

PREVALENCE OF HELMINTHS IN FECAL DEPOSITS OF DOGS IN ANDERSON COUNTY, TENNESSEE

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ABSTRACT—During the summer months of 1997 and 1998, fecal deposits ($n = 90$) of dogs were collected from public places and roadsides in Anderson County, Tennessee. Helminth parasite ova and/or larvae were found in 77 (85.5%) of the fecal deposits. Of the 77 samples positive for helminth presence, 17.8% and 4.4% harbored two and three different types of helminths in the same sample, respectively. Five helminth taxa were found: *Ancylostoma caninum* (82.2%), *Toxocara canis* (16.7%), *Taenia* sp. (5.6%), *Trichuris* sp. (5.6%), and *Dipylidium caninum* (2.2%). Potential zoonoses and public health implications are discussed.

Potential zoonosis due to helminth parasites in dog fecal deposits is an important subject because dogs and humans have a relatively close relationship (Malgor et al., 1996). Some species of canine intestinal helminths are causative agents of organ damage, skin diseases, and stunted growth in humans. Indeed, past research (Harley et al., 1974; Abo-Shehadeh and Ziyadeh, 1991; Malgor et al., 1996) correlates significantly high prevalences of zoonotic helminths found in canine feces with particular human diseases arising in specific locations throughout the world. Malgor et al. (1996) indicate that most infections of humans occur in public places and facilities, such as recreational parks, where the occurrence of skin contact with canine feces is high. Not surprisingly, infants and children are more susceptible to zoonosis because of their playing habits and lack of concern for soil contaminants (Causey, 1932).

Anderson County (ca. 36°05'N, 84°13'W) is situated within the Valley and Ridge physiographic province of eastern Tennessee (TVA, 1972). It has approximately 72,000 human inhabitants and several public parks and facilities in which dogs often defecate. As public places in Tennessee become increasingly used by more people (especially dog owners), the risk of zoonotic diseases possibly increases as well. To the author's knowledge, no published information exists on the endoparasites of dog fecal deposits found in public places in Tennessee. Thus, this paper reports helminth parasites found in dog fecal deposits in Anderson County, Tennessee, and discusses their potential impact on public health.

MATERIALS AND METHODS

From March 1997–August 1998, 90 canine fecal deposits were collected from roadsides and public places in Anderson County, Tennessee. Samples were collected in glass containers and fixed in 10% (v/v) aqueous formalin. A fraction (ca. 1 cm³) of each fecal sample was emulsified and treated with sodium nitrate (specific gravity = 1.4) as described by Kelly (1977). Suspensions of feces were examined under 10 × 400 magnification with a compound microscope (American Optics Co., "Fif-

ty" series). Parasite ova and larvae were identified as described in Benbrook (1945), Schell (1962), Georgi (1975), Griffiths (1978), and Ivens et al. (1978).

RESULTS AND DISCUSSION

Of the 90 fecal deposits examined, 77 (85.5%) were positive for helminth parasite ova and/or larvae. Of the 77 samples positive for helminth presence, 17.8% and 4.4% harbored two and three different types of helminths in the same sample, respectively. Five taxa of helminth parasites were found and their prevalences (number of infected individuals/number of individuals examined) were calculated (Table 1). Mean intensity of infection was 4.0 (range 1–30) for *Ancylostoma caninum*; 3.8 (range 1–40) for *Toxocara canis*; 1.6 (range 1–4) for *Taenia* sp.; 1.3 (range 1–2) for *Trichuris* sp.; and 1.0 (range 0) for *Dipylidium caninum*.

Four out of the 5 helminth taxa observed in this study represent medically important parasites of humans (Brooke and Melvin, 1969; AFM, 1974; Zaman, 1979). The nematode *A. caninum* induces eosinophilic enteritis and is suspected to play a minor role in cutaneous larva migrans (Malgor et al., 1996). Also, eggs of *T. canis* are known to cause visceral larva migrans (VLM) syndrome (Harley et al., 1974). This is important because the prevalence of *T. canis* in the present study (16.7%) is significantly higher than the 7% prevalence considered hazardous to humans (Styles and Evans, 1971). Similarly, the cestodes *Taenia* sp. and *D. caninum* represented in this study are the cause of primary zoonoses in third-world countries where dog control is minimal (Zaman, 1979; Abo-Shehadeh and Ziyadeh, 1991).

Although undoubtedly incomplete, the list of taxa presented here demonstrates that the implementation of various dog control measures in Anderson County, Tennessee, is critical. However, further comparative studies in surrounding counties are needed for specific regional and statewide recommendations to be made.

TABLE 1. Helminth prevalence in dog fecal deposits in Anderson County, Tennessee ($n = 90$).

Helminth	% Prevalence
<i>Ancylostoma caninum</i>	82.2
<i>Toxocara canis</i>	16.7
<i>Taenia</i> sp.	5.6
<i>Trichuris</i> sp.	5.6
<i>Dipylidium caninum</i>	2.2

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