

THE EFFECT OF ADDING BROWSE TO THE DIET OF MOOSE (*Alces alces*) AT THE TORONTO ZOO ON THEIR DAILY BEHAVIOUR PATTERNS.

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Abstract

The Toronto Zoo has had moose in its collection since opening in 1974, and has since struggled with the issues of chronic diarrhea and Wasting Syndrome Complex that have been readily reported at other institutions.¹ After numerous dietary alterations it was found that only by feeding limited amounts of an aspen-based concentrate, and no other food item, could these problems be minimized. This restricted diet does not allow the moose to consistently meet their energetic requirements, and results in poorly conditioned moose that still experience intermittent bouts of diarrhea. When more pellets are offered to improve body condition the moose develop severe diarrhea which continues until pellets are restricted again. Studies have indicated that moose should not be fed hay or be allowed to graze, and that they may only be kept successfully with substantial offerings of browse.⁵ Unfortunately, time and staffing only allow very limited amounts of browse to be offered once a week, from late spring to early fall. It has been hypothesized that adding significant levels of browse daily to the moose diet would improve the body condition and digestive health of these animals. The study described here was designed to quantify the effect of browse on the behaviour patterns of moose at the Toronto Zoo, in an effort to justify hiring summer staff dedicated to browse collection and preservation. A related study is currently underway to develop a technique to preserve browse for year round feeding.²

The behaviours of two adult moose (1.1) were recorded from 8am to 5pm in July and August 2005, for a total of ten observation days while the moose were offered 2kg of hand-pruned willow (*Salix spp.*) (branches < .5cm in diameter) in addition to their daily pelleted ration. Ten days of observation without browse were also recorded during the summer of 2005. Two continuous 24 hour observation periods per treatment (with or without willow browse) were also performed. Temperatures reached 34.1°C during the study, without considering the humidity, and long periods of open-mouthed panting by the moose were observed. It is likely that feeding and rumination were being suppressed, at least during the hot daylight hours, considering the upper critical temperature for moose has been reported to be between 14°C – 20°C in summer.^{3,4} A correlation between ambient temperature and total rumination duration was found to be highly significant ($r = -.36$). Although this does not prove a causal relationship it does suggest that further 24 hour observations need to be made under thermoneutral conditions in order to better understand the effect of adding willow browse to the current base diet of pellets.

LITERATURE CITED

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