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The Horsehair Worm *Gordionus violaceus* (Nematomorpha: Gordiida) in Minnesota

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**Abstract**

A sample of 21 *Gordionus violaceus* (Baird) (Nematomorpha: Gordioidea) was obtained from a puddle in Winona County, southeastern Minnesota. These are the first of this species reported from the upper Midwest. Sex ratio was not significantly different from 50:50 and females and males did not differ significantly in length, but females were of significantly greater diameter than males.

Three species of horsehair worms (Nematomorpha: Gordioidea) have been reported previously from Minnesota: *Gordius robustus* Leidy, *G. difficilis* Montgomery, and *Paragordius varius* (Leidy) (Cochran et al. 1999, 2004; Martin and Cochran 2005; Cochran 2007). We report herein the collection of a fourth species, *Gordionus violaceus* (Baird, 1853). According to Schmidt-Rhaesa et al. (2003), *G. violaceus* has been collected not only in Europe, but also in the northeastern (Massachusetts), central (Missouri and Nebraska), and southwestern (Arizona and California) United States, but it has not been reported from the upper Midwest.

Horsehair worms were collected on 8 May 2008 in a puddle (~15 m long × 3.5 m wide × 5 cm deep) on a gravel road, Fairwater Drive, ~1 km west of Elba, Winona County, Minnesota. At this point the road skirted the North Branch Whitewater River and floodplain forest on one side and a recently cultivated field on the other side. The horsehair worms were identified as *G. violaceus* using light microscopy on the basis of male characteristics listed by Schmidt-Rhaesa et al. (2003), including a bi-lobed posterior, absence of a post-cloacal crescent, and presence of pre-cloacal rows of branched bristles that barely reach the tail lobes. In addition, the worms were light brown in body color with a white anterior tip and a dark collar, and both sexes possessed a single type of areole with numerous bristles in the interareolar spaces (Schmidt-Rhaesa et al. 2003). At least some *G. violaceus* collected previously have been obtained from temporary aquatic habitats (Smith 1991).

The sample of *G. violaceus* included 12 females and nine males, a sex ratio not significantly different from 50:50 ($P = 0.664$, binomial test). Hanelt et al. (2005) reviewed sex ratios in horsehair worms and noted that sex ratio may vary during the course of the mating season. The presence of sperm plugs on nine females indicated that mating had occurred recently, although the worms when collected were scattered throughout the puddle and not tightly clumped. Preserved females ranged in length from 82 mm to 199 mm and males ranged in length from 152 mm to 207 mm. Both maximum lengths were greater than those reported by Smith (1991) for 10 North American specimens (182 mm for

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females and 132 mm for males). Mean (± SE) lengths of females (157.3 ± 8.4 mm) and males (175.8 ± 6.8 mm) were not significantly different \((t = 1.631, \text{df} = 19, P = 0.119)\). However, mean diameter of females (0.54 ± 0.022 mm) was significantly greater than mean diameter of males (0.47 ± 0.015 mm) \((t = 2.170, \text{df} = 19, P = 0.043)\). The diameters observed in this study were consistent with those previously reported (Smith 1991: all < 1 mm; Schmidt-Rhaesa et al. 2003: 0.4-0.7 mm). We are not aware of previous comparisons of length or diameter between females and males of this species.

**Acknowledgments**

The horsehair worms were encountered during field surveys for lampreys funded in part by the Minnesota Department of Natural Resources and facilitated by Liz Harper of that organization. We thank Meghan Jensen for assistance in the laboratory. This work was supported in part by the National Science Foundation, DEB–0950066 to BH. Voucher specimens have been placed in the Museum of Southwestern Biology, Parasitology Division, at the University of New Mexico (MSB:PARA: 1002).

**Literature Cited**


