



Lodgepole pine forests in central British Columbia: Silvicultural systems to address integrated management issues

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How do you extract commercial timber from
the Montane Spruce (MSxv) and Sub-Boreal
Pine-Spruce (SBPSxc) subzones and still maintain

northern caribou
habitat? That is
precisely the goal
of the long-term
alternative silvi-
cultural systems
research project
currently under
way in the Itcha-Il-
gachuz area of the
Chilcotin Plateau
west of Williams
Lake, British

Columbia. North-
ern caribou, an ecotype of woodland caribou, are
designated as threatened under the federal *Species
at Risk Act (SARA)* within the Southern Mountains
National Ecological Area, and are considered a key
management species under the Cariboo-Chilcotin
Land Use Plan.

An integral component of caribou habitat is the
presence of the arboreal and terrestrial lichens
that the caribou feed upon. Clearcutting, the most
commonly used silvicultural system for managing
lodgepole pine, removes arboreal lichen and often
damages terrestrial lichen through physical dis-
turbance and changes in microclimate. Lichen are
relatively slow to disperse, establish, and grow, so
it may take several decades until preferred lichen
species return in sufficient quantities for caribou.

To address the project's goal, two alternative
silvicultural systems are being tested: group selec-
tion and irregular group shelterwood. The group
selection system, based on 33% area removal
every 80 years, was developed for caribou habitat
areas with abundant arboreal lichen (about 20% of
caribou habitat [Youds *et al.* 2002]). In areas with
extensive terrestrial lichen (about 80% of the area),
the irregular group shelterwood system, based on
50% area removal and a final cut at age 70, is being
studied.

In addition to testing the effects of these systems
on caribou habitat (i.e., on arboreal and terrestrial
lichens and vegetation), the team of researchers is
also gathering information on the effects of these
two silvicultural systems, as well as clearcutting and
no-harvest treatments on natural and planted tree
regeneration, breeding birds, commercial fungi,
micro-climatology, and long-term site productiv-
ity. The trial also has the capacity to measure the
effects of the expanding mountain pine beetle
infestation on caribou habitat.


The project is currently funded by the Forest Invest-
ment Account, Forest Science Program. It began
in 1994 as a pilot block, but expanded to a fully
replicated research trial in 1995. An adaptive man-
agement trial followed in 1997 to further refine the
systems. The adaptive management project has
been funded through Riverside Forest Products Ltd.
(now Tolko Industries Ltd.).

This research project is part of the Canadian Forest
Service's Forest Ecosystem Research Network of
Sites (FERNS); detailed information on the proj-
ect, including reports and extension notes, can
be found at the following Web site: [www.pfc.cfs.
nrcan.gc.ca/ecology/ferns/itcha/index_e.html](http://www.pfc.cfs.nrcan.gc.ca/ecology/ferns/itcha/index_e.html)

Over the next couple of years, a range of publica-
tions is anticipated on the following topics: natu-
ral regeneration, arboreal and terrestrial lichens,
breeding birds, fungi, and long-term site productiv-
ity. Recent publications include:

Daintith, N.M., M.J. Waterhouse, and H.M. Armleder.
2005. Seedling response following partial cutting in
lodgepole pine forests on caribou winter range in
west-central British Columbia. *Forestry Chronicle*
81(3):409-417

Sagar, R.M., M.J. Waterhouse, and B. Chapman. 2005.
Micro-climate studies in silvicultural systems on the
Chilcotin Plateau of British Columbia: The Itcha-Il-
gachuz project (1997-2003). B.C. Ministry of Forests.
Res. Br., Victoria, B.C. Tech. Rep. 22. URL: [www.for.
gov.bc.ca/hfd/pubs/Docs/Tr/Tr022.htm](http://www.for.gov.bc.ca/hfd/pubs/Docs/Tr/Tr022.htm)

Waterhouse, M.J. and H.M. Armleder. 2004.
Windthrow in Partially Cut Lodgepole Pine Forests
in West-Central British Columbia. B.C. Min. For., Res.
Br., Victoria, B.C. Extension Note 70. URL: [www.for.
gov.bc.ca/hfd/pubs/Docs/En/En70.htm](http://www.for.gov.bc.ca/hfd/pubs/Docs/En/En70.htm) 



Harold Armleder photo

Aerial view of the 33% and
50% removal treatments in
the adaptive-management
portion of the Itcha-Il-
gachuz alternative
systems research project.

Reference

Youds, J., J. Young, H.M. Armleder, M. Folkema, M. Pelchat, R. Hoffos, C. Bauditz, and M. Lloyd. 2002. Cariboo-Chilcotin land use plan: Northern caribou strategy. Cariboo Mid-Coast Inter-Agency Management Committee (IMAC). Special Report. Williams Lake, B.C. URL: http://srmwww.gov.bc.ca/car/planning/cclup/cari_strategy/reports/cari_2002_rpt/final2002northerncaribourep2001-ver12.pdf