

TECHNOLOGY TRANSFER FOR THE REVEGETATION OF PHYTOTOXIC, MELTER-DENUDED SOILS - THE POTENTIAL USE OF MINIMAL AMELIORATION AND RECIPROCAL TRANSPLANTATION OF METAL-TOLERANT GRASSES AT FLIN FLON, MANITOBA

by

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Abstract: Soils in the Sudbury mining and smelting region that have been rendered phytotoxic and barren by acidification and particulate copper and nickel contamination can be detoxified and revegetated by the surface application of ground limestone, an approach referred to as "minimal amelioration". Soils at Flin Flon, Manitoba have been similarly denuded, in this case by acidification and particulate copper and zinc contamination. Field plot experiments carried out in Flin Flon, a more northerly location than Sudbury, with a more severe climate, have shown that the surface application of ground limestone to barren soil leads to colonization by birches, poplars and willows, as on the Sudbury barrens. Furthermore, it has been shown that the copper/nickel tolerant ecotype of Tufted Hairgrass (*Deschampsia caespitosa*) found on the Sudbury barrens can be successfully transplanted onto the Flin Flon barrens, and that the copper/zinc tolerant ecotype of Browntop (*Agrostis tenuis*) found on the Flin Flon barrens can be successfully transplanted onto phytotoxic soils in Sudbury. The significance of these findings, and the possibility of extending such technology transfer to similar sites, such as the copper/zinc smelters of the Kola Peninsula in Russia, are discussed.

Additional Key Words: Kola Peninsula, *Deschampsia caespitosa*, *Agrostis tenuis*

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