ELAEOPHOROSIS IN WHITE-TAILED DEER OF THE SOUTHEASTERN U.S.A.: CASE REPORT AND DISTRIBUTION*

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ELAEOPHOROSIS IN WHITE-TAILED DEER OF THE SOUTHEASTERN U.S.A.: CASE REPORT AND DISTRIBUTION*

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Abstract: Impaired function of the mylo-hyoideus muscles was associated with and possibly caused by arterial worm, *Elaeophora schneideri*, infection in an aged white-tailed deer *(Odocoileus virginianus)*. Subsequent to this observation, *E. schneideri* was found in 12 white-tailed deer from four widely separated coastal plain counties in the states of Florida, Georgia, and South Carolina, U.S.A.

INTRODUCTION

The arterial worm, *Elaeophora schneideri*, is widespread throughout the western United States where it infects a variety of domestic[7] and wild[2,4,5] ruminants. Deer of the genus *Odocoileus* are considered usual hosts for this helminth.[3,7] In other hosts, abnormalities such as filarial dermatosis (sorehead) in sheep,[7] and blindness and ischemic necrosis of the muzzle and ears of wapiti *(Cervus canadensis)*[1-3] are associated with infections of *E. schneideri*. Accounts of *E. schneideri* in animals east of the Mississippi River are lacking, although Walker and Becklund[8] list the deposition of *E. schneideri* from white-tailed deer of Florida in the U.S. National Museum Helminth Collection. Information is presented herein on the occurrence, distribution, and pathogenic effects of *E. schneideri* in white-tailed deer of the southeastern United States.

CASE REPORT

On September 13, 1962, an eight-year-old female white-tailed deer from Eglin Air Force Base, Walton County, Florida was presented for clinical and pathological study. The animal was incoordinated, severely debilitated, and demonstrated a striking absence of fear. An enlargement was present between the rami of the lower jaw. Death ensued within a few hours after admission to the clinic.

Post-mortem examination revealed an extensive accumulation of masticated food and debris in the oral cavity beneath the tongue. Lesions of viral, bacterial, mycotic, or toxic origin were not found in the central nervous system or elsewhere. Upon examination of the circulatory system, 14 nematodes were found by the junior author in the heart, thoracic aorta, and carotid arteries. These helminths were identified as *Elaeophora schneideri* Wehr and Dikmans 1935, and specimens were deposited in the USNM Helminth Collection as No. 59909.[8]

DISTRIBUTION AND PREVALENCE OF E. schneideri IN THE SOUTHEAST

Since 1962, 851 deer from 13 southeastern states and St. Croix, U.S. Virgin Islands have been examined for *E. schneideri*. This parasite has been found in white-tailed deer of three of these states, viz. Florida, Georgia, and South Carolina (Figure 1).

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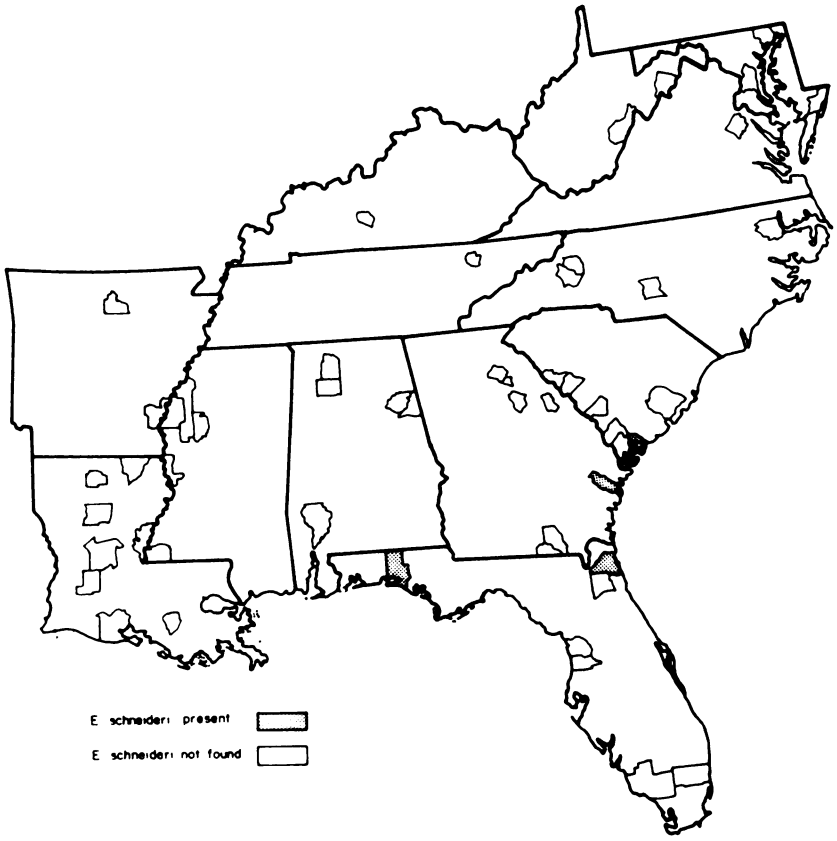

FIGURE 1. Map of Southeast showing counties from which deer were examined for **E. schneideri.**

Florida

Between November, 1962, and February, 1963, opportunities were presented for examining the circulatory systems of 77 white-tailed deer killed by hunters during either-sex hunts on Eglin Air Force Base. From 1 to 15 arterial worms were located in 7 of 23 females; the helminth was not found in the 54 males which were harvested. Worms were recovered from the left ventricle of the heart, right and left common carotid, right external maxillary, left and right sublingual and lumbar arteries in these animals.

Following this initial survey, 40 deer of both sexes from Eglin Air Force Base were collected quarterly over a two-year period during 1968 and 1969. Single specimens of *E. schneideri* were found in the carotid arteries of a female collected in May, 1968, and a male collected in February, 1969. During June, 1971, five female white-tailed deer were examined in Duval County, Florida. Seven *E. schneideri* were recovered from the carotid arteries of one of these animals.

Georgia

During a three-year period (1968-1970) 60 male and female white-tailed deer were examined quarterly from Fort Stewart Military Reservation, Liberty County, Georgia. One *E. schneideri* was recovered from the carotid artery of a female collected in November, 1969.

South Carolina

During 1963, ten male and female white-tailed deer were collected in Beaufort County, South Carolina. A single *E. schneideri* was recovered from a meningeal artery of a female deer.

DISCUSSION

This report constitutes the first account of clinical manifestation associated with and possibly caused by *E. schneideri* infection in a deer. Partial paralysis of the mylo-hyoideus muscles, which form the floor of the mouth, had occurred, permitting an accumulation of food particles, gradual stretching of the muscles, and subsequent enlargement of the sublingual space. This loss of function may have been related to diminished blood flow caused by *E. schneideri* in the arterial system supplying this region.

Heretofore, *E. schneideri* has been considered a parasite of ruminants frequenting high altitude ranges, i.e. greater than 1850 meters[3,4,6,7] in elevation. In the Scutheast, deer harboring arterial worms were found on areas classed as lower coastal plain where the elevation was no more than 45 meters above sea-level.

Horseflies of the genera *Hybomitra* and *Tabanus* have been incriminated as vectors of *E. schneideri*[3-6] in the Southwest. A very rich horsefly fauna occurs in the Southeast, and in the authors' experience, horseflies appear to be more prevalent in the coastal plain than in the piedmont or mountain physiographic provinces of this region.

The discontinuous distribution of this helminth and absence from most localities in the Southeast suggest that *E. schneideri* was introduced into deer of this region. The source of infection is unknown. There are no zoos or game farms within the general vicinity of each enzootic county, however buffalo *(Bison bison)* share a common range with the Duval County, Florida deer. In any event, it appears that *E. schneideri* has failed to become prevalent in southeastern deer despite an abundance of intermediate and definitive hosts.

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