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Postharmostomiasis in Wild Turkeys in New Mexico

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ABSTRACT: *Postharmostomum gallinum* (Trematoda: Digenea; Brachylaimidae) is reported for the second time from the wild turkey (*Meleagris gallopavo*) in North America. Seventy-six, 14 and three sexually mature specimens, respectively, were removed from the ceca of three of five wild turkeys collected in southeastern New Mexico (USA). Local transmission of this infection was inferred since 10 immature specimens of *P. gallinum* also were collected from one host. In the turkey with the greatest intensity of mature trematodes, a concurrent hemorrhagic inflammation of the cecum apparently was associated with this infection. Specimens of *P. gallinum* from these wild turkeys were morphologically indistinguishable from, but their body and egg measurements were larger than, specimens described from the usual Eurasian galliform and columbiform hosts.

Key words: Cecal trematodes, hemorrhagic inflammation, *Meleagris gallopavo*, new locality record, *Postharmostomum gallinum*, wild turkey.

Originally described and subsequently reported as a parasite of the posterior small intestine and cecum of domestic and wild galliform and columbiform birds in Eurasia and Africa, *Postharmostomum gallinum* (Trematoda: Digenea; Brachylaimidae) has been found in chickens in North America only in Puerto Rico, Cuba, and Hawaii (USA) (Yamaguti, 1971; Newsome et al., 1980); and in South America only in Brazil (Da Silva Vianna et al., 1988). Newsome et al. (1980) reviewed the literature on the species and provided the first and only report of *P. gallinum* from the wild turkey (*Meleagris gallopavo*) in North America; they collected two small specimens from a single host in western Tennessee (USA). Herein, I present the second report and an additional locality record for *P. gallinum* from a wild turkey population in the mountains of southeastern New Mexico (USA). Also, I speculate on the origin of this infection and present evidence regarding endemicity of the infection in this locality.

A single mature male wild turkey was collected in April 1990; two (one mature male and one immature female) were collected in May 1992 and two (one immature male and an immature female) were sampled in May 1993. Turkeys were collected by shooting in the Sacramento Mountains of the Lincoln National Forest, near Cloudcroft, New Mexico (32°58′N, 105°46′W) at an elevation of 2,000 to 3,000 m. The study area was characterized by rugged topography with high forested peaks and steep slopes with grassy canyons and valleys. The climax forest was coniferous dominated by ponderosa pine (*Pinus ponderosa*), Douglas fir (*Pseudotsuga menziesii*) and Engelman spruce (*Picea engelmannii*) interspersed with groves of quaking aspen (*Populus tremuloides*). The area currently supports a large wild turkey population derived from original endemic stock (D. Sutcliffe, pers. comm.).

Viscera were removed, placed on ice and frozen within 3 hr following death of the turkey. Necropsy techniques and procedures for collection, preservation and identification of parasites followed methods outlined in Gaines et al. (1984). Measurements were made with the aid of a Leitz ocular micrometer (Ernst Leitz GMBA, Wetzlar, Germany).

The cecum of the mature wild turkey collected in 1990 was infected with 86 (76 mature and 10 immature) *P. gallinum*. An additional 14 and three mature specimens of *P. gallinum* were removed from the immature female and mature male wild turkey collected in 1993, respectively. These specimens were morphologically indistinguishable from the descriptions in McIntosh (1934) and Yamaguti (1971). Although the two specimens of *P. gallinum* collected by Newsome et al. (1980) from a wild turkey in Tennessee measured much smaller than reported for the species by

Yamaguti (1971), my specimens varied in size from within the range of measurements to much larger than the values reported by Yamaguti (1971). The measurements recorded by Newsome et al., Yamaguti (1971) and in the present study, respectively, were 1.3, 3.5 to 7.4, and 5.9 to 11.3 mm (n = 20) body length; 0.4, 1.0 to 2.0, and 1.4 to 2.8 mm body width; and 25.0 × 12.5, 29.0 to 32.1 × 18.0, and 31.5 to 39.2 × 17.0 to 21.5 μm egg length and width. Clearly, this species has evidence of considerable intraspecific variation in size.

Representative specimens of *P. gallinum* collected in this study are deposited in the U.S. National Parasite Collection (Animal Parasitology Institute, USDA Building 1180 BARC-East, Beltsville, Maryland, USA; accession number 82949).

Alicata (1940) elucidated the life cycle of *P. gallinum* which uses land snails as both first and second intermediate hosts; ground-feeding birds are infected by ingesting the metacercaria in the snail intermediate hosts. The 10 immature specimens of *P. gallinum* collected from the mature male turkey are evidence for endemicity of this infection in the area, especially since the current turkey population was derived only from native stock. Based on the close proximity (within 10 km) of some small commercial and private chicken farms in the adjacent foothill valleys of the Sacramento Mountains (D. Sutcliffe, pers. comm.), I speculate that these chickens could be a possible source for the introduction of *P. gallinum* into this wild turkey population. However, I have not examined poultry from these farms and apparently *P. gallinum* is not reported from domestic fowl in the continental United States.

Although low intensity infections with a few *P. gallinum* do not harm the host (Soulsby, 1965), heavy infections with larger numbers of trematodes have been implicated as the cause of inflammation of the cecum (Soulsby, 1968), sometimes with extensive cecal hemorrhages (Alicata, 1964). Postharmostomiasis may have caused the mild hyperemia and hemorrhage observed in the cecum of the heavily infected (86 trematodes) mature male wild turkey collected in this study in 1990. Such lesions were not observed in the other two low intensity infections or in the uninfected hosts examined in this study. The implications of postharmostomiasis on the health of this wild turkey population remain to be determined.

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