

**Fauna Assessment and Additional Ecological Characterization Observations of a Wetland  
found on PID 05297122, North Street, Middleton, Nova Scotia**

**John Wile, Wetland Consultant, October 11, 2011**

**Introduction**

On October 7, 2011 a site visit was made to a wetland complex associated with PID 05297122, located on North Street, Middleton, Annapolis County, Nova Scotia. The purpose of the site visit was to determine what fauna wildlife communities may be impacted by a proposed development on the property as an expansion to the existing adjacent "Heart of the Valley Long Term Health Care Centre". As well, observations relating to the Ecological Characterization of the wetland were made intended to supplement the 2008 Wetland Alteration Study completed by Jacques Whitford in 2008.

This report provides a review of the results of the Atlantic Canada Conservation Data Centre (ACDC) 100 km radius search, as it relates to the less common vertebrate fauna that might use the wetland habitats described here. It also describes the observed and expected use by more common vertebrate wildlife species, based on the October 7, 2011 site visit, other data sources and the general knowledge of the consultant in understanding wildlife use of similar habitats.

**Physical and Hydrological Features**

The October 7, 2011 site visit followed 3 days of extremely heavy rain resulting in the wetland containing in excess of .5 m of water in low lying areas. However, it is unlikely that permanent open shallow water areas exist under normal weather conditions, except in a few places associated with human disturbance such as along the abandoned railway / trail. While the wetland does appear to contain bog characteristics, as suggested by the Jacques Whitford assessment, the accumulated peat layer is not excessive. High water table and poor drainage result in a moist soil regime conducive to wetland development.

There is no defined watercourse leading into the wetland, however on October 7, 2011 after the heavy rain events of the previous days, surface water was observed leaving the wetland through a culvert in the railway / trail, flowing south by a ditch to an underground storm drainage system. It is possible that the railway bed and slightly perched culvert may play some role in maintaining moisture / water levels in the wetland.

This wetland was once a part of a larger one that was altered in order to build a long term health care facility. PID 05297122, containing the remaining portion of the wetland, is 2 ha (4.99 acres) in surface area, but the wetland section does not occupy the entire property.

## **Ecosystem Features**

The 2008 Jacques Whitford assessment refers to the wetland as bog, but the organic peat accumulation that partially defines a bog is not excessive. This may indicate the wetland to be in a relatively young stage of bog development. Slight topography changes within the wetland result in shrub or tree communities growing in shallow organics over mineral soil, suggesting that the wetland contains the characteristics of both treed and shrub swamp. Near the railway / trail line there are areas of shallow marsh containing only herbaceous plants, indicating permanent surface water or moist soil conditions. These shallow marsh areas may actually be remnants of former excavated ditches created during the construction of the railway bed.

The wetland is found within the Annapolis Valley Natural Landscape # 2. Most of this landscape has been altered over time for agricultural production, but this specific area north of Middleton contains a fairly large block of forest land. The treed swamp then is connected to this larger forest block and therefore may be used by terrestrial fauna as a part of a larger habitat range.

## **Observed and Expected Use of the Wetland Habitats by Vertebrate Wildlife**

Birds: Several species of breeding forest song birds would be expected to use the wetland, especially those that prefer shrub swamp areas, such as the *Common Yellowthroat*. Due to a lack of permanent shallow or deep marsh conditions, it is unlikely that waterfowl, shorebirds or other water birds would be found here. Raptors may use the area as a part of a larger hunting territory. Birds observed during the Oct. 7, 2011 site visit were: *Black-capped Chickadee* (6), *Cedar Waxwing* (5), *Northern Flicker* (2), *American Robin*(3), *Blue Jay* (3), *Hermit Thrush* (1).

Mammals: *Raccoon*, *Coyote*, *Snowshoe Hare* and *White-tailed Deer* sign was observed in or near the wetland. Aquatic or semi-aquatic mammals such as *Beaver*, *muskrat* and *mink* would not be expected to use this type of wetland habitat which lacks permanent surface water.

Amphibians and Reptiles: No amphibians or reptiles were observed on the October 7, site visit, but species such as *American Toads*, *Spring Peepers* and *Wood Frogs* would be expected to use the wetlands vernal pools as spring breeding habitat.

Fish: Fish habitat is not present in this wetland.

Further discussion on vertebrate species observations is included below in a review of the ACCDC data base.

## **Ecological Function and Value**

Jacques Whitford completed an assessment of the wetland's ecological function and value in their 2008 report. To support and or add to this assessment, the following is based on an outline for an assessment adapted from Wisconsin Rapid Assessment Methodology. Functions such as hydrology (ground water recharge, flood control, sediment settlement), biochemical

recycling (nutrient transformation), habitat (biological productivity and diversity) and climate (carbon fixing, humidity and micro climate control) were considered by using a check-list outline while on site on October 7, 2011. This is not an attempt to quantify ecological functions and values, but rather to consider each of the important ecological functions wetlands provide and draw a general conclusion relative to other wetlands. It is concluded that considering this wetland's size, connectivity, habitat diversity, and location within the ecological landscape, it has low to moderate ecological function. It has low to moderate ecological value in its potential to filter and trap sediment and nutrients, control flooding, recharge groundwater and sequester carbon.

### **Review of the ACCDC information:**

The Atlantic Canada Conservation Data Centre's 100 km radius search of the wetlands revealed 1362 faunal records of 87 vertebrate species. The ACCDC records are of the less common species either with COSEWIC or Provincial listing or with a provincial "S" rank of 3 or less. The 100 km search included many natural landscapes dissimilar to this including marine and coastal habitats associated with the Atlantic Ocean, the Bay of Fundy and remote inland wilderness areas. As a result, many of the species recorded in the data base search would not be expected to be found in the subject area. In addition to habitat preferences, the possibility of any particular species listed in the ACCDC search being present in these wetlands or associated habitats is based to some extent on the number of observations for that species and the distance they are from the subject wetland.

31 vertebrate species are listed by COSEWIC as endangered (6), threatened (11), species of concern (4) or not at risk (10). 12 have Provincial listings - endangered (10), threatened (1) and vulnerable (1). For this particular ACCDC study site search, 10 species with endangered, vulnerable, threatened, or at risk status have both COSEWIC and Provincial Ranking. The ACCDC report notes that the *Wood Turtle* is identified as being potentially present and the *Pergerine Falcon* being present in the study area.

The species list generated through the ACCDC is further broken into the following major vertebrate fauna groups for discussion as to their relevance to this particular wetland.

Birds: 61 bird species are recorded, many of the coastal sea birds have other habitat preferences and therefore would not be seen here. The water bird observations of species such as rails and coots and the less common waterfowl species including *Northern Pintail* and *Northern Shoveller* are likely coming from the nearby nutrient rich managed wetlands found at Belleisle Marsh. *Peregrine Falcon* were observed 21 times within 22 km but either would be a rare sighting here and would depend upon the wetland for survival. None of the owl species would be expected to be dependent on this type wetland, but may include it as a part of their hunting territory. The *Rusty Blackbird* is listed and observed 82 times as close as 5 km. It prefers to nest in dense wooded swamps and so could chose this wetland as nesting habitat. Rusty Blackbirds are however often driven away from breeding habitat by competing *Common*

*Grackles*, especially in urban settings such as this where the Grackles are abundant. Some of the ACCDC observations of *Rusty Blackbirds* are likely of migrating, not breeding birds.

Mammals: 16 mammal species came up in the data search: *Canada Lynx*, *Southern Flying Squirrel*, *Gray Wolf (?)*, *Woodland Caribou (?)* *Moose*, *Silver-haired Bat*, *Fisher*, *Long-tailed Shrew*, *Eastern Pipistrelle*, *Fisher*, *Northern Long-eared Bat*, *Red Bat*, *Hoary Bat*, *Southern Bog Lemming*, *Maritime Shrew*, and *American Martin*. None of the listed large or wide ranging species of terrestrial mammals, except for the *Fisher*, were observed close to the wetland and it is reasonable to assume that none would be likely to be seen there and certainly not depend upon it for its life cycle requirements. *Fisher* are known to exist on the nearby North Mountain, but would not be expected to be found here in this wetland on the Valley floor. None of the bat and small mammal species listed have been recorded closer than 50km to the area and would not be expected to be seen here. Some of the bat species may be seen during migration, but would not be wetland dependent.

Fish: Atlantic Salmon (inner Bay of Fundy population), *Atlantic Whitefish*, *Atlantic Sturgeon*, *Stripped Bass*, and *Atlantic Salmon* are listed in the data search, but none would be present in this environment.

#### Reptiles and Amphibians:

There have been 29 sightings of The *Wood Turtle*, as close as 5 km or so of this area. Normally found in large river floodplain habitats such as the nearby Annapolis River, they do migrate up smaller streams in summer. This possibility is further reduced in this situation because there is no connecting stream. The Four-toed Salamander has been observed 18 times as close as 21 km of the wetland. These salamanders prefer fen conditions as breeding habitat which does not exist here.

#### **References:**

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**Consultant's background:** John Wile is a wildlife biologist under contract doing conservation biology and as a consultant dealing with environmental impact assessments with a focus on wetlands and vertebrate fauna. John has an undergraduate degree in biology from Acadia University and has worked extensively in the Atlantic Provinces as a wetland / waterfowl biologist with Ducks Unlimited Canada. Contact information: phone 902 667 4268 e-mail: wile2@eastlink.ca

**Habitat Images:** (October 7, 2011)



Treed and Shrub Swamp wetland types found within the wetland complex



Fruit bearing shrubs such as the *Holly (Ilex sp.)* found in the wetland provide late fall foraging opportunities for birds





Culvert through railway trail removing excess surface water from the wetland and into a storm drainage system



Small area of shallow marsh found along railway / trail