

Water Management in Alberta's
Boreal 2025

Moving Wetland Science into Practice

Case Studies and Lessons Learned from Ducks
Unlimited Canada's Boreal Program

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Land Acknowledgement

Ducks Unlimited Canada acknowledges that the land on which we gather today resides is in Treaty 8 territory, home to many diverse First Nation, Métis and Inuit people, including the Cree, Dene and Beaver peoples. This is also home to the ancestral and modern-day Métis communities of Paddle Prairie, Peavine, Gift Lake, East Prairie, Buffalo Lake and Métis Nation Region 6 peoples.

Ducks Unlimited Canada acknowledges the peoples of this area who join us and bring with them a rich and beautiful culture from which we learn.

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Ducks Unlimited Canada

Organization

Incorporated in 1938, DUC is a not-for profit, science based, waterfowl habitat conservation organization

Vision

Abundant wetlands and waterfowl – today, tomorrow and forever

Mission

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



Conserving
Canada's
Wetlands



National Boreal Program

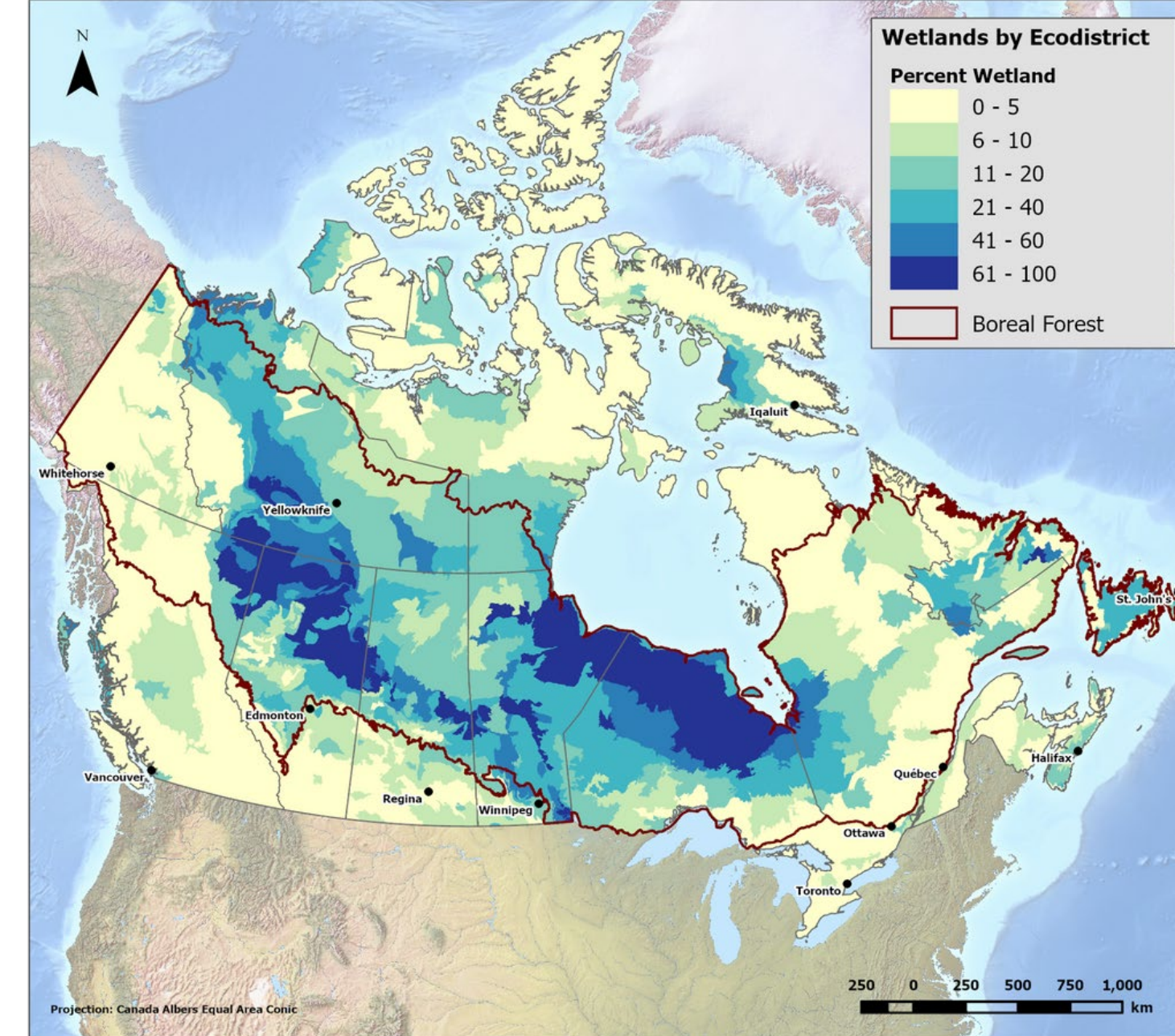
Canada's largest intact landscapes, over 25% of the world's wetlands and 85% of Canada's wetlands are in the boreal forest.

Why conserve boreal wetlands?

- Intrinsic values for Indigenous Peoples and boreal communities
- Carbon + climate regulation
- Water storage + filtration
- Biodiversity + species at risk

Challenges:

- Limited awareness of extent, function and values
- Increased industrial development leading to wetland loss/impairment
- Uncertain impacts of climate change



BOG



FEN



SHALLOW OPEN
WATER

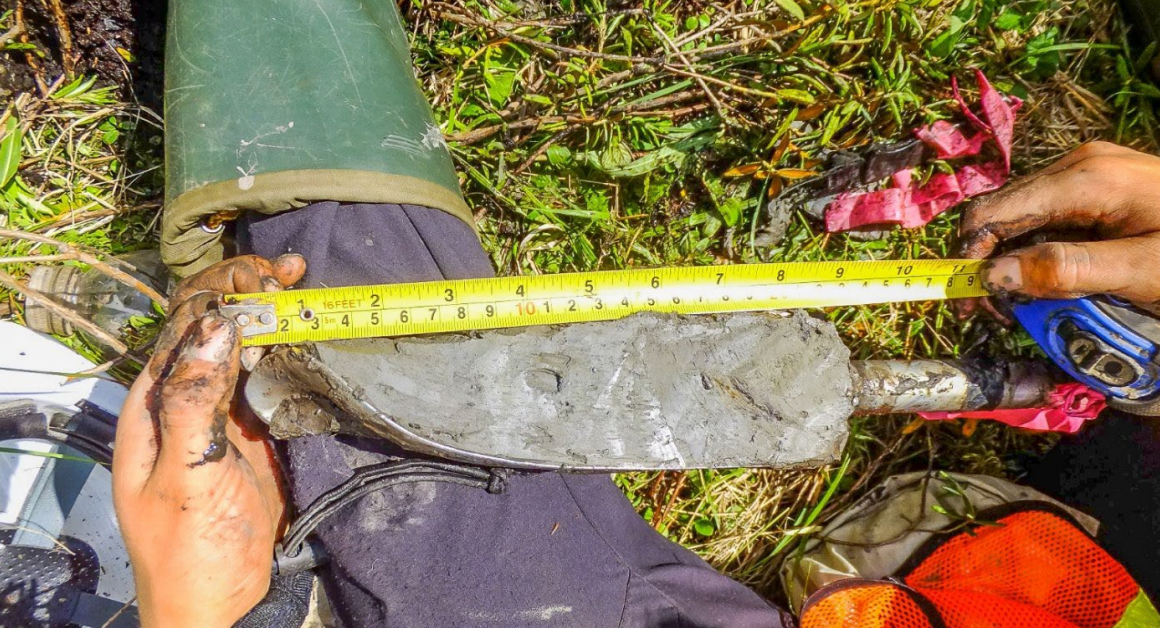


SWAMP



MARSH







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Case Study 1: Build Relationships First

- Focus on getting to know your audience early and often
- Don't assume what you have to say or offer is valuable to your audience
- Be open to new terms, ideas and values
- Strong relationships are built through reciprocity





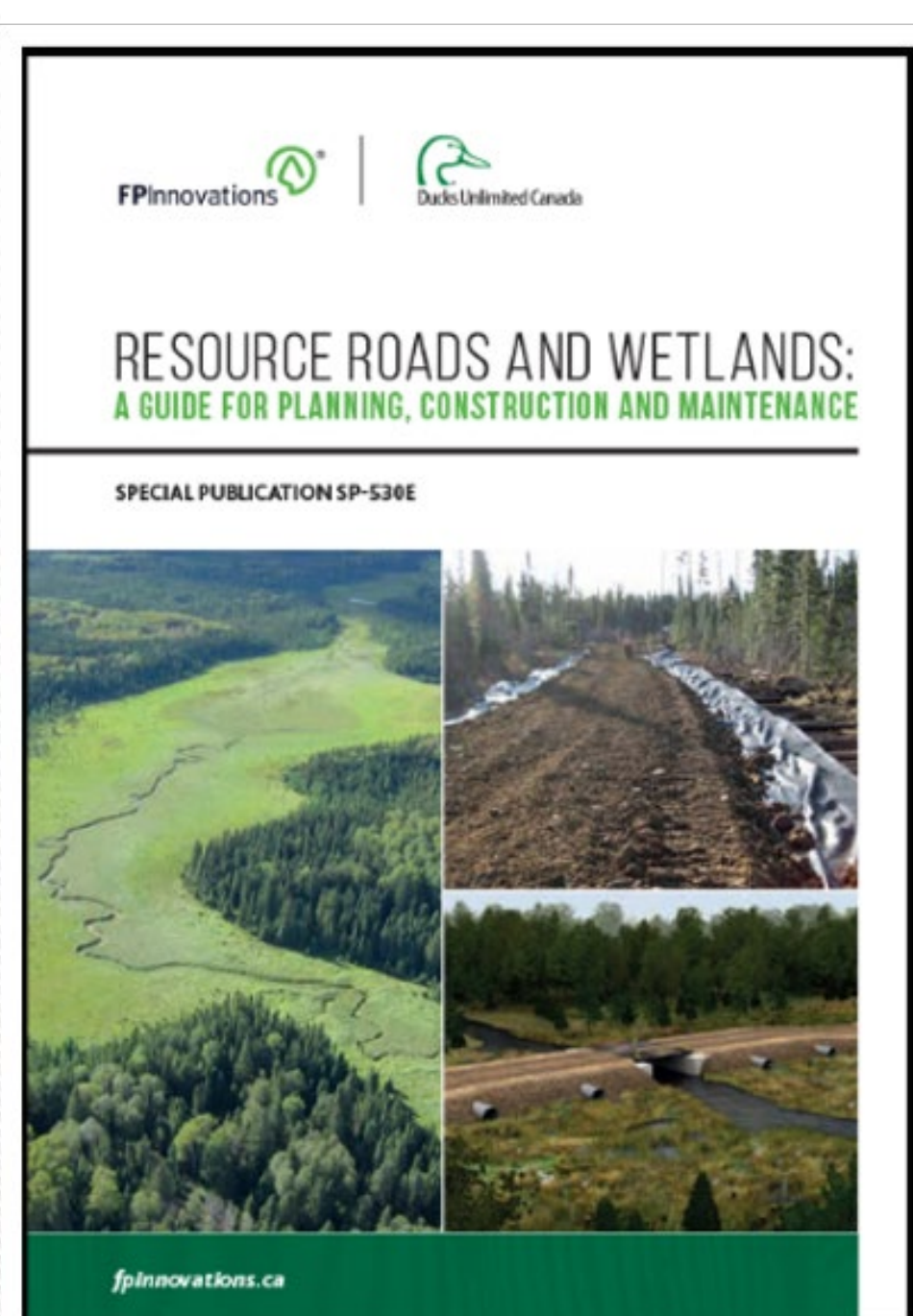
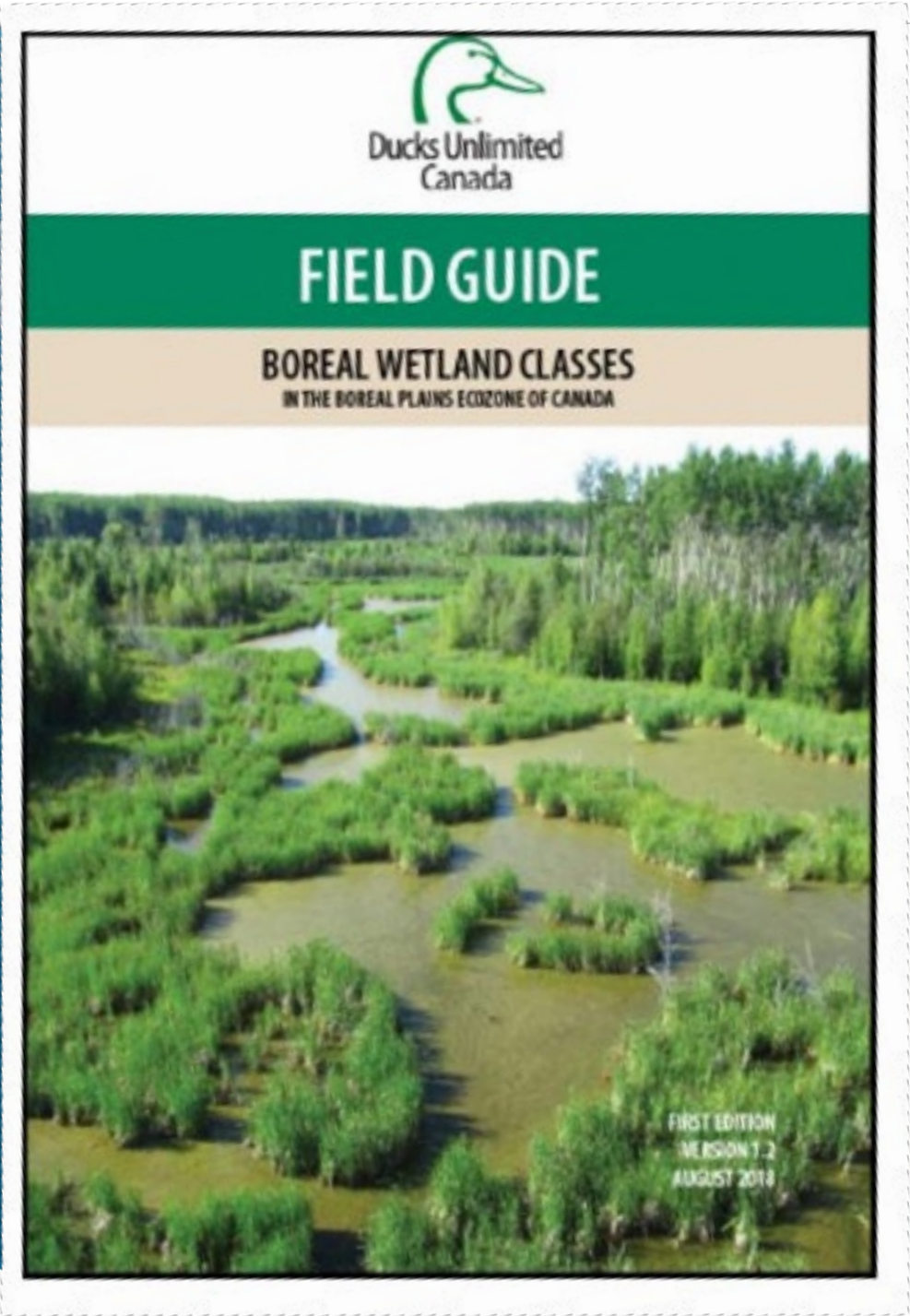
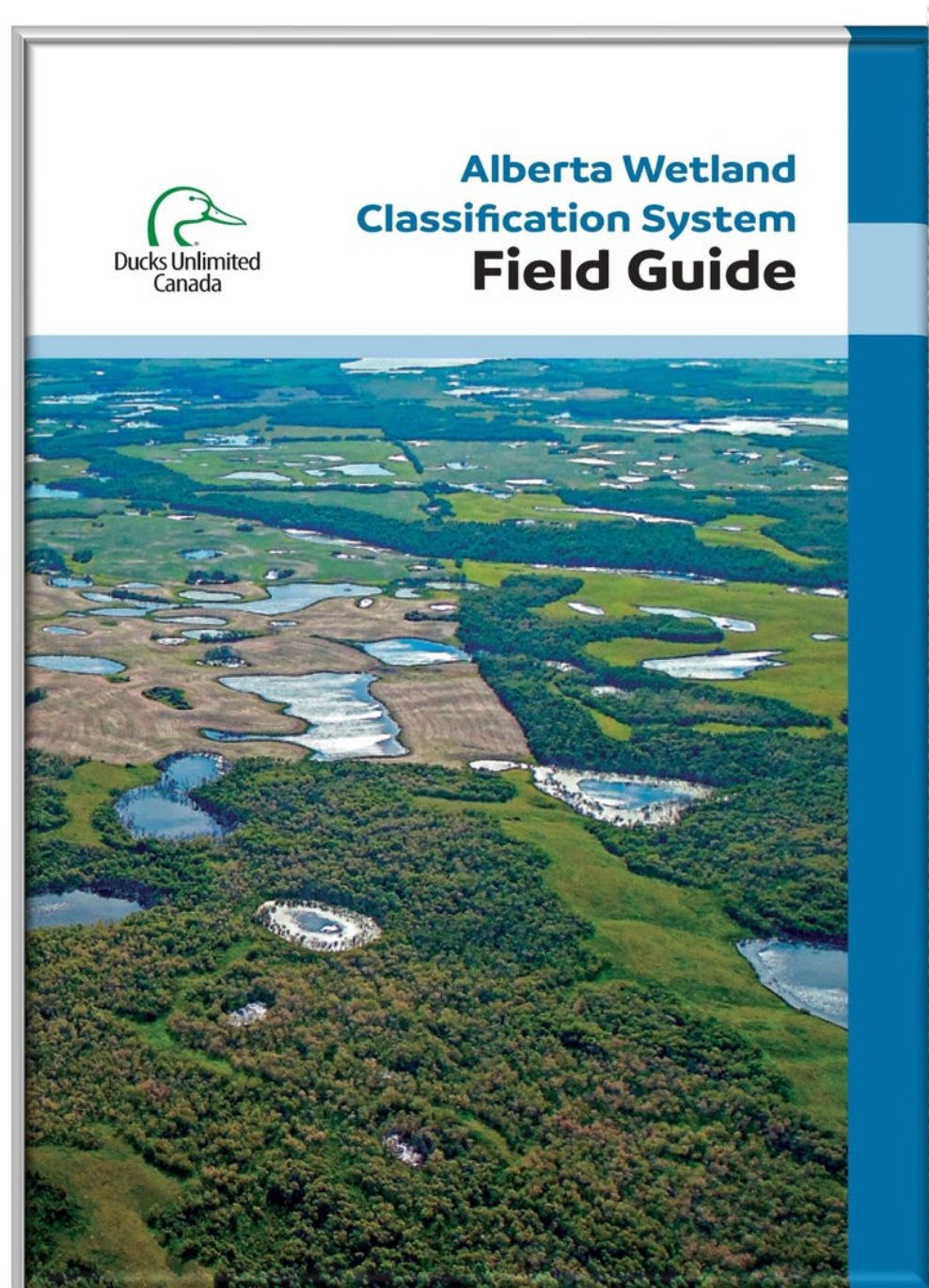
Case Study 2: Know your Audience

- Identify your core audience
- Ask plenty of questions and listen carefully
- Determine what they need to know and how they will use that information
- Determine what type of communication tools would suit their learning
- Gather feedback



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DUC Field Guide Resources



Alberta Field Guide

WETLAND FACT SHEETS

FEN

THERE ARE THREE FEN FORMS:

- Wooded Coniferous
- Shrubby
- Graminoid

SOIL

- Peatland with more than 40 cm of organic soil
- Poorly decomposed organic soil (moss and sedge peat) with Von Post rating of 5 or less

WATER REGIME

- Variety of water inputs (precipitation, surface water, groundwater)
- Consistently high (near-surface) water table, unless permafrost is present
- Slow-moving flow, including both surface and subsurface water movement (when wet, significant flow is possible)

1 tamarack

2 black spruce

3 Sphagnum mosses

4 brown mosses

5 bog birch

6 willows

7 stunted black spruce

water table

organic soil (peat)

MIXEDWOOD UPLAND

WOODED CONIFEROUS FEN
See page 46

SHRUBBY FEN
See page 47

CHEMISTRY

- Fen chemistry includes a range of salinity and
- Fens typically have a pH greater than 4.5, how
- Saline fens have a pH of 6.5 to 7.5 with and an

Electrical Conductivity: 0 µS/cm

FRESH-WATER

Poor Fen

0 pH scale 3.5 4.5 5.0

LANDSCAPE SETTING

- Expansive systems in generally flat landscape
- Hummocky microtopography

VEGETATION

- Characterized by black spruce and tamarack tree height
- Ground cover species are diverse, including sedges, Sphagnum and brown mosses

8

9

10

mine

GRAMINOID FEN
See page 48

SHRUBS - Ericaceous

BOG CRANBERRY

Vaccinium vitis-idaea
Ericaceae (Heath) Family

- Trailing stems 10-20 cm long
- Leaves evergreen, alternate, 0.5-1.5 cm, oval to elliptic with down-rolled edges, upper surface shiny dark green and lower surface light green
- Flowers pinkish-white and bell shaped, forming in clusters
- Fruits are small, bright red, edible berries

Flowers.

Shrub.

Berries.

✓

✓

✓

✓

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LEATHERLEAF

Chamaedaphne calyculata
Ericaceae (Heath) Family

- Short shrub up to 60 cm tall
- Leaves alternate and leathery in appearance, 1-4 cm, oval to elliptic, underside with small brown scales
- Flowers white, bell-shaped hanging down from one side of the branch in elongated clusters (racemes)

Shrub.

Leaves and flowers.

Leaves and flowers.

✓

✓


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WETLAND PLANT IDENTIFICATION

Jump to:
Plant ID
Plant Index

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TREES

BLACK SPRUCE

Picea mariana

Gwich'in: Ts'iivii | Kaska: Jitsi Pasha

Pinaceae (Pine) Family

- Small and slow-growing with characteristic clump of branches towards the top of its crown.
- Branches whorled, lowermost sloping steeply downwards.
- Young twigs with short (1-2 cm) needles and rusty hairs, compared to smooth white spruce twigs.
- Seed cones are small (1-2.5 cm, half the length of white spruce cones), oval and often purple in colour.



Trees.



Twigs.



Branch.

"WE CALL IT SKINNY SPRUCE TREE. SPRUCE GUM IS GOOD FOR STOMACH ACHES OR TOOTHACHES, OR USED AS A BINDING AGENT ON OPEN CUTS."

- Elder Jimmy Johnny



An important food, medicine, shelter, tool and fuel source in northern communities.¹ The bark, sap, cones and tips can be used for various medicinal purposes by boiling into tea or as a wound binding agent.

1. Andre and Fehr, 2002.



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HERBS

CLOUDBERRY

Rubus chamaemorus

Gwich'in: Nakàl

Rosaceae (Rose) Family

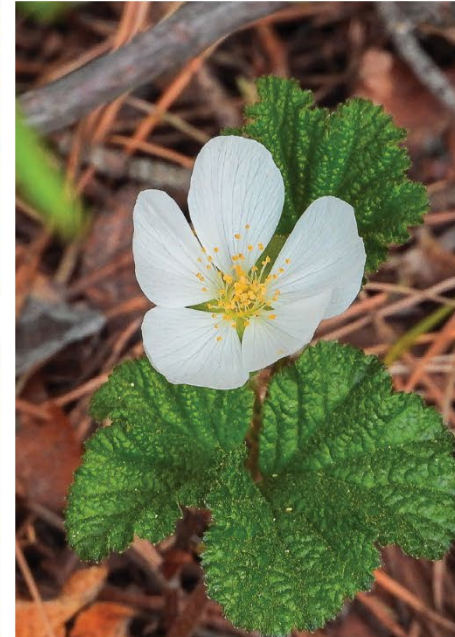
- Also known as **yellowberry**, **salmonberry**, **swamp apple** or **bake apple** due to their flavour.
- Typically grows on *Sphagnum* moss hummocks, more commonly found in the north.
- Low herb with erect flowering stems, up to 30 cm tall.
- Leaves 1-3 per stem; round to kidney shaped, shallowly 5-7 lobed, leathery and toothed.
- Single, white flower at stem tip becomes raspberry-like cluster of berries, reddish when young, amber to yellow when mature.



Leaves.



Berry.



Flower.



The berries are very high in Vitamin C, making them a staple foodsource for northern Indigenous peoples. They can be eaten fresh or frozen for winter use.¹

1. MacKinnon et al., 1999.

"WHEN YOU HARVEST DIFFERENT PLANTS, YOU SPREAD THE SEEDS OUT, LEAVING SOME TO REGROW. THANK THE CREATOR FOR TAKING THE PLANT, LEAVE TOBACCO AS AN OFFERING TO KEEP NATURE IN BALANCE. IF WE OBEY OUR DOOLÌ LAWS, WETLANDS CAN KEEP EVERYTHING IN CHECK."

- Elder James Allen



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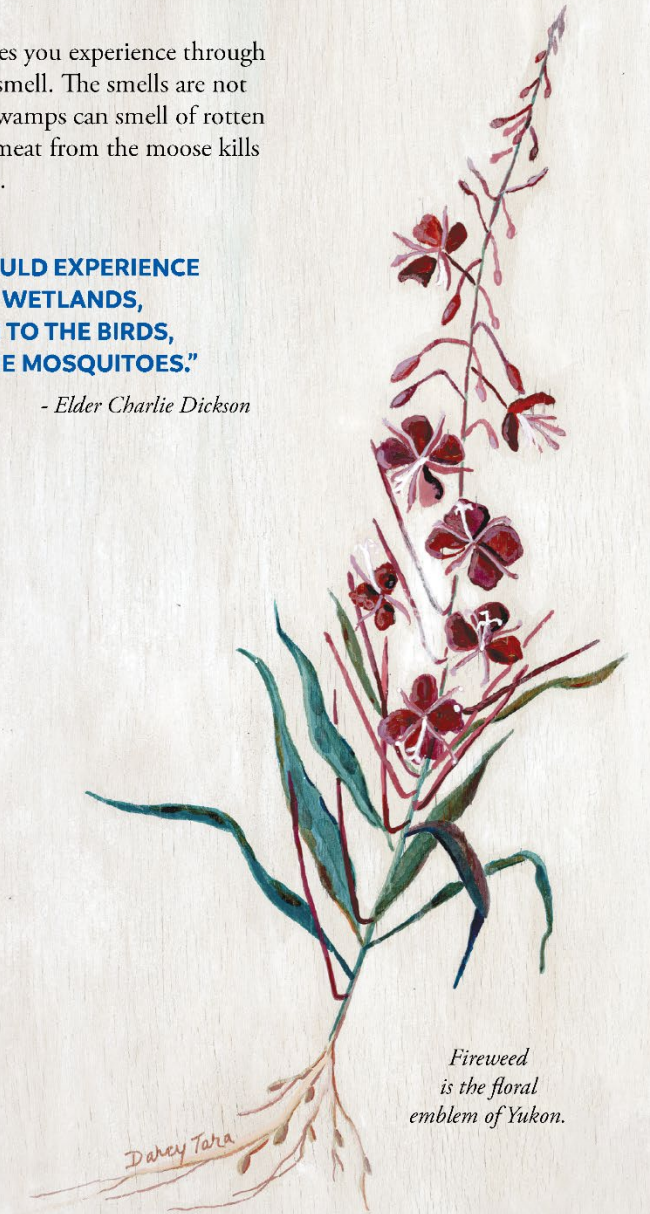
Yukon Field Guide

Wetlands are places you experience through sight, sound and smell. The smells are not always pleasant, swamps can smell of rotten eggs or of rotten meat from the moose kills of bears or wolves.

Regardless,

"WE SHOULD EXPERIENCE THE WETLANDS, LISTEN TO THE BIRDS, EVEN THE MOSQUITOES."

- Elder Charlie Dickson



Fireweed is the floral emblem of Yukon.

Darcy Tara

Fireweed on Birch Bark by Darcy McDiarmid.

Darcy McDiarmid is a Han and Northern Tutchone artist from the crow clan. Darcy draws inspiration from nature, trying to capture the pristine beauty of our natural world. She believes in honouring her ancestors by devoting her art to heritage and culture and the reclamation of traditional practices.



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Case Study 3: Get Outside

- Limit classroom time wherever possible
- A natural backdrop can open the conversation
- Focus on exploration and discussion over instruction

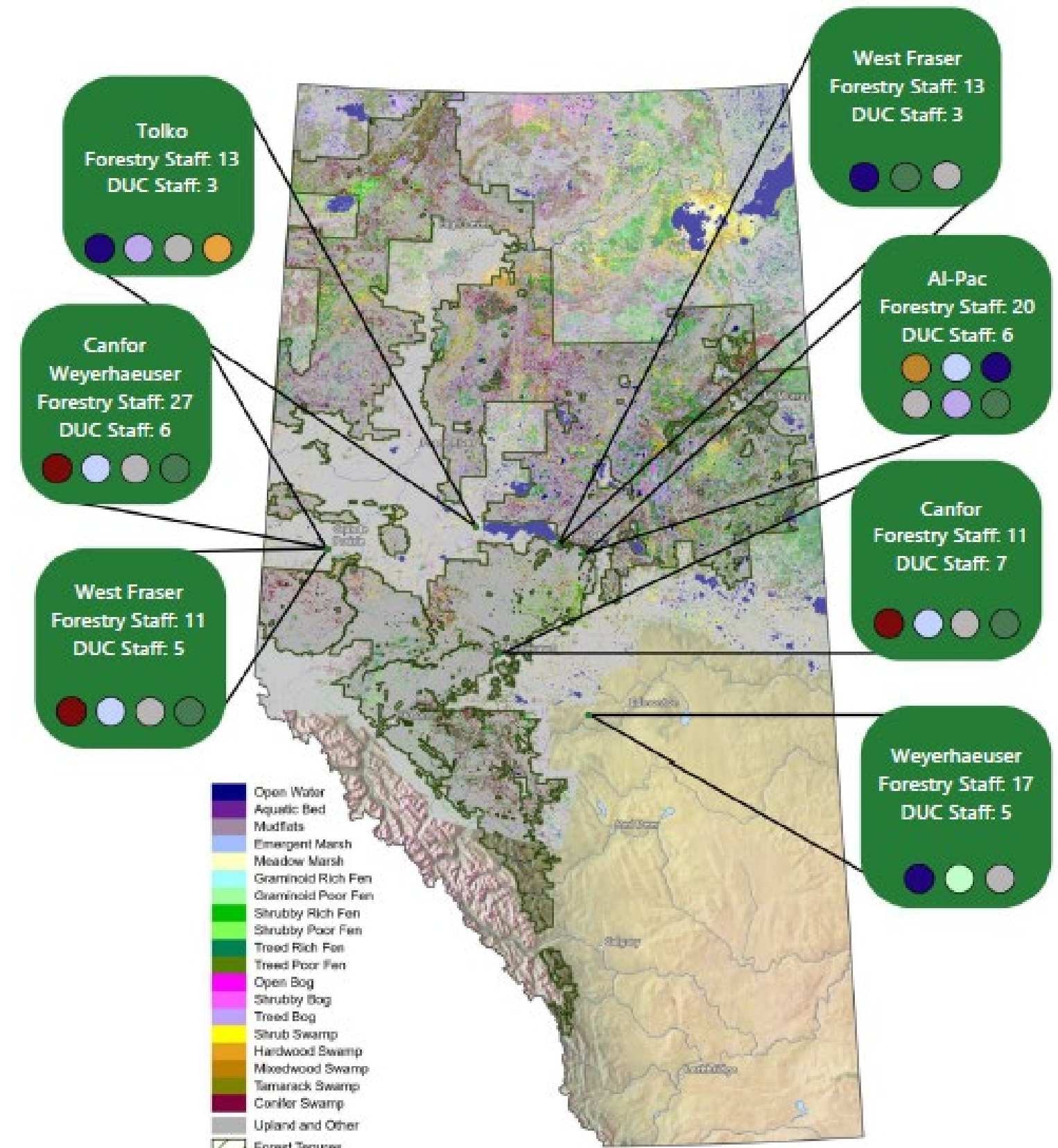


Wetland Practitioner Training

Online, classroom and field-based wetlands training with industry, government, and consultants

- Focus on two-way knowledge transfer.
- Trainings tailored to industry specific operations .

Example: Forest and Wetland Management Stewardship Initiative Wetlands and Waterfowl Workshops



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Lessons Learned

- Meet groups where they're at: physically and knowledge-wise.
- Ask lots of questions and listen, listen, listen.
- Be open to new terms, ideas and values.
- Provide accessible resources for continued support and learning, especially on the land, wherever possible.





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Questions?

Contact:
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Interested in our
resources?

Visit: www.boreal.ducks.ca