

Fen Complex

Fens

Fens are peatlands with deep organic (peat) deposits (>40 cm) and are influenced by slow, lateral water movement. Water sources have been in contact with nutrient-rich surface and/or groundwater making fens more productive and biologically diverse than bogs. Fens can be treed, shrubby or open. Often referred to as “muskeg,” fens are the most extensive wetlands in the western boreal forest.

Ecological Benefits

- * Known as the “green rivers” of the boreal, fens transport large volumes of water and nutrients across the landscape; help to regulate water flow
- * Help prevent downstream flooding by absorbing precipitation and run-off
- * Due to deep organic deposits, fens store large amounts of carbon and help to moderate climate change
- * Provide important habitat for the threatened woodland caribou

Types of Fens

- * *Treed fens*: Sparsely vegetated and stunted (<10 m) tamarack, sometimes mixed with black spruce, shrubs, sedges and mosses
- * *Shrubby fens*: sparse to medium density; short (<2 m) shrubs (e.g. bog birch and willow) mixed with sedges and mosses
- * *Graminoid (open) fens*: dominated with sedges, mosses and herbs (e.g. buckbean) often interspersed with open water



Treed Fen



Shrubby Fen



Graminoid Fen



Patterned Fen complex with
treed, shrubby and open
graminoid components

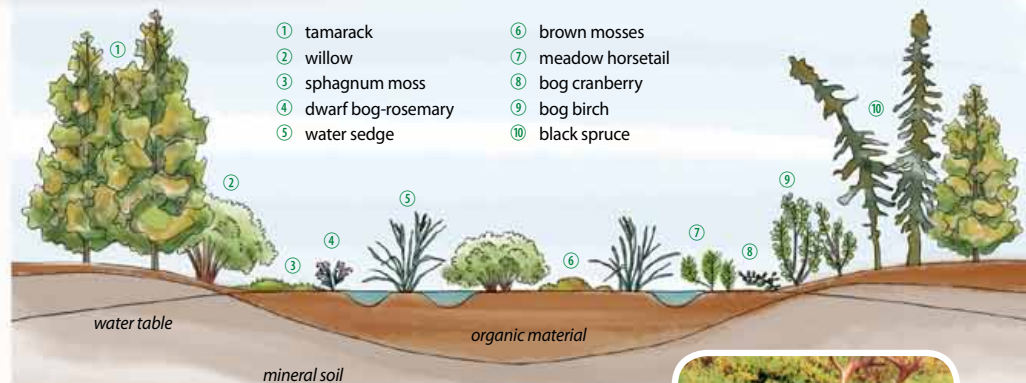
Identifying Characteristics

Vegetation

- * Plant species reflect nutrient and moisture gradients
- * The plant communities of nutrient-poor fens more closely resemble those of bogs, while rich fens have more diverse and robust vegetation
- * **Treed Fens:**
 - trees (<10 m) make up 25-60% of surface area
 - dominated by tamarack although black spruce can occur
- * **Shrubby Fens:**
 - shrubs (<2 m) dominate (>25%) with less than 25% tree cover
 - common species are bog birch, willow and sweet gale
- * **Graminoid (open) fens:**
 - dominated by sedges, mosses and buckbean

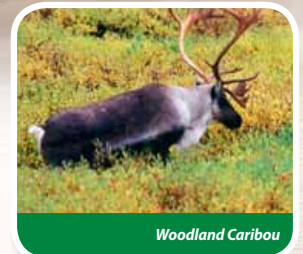
Hydrology

- * Complex hydrology with surface, sub-surface and groundwater interactions
- * High water table (at or slightly below the surface) with lateral water flow often connecting wetland systems over vast distances



Soil

- * Deep peat deposits (>40 cm)
- * Similar to bogs but with greater composition of sedge peat
- * Decomposition is slow due to the wet, cool, anoxic (oxygen-deprived) environment, resulting in the accumulation of deep organic deposits
- * Depending on water sources and nutrient availability, fens can be either nutrient rich or nutrient poor
- * Two distinct layers (*right*):
 - *Acrotem*: the living layer, top 30-50 cm
 - *Catotelm*: the lower, non-living layer



Resources

- * Ducks Unlimited Canada Natural Values Fact Sheet Series (ducks.ca/naturalvalues)
- * Field Guide to the Wetlands of the Boreal Plains Ecozone of Canada (ducks.ca/boreal-field-guide)
- * Ducks Unlimited Canada Western Boreal Program (borealforest.ca)

