Journal of the Arkansas Academy of Science

Volume 75 Article 6

2021

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Recommended Citation

McAllister, Chris T. and Durden, Lance A, (2021) "New Distributional Records for Ectoparasites (Acari: Laelapidae, Myocoptidae) of the Woodland Vole, Microtus pinetorum (Rodentia: Cricetidae) from Polk County, Arkansas," *Journal of the Arkansas Academy of Science*: Vol. 75 , Article 6.
DOI: https://doi.org/10.54119/jaas.2021.7503
Available at: https://scholarworks.uark.edu/jaas/vol75/iss1/6

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Cover Page Footnote

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New Distributional Records for Ectoparasites (Acari: Laelapidae, Myocoptidae) of the Woodland Vole, *Microtus pinetorum* (Rodentia: Cricetidae) from Polk County, Arkansas

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Running Title: Ectoparasites of Woodland Vole

Abstract

The woodland vole, *Microtus pinetorum* is a common Arkansas rodent found statewide. To our knowledge, it has been surveyed only once in the state for ectoparasites. Here, a single specimen was examined and found to be infested with three species of mites, including *Androlaelaps fahrenholzi*, *Laelaps alaskensis*, and *Myocoptes japonensis*. This is the first time *L. alaskensis* and *M. japonensis* have been reported from Arkansas.

Introduction

At least 27 species of rodents occur in Arkansas and one of the common species in the state, the woodland vole, *Microtus pinetorum* (Le Conte, 1830), is a small cricetid rodent that ranges statewide (Sealander and Heidt 1990). Here it occurs in a variety of habitats ranging from overgrown, grassy fields and fencerows in orchards to moist woodlands (Sealander and Heidt 1990). The overall range of *M. pinetorum* is throughout the eastern and midwestern United States and extreme southern Ontario, Canada, from Maine southwestward to central Texas (Smolen 1981; Reid 2006).

Timm (1985), in a species account, provided a summation of the parasites of *M. pinetorum*. More recently, Connior *et al.* (2017) reported three species of mites from a single *M. pinetorum* collected from the Ozark Highlands of Benton County. To our knowledge, this is the only report of ectoparasites from this host in the state. Here, we document 3 mites from a *M. pinetorum* from the Ouachita Highlands.

Materials and Methods

Collections of *M. pinetorum* were attempted between 2018 and 2020 using Museum Special snap traps as well as Sherman live traps (H.B. Sherman traps, Tallahassee, FL) baited with rolled oats at the Ouachita Mountains Biological Station (OMBS), Polk County (34° 27' 43.4484" N,-93° 59' 54.3264" W). On 8 June 2020, a single neonate *M. pinetorum* was found alive on the ground. It was euthanized by cervical dislocation following American Society of Mammalogists guidelines (Sikes *et al.* 2016). The pelage was brushed over a white enamel pan for ectoparasites and specimens found were examined with a stereomicroscope. Mites were placed in vials of 70% ethanol and later cleared in lactophenol, slide-mounted in Hoyer's medium (Walters and Krantz 2009), and identified via light microscopy using Fain and Hyland (1970) and Whitaker (1982). A voucher specimen of the host is deposited in the mammal collection at Henderson State University (HSU), Arkadelphia, Arkansas. Ectoparasites are deposited in the Entomology Collection in the Department of Biology at Georgia Southern University, Statesboro, Georgia (accession no. L3848).

Results and Discussion

Three species of mites were found on *M. pinetorum* as follows:

ACARI: LAELAPIDAE

***Androlaelaps fahrenholzi* (Berlese, 1911). –** Six female specimens of this mesostigmatan mite were found recovered. This is a widespread and common Nearctic ectoparasite that has been previously reported from various rodents in Arkansas, including *M. pinetorum*, hispid cotton rat (*Sigmodon hispidus*), golden mouse (*Ochrotomys nuttalli*), and eastern woodrat, *Neotoma floridana* (Tumlison *et al.* 2015; Connior *et al.* 2017). This is the second time this mite has been found on this host in Arkansas (Connior *et al.* 2017), albeit now from a new locale in the Ouachita

Highlands.

***Laelaps alaskensis* Grant, 1947. –** A single female and 6 nymphs were taken. This species has been reported previously from *M. pinetorum* from Indiana (Mumford and Whitaker 1982; Whitaker and Mumford 2009), Mississippi (Clark and Durden 2002), and Pennsylvania (Whitaker and Lukoschus 1982). This mite has also been reported from several rodents from Indiana, Maryland, Minnesota, Mississippi, New Hampshire, New York, North Carolina, Oregon, Pennsylvania, Tennessee, and Wisconsin, and New Brunswick and the Northwest Territories, Canada (Whitaker *et al.* 2007). We document a new distributional record for *L. alaskensis* in Arkansas.

MYOCOPTIDAE

***Myocoptes japonensis* Radford, 1955. –** Three female specimens were found. Interestingly, three species of *Myocoptes* have been recorded from *M. pinetorum*, including *Myocoptes pitymys* Fain and Bochkov, 2004 from Illinois, which is probably host specific (Fain and Bochtov 2004). However, *M. japonicas* has previously been reported to be a parasite generalist that occurs on a number of host species, including *M. pinetorum* from Indiana (Mumford and Whitaker 1982) and Illinois (Pascal and Whitaker 1989), and seven other species of voles (Whitaker *et al.* 2007; Storm and Ritzi 2008). It has been previously reported from other North American hosts in Illinois, Indiana, Iowa, New York, North Carolina, Rhode Island, Oregon, Pennsylvania, and New Brunswick, Canada (Whitaker *et al.* 2007; Storm and Ritzi 2008). This is the first time *M. japonensis* has been reported from Arkansas and we document the southernmost geographic distribution record for this mite.

Overall, the distribution and host-specificity of ectoparasites of small mammals is poorly known in Arkansas. Given the paucity of information on ectoparasite diversity in the state, continuation of surveys will undoubtedly lead to additional new host and geographic records.

Acknowledgments

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