

— NOTE —

Records of Horsehair Worms *Paragordius varius*, *Chordodes morgani* and *Gordius robustus* (Nematomorpha) from Indiana

ABSTRACT

Horsehair worms *Paragordius varius*, *Chordodes morgani* and *Gordius robustus* are reported for the first time from Indiana. These observations increase the known distribution of these species.

Chandler (1985) reviewed the taxonomy and distribution of horsehair worms in the United States. The only report of hairworms from Indiana is *Gordius* sp. (Murray 1938, Clifford 1966). On August 16, 1999, a nematomorph female *Paragordius varius* (Leidy) was submitted to the Purdue University Veterinary Diagnostic Parasitology Laboratory collected from a puddle on cattle pasture 10 miles south of Lafayette Indiana. A review of hairworm specimens in the Veterinary Parasitology Museum (VPM) collection revealed several other records of *Paragordius varius*, *Chordodes morgani* Montgomery, and *Gordius robustus* Leidy, from Indiana.

Hairworms were studied under a dissecting microscope; each worm was sexed, and straightened, and the lengths and diameters were measured to the nearest 1 mm and 0.01 mm, respectively. For light microscopy studies anterior, middle, and posterior 5-10 mm sections of cuticle from female and male *Paragordius varius*, male *Gordius robustus*, and male *Chordodes morgani* were cut, dehydrated through ethanol, cleared in xylene, and mounted in Canada balsam. Additionally, male *Chordodes morgani* and female *Gordius robustus* were placed in glycerin between two glass slides and observed under the light microscope. Specimens were identified to species according to keys in Montgomery (1898), Pennak (1989), and Thorp and Covich (1991). Photomicrograph slides of specimens have been deposited in the helminth collection of the H. W. Manter Laboratory, University of Nebraska State Museum, Lincoln, Nebraska, U.S.A. (accession numbers HWML 2529-2539). Additionally, specimens are maintained in the VPM collection at Purdue University.

Along with the single *Paragordius varius* female submitted on August 16, 1999, the museum collection contained a female and male worm collected from a swimming pool at Fort Wayne, Indiana (date unknown) and four male and nine female worms from unknown locations in the state. Female worms possessed a trilobed posterior and were  $239 \pm 66$  mm in length and  $0.61 \pm 0.05$  mm in diameter. Male worms had a bilobed posterior end with no post cloacal crescent and were  $132 \pm 16$  mm in length and  $0.32 \pm 0.04$  mm in diameter. All female and male worms were light tan, tan or dark brown in color and possessed a calotte, additionally a single male possessed dark lines along the lateral margins of the body. This species has been reported from at least eighteen states in the United States (Chandler 1985), but this is a new locality record for Indiana.

A single male specimen, *Chordodes morgani*, was submitted for identification from a shower floor at a retirement home in Evansville, Indiana on August 3, 1992. Two other *Chordodes morgani* males were present in the VPM

collection from West Lafayette, Indiana (collection date unknown). These specimens possessed several protuberant cuticular areoles including distinctive crowned areoles. No anterior calotte was present on any of the specimens and all possessed a round posterior. Specimens were light tan or tan with a mottled pattern of irregular brown blotches and were  $167 \pm 21$  mm in average length and  $0.46 \pm 0.11$  mm in diameter. *Chordodes morgani* has been reported from ten states: Iowa, Kentucky, Maryland, Michigan, Nebraska, Ohio, Pennsylvania, Tennessee and Wisconsin (Chandler 1985, Studier et al. 1991, Watermolen and Chandler 1993). These records fill gaps in the range for this species.

Three males and one female *Gordius robustus* were also present in the VPM collection. Although no collection dates were given for these specimens, one male was collected from a dog's water bowl and one regurgitated by a dog from Indiana. The other male and female worms were collected in West Lafayette, Indiana. Male worms were  $229 \pm 45$  mm in length and  $0.56 \pm 0.06$  mm in diameter and possessed a bilobed posterior end with a postcloacal crescent. All male worms were light tan, tan or dark brown in color, possessed a calotte and dark lines along the lateral margins of the body. The single female (135 mm in length and 0.5 mm in width) had a round posterior and was tan in color with no calotte or dark lines along the margins. *Gordius robustus* is one of the most commonly encountered nematomorphs in the United States (Chandler 1985, Cochran et al. 1990) but is here reported for the first time from Indiana.

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