Research and Management Strategies to Address the Climate Change Issue for the Forest Sector in the Pacific and Yukon Region: An Introduction to Project PC-71-40

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Global climatic patterns are continuously in flux. Ice ages of continental glaciation and fossilized evidence of tropical and subtropical life in Canada's arctic archipelago remind us of climatic extremes in our country's past. The issue is not whether the climate changes, but whether the rate of change will increase and whether the biosphere as we know it is capable of adaptation.

Anthropogenic climatic change has become one of the key issues of the nineties. The impacts of climate change, however, are not uniform across the planet. The output from various global circulation models (GCMs) all show a marked increase in the effects of global warming as one moves from the equatorial to the polar regions. As a result, the forests of the temperate and boreal regions are much more likely to be impacted by increases in temperature and variations in precipitation than those in equatorial regions.

Estimates from various GCMs predict annual temperature increases ranging from 2°C to 10°C across the range of forested lands of Canada. This entire range is expected to be experienced within the Pacific and Yukon Region alone. Precipitation patterns are also expected to alter significantly. The combination of the two will inevitably result in a change in the current pattern of vegetation cover, including our forests.

Knowledge of climates and forests, past and present, are essential to our understanding of the interrelationship of climate and the corresponding vegetation patterns. With this knowledge we can develop adaptation strategies to deal with the scenarios of future climates.

The first priority of this project is to provide an analysis of the potential impacts of climate change on the forest sector and its economy in the Peace River region of the Mackenzie Drainage Basin. Research is conducted in partnership with the Mackenzie Basin Global Warming Impacts Study of the Canadian Climate Centre. This work will entail development of methods and analytical tools for investigation of the impacts of global climate change, and will contribute to integrated resource analysis networks dealing with the climate change issue throughout Canada and North America.

The project is pursuing a unique opportunity to examine in detail post-glacial climates in the Pacific and Yukon Region, through dendroclimatological analysis of a long series of ancient logs from a drained lake bed. Related studies should reveal how forests responded to those changes in climate.

Also summarized in this section is the Canadian Intersite Decomposition Experiment. The experiment, conducted under Project PC-71-20, should provide insight into how the decomposition of litter may be affected if climate changes.

This project will undertake to:

- provide an analysis of the potential impacts of climate change on the forest sector in the Peace River region of the Mackenzie Drainage Basin;
- contribute to integrated resource analysis networks dealing with the climate change issue in Canada and North America;
- contribute to a better understanding of climate and forest interactions in the Pacific and Yukon Region; and
- develop microclimate monitoring networks for research applications in forest resource management.