessee, with records of four exotic species for the United States. *Bulletin of the Society of Vector Ecology*, 17, 125–131.

Hamer, S.A., Goldberg, T.L,, Kitron, U.D., Brawn, J.D., Anderson, T.K., Loss, S.R., Walker, E.D. & Hamer, G.L. (2012) Wild birds and urban ecology of ticks and tick-borne pathogens, Chicago, Illinois, USA, 2005–2010. *Emerging Infectious Diseases*, 18, 1589–1595. http://dx.doi.org/10.3201/eid1810.120511

Guglielmone, A.A., Beati, L., Barros-Battesti, D.M., Labruna, M.B., Nava, S., Venzal, J.M., Mangold, A.J., Szabó, M.P., Martins, J.R., González-Acuña, D. & Estrada-Peña, A. (2006) Ticks (Ixodidae) on humans in South America. *Experimental & Applied Acarology*, 40, 83–100. http://dx.doi.org/10.1007/s10493-006-9027-0

Jones, E.K., Clifford, C.M., Keirans, J.E. & Kohls, G.M. (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.

Keirans, J.E. & Durden, L.A. (2001) Invasion: exotic ticks (Acari: Argasidae, Ixodidae) imported into the United States. A review and new records. *Journal of Medical Entomology*, 38, 850–861. http://dx.doi.org/10.1603/0022-2585-38.6.850

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Labruna, M.B., McBride, J.W., Bouyer, D.H., Camargo, L.M., Camargo, E.P. & Walker, D.H. (2004) Molecular evidence for a spotted fever group Rickettsia species in the tick *Amblyomma longirostre* in Brazil. *Journal of Medical Entomology*, 41, 533–537. http://dx.doi.org/10.1603/0022-2585-41.3.533

Mukherjee, N., Beati, L., Sellers, M., Burton, L., Adamson, S., Robbins, R.G., Moore, F. & Karim, S. (2014) Importation of exotic ticks and tick-borne spotted fever group rickettsiae into the United States by migrating songbirds. *Ticks & Tick Borne Diseases*, 5, 127–134. http://dx.doi.org/10.1016/j.ttbdis.2013.09.009

Nava, S., Valazco, P.M. & Guglielmone, A.A. (2010) First record of *Amblyomma longirostre* (Koch, 1844) (Acari: Ixodidae) from Peru, with a review of this tick's host relationships. *Systematic & Applied Acarology*, 15, 21–30.

Ogrzewalska, M., Pacheco, R.C., Uezu, A., Ferreira, F. & Labruna, M.B. (2008) Ticks (Acari: Ixodidae) infesting wild birds in an Atlantic forest area in the state of São Paulo, Brazil, with isolation of rickettsia from the tick *Amblyomma longirostre*. *Journal of Medical Entomology*, 45, 770–774.

Scott, J.D., Fernando, K., Banerjee, S.N., Durden, L.A., Byrne, S.K., Banerjee, M., Mann, R.B., Morshed, M.G. (2001) Birds disperse Ixodid (Acari: Ixodidae) and *Borrelia burgdorferi*-infected ticks in Canada. *Journal of Medical Entomology*, 38, 493–500. http://dx.doi.org/10.1603/0022-2585-38.4.493

U.S. Fish and Wildlife Service (FWS). 2012. Migratory Bird Flyways. Available at http://www.fws.gov/migratorybirds/flyways.html.

Voltzit, O.V. (2007) A review of neotropical *Amblyomma* species (Acari: Ixodidae). *Acarina*, 15, 3–134.

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