

## The Wainfleet Bog Is in Your Backyard: Understanding the Total Influencing Physical and Cultural Factors to Ensure Successful and Appropriate Site Rehabilitation and Protection

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### Abstract

*With the majority of southern Ontario's largest, "least disturbed" bog now under public ownership, management of the Wainfleet Bog has focused on gathering baseline data to understand the existing ecosystem and to steer rehabilitation and management decisions for the site. Led by the Niagara Peninsula Conservation Authority work is being done to accumulate baseline information on site hydrology, vegetation and fauna. Combined with the area's existing land use patterns and social/historical community ties, these details are providing restoration options and monitoring for restoration modifications. Site data is therefore assisting us to meet our management goals. The key is an environmentally and socially acceptable solution with the challenge of timeframes and costs.*

*Baseline information is critical in highlighting the Wainfleet Bog's ecological and cultural functions and influences and the feasibility of restoring the bog. Specific plant communities and individual species indicate existing site functions and past occurrences. As the vegetative communities reflect the amount of water and minerals in the soil, the state of the bog's health and rate of recovery can be determined. Knowledge of the hardwood edge forest cover along with other dominant vegetative communities of *Eriophorum virginicum*, brambles, *Vaccinium* spp., *Aronia melanocarp*, *Sphagnum*, *Chamaedaphne calyculata* and *Ledum groenlandicum*, assists in determining the hydrological situation of fluctuating and/or desired constant water levels as well as the rate of vegetative succession to its climax as a woodlot. As assessed through field inventories, the vegetative communities and their variance reflect the bogs' ability and extent of recovery.*

*Similarly, animal species indicate the role and site occurrences of the bog over time. Through site assessments of mammals, butterflies, amphibians and reptile species, the presence of species and their comparison to past species occurrences will indicate habitat requirements and its change over time. A limited number of small mammal species and the types of frogs, toads, salamanders and reptiles such as snakes and turtles will determine the state of the wetland and its succession to a terrestrial community. Rarer, less opportunistic species of snakes and turtles will also be identified to provide further weight in the site's restoration requirements of vegetation, water and food supply for a stronger ecosystem. As a result, animal species*

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\* This paper arises from a poster paper at the 1999 Annual Meeting at the Parks Research Forum of Ontario.

are used to indicate the state of the wetland and its evolution of time, as well as, delineate the habitat needs for restoration of the bog.

Settlement on the landscape also influences the bog's role and enhancement. To determine this relationship, the volume, flow and direction of old peat extract drains and municipal drains are being assessed for land drainage and their role in retaining water in the bog. Similarly, the establishment and monitoring of a network of piezometer and deep wells in and around the bog will assist in recognizing water source connections with any local perched and/or regional groundwater tables. Existing land use drainage requirements are also assessed for the peat and aggregate extraction and agriculture in the area. Data on the hydrological source and land use extraction therefore is necessary to assess the existing situation and influences and determine the remedial measures to provide a healthier bog ecosystem.

These baseline plant, animal and hydrology data will result in the most effective, cost-efficient restoration of the Wainfleet Bog possible within the human-developing landscape. The plants and animals will indicate what is able to survive, what needs further habitat assistance, the negative influences of human impacts, and the limits of water loss from drainage. When combined, these components will identify the critical constraints of restoration and the extent of internal drainage blocking necessary to main high water levels to support sphagnum bog growth in the previously extracted areas of the bog. Consequently, by understanding the physical and cultural aspects influencing the bog a design for successful rehabilitation of the bog can be achieved.