

spected for leeches, measured, and released. All leeches were placed in individual vials and relaxed by slowly dripping 95% ethanol into the vial, they were then fixed in 10% formalin. Leeches were identified using a stereo microscope and keys provided by Klemm (1991. Michigan Acad. 24:37–103) and Sawyer (1972. Illinois Biol. Monogr. 46:1–154). Prevalence is the percentage of infected turtles in a sample; mean intensity is the mean number of worms per infected turtle. In addition, three road-killed specimens (two *C. serpentina*, one *E. blandingii*) were collected in Waukesha and Racine Counties, Wisconsin, during 1995–1998. These turtles were inspected for helminth parasites, and were collected within 24 h of death. Upon necropsy, the digestive tract and internal organs were examined for endoparasites for both *C. serpentina* specimens examined. Only the digestive tract was examined from the single *E. blandingii* necropsied because all other organs were badly damaged. All nematodes were fixed in 10% formalin, dehydrated in 70% ethanol, cleared in glycerol, and identified as temporary mounts according to the descriptions of Hedrick (1935a. Trans. Amer. Microsc. Soc. 54:307–335, 1935b. J. Parasit. 21:397–409) and Baker (1986. Can. J. Zool. 64:228–237). Voucher specimens were deposited in the Harold W. Manter Laboratory, University of Nebraska State Museum, Lincoln (accession no. *Placobdella parasitica* HWML 15008, *Placobdella ornata* HWML 15009, *Falcaustra wardi* HWML 15010, *Spiroxys contortus* HWML 15011).

Among the live-caught turtles, five (71%) of seven *C. serpentina* examined were infected with *Placobdella*, with a mean intensity of  $21.2 \pm 44$ . Most turtles contained 1–2 *P. parasitica* and/or *P. ornata* with the exception of one immature turtle that contained one adult and 99 young *P. parasitica*. A total of four *E. blandingii* were collected on seven different occasions. A single *P. ornata* or *P. parasitica* was recovered on three out of seven different dates with a intensity of one. A single *E. blandingii* male (carapace length 200 mm) contained one *P. ornata* on 10 June 1998 and one *P. parasitica* when recaptured on 14 June 1998. In total, 103 *P. parasitica* and three *P. ornata* were recovered from *C. serpentina*, and one *P. parasitica* and two *P. ornata* were recovered from *E. blandingii*. All leeches were attached to the ventral surface of the carapace and/or the limbs of the turtles.

Among the road-killed turtles, one immature *C. serpentina* (100 mm carapace length (CL), 172.4 g) was negative for helminths while an adult male (280 mm CL, 3991.6 g) contained four male and five female *Falcaustra wardi* in the large intestine. Gulford (*op. cit.*) previously reported *Spironura affine* (= *Falcaustra affinis*, Baker 1986 *op. cit.*) in Wisconsin snapping turtles. *Falcaustra wardi* is a common parasite of *C. serpentina* (see Baker 1986 *op. cit.*). However, Wisconsin is a new locality record for this nematode. The road killed female *E. blandingii* (210 mm CL, not weighed because of damage) contained four *Spiroxys contortus* nematodes in the stomach, which previously have been reported by Gulford (*op. cit.*) from the northeastern part of the state.

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Submitted by **MATTHEW G. BOLEK**, Department of Biological Sciences, University of Wisconsin—Milwaukee, Milwaukee Wisconsin, 53201, USA. Present Address: School of Biologi-

cal Sciences, University of Nebraska Lincoln, Lincoln, Nebraska 68588, USA; e-mail: mbolek@unlserve.unl.edu.

**CLEMMYS MUHLENBERGII** (Bog Turtle). **ECTOPARASITES.** Bog turtles (*Clemmys muhlenbergii*) are known to be parasitized by the leech *Placobdella multilineata* in Virginia (Saumure and Carter 1998. Herpetol. Rev. 29:98). Herein, we report the occurrence of an additional leech parasite of *C. muhlenbergii*, as well as additional occurrences of parasitism by *P. multilineata* on *C. muhlenbergii* in North Carolina, USA. All leech specimens were deposited in the collections of the North Carolina State Museum of Natural Sciences (NCSM).

On 8 June 1996, a female bog turtle (#28: 87.86 mm CL, 119 g) was captured in Wilkes Co., North Carolina. Two leeches (NCSM P-4701) were collected from the turtle's neck. On 8 June 1997, another adult female turtle (#40: 88.66 mm CL, 130 g) was captured at the same site. Three leeches (NCSM P-4704) were collected from the posterior limb sockets. A final sample on 31 August 1997 from two females (#7: 89.20 mm CL, 130 g; #47: 89.56 mm CL, 125 g) belonging to the same population revealed an additional four leech specimens (NCSM P-4705). The examination of four additional bog turtles (2 M, 2 F) from two other sites in Wilkes Co., North Carolina, on 31 May and 1 September 1996 revealed an additional eight leeches (NCSM P-4698, P-4702). All of the aforementioned leeches were identified as smooth turtle leeches (*Placobdella parasitica*). Previously known hosts for this leech species are numerous and include 17 species of turtles belonging to five different families (Watermolen 1996. J. Fresh. Ecol. 11:211–217). Sawyer and Shelley (1976. J. Nat. Hist. 10:65–97) reported collecting *P. parasitica* from *Sternotherus odoratus* in Union Co., North Carolina.

An additional 10 bog turtles (4 M, 4 F, 2 J) captured between 31 May 1996 and 19 June 1999 in Wilkes Co., North Carolina were found to harbor 13 *Placobdella multilineata* (NCSM P-4699, P-4700, P-4703, P-4706 to 4708, P-4711). Three of these turtles were parasitized by two leeches and the remaining seven were hosts to one leech each. The only previous report of *P. multilineata* on a turtle in North Carolina was by Sawyer and Shelley (*op. cit.*) for a *Chelydra serpentina* from Bertie Co.

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Submitted by **RAYMOND A. SAUMURE**, Department of Natural Resource Sciences, McGill University, 2111 Lakeshore Road, Ste-Anne-de-Bellevue, Québec, H9X 3V9, Canada, and **JEFFREY C. BEANE**, North Carolina State Museum of Natural Sciences, Research Laboratory, 4301 Reedy Creek Road, Raleigh, North Carolina, 27607, USA (e-mail: jeff.beane@ncmail.net). Present address (RAS): Shark Reef at Mandalay Bay, 3950 South Las Vegas Boulevard, Las Vegas, Nevada, 89119, USA (e-mail: insculpta@hotmail.com).