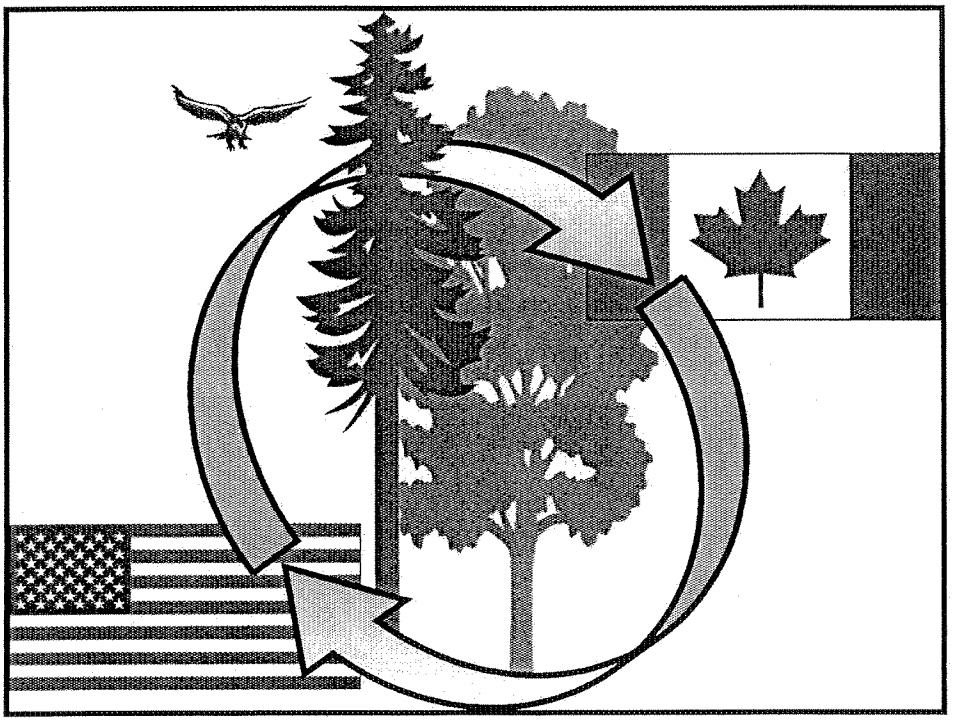
Colloque Eastern CANUSA

Les sciences forestières au-delà des frontières

Eastern CANUSA Conference

Forest Science across the Borders

19-21 octobre 2006 / October 19-21, 2006
Université Laval, Pavillon Alphonse-Desjardins
Québec (Québec) / Quebec, QC
Canada



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Validating forest productivity models is an essential milestone of model development: A case study of the validation of ZELIG for balsam fir-red spruce-yellow birch and yellow birch-sugar maple-balsam fir mixedwood ecosystems in southern Quebec

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Several forest succession models have been developed in the last few decades. However, very few validation exercises have been conducted with existing models, particularly the type of validation that consists in comparing predictions with observations. One of the reasons that explain this situation is the lack of long-term historical data for forest ecosystems. Model validation is an essential milestone of model development because logical inconsistencies may be detected or new directions may be suggested. The validation of the ZELIG model for balsam fir-red spruce-yellow birch and yellow birch-sugar maple-balsam fir mixedwood ecosystems using long-term remeasurement data obtained from sample plots located in the Mauricie National Park, Quebec, Canada, suggested new directions for the description of individual-tree competition. An important feature of ZELIG is the concept of zone of influence that represents the space within which individual trees compete for site resources. Predictions were compared with long-term observations and a sensitivity analysis to variation in the size of the zone of influence was conducted. There was relatively good agreement between observed and predicted basal area for nearly all species. However, for several species, the degree to which model outputs were in good agreement with observations depended on the variation in the size of the zone of influence.

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Theme: Modeling, growth and yield