

## EMERGENCE OF THE ARTERIAL WORM *ELAEOPHORA SCHNEIDERI* IN MOOSE (*ALCES ALCES*) AND TABANID FLY VECTORS IN NORTHEASTERN MINNESOTA, USA.<sup>1</sup>

Caroline M. Grunenwald<sup>2</sup>, Erika Butler<sup>3</sup>, Arno Wünschmann<sup>4</sup>, Anibal G. Armien<sup>4</sup>, Michelle Carstensen<sup>5</sup>, Erik Hildebrand<sup>5</sup>, Roger D. Moon<sup>6</sup>, Mabre D. Brand<sup>7</sup>, Richard W. Gerhold<sup>7</sup>

### ABSTRACT

Moose (*Alces alces*) are a culturally and economically valued species in Minnesota. However, the moose population has experienced a sudden, marked decline in their range including extirpation in the northwest and a 58% decline in the last decade in the northeast portions of the state. Although the exact cause of this decline is unclear, parasitic metastrongylid and filarioid nematode infections are known causes of morbidity and mortality in moose across North America. To determine if these parasitic nematodes could be contributing to the Minnesota moose population decline, we molecularly tested for their presence in tissues obtained from moose that died of known and unknown causes. Extracted brain DNA of 34 individual moose was amplified utilizing primers targeting the 18S rRNA gene and internal transcribed spacer regions of nematodes. DNA sequencing revealed that PCR products obtained from 15 (44.1%) of the moose were 99% identical to *Parelaphostrongylus tenuis*, a metastrongylid known to cause neurological disease and death. Additionally, brain tissue from 20 (58.8%) individuals yielded sequences that most closely aligned with *Elaeophora schneideri*, a parasite associated with neurological impairment but previously unreported in Minnesota. *Setaria yehi*, a common filarioid parasite of deer, was also detected in the brain tissue from 5 (14.7%) moose. Molecular screening of 618 captured tabanid flies from four trapping sites revealed *E. schneideri* was present (6%) in the Minnesota environment and transmission could occur locally. Prevalence rates among the flies ranged between 0-100% per trapping site, with *Chrysops* spp. and *Hybomitra* spp. implicated as the vectors. Together, these data demonstrate the pathogens *P. tenuis* and *E. schneideri* are present in the Minnesota population and suggest these nematodes could be contributing to morbidity and mortality in moose.

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<sup>2</sup>Department of Microbiology, University of Tennessee, M409 Walters Life Sciences, Knoxville, Tennessee 37996-0845, USA.

<sup>3</sup>Nor-West Animal Clinic, 411 McIrvine, Fort Frances, Ontario, P9A3X7, Canada.

<sup>4</sup>Department of Veterinary Population Medicine, Veterinary Diagnostic Laboratory, College of Veterinary Medicine, University of Minnesota, 1333 Gortner Ave, St. Paul, Minnesota 55108, USA.

<sup>5</sup>Wildlife Health Program, Minnesota Department of Natural Resources, 5463C West Broadway, Forest Lake, Minnesota 55025, USA.

<sup>6</sup>Department of Entomology, University of Minnesota, 219 Hodson H, 1980 Folwell Avenue, St. Paul, Minnesota, 55108, USA.

<sup>7</sup>Department of Biomedical and Diagnostic Sciences, College of Veterinary Medicine, University of Tennessee, 2407 River Drive, Room A205, Knoxville, Tennessee, 37996, USA