

Alex 2000

NWT fire studies provide insights into effective wildfire management

A comprehensive suite of research projects studying crown fire behavior in the boreal forest is turning up some interesting results.

Marty Alexander of the Canadian Forest Service in Edmonton is one of the coordinators of the International Crown Fire Modelling Experiment (ICFME). He says researchers from Canada, the U.S., Europe, Russia, South Africa are amongst those conducting a multitude of experiments in a jack pine-black spruce forest near Fort Providence, Northwest Territories, in collaboration with the Forest Management Division of the GNWT Department of Resources, Wildlife and Economic Development.

The focus of ICFME has been on a number of knowledge gaps in fire behavior for a whole host of applications, including the development of fire and fuel management strategies for protecting communities from wildfire. Eighteen experimental crown fires (the most intense type of forest fire) have been staged and documented on specially-prepared plots averaging 150 by 150 metres in size over the last four summers.

While final results will not be completed and published for some time yet, Alexander says some conclusions can already be drawn, and in many cases they could be useful to the forest products industry as it seeks ways to protect resource and community assets.

Firebreaks: When planning firebreaks to con-

trol or stop the spread of fire, it will be useful to consider study findings that show spot fires can easily occur 50 metres downwind of a crown fire, due to wind-blown embers. It has generally been accepted in the past that firebreaks of 50 metres in width would be adequate, but these can in fact be easily breached. They will, however, continue to be useful in providing a prepared control line from which fire control tactics can be launched (e.g., to backfire and burnout from).

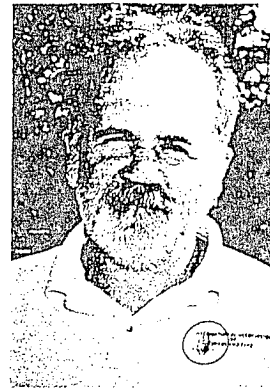
Fuelbreaks: Fort Providence tests have provided dramatic evidence that deciduous or hardwood vegetation in the summer is much less flammable than dense conifer forests. A crown fire can send flames to at least twice the height of a mature conifer stand. In such cases there is little firefighters can do but stand back and wait until conditions improve.

On one experimental plot, the vigorous crown fire moved from the jack pine-black spruce component into an aspen belt about 70-80 metres wide, the flames dropped down to a few centimetres in height and the fire front slowed to a crawl. This leaves a fire that can much more easily be attacked and suppressed. Aspen stands are vulnerable to moderately high intensity fires in early spring and late fall, says Alexander, though not to the same extent as conifer species. And in the summer fire season, moisture levels and structural charac-

teristics of this cover type render it much less flammable; in some cases it's considered virtually an "asbestos forest." This is knowledge that will help forest and municipal managers plan fire-safe landscapes in the future.

Fuel Treatments: Limited testing has shown that silvi-cultural practices such as pruning of lower branches and light thinning will not by themselves cause a significant reduction in a wildfire's advance or severity. If anything, these practices may allow the wind to enter a stand more easily, hastening the drying of fuels and fanning fires. "For a homeowner to make this an effective treatment would also require the removal or compression of a good deal of the organic material on the forest floor", says Alexander. "I doubt this would be a feasible approach on an industrial scale."

For more information contact the CFS at (780) 435-7210 or visit the ICFME web site (<http://www.nofc.cfs.nrcan.gc.ca/fire/fmn/nwt/>).



Marty Alexander

Forest rehab: renewing the "wilderness" tourists love

Tourists love Pyramid Island near Jasper townsite so much they have their wedding pictures taken there. Tour buses and cars bring several hundred thousand visitors a year to scramble over the tiny island and view the mountain scenery.

The problem is, those thousands of feet compact the soil and expose tree roots. The wind blows some of the trees down, shrubs are broken, and the result is something of an "ecological slum."

Jasper National Park considered removing the footbridge and leaving the island to recuperate naturally - but encountered opposition from the community. The non-profit Friends of Jasper National Park offered to help raise money and volunteers for a rehabilitation project, and experts from the Canadian Forest Service in Edmonton were called in for assistance and advice.

Tree improvement specialist Al Nanka started work on the project in 1991 by studying the island's plant communities and identifying problems and solutions. Small tree seedlings were not a viable option, as they would be too vulnerable to being trampled by

visitors. "We could have closed the area to the public, but people didn't want that for cost and aesthetic reasons," says Nanka.

He and CFS propagation specialist Silva Blue decided instead to go in on a long weekend, on their own time, to plant 300 older trees in thick groupings, making use of natural obstacles such as boulders and logs to deter wandering tourists. They added mulch provided by Weldwood in Hinton and watered the trees as required, and the experiment has proved to be a success.

During the planting work, tourists from Japan were so impressed with the sight of Nanka and Blue planting trees in the wilderness, they took photos of them and asked for autographs.

With 1,500 indigenous trees now planted - with the help of other volunteers - and the forest landscape on its way to recovery, Nanka and Blue have been drawing up lists of native shrubs and plants that could be reintroduced - gooseberry, currant, wild rose, honeysuckle and more.

For more information contact the CFS in Edmonton, (780) 435-7210.



Silva Blue and Al Nanka outside the CFS greenhouse in Edmonton

