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SUSTAINABLE FOREST MANAGEMENT:
LEARNING FROM FIRE REGIMES

Quebec's forest regions are subjected to various fire regimes as a result of factors such as the climate, topography and vegetation that characterize these regions. Researchers at the Canadian Forest Service – Laurentian Forestry Centre believe that a better knowledge of the regional fire regime is useful in selecting appropriate forest management strategies.

Young even-aged black spruce stand. The limit of the prescribed fire is visible on the right (uneven-aged, overmature spruce stand sector).
Photo: Guy Simard

Fires in the natural environment occur irregularly from year to year and vary greatly in size and severity. Together these characteristics constitute a disturbance regime specific to each forest region. By analogy, the interval between successive cuttings, the cutting area and the harvesting method form a disturbance regime that varies less than the natural disturbance regime.

Understanding natural forest dynamics allows us to plan the use of silvicultural practices that can maintain or promote the rapid regeneration of the structural and compositional characteristics of the major stand development phases (cohorts).

For instance, in black spruce forests, the even-aged (regular) stand of the first cohort (typically of fire origin) could be generated by clear cutting, followed by natural or artificial regeneration. The irregular structure of the second cohort could be maintained or stimulated by partial cutting. The multiaged stand structure of the third cohort could be maintained by selective cutting, thus simulating the characteristic gaps of old-growth spruce stands.

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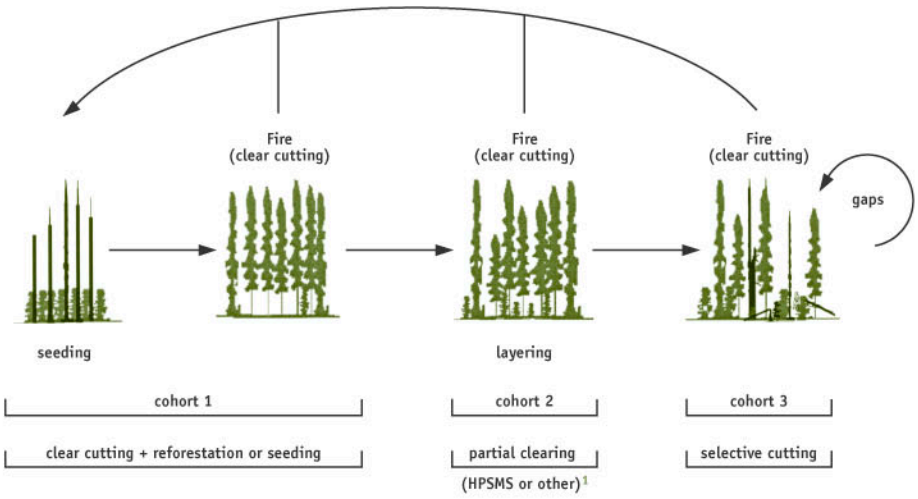
SUSTAINABLE FOREST MANAGEMENT: LEARNING FROM FIRE REGIMES

Uneven-aged, overmature black spruce stand (Chibougamau region).
Photo: Guy Simard

NATURAL DYNAMICS AND SILVICULTURE PROPOSED FOR BLACK SPRUCE STANDS



Understanding the natural fire cycle and the maximum removal age will therefore allow us to find out the relative areas that need to be maintained for each cohort in the forest landscape.

Striking a balance between intensive forest management and management practices modelled on natural processes is probably the most promising avenue for ensuring a wood supply for processing plants while maintaining the integrity of regional forest ecosystems at a level comparable to that of natural systems.

USEFUL LINKS

Research on forest fires at the Laurentian Forestry Centre
www.cfl.cfs.nrcan.gc.ca/CFL-LFC/what_we_do/resfires.html

Other Canadian Forest Service research on forest fires
www.nrcan-rncan.gc.ca/cfs-scf/science/resrch/forestfire_e.html

Société de protection des forêts contre le feu (SOPFEU)
www.sopfeu.qc.ca

FOR FURTHER INFORMATION, PLEASE CONTACT:

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