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Distribution of *Elaeophora schneideri* in White-tailed Deer in the Southeastern United States, 1962–1983

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Past surveys in the southeastern United States indicated that the arterial worm (*Elaeophora schneideri*) was restricted to herds of white-tailed deer (*Odocoileus virginianus*) in the lower coastal plain physiographic province. Infected deer were found in only six counties in Florida, Georgia, and South Carolina, and deer from inland areas of 13 southeastern states were not found to be infected (Prestwood and Ridgeway, 1972, J. Wildl. Dis. 8: 233–236; Hibler and Prestwood, 1981, In Diseases and Parasites of White-tailed Deer, Davidson et al. (eds.), Tall Timbers Research Station, Tallahassee, Florida, Misc. Publ. No. 7, pp. 351–362).

In addition to infected deer reported in the above studies, the Southeastern Cooperative Wildlife Disease Study (SCWDS) has detected arterial worm infections during recent examinations of deer in the southeastern United States. This report presents a current assessment of the distribution of *E. schneideri* in deer in the southeastern United States based on those examinations.

A retrospective search was made of records of the SCWDS for white-tailed deer that were infected with *E. schneideri*. Most of the deer examined for arterial worms were collected from populations throughout the southeastern United States between August 1971 through August 1983 as part of routine assessments of the health of herds or for various research projects.

Collections usually consisted of five adult deer obtained at random by shooting from a given population. Also reported herein are arterial worm infections that were discovered during necropsies of individual deer submitted to the SCWDS diagnostic laboratory by state and federal wildlife agency personnel from 1977 through 1983.

For both groups of deer, the heart, aorta, iliac arteries, and carotid and major branch arteries of the head were examined for adult *E. schneideri*. Representative specimens of adult *E. schneideri* have been deposited in the U.S. National Parasite Collection, Beltsville, Maryland (Accession Nos. 78482 through 78487 and 78489).

During random surveys, 708 deer from 103 counties of 13 southeastern states were examined. Ten infected deer originated from eight counties of three states as follows: one of five (20%) deer each from Pope, Johnson, and Lafayette counties, Arkansas; one of five (20%) deer each from Camden, Dougherty, and Liberty counties, Georgia; and one of five (20%) deer from Beaufort County and three of 68 (4%) deer from Georgetown County (Cat Island), South Carolina (Fig. 1). The intensity of infection ranged from 1–3 nematodes per deer. Ages of infected deer ranged from 0.5–6 yr ($\bar{x}$ = 3 yr).

Necropsies of individual cases revealed 14 additional infected deer. These deer originated from Charlton County, Georgia (one deer), Charleston County, South Carolina (one deer), and Georgetown County (South Island), South Carolina (12 deer) (Fig. 1). The deer ranged in age from 1.5–8.5 yr ($\bar{x}$ = 5.5 yr). The intensity of

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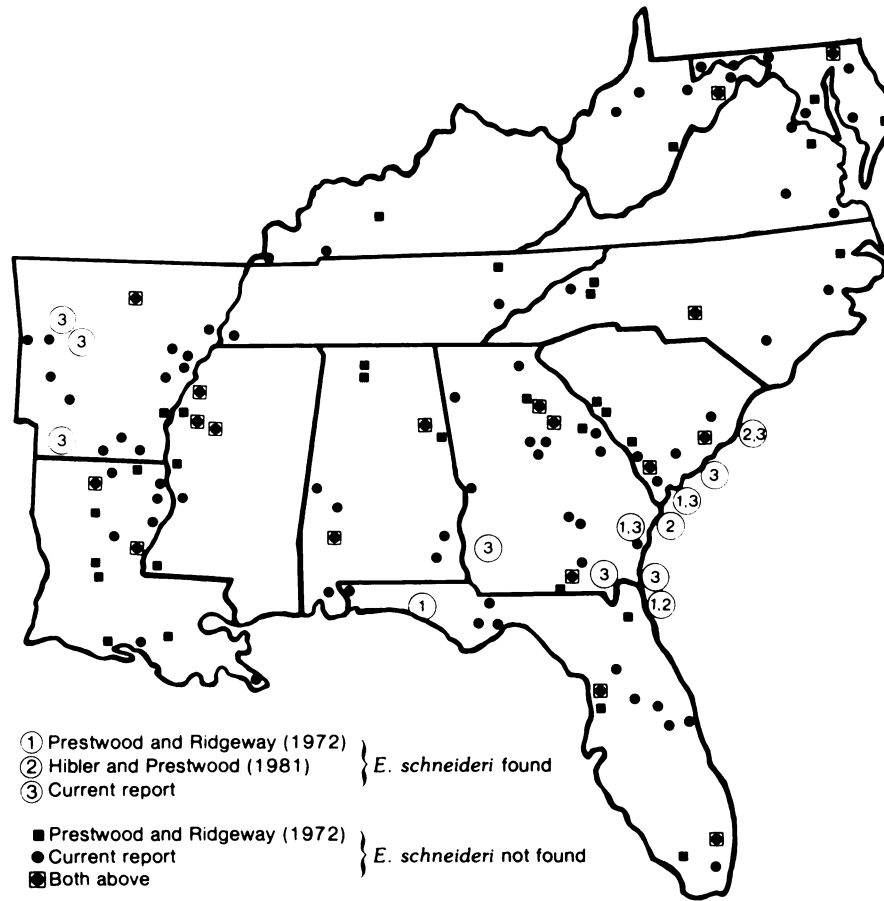


FIGURE 1. Collection sites and distribution of *Elaeophora schneideri*. STATE: Counties or parishes (list includes only those areas surveyed in the current report)—ALABAMA: Baldwin, Barbour, Calhoun, Clarke, Coffee/Dale, Marengo, Sumter; ARKANSAS: Arkansas, Ashley, Bradley, Clarke, Crittenden, Johnson, Lafayette, Lee, Logan/Yell, Montgomery, Phillips, Pope, Prairie, Sebastian, Stone, Union; FLORIDA: Brevard, Broward, Citrus, Dade, Escambia, Gadsden, Lake, Liberty, Marion, Orange, Osceola, Wakulla; GEORGIA: Baker, Burke, Camden, Charlton, Chatham, Clark, Clinch, Dougherty, Floyd, Jasper, Jeff Davis, Jones, Liberty, McIntosh, Muskogee, Putnam, Richmond, Telfair, Ware, White; KENTUCKY: Bullock, Lyon/Trigg; LOUISIANA: Concordia, East Carroll, Iberia, LaSalle, Lincoln, Madison, Plaquemines, Tensas, Union; MARYLAND: Allegheny, Charles, Dorchester, Garrett, Harford, Kent, Washington; MISSISSIPPI: Coahoma, LeFlore, Sunflower, Warren; NORTH CAROLINA: Bladen, Craven, Montgomery, Yancey; SOUTH CAROLINA: Allendale, Beaufort, Berkeley, Charleston, Colleton, Georgetown, Hampton, Jasper, Williamsburg; TENNESSEE: Blount, Shelby; VIRGINIA: Nansemond, Nottoway, Stafford; WEST VIRGINIA: Doddridge, Hampshire, Hardy, Tucker, Wirt.

infection of these deer ranged from 1–31 ($\bar{x} = 7.5$) nematodes.

Combination of our data with those of earlier surveys by Prestwood and Ridgeway (1972, op. cit.) and Hibler and Prestwood (1981, op. cit.) revealed that 1,658 deer from 135 counties of 13 southeastern

states were examined for *E. schneideri* from 1962 through 1983. At present, arterial worm infections have been detected in 13 counties of four southeastern states (Fig. 1).

Although arterial worm infection is found primarily in the lower coastal plain

physiographic province of the southeastern United States, the parasite is not limited to that region as indicated by previous reports (Prestwood and Ridgeway, 1972, op. cit.; Hibler and Prestwood, 1981, op. cit.). New geographic records for the arterial worm were established for Arkansas and for areas in Georgia inland from the Atlantic coast, as well as for coastal areas of Georgia and South Carolina.

The presence of *E. schneideri* in Arkansas suggests that undisclosed intermediate hosts are responsible for transmission in inland areas of the southeastern region since the major known intermediate host, *Tabanus lineola hinellus* Philip (Couvillion et al., 1984, J. Wildl. Dis. 20: 59–61), probably is restricted to the coast (Fairchild, 1983, Entomol. Soc. Am., Misc. Publ. No. 57, 51 pp.). Closely related species such as *T. lineola lineola* and *T. subsimilis* occur inland, and individuals of the latter species have been found to be infected with *E. schneideri* (Davies, 1979, Ph.D. Dissertation, Colorado State Univ., Fort Collins, 216 pp.).

The historic distribution of *E. schneideri* for southeastern white-tailed deer is unknown. The parasite previously may have been more widely distributed in the southeastern United States; however, the almost total extirpation of native deer from Arkansas and other areas of the region by 1930 (Anonymous, 1951, Federal Aid

Publication Project 11-R, Arkansas Game and Fish Comm., Little Rock, Arkansas, 155 pp.; Blackard, 1971, M.S. Thesis, Louisiana State Univ., Baton Rouge, 171 pp.) probably eradicated widespread infection. In contrast, arterial worms could have remained enzootic along the Atlantic and Gulf coasts because deer were never extirpated from the coastal plain province (Blackard, 1971, op. cit.).

Based on recent reports of arterial worm in white-tailed deer in Oklahoma and the Texas-Arkansas border (Hibler and Prestwood, 1981, op. cit.) and Texas (Foreyt and Foreyt, 1979, J. Wildl. Dis. 15: 55–56), natural spread from infected deer herds in adjacent states may be the means for infection of deer in Arkansas.

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