

**An investigation of drumlins in southwestern Nova Scotia:
distribution, orientation and mode of formation**

Sandra Marshall¹ and Ian S. Spooner²

¹*Department of Geology, Acadia University, Wolfville, Nova Scotia B0P 1X0, Canada*

²*Department of Geology/Environmental Science, Acadia University, Wolfville, Nova Scotia B0P 1X0, Canada*

Research in western Nova Scotia focuses on determining the form and spatial distribution of drumlins in the Lunenburg and Halifax drumlin fields. These data were compared to similar data collected from the Livingstone Lake drumlin field, Saskatchewan and the Beverley Lake drumlin field, Northwest Territories, and were evaluated with reference to existing models of drumlin formation. Drumlin form, long axis-short axis (a/b) ratio, average orientation and inter-field long axis variability data were collected for all sites. Drumlins in the Lunenburg field are irregular in shape with few spindle forms present; a/b ratios averaged 3.7 and a-axis orientations averaged 124° and varied by 36°. The Halifax drumlins are similar to those in Lunenburg but are smaller (average a-axis length of 4.7) and less densely distributed; they have a/b ratios of 2.9 and a-axis orientations averaged 150° and varied by 33°. These data contrast

to those observed at other drumlin fields. The Livingstone Lake drumlins are spindle, parabolic and asymmetrically shaped and have an average a/b ratio of 7.2 and inter-field a-axis variability of 4°. The Beverley Lake drumlins are spindle shaped and have an average a/b ratio of 14.1 and a-axis orientation varied by 6°.

The Halifax and Lunenburg drumlin fields are markedly different in character from the Livingstone Lake and Beverley Lake drumlin fields. The converging field orientation, inter-field a-axis variability and low a/b axis ratios observed at the two Nova Scotian sites are not features that, when combined, can be easily explained using subglacial meltwater formational models. We conclude that alternate models must be considered to explain the formation of drumlins in western Nova Scotia.