

MINING AND GEOPHAGY OF ROOT WAD SOILS BY MOOSE IN WINTER

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Little is known concerning the consumption of minerals by moose and other wild ungulates during the winter months. Moose and their relatives, like other animals, obviously require minerals throughout the year and there is no reason to suggest that requirements for minerals would subside in winter. To the contrary, Botkin et al. (1973) imply that mineral hunger in moose should peak in winter because they are forced to subsist predominantly on browse twigs that, relative to summer forages, are low in mineral nutrients. Moose have been occasionally reported to visit mineral licks during winter (Risenhoover and Peterson 1986, Rea et al. 2004). Anecdote suggests that salt and other minerals applied to de-ice roads are also consumed by moose. Yet the mineral ecology of moose in winter remains speculative. Here, I report on the consumption of soils (geophagy) from the root wad of a wind-thrown tree by moose in winter.

On 18 February 2007, I observed three moose in the wilderness area at the Northern Lights Wildlife Shelter in Smithers, BC consuming soils from the root wad of a wind-thrown spruce tree. Two of the moose were 21-month old females and one was a nine-month old male (Figure 1). After one female had mined and fed on the materials from the wad for approximately five minutes, she was joined by a second female. As the first female finished (the total bout of mining and consumption lasted about 12 minutes), the young male joined the second female and mimicked how she mined the materials from the root wad. The young male consumed soils from the root wad for about two minutes while the second female's bout lasted approximately 15 minutes.

To mine, the moose would close their eyes and bury their faces into the root wad then use their lower incisors to scrape away the soils while filling their mouths (Figure 2). When their mouths were full, they would pull back and elevate their heads above the cavity and chew the soils while observing their



Figure 1. Two moose inspecting the root wad of a fallen spruce tree. Smithers, BC. 18 February 2007 (Roy Rea).

surroundings (Figure 3). They would often sneeze while chewing to dislodge soils that had entered their nostrils while mining.

Examination of the root wad indicated that soils being used by moose were primarily organic in nature although some mineral soil was present. It was evident that this was not the first time soils had been mined from this wad, although how often this type of mining occurs was difficult to determine. Just prior to visiting the root wad, all three moose had been licking cobalt blue and red mineral blocks (standard issue livestock blocks) from the mineral feeding station at the outdoor shelter. Each moose licked blocks for approximately five minutes before heading to the root wad, leaving room for speculation as to what mineral type, if any, was being sought by moose in the root wad soils.

The organic matter, soil particles, fine root materials or other elements of the soil may have driven moose to spend time mining the root wad. Whatever the reason, this observation helps to elucidate one possible way that moose are able to obtain components from a layer of soil in their surroundings that would otherwise be impossible to obtain - particularly during winter when the ground is frozen and covered with a thick blanket of snow.

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Figure 2. Young female moose mining root wad materials, Smithers, BC. 18 February 2007 (Roy Rea).



Figure 3. Female moose with a soiled muzzle chewing root wad materials while observing another approaching moose. Smithers, BC. 18 February 2007 (Roy Rea).

project and many others would be impossible without their cooperation and devotion to preserving British Columbia's wildlife.

Literature Cited

Botkin, D.B., P.A. Jordan, A.S. Dominski, H.S. Lowendorf, and G.E. Hutchinson. 1973. Sodium dynamics in a northern ecosystem. *Proceedings of the National Academy of Sciences of the United States of America* 70:2745-2748.

Rea, R.V., D.P. Hodder and K.N. Child. 2004. Considerations for natural mineral licks used by moose in land use planning and development. *Alces* 40:161-167.

Risenhoover, K.L., and R.O. Peterson. 1986. Mineral licks as a sodium source for Isle Royale moose. *Oecologia* 71:121-126.

About the Author

Roy teaches Animal Physiology, Field Applications in Resource Management, labs in Plant Systematics, and co-teaches Plant-Animal Interactions at the University of Northern British Columbia. He has been studying various aspects of moose ecology since 1995.

Request for Information

- MOOSE -

The Featured Species in the next issue of *Wildlife Afield* (Vol. 4 No. 2) will be Moose.

If you have any observations, complete with date and location, please send them to the Biodiversity Centre for Wildlife Studies by 31 January 2008 (see www.wildlifebc.org for our address). We are especially interested in records and photographs of:

- unusual behaviours
- predation, mortality, hunting
- tick infestations and disease
- foraging behaviour and foods
- rutting and courtship behaviour
- mother/young associations

All contributors will be acknowledged.