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***Eimeria wenrichi* (Apicomplexa: Eimeriidae) from the Woodland Vole, *Microtus pinetorum* (Rodentia: Cricetidae), in Central Arkansas: A New Host and Geographic Record**

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The woodland vole, *Microtus pinetorum* (LeConte) is a small semi-fossorial rodent that ranges throughout most of the eastern United States and extreme southern Ontario, Canada (Smolen 1981). In Arkansas, *M. pinetorum* can be found statewide, with the race *M. p. nemoralis* Bailey occurring in the Interior Highlands and *M. p. auricularis* Bailey occupying most of the Gulf Coastal Plain (Sealander and Heidt 1990).

Much is known about the ecology of this vole, including information on its ecto- and endoparasites (see Smolen 1981 for review). Although numerous coccidian parasites (Apicomplexa) have been reported previously from several other voles worldwide (Saxe et al. 1960; Winchell 1977; Vance and Duszynski 1985; Duszynski et al. 2007), the woodland vole has never been reported as a host. Herein, we document a new host and geographic record for a coccidian parasite.

During September 1992, December 2004 and April 2005, 7 *M. p. nemoralis* were collected with Sherman live traps or by hand from Craighead ($n = 2$) and Hot Spring ($n = 1$) counties, Arkansas, and Bowie ($n = 4$) County, Texas. Voles were killed by cervical dislocation and a mid-ventral incision was made to expose fecal contents. Feces was collected and placed in individual vials containing 2.5% (w/v) aqueous potassium dichromate ($K_2Cr_2O_7$) and examined by light microscopy following flotation in Sheather's sugar solution (specific gravity = 1.30). Negative samples were discarded and one positive sample collected on 9 April 2005 with unsporulated oocysts was allowed one week of sporulation at room temperature (ca. 23°C) in a Petri dish containing a thin layer of 2.5% $K_2Cr_2O_7$. Oocysts were concentrated again 4 months later with Sheather's and examined using a compound microscope equipped with Nomarski interference-contrast (DIC) optics. At a much later date (February 2008) this sample was examined again and 11 oocysts were photographed and measured using Olympus Microsuite[®] software. Measurements are reported in micrometers (μm) with

means followed by the ranges in parentheses. Oocysts were ca. 1,395 days old when measured and photographed. Standardized abbreviations for characteristics of oocysts and sporocysts are per Wilber et al. (1998) as follows: oocyst length (L) and width (W), their ranges and ratios (L/W), micropyle (M), oocyst residuum (OR), polar granules (PG), sporocyst length (L) and width (W), their ranges and ratio (L/W), Stieda body (SB), substieda body (SSB), parastieda body (PSB), sporocyst residuum (SR), refractile bodies (RB), and nucleus (N). A photovoucher of sporulated oocysts were accessioned into the United States National Parasite Collection, Beltsville, Maryland as USNPC 100690. A host voucher specimen was deposited in the Angelo State Natural History Collection (ASUMZ), San Angelo, Texas as ASNHC 13004.

A single *M. p. nemoralis* collected off St. Hwy 128 at DeRoche, Hot Spring County (34.19492°N, 93.02513°W) was found to be passing oocysts of a coccidian fitting the description of *Eimeria wenrichi* Saxe, Levine and Ivens, 1960 (Fig. 1). One interesting morphological exception of the oocysts we recovered to the original description of *E. wenrichi* by Saxe et al. (1960) was that the SR was dispersed and not a compact mass. However, this could be due to the age of the material. Oocysts ($n = 11$) were ovoidal, L X W = 18.8 X 13.5 (15.4-20.9 X 12.1-14.9), PG present, oocyst wall single layered, with no OR; sporocysts were ovoidal, L X W = 9.9 X 6.0 (9.3-10.5 X 4.5-7.3), SB clear or dark and nipple-like, SR dispersed into small and large granules.

Eimeria wenrichi (syn. *E. wenrichi* "A") was originally described from the meadow vole, *M. pennsylvanicus* from Pennsylvania. Since then the species has been reported from numerous other voles from the world (Table 1). Vance and Duszynski (1985, Fig. 12) provided the first published photomicrograph of an oocyst of *E. wenrichi* from *Microtus mexicanus subsimus* from Coahuila, Mexico, which compare favorably to oocysts we describe herein (Fig. 1).

Table 1. Reported worldwide hosts of *Eimeria wenrichi*.

<i>Microtus</i> sp./spp.	Locale	Prevalence*	Reference
<i>breweri</i>	Natucket Co., MA	320/410 (78%)	Winchell (1977)
<i>longicaudus</i>	AK**	3/29 (10%)	Duszynski et al. (2007)
<i>mexicanus fluviventer</i>	Oaxaca, MX	1/26 (4%)	Vance and Duszynski (1985)
<i>m. mexicanus</i>	Veracruz, MX	4/15 (3%)	Vance and Duszynski (1985)
<i>m. mogolloensis</i>	Apache Co., AZ	1/1 (100%)	Vance and Duszynski (1985)
<i>m. subsimus</i>	Coahuila, MX	8/48 (8%)	Vance and Duszynski (1985)
<i>miurus</i>	AK**	39/88 (44%)	Duszynski et al. (2007)
<i>montanus arizonensis</i>	Apache Co., AZ	4/8 (50%)	Vance and Duszynski (1985)
<i>oeconomus</i>	AK**	265/405 (65%)	Duszynski et al. (2007)
	Siberia, Russia**	29/48 (60%)	Duszynski et al. (2007)
<i>o. oregoni</i>	Clallam Co., WA	2/4 (50%)	Vance and Duszynski (1985)
<i>p. pennsylvanicus</i>	PA	1/1 (100%)	Saxe et al. (1960)
	Franklin Co., MA	5/11 (45%)	Vance and Duszynski (1985)
	AK**	123/159 (77%)	Duszynski et al. (2007)
<i>pinetorum nemoralis</i>	Hot Spring Co., AR	1/1 (100%)	This study
<i>xanthognathus</i>	AK**	9/52 (17%)	Duszynski et al. (2007)

*Prevalence in collected samples = number infected/number examined (percent); note low sample sizes in some reports.

**See Duszynski et al. (2007) for specific locales in Alaska and northeastern Siberia, Russia



Figure 1. Sporulated oocyst of *Eimeria wenrichi* from *M. p. nemoralis* from Hot Spring County, Arkansas. Scale bar = 5 μ m.

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