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Baylisascaris procyonis, or the raccoon roundworm, primarily utilizes the raccoon as its definitive host, and has been found in >90 species of North American animal intermediate hosts (mostly birds, lagomorphs, and rodents) (Kazacos 2001). In non-raccoon hosts, including humans, larvae of this parasitic nematode can cause severe neurological disease (cerebrospinal nematodiasis) and often damage visceral and ocular tissues (Kazacos 2001). Formerly, *B. procyonis* was not thought to occur in Texas (Chandler 1942; Schaffer et al. 1981). However, it was recently discovered in raccoons occurring in moist environments of coastal areas (Kerr et al. 1997) and in eastern portions of the state where infection rates of 70% and 23%, respectively, were reported. It is believed that *B. procyonis* is not common in semi-arid, hot environments and is probably limited by soil types and low raccoon densities (Amundson & Marquenske 1986). The purpose of this note is to report *B. procyonis* presence in raccoons from a previously unstudied and semi-arid region of Texas.

The study was conducted in April 2005 on a private ranch near Conception in Duval County, Texas (27º22'N, 98º18'W). The 1,721 ha ranch was purchased in 1996 and managed for recreational uses, including the maintenance of white-tailed deer (*Odocoileus virginianus*) feeders at an approximate density of 1.2 feeders/km^2. The ranch is located within the Rio Grande Plains ecoregion (Gould 1975). Climate for the area is considered semi-arid, with mean annual rainfall of 67.9 cm (National Climatic Data Center, *http://www.ncdc.noaa.gov*), although yearly rainfall varies greatly (Norwine & Bingham 1986). Soils commonly found in the area are

well drained fine-sandy loams, belonging to the Runge-Delfina-Delmita soil associations (Fair 1995).

Raccoons were captured using 20 Tomahawk® live traps (23 by 23 by 66 cm; Tomahawk Live Trap Co., Tomahawk, WI,) baited with canned meat (i.e., Vienna sausages) and/or whole kernel corn. Upon capture, raccoons were sexed, weighed, aged by body weight to age class (juvenile and adult) (Kaufmann 1982), and euthanized (AVMA 2001). Viscera were stored in labeled 3.8 liter bags on an individual raccoon basis and frozen until examination. All capture and handling procedures were approved by the Institutional Animal Care and Use Committee (Permit No. QA-1310). Gastrointestinal tracts were thawed, separated from other viscera and opened longitudinally; then, mucosa were scraped and contents were washed using a washing and sedimentation process in conical glasses as outlined in Wallace & Pence (1986). The washed sediment was examined with a dissecting microscope. Helminths were collected, identified, and quantified. Nematodes were fixed in glacial acetic acid and stored in 70% ethanol with 8% glycerin. Nematodes were identified in alcohol-glycerin wet mounts. Identification followed the taxonomic keys of Yamaguti (1961) and Sprent (1958). Representative specimens were deposited in the United States National Parasite Collection (Beltsville, MD, accession numbers USNPC 97475 [*Baylisascaris procyonis*]and USNPC 97474 [*Toxascaris procyonis*]). Prevalence and abundance of raccoon helminths were determined.

A total of 19 raccoons were captured over 180 trap-nights. Of these, 14 were male, five were female, 15 were adult, and four were juvenile. *Baylisascaris procyonis* was found in three (16%) individuals (one adult male, one adult female, and one juvenile male). Two raccoons (adult male and juvenile male) had four *B. procyonis* present and one raccoon (adult female) had one *B. procyonis* present. In total, eight species of helminths (five nematodes, one acanthocephalan, and two cestodes) were found, and only one raccoon, an adult female, was free of intestinal

parasites (Table 1). The most common parasite found was *Macrocanthorhynchus ingens*, which occurred in 11 of 19 raccoons and the most abundant was *Atriotaenia procyonis* (n = 63).

Feeding supplements to white-tailed deer is a common practice in southern Texas intended to promote population health and visibility (Synatzske 1981). However, much of this feed is consumed by raccoons and other non-target wildlife (Lambert & Demarais 2001). Because the occurrence of *B. procyonis* often is correlated with raccoon abundance (Amundson & Marquenske 1986), landowners who provide supplemental feed to deer may inadvertently be encouraging *B. procyonis* expansion into areas where it might not normally occur (e.g., hot and dry climates). Raccoons often defecate in specified latrine areas, which accumulate *B. procyonis* eggs and are sites for infection (Page et al. 1998; Page et al. 1999). Undigested feedstuff from deer feeders (e.g., corn) in raccoon feces is often consumed by other wildlife. For example, Page et al. (1999) documented 15 species of birds and 16 species of mammals that visited raccoon latrines to forage. It is likely that the presence of *B. procyonis* in this study from a semi-arid region is due to elevated raccoon densities, maintained through feed supplements. Furthermore, other wildlife that forage at raccoon latrines may be at risk of *B. procyonis* infection.

Average parasite intensity of *B. procyonis* is reported between 12-22, with documented parasite loads as high as 1321 ascarids/raccoon (Kazacos 2001). It is believed that raccoons can self-cure, or eliminate some or all *B. procyonis*, when loads become excessive. This usually occurs in the winter and new infections are reported to be recruited in the late spring (Kidder et al. 1989). The present study was conducted during the late spring, which may explain why *B. procyonis* intensity was comparatively low.

Due to the high reproductive and dispersal rates of raccoons, it is difficult to control populations (Conover 2002), especially those that have access to supplemental feed. To reduce the risk of *B. procyonis* range expansion and transmission to other species

Table 1. Scientific name of parasite (total number of specimens recovered), infection rate (% infected), $\bar{x}$ (mean number of parasites per infected *Procyon lotor*) and range (low to high number of parasites per infected *P. lotor*) found in raccoons (n = 19) from Duval County, Texas during April 2005.

Parasite	Infection rate	(%)	$\bar{x}$	Range
Nematodes				
Physaloptera rara (n = 22)	8/19	(42%)	2.75	(1-5)
Placoconus lotoris (n = 3)	3/19	(16%)	1.00	(1)
Molineus barbatus (n = 2)	2/19	(10%)	1.00	(1)
Baylisascaris procyonis (n = 9)	3/19	(16%)	3.00	(1-4)
Toxascaris procyonis (n = 11)	2/19	(10%)	1.00	(1)
Acanthocephalans				
Macrocanthorhynchus ingens (n = 39)	11/19	(58%)	3.55	(1-17)
Cestodes				
Atriotaenia procyonis (n = 63)	6/19	(32%)	10.50	(1-43)
Mesocestoides lineatus (n = 1)	1/19	(5%)	1.00	(1)

(including humans) in semi-arid regions of Texas, it may be necessary to limit supplemental feeding activities. However, before definitive recommendations can be made, additional experimental study is needed to determine the dynamics of *B. procyonis* occurrence and transmission at supplemental feeder locations in this region.

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