POSTER ABSTRACT

# Seed Source Selections Under Climate Uncertainty

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There is broad consensus among meteorologists that the earth's climate is changing and will continue to change, although there is deep uncertainty over the rate and magnitude of future change. Planned adaptation to climate change is therefore a necessity of growing importance. To date, there exists no method or decision support model to determine the most suitable seed source to use in artificial regeneration of a given site under the conditions of a changing climate. The goal of this study was to develop and implement a decision support model to select a mixture of seed sources that minimizes risk of maladaptation at a given site under a number of equally probable climate change scenarios as indicated by several global circulation models. Elements of modern portfolio theory were combined with a species range impact model (SRIM) based on genecological data from a series of jack pine provenance trials to construct the decision support model. The SRIM was used to provide estimates of how well adapted a given seed source would be to a predicted climatic condition at a given site for each climate change scenario. The first field application of the model is a south to north implementation of the seed source portfolio selections for jack pine in north western Ontario. Completely randomized block trials of selected and local sources are being established as demonstration plots near Fort Frances, Dryden and Red Lake.

Crowe, K., and W.H. Parker. 2007. Using portfolio theory to guide reforestation and restoration under climate change scenarios. Climate Change (in review).