RESTORATION OF BIG MEADOW BOG AND RECOVERY OF THE ENDANGERED EASTERN MOUNTAIN AVENS

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Abstract

Peatlands are complex and dynamic. They are home to a specialist community of animals and plants that function in a highly nutrient impoverished ecosystem. Intact, these ecosystems play a major biogeochemical role as they purify waters and can serve as a sink for atmospheric carbon dioxide. The 80 hectare Big Meadow Bog complex was ditched in 1958 in a failed agricultural enterprise that was abandoned shortly thereafter. Residents of the village of Westport, Brier Island, recall how prior to ditching, the bog’s berries and waterfowl were a part of village life, but invasion of a dense undergrowth post-ditching has reduced access and community use dramatically. Conservation biologists recognize the importance of Big Meadow Bog as the principal habitat of the globally imperiled species, eastern mountain avens (Geum peckii), which is currently in population decline. As part of a broad collaboration between academia, NGO, private industry and government scientists, we are in the third year of pre-restoration data collection in preparation for physical restructuring of ditches and outflow channels that will return a more historic hydrology to the Big Meadow starting in 2016. With this poster, we present preliminary efforts to understand the present condition of this unique bog ecosystem, restoration goals and plans for restoring historic function and rejuvenating populations of Geum peckii in coming years.

Big Meadow Bog Fun Facts

- 80 ha swamp-fen bog complex
- Undertaken by North Mountain Tract Inc. (1958)
- Drains to Grand Passage in NS and to Gulf of Maine via SW!
- Historically a cranberry bog, now severely degraded
- 6-10 m above sea level
- Most important habitat for Geum peckii in Canada (first record in 1946)

Geum peckii Status

- G2 Imperiled – high extinction risk
- Federally Endangered
- Provincially Endangered (S1)
- Restricted range, few populations, high habitat loss, steep decline in population (?)

Some Suspicious Characters

John Drage, Garth Kennedy, Sherman Boates – NCC\textsuperscript{2} • Jonathan Price of U. Waterloo, Craig Smith – MCC, Nick Hill – Fernhill Institute

Rewetting the Bog – Peat Dams

Planned Restoration Actions (2016-17)

- Ditch Barriers
- Re-profiling
- Moss Inoculation
- Woody Vegetation
- Ditch Edges

Other Baseline Studies

- Bird Community Distribution
- Hydrology and Hydrologic modeling
- Water Quality – Surface and Groundwater
- Mercury
- Nutrients
- GHG Balance
- Geum Physiology
- Paleocology/Ecological History
- Community attitudes

Key Factors?

- Transplant Studies
- Groundwater
- Level
- Restoration
- Temperature
- Advance slope
- Aspect
- Island geography
- Shading
- Plant Community
- Sphagnum cover
- Shrubs
- Ground shading

Ditch Re-profiling

Performance Goals

- Return pre-disturbance wetland complex
- Historic hydrology
- Geum populations
- Carbon release
- Return open expanse

Proposed Bogwalk

Many Thanks to the Community of Westport!