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PANCREATIC FLUKES (EURYTREMA PROCYONIS) IN RED AND GRAY FOXES FROM SOUTHERN ILLINOIS

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ABSTRACT

The pancreas and associated ducts of 726 foxes including 543 *Urocyon cinereoargenteus* collected in Jackson, Johnson, Union and Williamson counties and 183 *Vulpes vulpes* collected in Jackson, Union and Williamson counties of southern Illinois were examined for *Eurytrema procyonis*. Six (1.1% of the gray foxes and none of the red foxes were infected.

INTRODUCTION

Pancreatic flukes (*Eurytrema procyonis* Denton, 1942) have been detected in both domestic and wild carnivores from various areas of the contiguous United States. To our knowledge, this dicrocoelid trematode has not been reported from carnivores in Illinois. In conjunction with a food habit study involving 726 foxes, an opportunity existed to examine these animals for this fluke. The prevalence of infection and speculation on the probable life history of this helminth are presented in this report.

Eurytrema procyonis was described from specimens obtained from the pancreatic ducts of raccoons, *Procyon lotor* (Linnaeus) in Texas and has subsequently been reported from *P. lotor* in Texas (Chandler, 1942; Denton, 1944), Connecticut (Penner *et al.*, 1954), Maryland (Herman *et al.*, 1957), Georgia (Babero and Shepperson, 1958; Sawyer, 1958), and North Carolina and Virginia (Harkema and Miller, 1964). This species has also been recorded from a red fox, *Vulpes vulpes* Linnaeus, in New York (Stunkard, 1947, 1950) and gray foxes, *Urocyon cinereoargenteus* (Schreber) in Maryland (Herman *et al.*, 1957) and North Carolina (Miller and Harkema, 1968). Domestic cats have also been reported as hosts of *E. procyonis* in New Jersey (Burrows and Lillis, 1960, 1965) and within a 250 mile radius of Fort Knox, Kentucky, including parts of Tennessee, Indiana and Ohio (Sheldon, 1966). This parasite has also been found in domestic cats from North Carolina and Virginia (Carney *et al.*, 1970) and from Missouri (Smith *et al.*, 1977).

MATERIALS AND METHODS

Seven hundred and twenty-seven foxes were either shot or trapped in southern Illinois. This included 543 gray foxes collected in Jackson, Johnson, Union and Williamson counties between November, 1959 and October, 1963 and 183 red foxes collected in Jackson, Union and Williamson counties between February, 1959 and February, 1964. The carcasses were immediately frozen and transported to the laboratory. Subsequent to thawing, the pancreas and associated ducts were examined. Flukes were fixed in alcohol-formalin-acetic acid (AFA), stained with either Harris' or Delafield's hematoxylin and mounted in Canada balsam.

RESULTS

Of the 543 gray foxes collected over a period of 48 consecutive months from four counties in southern Illinois, 6 (1.1%) were infected with *E. procyonis*, while none of the 183 red foxes collected from three counties were infected. The pancreatic ducts of all infected animals were hypertrophied and contained numerous flukes.

DISCUSSION

Since *Eurytrema procyonis* is not host specific to foxes, its occurrence in gray foxes of southern Illinois is an indication that it is probably present in other wild carnivores. As mentioned earlier, it is well known that domestic cats serve as definitive hosts for this fluke. The absence of reported infections in domestic populations from this region may be due to the lack of clinical signs associated with this infection in cats (Sheldon, 1966; Carney *et al.*, 1970).

While the complete life history of *E. procyonis* has not been elucidated, it has been established that terrestrial snails, *Mesodon thyroidus* (Say), serve as the first intermediate host (Denton, 1944). It is highly probable that the life history of *E. procyonis* is similar to that of *E. pancreaticum* (Janson, 1889) Looss, 1907, from Malaysia as reported by Basch (1965) wherein land snails, *Bradybaena similaris* Férussac serve as first intermediate hosts and meadow grasshoppers, *Conocephalus (Xiphidion) maculatus* LeGuillou as second.

As pointed out by Carney *et al.* (1970), the involvement of domestic cats in the life history of *E. procyonis* affords speculation that a domestic host may have a role in the maintenance and dissemination of parasites of wildlife. Further, we suggest that since domestic cats are not insectivorous, infection may be acquired by ingestion of a paratenic host containing *E. procyonis*. Wild carnivores could become infected by ingesting either an infected arthropod or a paratenic host so that the spread of the parasite over its range could include several routes.

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