



Classification of Mid-seral Black Spruce Ecosystems in Northern British Columbia

Summary

Black spruce is one of the principal species of the Canadian boreal forest. While it is one of the major timber crop species in eastern Canada, in British Columbia it is considered a non- or less valuable crop species except on sites that are edaphically unsuitable for more valuable species, such as white spruce and lodgepole pine. Its value as a crop species, however, cannot be debated in absence of productivity data for pure and mixed-species stands of black spruce in BC. From over 2,000 reports on black spruce published in Canada and the United States to date only a few originated in BC. A better understanding of ecology and growth of black spruce is needed in anticipation of future demands for timber resources in the boreal forest in this province.

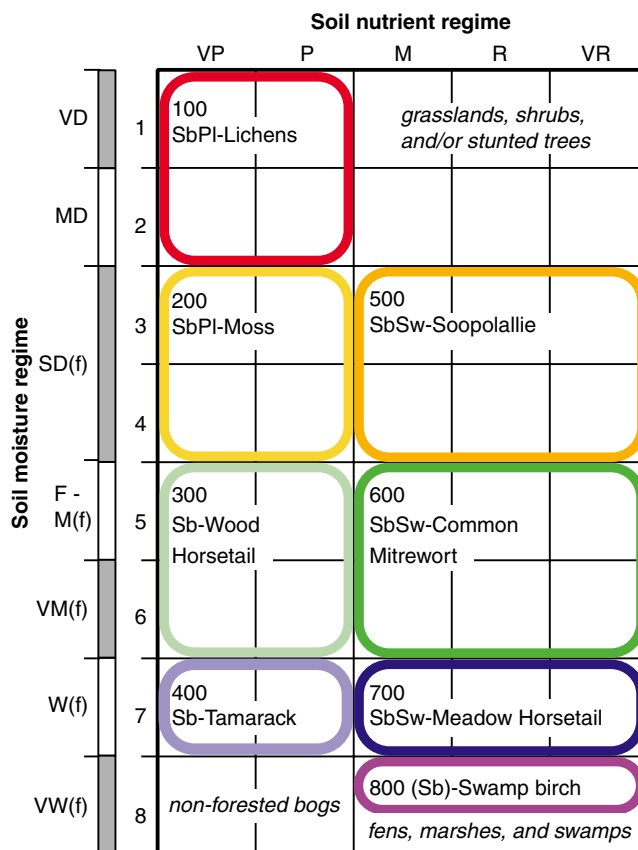
In BC, late-seral (old-growth) black spruce-dominated ecosystems have been investigated by many researchers, including the Ecological Program Staff of the BC Ministry of Forests who presented a general overview of the BWBS and SBS zones and site classification for these zones. However, we still need additional information about early- and mid-seral stages for a more complete understanding of black spruce ecosystems. Therefore, we developed this classification as a means to relate them to the others in the North American boreal forest. We aimed to develop a classification that organizes communities into groups in a way that shows the greatest number of vegetation and vegetation-environment relationships, is easily retained in memory, and is easily conveyed through instructions. The classification, based on 122 plots, was done according to the Braun-Blanquet approach and the methods of biogeoclimatic ecosystem classification. In addition, we also quantified relationships between site index of black spruce and direct and ecological measures of site quality.

Other aspects of black spruce growth and boreal ecology are presented in the following *Scientia Silvica* Extension Series (SSES): comparison of understory plant diversity between black spruce and trembling aspen ecosystems (SSES No. 32), and comparison of humus form and soil nutrients between black spruce and trembling aspen ecosystems (SSES No. 31).



Map showing the range of black spruce in British Columbia and the distribution of sample plots.

Edatopic grid showing the generalized relationships of the eight site associations to soil moisture and soil nutrient regimes.



Site associations delineated in mid-seral black spruce ecosystems, and their relationships with the parent vegetation units.

Site association	Parent vegetation unit
100 SbPI – Lichens	110 Picea mariana – Cladina stellaris association
200 SbPI – Moss	120 Picea mariana – Vaccinium vitis-idaea association
300 Sb – Wood Horsetail	131 Picea mariana – Equisetum sylvaticum: typic subassociation
400 Sb – Tamarack	132 Picea mariana – Equisetum sylvaticum: Larix laricina subassociation
500 SbSw – Soopolallie	211 Picea glauca & mariana – Viburnum edule: Shepherdia canadensis subassociation
600 SbSw – Common Mitrewort	212 Picea glauca & mariana – Viburnum edule: Mitella nuda subassociation
700 SbSw – Meadow Horsetail	220 Picea glauca & mariana – Equisetum pratense association
800 (Sb) – Swamp Birch	310 Picea mariana – Betula nana association

Ordering Information

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References

Krestov, P.V., K. Klinka, C. Chourmouzis, and G. Kayahara. 2000. Classification of mid-seral black spruce ecosystems in northern British Columbia. Forest Sciences Department, University of British Columbia, Vancouver, BC. 88 pp.

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Editor: Karel Klinka (klinka@interchange.ubc.ca)

Production and design: Christine Chourmouzis (chourmou@interchange.ubc.ca)

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For more information contact: Karel Klinka

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www.forestry.ubc.ca/klinka, or K. Klinka,
Forest Sciences Department, UBC,
3036-2424 Main Mall, Vancouver, BC, V6T 1Z4