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## A SUMMARY OF THE PREVALENCE OF *Parelaphostrongylus tenuis* IN A CAPTIVE WAPITI POPULATION

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**Abstract:** A total of 87 brains from harvested and collected wapiti and red deer (*Cervus spp.*) were examined grossly and microscopically between 1973 and 1977 in a 2104 ha. preserve. Prevalence of infection significantly increased from 26.6% of the sample in 1973 to 64.3% in 1975 ( $P < .05$ ). A decline to 47.7% in 1977 ( $P > .05$ ) was not significant. However, the number of clinical cases was significantly higher in 1976-1977 ( $P < .02$ ) than previously reported in 1973-1975.

### INTRODUCTION

Previous publications<sup>1,2</sup> described the habitat, herd history, pathology, prevalence, and clinical signs associated with neurologic disease in a herd of captive wapiti and red deer (*Cervus spp.*). In 1977, a sample of 34 animals that represented over 50% of the remaining population was examined using similar methods. This provided an opportunity to evaluate prevalence of disease over a 5-year period and establish disease trends in a naturally-infected population.

### RESULTS AND DISCUSSION

Prevalence of histologic lesions attributable to *Parelaphostrongylus tenuis* found in wapiti and red deer examined from 1973-1977 are listed in Table 1. Animals examined consisted of 76 that were routinely harvested and lacked known or apparent clinical signs and 11 that were clinical cases. Chi-square analysis revealed a significant increase in prevalence from 26.6% of the sample in 1973 to 64.3% in 1975 ( $P < .05$ ). The decline in prevalence from 1975 to 1977 ( $P > .05$ ) was not significant. The prevalence of

47.1% in 1977 was greater than the 26.6% reported for 1973 ( $P > .05$ ) but was not significant. Clinical cases comprised 45% of those animals showing histologic lesions in 1976-1977 which was significantly different ( $P < .02$ ) from the 10% clinical cases observed 1973-1975.<sup>2</sup> There were no significant differences in prevalence due to sex; however, the 87.5% prevalence for 2.5 year old females compared to 50.0% for 2.5 year old males most closely approached significance ( $P < .2$ ). Higher prevalence in young female wapiti may be consequential because of their importance in population recruitment.<sup>1</sup> For the combined period 1973-1977, yearlings and 2.5 year old wapiti had a prevalence of 60.4% compared to 25.0% in calves and 3.5+ year olds which was a significant difference ( $P < .01$ ).

We do not have data to explain the observed variability in prevalence. However, possibilities that should be considered are: (1) changes in weather leading to variations in gastropod abundance and distribution; and (2) altered feeding behavior produced by annual variations in natural forage availability.

TABLE 1. Prevalence of histologic lesions attributable to *P. tenuis* infections in the brains of 87 *Cervus* spp. at Rachelwood Wildlife Research Preserve, 1973 - 1977 (adapted from Woolf *et al.* 1977).

Age and Sex	1973		1974		1975		1976		1977		Total		Prevalence (%)
	Number Exam.	Pos.	Number Exam.	Pos.	Number Exam.	Pos.	Number Exam.	Pos.	Number Exam.	Pos.	Number Exam.	Pos.	
Calf	0	0	0	0	0	0	1	1	4	0	5	1	20.0
F	1	0	1	0	1	1	1	0	4	1	8	2	25.0
M	4	1	5	3	3	2	1	1	2	1	15	8	53.3
1½	3	1	3	2	3	2	1	1	3	3	16	9	56.3
M	0	0	2	1	0	0	0	0	2	1	4	2	50.0
F	1	1	1	1	2	2	0	0	4	3	8	7	87.5
M	0	0	0	0	1	0	1	1	4	1	6	2	33.3
F	6	1	3	0	4	2	1	0	11	3	25	6	24.0
Total	15	4	15	7	14	9	6	4	34	16	87	37	
Prevalence (%)	26.6		46.6		64.3		66.7		47.1		42.5		

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**LITERATURE CITED**

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