This Landbase is Not Passive –
Connecting Boreal Wetlands to Forest Management

The Role of Wetlands in Forests and Forest Management

Canadian Institute of Forestry: National Electronic Lecture Series
January 17, 2019

Bev Gingras, Head Boreal Conservation Programs & Kylie McLeod, Conservation Programs Specialist
Ducks Unlimited Canada
# National Electronic Lecture Series

**Série de conférences électroniques nationales**

**THE FOREST ON YOUR DESKTOP: LA FORÊT SUR VOTRE BUREAU**

## E-Lecture Series:

**This Landbase is not Passive – Connecting Boreal Wetlands to Forest Management**

### January 17, 2019

- **The Role of Wetlands in Forests and Forest Management**
  - Speaker: Dr. Gevaert
  - Host: Canadian Institute of Forestry
  - Presented by: Wetland BMP Knowledge Exchange and Duds Unlimited Canada

### January 24, 2019

- **Wetland Ecosystem Services in Canada’s Boreal Forest: Managing for Multiple Values**
  - Speaker: Dr. Gevaert
  - Host: Canadian Institute of Forestry
  - Presented by: Wetland BMP Knowledge Exchange and Duds Unlimited Canada

### January 31, 2019

- **Impact of Roads on Indigeneous Peoples and Environmental Management in Canada’s Boreal Forests**
  - Speaker: Dr. Gevaert
  - Host: Canadian Institute of Forestry
  - Presented by: Wetland BMP Knowledge Exchange and Duds Unlimited Canada

### February 7, 2019

- **Hot Pot Pearl: Managing boreal peatland wetlands in an era of climate change**
  - Speaker: Dr. Gevaert
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### February 14, 2019

- **Conservation of Boreal Wetlands: Policy, Considerations & Methodist Examples**
  - Speaker: Dr. Gevaert
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### February 21, 2019

- **Remote Sensing of Boreal Wetlands: Strategies and Methods**
  - Speaker: Dr. Gevaert
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1:30 p.m. - 2:30 p.m. EST / 10:30 a.m. - 11:30 a.m. PST

For additional information or to register:

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All electronic lectures are free. Your consideration of CIF/NF membership would be appreciated.

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Tel: (705) 744-1719 ext. 585

Conserving Canada's Wetlands
Wetlands are...

“Passive”

“Unproductive”

“Non-contributing”
Wetlands are...

A vital component of forest ecosystems
“Although linking up the four elements of the system creates complexity, they are inextricably connected and must be considered as part of one whole system”
CANADA’S AMAZING BOREAL FOREST

- Holds 63 per cent of Canada’s remaining wetlands.
- Stores more carbon than any other ecosystem on Earth—more than twice as much as tropical forests.
- Supplies clean water by filtering the largest surface area of freshwater on the planet.
- Provides important breeding and nesting habitat for 1-3 billion migratory birds.
- Is rich in biodiversity, with 85 species of mammals, 130 species of fish and 200 species of birds.
- Is home to more than 600 indigenous communities.
- Buffers extreme weather, holding back water in flood and supplying droughts.

MAINTAINING A HEALTHY BOREAL FOREST IS OUR GREATEST CONSERVATION OPPORTUNITY.

TOGETHER WITH YOUR HELP WE CAN MAKE A DIFFERENCE

Ducks Unlimited Canada

Conserving Canada’s Wetlands
Ducks Unlimited Canada

Mission
Conserve, restore, and manage wetlands and associated habitats for North America’s waterfowl. These habitats also benefit other wildlife and people.

Approaches to delivering on our mission
• Habitat Conservation
  • Direct habitat management programs
  • Extension to industry
  • Public policy
• Research
• Education
• Fundraising
North America’s Boreal Forest

1.5 Billion Acres
1.3 Billion Acres in Canada
DUC’s approach to conservation

Science-based

Collaborative

Relationship - focused
DUC and forestry

Over the past 20 years we have engaged with the forest industry:

• Long-term partnerships with forest companies (e.g., Louisiana Pacific)
• Input into forest certification standards (CSA, FSC, SFI)
• SFI board of directors
• Collaborative multi-organization projects (e.g., FMWSI, SFI carbon project)
• Developed products to share information (e.g., resource road guidebooks)
What is a wetland?

“land that is saturated with water long enough to promote wetland or aquatic processes as indicated by poorly drained soils, hydrophytic vegetation and various kinds of biological activity which are adapted to a wet environment”

- National Wetlands Working Group 1988
What do boreal wetlands look like?
What do boreal wetlands look like?
Wetland classes

Organic wetlands
- Bog
- Fen

Mineral wetlands
- Swamp
- Marsh

Shallow open water
Wetland classes

Mineral Wetlands
- Open Water Classes
- Aquatic Bed
- Mudflats
- Open Water
- Marsh Classes
- Emergent
- Meadow
- MixedWood
- Tamarack
- Conifer
- Shrub

Swamp Classes
- Hardwood
- Treed
- Shrubby
- Graminoid

Peat Wetlands
- Fen Classes
- Poor Fen Classes
- Rich Fen Classes
- Treed
- Shrubby
- Graminoid
- Open

Bog Classes
- Treed
- Shrubby
- Graminoid

DUC’s Enhanced Wetland Classification
Wetlands move water in different ways

- **BOGS**: Slow moving systems
- **FENS**: Lateral water movement
- **SWAMPS**: Seasonally flooded – vertical & horizontal movement
- **MARSHES**: Periodic drawdown
- **SHALLOW OPEN WATERS**: Surface waters fluctuate seasonally
Role of wetlands in forests and forest management

Wetlands make up a large percentage of the boreal’s landbase.
Wetlands on the landbase

- 85% of Canada’s wetlands are in the boreal
- In Alberta over 30% of the green zone is wetlands
- In some areas, FMAs are over 50% wetlands
- At least some of those wetlands are merchantable and will end up in the ‘active’ landbase
- Wetlands in the ‘passive’ landbase may be influenced by activities (e.g., roads) and vice versa
Wetland road crossings
Safety, training, spills, and other considerations
Role of wetlands in forests and forest management

Boreal wetlands and upland forests are connected through multiple pathways.

Photo credit Millar Western
Forest industry activities can affect those pathways.
Those pathways provide numerous benefits for upland forests.
Water transmitters and sources

• Wetlands may be water sources to adjacent forests
• Water may be redistributed between uplands and wetlands through groundwater, surface runoff, and root processes (Devito et al. 2012, Wells et al. 2017)
• Following harvest (Petrone et al. 2016)
  • Regenerating aspen may use adjacent wetlands as water sources
  • ‘Root pipelines’ through riparian zones
Fire and climate resiliency

- Peatlands tend to be more resilient to changes in climate (Johnston et al. 2010)
- Wetland feedback mechanisms promote water retention and stability (Waddington et al. 2015)
- In many undisturbed peatlands, thick wet soils and moss limit wildfire frequency and prevent deep burning (Johnston et al. 2010, Schiks 2016)
- Wetlands may help upland forests regenerate following fire
What does this mean for forest managers and other land users?

• Wetlands present both challenges AND opportunities

• First step towards wetland stewardship is understanding (as best you can!) wetlands on your landbase
Raising awareness and understanding
Promoting wetland stewardship and forest management

• Forest Management and Wetland Stewardship Initiative
• Developing and providing input into wetland and watercourse crossing guides (e.g., SK government, MB government)
• Commenting on forest certifications – FSC, SFI, CSA
• Forest company partnerships
• SFI board of directors
• Research and field trial projects
• Co-hosting this webinar series!
NATIONAL ELECTRONIC LECTURE SERIES
SÉRIE DE CONFÉRENCES ELECTRONIQUES NATIONALES
THE FOREST ON YOUR DESKTOP - LA FORET SUR VOTRE BUREAU

E-LECTURE SERIES:
This Landbase is not Passive - Connecting Boreal Wetlands to Forest Management

In collaboration with:
WETLAND BMP KNOWLEDGE EXCHANGE
Duds Unlimited Canada

January 17, 2019
The Role of Wetlands in Forests and Forest Management
Shen Singhss
Meteoric Conservation Program
Duds Unlimited Canada

January 24, 2019
Wetland Ecosystem Services in Canada’s Boreal Forest: Managing for Multiple Values
Kyla McLaugh
Wetland Program Specialist
Duds Unlimited Canada

January 31, 2019
Impact of Temprane Disturbance on Canada’s Boreal Peatlands
Norma Girnab
Wetland Program Specialist
Duds Unlimited Canada

February 7, 2019
Hot Spot Pearl: Managing boreal peatland wetlands in an era of climate change
Mike Washington
Wetland Program Specialist
Duds Unlimited Canada

February 14, 2019
Conservation of boreal wetlands: Policy Considerations & Wetland Examples
M.T. Steele
Wetland Program Specialist
Duds Unlimited Canada

February 21, 2019
Remote Sensing of boreal wetlands: Strategies and Methods
Jennifer Neil
Manager, WLM
Duds Unlimited Canada

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Wetland Ecosystem Services in Canada’s Boreal Forest: Managing for Multiple Values

January 24, 2019
Impact of Resource Extraction on Canada’s Boreal Peatlands

Dr. Maria Strack

Department of Geography and Environmental Management

January 31, 2019
Hot Hot Peat! Managing Boreal Peatland Wildfire in an Era of Climate Change

Dr. Mike Waddington
Canada Research Chair in Ecohydrology

February 7, 2019
Remote Sensing of Boreal Wetlands: Strategies and Methods

Michael Merchant, Remote Sensing Specialist

February 21, 2019