
NOTES and LETTERS

VOLE FREEZES FROM WINTER EXPOSURE

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On December 10, 2013 , at midday, I looked out on our snowy backyard in Saskatoon. It was a sunny day, but with winds from the NW blowing about 18kph, it was cold (-23C, but feeling like -33C with the windchill) (Environment Canada web site: <http://climate.weather.gc.ca/advanceSearch/searchHistoricDataStations>). Then, something caught my eye that had not been there a short while earlier: a fresh set of tracks in the new snow (Figure 1).

With binoculars I could see they were made by a small mammal. It had crossed the fluffy snow surface, stopping occasionally, and then changing directions before proceeding (Figures 1, 2). Where was it going on such a cold day? At the end of the track was a small ball of grey-brown fur, huddled near our garage, unmoving (Figure 3). It had bounded a distance of over 27m above the snow before stopping.

I went outside, and closer inspection revealed still no movement. It was a Meadow Vole (*Microtus pennsylvanicus*) and appeared to be a subadult, thin

and much underweight: length of body approx 100mm; length of tail approx 30mm.¹ It had died before returning to the protection of the snow cover.



Figure 1. *Vole tracks showing bounding gate in soft snow.*

Had this vole stayed below the snow surface it would not have been exposed to the severe cold and windchill, perhaps enabling it to survive until it found some food. The insulating properties of snow are remarkable affording protection to creatures adapted to live in a subnivalian environment during the winter. Temperatures

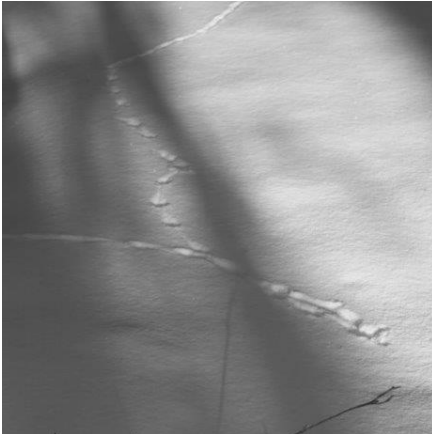


Figure 2. *Vole tracks zig-zagging across surface of soft snow.*

under even 20cm of snow are 15C warmer than the air temperatures above the snow, and of course windchills are not a factor.²

What forced this vole above the snow we'll never know but in

other circumstances it might have been easy prey for an owl or other predator. Freezing to death is but one of the many hazards facing a small rodent.

1. Naughton D (2012) *The natural history of Canadian mammals.* Canadian Museum of Nature. University of Toronto Press. 784p.

2. Formozov AN (1946) *Snow cover as an integral factor of the environment and its importance in the ecology of mammals and birds.* English translation by W. Prychodko and W.O. Pruitt Jr. (1969) published by the Boreal Institute, University of Alberta, Edmonton. Occ. Paper No1:144p.



Figure 3. *Frozen Meadow Vole, in posture found.*

