



INTERNATIONAL DAY FOR BIOLOGICAL DIVERSITY

## Adaptation to Change- Agenda

May 18, 2005, 8:30 – 16:00, Camsell Hall

**Moderator: Dr. Anne-Christine Bonfils, Science Coordinator, NRCan-CFS**

8:30 – 8:50	Posters	
8:50 – 9:00	Welcome and Opening Remarks	<b>Mr. Geoff Munro</b> DG, Science and Programs Branch, NRCan-CFS
9:00 – 9:25	The Basis of Diversity	<b>Mr. Dale Simpson</b> NRCan-CFS, AFC
9:25 – 9:50	Biodiversity: Life Insurance for a Changing World	<b>Dr. Ole Hendrickson</b> Biodiversity Convention Office, Environment Canada
9:50 – 10:15	Forest Adaptation to Climate Change: Maintaining Resilience in Tree Populations	<b>Dr. Alex Mosseler</b> NRCan-CFS, AFC
10:15 – 10:35	<i>Health break and posters</i>	
<b>Moderator: Dr. Nancy Kingsbury, Science Advisor, NRCan-CFS</b>		
10:35 – 11:00	Forest biodiversity: adapting to a changing climate	<b>Dr. Don McIver</b> Meteorological Service, Environment Canada
11:00 – 11:25	Impact of Beech Bark Disease on Biodiversity and Mitigation Initiatives	<b>Dr. Judy Loo</b> NRCan-CFS, AFC
11:25 – 11:50	Genetic diversity: subtle differences that matter	<b>Dr. Jean Beaulieu</b> NRCan-CFS, LFC
11:50 – 12:15	Forest Pathogens and Biodiversity	<b>Dr. Richard Hamelin</b> NRCan-CFS, LFC
<b>Afternoon moderator: Dr. Brenda McAfee, Science Advisor, NRCan-CFS</b>		
12:15 – 14:00	<b>Lunch* and discussion</b>	
14:00 – 16:00	Posters and coffee	

\* *Lunch will be provided.*

\*\*\*Please RSVP to Sandra Abi-Aad, [sabiaad@nrcan.gc.ca](mailto:sabiaad@nrcan.gc.ca), 947-8244\*\*\*



*Adaptation to Change*  
International Day for Biological Diversity Seminar  
18 May 2005, Ottawa

Invited speakers:

Mr. Geoff Munro, Canadian Forest Service  
Mr. Dale Simpson, Canadian Forest Service  
Dr. Ole Hendrickson, Environment Canada  
Dr. Alex Mosseler, Canadian Forest Service  
Dr. Don MacIver, Environment Canada  
Dr. Jean Beaulieu, Canadian Forest Service  
Dr. Judy Loo, Canadian Forest Service  
Dr. Richard Hamelin, Canadian Forest Service

Facilitators :

Dr. Anne-Christine Bonfils, Dr. Nancy Kingsbury, Dr. Brenda McAfee, CFS

Natural Resources Canada's Canadian Forest Service organized a one day science seminar and a poster session on May 18<sup>th</sup>, 2005 to highlight this year's theme for the International Day for Biological Diversity: *Biodiversity: Life Insurance for our Changing World*. Research related to "Adaptation to Change", from CFS and other organizations was presented to and discussed with more than 60 participants. This event provided an opportunity to showcase the synergies between biodiversity, biotechnology and climate change issues and to advance our understanding of the fundamentals of forest adaptation to change. The objectives were to make the audience discover 1) the fundamental importance of biodiversity in adaptation mechanisms and strategies; 2) the role of biotechnologies to develop tools for adaptation to change; and, 3) what the Canadian Forest Service and other federal partners are doing in this area.

Mr. Munro started by reminding the audience of the crucial role that biodiversity, especially genetic diversity, plays in everyone's life. He also highlighted Canada's participation under the Convention on Biological Diversity and the release of the biodiversity synthesis report on UN's Millennium Ecosystem Assessment. Mr. Simpson explained the importance of maintaining biodiversity for species to adapt to change. He presented key activities conducted by the National Tree Seed Centre to conserve the genetic heritage of Canada's trees. Dr. Hendrickson emphasized the need for adaptation because climate change is already modifying ecosystems. He presented the interlinkages between the CBD and the United Nations Framework Convention on Climate Change and its Kyoto Protocol. He then noted some of the tools available for adaptation such as adaptive management, networks of protected areas and tree improvement through silvicultural techniques. Dr. Mosseler highlighted some recent research results from several studies in eastern Canada aimed at conservation of forest genetic resources in trees, including (i) the potential role of old-growth red spruce forests as reservoirs of genetic diversity and reproductive fitness, (ii) the effects of stand density, population size, and population fragmentation on genetic diversity and reproductive fitness in eastern white pine and white spruce, and (iii) the genetic status and northward migration of pitch pine, a rare, southern component of Canada's native flora. After presenting forecasted weather conditions under climate change scenarios, Dr. MacIver discussed how science should support policy needs for adaptation. He also presented the monitoring activities under the Smithsonian Institution / Monitoring and Assessment of Biodiversity (SI/MAB) project and how we could use the SI/MAB sites, protected areas and Model Forests to better understand biodiversity and integrate this knowledge into policy. Dr. Beaulieu presented results of his research on the use of biotechnology (e.g. isozyme

markers) to monitor genetic diversity and to develop tree migration models. He explained how tree improvement techniques could mitigate the impact of stresses on forest productivity and sustainability. Dr. Loo explained the consequences of Beech Bark Disease in the province of New Brunswick, where about 95% of the trees are infected by the disease and rendered useless for economic and ecological purposes. CFS scientists are working with genetically resistant trees to understand the source of resistance and to develop protocols for restoring healthy beech, taking advantage of the natural genetic diversity and adaptive potential of the species. Finally, Dr. Hamelin spoke about the impact of introduced species such as Chestnut blight and Dutch elm disease and the more recently arrived sudden oak death on the forests of Canada and on the Canadian economy and presented his research on the development of biotechnology-based tools for their early detection. He also highlighted NRCan's Canadian Forest Service's participation in the Canadian "Barcode of Life" Network (<http://www.barcodinglife.org/>), the mission of which is to assemble a DNA barcode library for all eukaryote species that occur in Canada.

The panel discussion re-emphasized the critical role of biodiversity in maintaining ecosystem resilience and thus maintaining their productivity in goods and services in the face of global change. Emergent new threats to forests, such as invasive alien species, are going to become more prevalent as a result of climate change. The experts urged governments to foster the creation of partnerships and to be more proactive in the development of adaptation strategies, particularly with respect to biodiversity.

For more information on NRCan's Canadian Forest Service research on biodiversity, please visit <http://www.nrcan.gc.ca/cfs-scf/>

Participants displaying posters:

1. Dr. Miroslav Grandtner, Laval University
2. Dr. Jean Beaulieu, Gaëtan Daoust, Canadian Forest Service
3. Dr. Alex Mosseler, Canadian Forest Service
4. Mr. Dale Simpson, Canadian Forest Service
5. Mr. Paul Budkewitch, Natural Resources Canada, Earth Sciences Sector
6. Mr. Ryan Schwartz, Natural Resources Canada, Adaptation and Climate Change Program
7. Mr. Jason Thompson, Biodiversity Convention Office, Environment Canada
8. Federal Biodiversity Information Partnership
9. Ms. April Feswick, University of Ottawa
10. Ms. Rachelle Desrosiers, Dr. Jeremy Kerr, University of Ottawa