

Wildlife Habitat Evaluation  
Plum Spring Natural Gas Pipeline  
Amherst, MA

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For NRC 581 at UMass Amherst  
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## Introduction

The following wildlife habitat evaluation was conducted at the request of Eversource Western Massachusetts as part of a comprehensive proposal for the installation of a 36" natural gas pipeline and 100' wide work area through protected wetlands to be presented to the Town of Amherst Conservation Commission in accordance with the Wetlands Protection Act (310 CMR 10.60). Completion of the project will require dedicated space for a central pipe trench (with a depth of at least six feet), a spoil pile, and two side-boom tractors. The client expects the complete destruction of all vegetation within the 100' work area and a complete loss of existing microtopography. **A complete site restoration** will be completed concluding the conclusion of the project to ensure the loss of important wildlife habitat functions to the minimum extent possible. The proposed site within the conservation area presently includes **three** distinct habitat areas including: **#1. cattail marsh** at eastern end of the stream channel, **#2. an area of open water** bounded by **tussock sedge** further up the stream channel, and **#3. a red maple swamp** at the western end of the stream channel.

Methods for this assessment involved an extensive visual survey of the site on **April 29<sup>th</sup>, 2022** with combined observations from five investigative groups pertaining to the same three identified resource areas. Groups collected data in accordance with Appendix B of the state DEP's publication "Massachusetts Wildlife Protection Guidance for Inland Wetlands," including identification of Cowardin classification and hydrology regime, completion of plant and soil inventories for each assessment area, and identification of important wildlife habitat features.

A summary of results for all assessment areas specify the widespread importance of restoring aspects of site-specific microtopography including **hummocks** and **pools** that provide important basking area and shelter for amphibian wildlife, the replacement of existing woody debris for turtles and snakes, installation of new perching areas and replanting trees for returning bird populations, dense herbaceous vegetation for ground nesting species, restoration of hydrology (especially the existing stream channel), and the removal and extended monitoring of harmful invasive species such as Multiflora Rose.

## Important Habitat Characteristics

1. Wildlife Food Plants
  - a. Berry bushes (>15)
    - i. Several (>5) **winterberry** shrubs, as well as invasive (<1) **raspberry** shrubs, were identified in the second and third assessment areas, providing an important food source for **birds** and **mammals**.
  - b. Cattails + Bullrushes (> 100)
    - i. The emergent marsh that composes much of the first assessment area and some of the second contains several dozen bullrushes and cattails, with more likely to display over the course of the growing season. These species are an important food source for **insects, geese, muskrats, and beavers**.
  - c. Skunk Cabbage (> 100)
    - i. Skunk cabbage is plentiful in the third assessment area and may be an important food source early in the growing season for **wood ducks** and **black bears**, before other forms of vegetation emerge.
2. Dense Herbaceous Cover
  - a. Thick ground cover including **skunk cabbage** (>100) and various species of **ferns** (>10) compose much of the ground cover in the second and third assessment areas and provide important shelter habitat for small **amphibians** including multiple species of **salamanders, frogs, and turtles**, as well as important nesting habitat for ground-nesting species such as **veeries**.
3. Shrub Thickets with Abundant Earthworms
  - a. Thick saturated mucky soils such with dense shrub thickets as those that compose much of the third assessment area provide important **foraging habitat** for **woodcocks**, who may be attracted to the area due to the proximity of a nearby **open field**.
4. Piles of Woody Debris on Bank and Above Water's Surface (>12).
  - a. Piles of and small woody debris adjacent to open water is present along much of the channel in the second and third assessment areas. Such features make for important basking habitat for **turtles** and **snakes**.
  - b. Woody debris is used by **green herons** for catching aquatic prey near the water's surface.
  - c. **Beavers** make use of woody debris for building dams.
  - d. **Spotted turtles, wood turtles, and ribbon snakes** may use woody cover for **shelter, basking habitat, and over-wintering**.
5. Standing vegetation overhanging water offering good visibility of open water
  - a. **Large tree containing sizable cavities** (>18") such as the one present on the island portion of the second assessment area are desirable habitat for various species of **woodpeckers**, as well as water fowl including **wood ducks** and **hooded mergansers**.
  - b. The many **red maple saplings** (>25) above the emergent marsh in the first assessment area make for important **perching** and **nesting** habitat for

**kingfishers and flycatchers**, as well as for surveying open water as a means of **foraging**.

6. Standing water present at least part of the growing season
  - a. High Water Levels
    - i. The **high water levels** (approx. 3 ft) surrounding the tussock sedge in the second area provides important habitat for **four-toed salamanders**.
    - ii. The **persistent emergent cattail marsh** in the first assessment area provides important feeding habitat for waterfowl such as **wood ducks, mallards, herons, coots, red-winged blackbirds, swamp sparrows, marsh wrens, bitterns, and moorhens**.
7. Hummock + Pool Microtopography
  - a. **Hummock Microtopography** beneath the water's surface provide important topographic structure for **tussock sedge** and **emergent red maple**, which provide their own important habitat characteristics.
  - b. **Groundwater seepage** such as those present near the spring present in the third assessment area provide important basking area for amphibians such as  **dusky salamanders**.
  - c. **Pools** created by **tree** and **sedge hummocks** make for important **rehydration habitat** for **bullfrogs** and **spring peepers** as well as **breeding habitat** for water thrushes.
8. Sphagnum-Covered Tussock Sedge
  - a. A segment of the stream channel with >20 sedge hummocks, mostly covered in sphagnum-moss that hang in the second assessment area, makes for important **nesting and breeding** habitat for four-toed salamanders. The area also provides **basking habitat** for **basking turtles** and **ribbon snakes**.
9. Beaver Dams
  - a. A constructed **beaver den** in the second assessment area as well as a smaller **beaver dam** that separates the first and second assessment areas were identified on the site. A **beaver-deceiver** maintains **connectivity** between the two assessment areas, another important habitat characteristic.

## Recommendations

1. **Installation and maintenance of twenty-four nesting boxes and perch poles** throughout assessment areas #1 and #2 for use by small blackbirds, sparrows, flycatchers, herons, and ducks to replace destroyed emergent woody vegetation used for nesting and foraging.
2. **Complete removal of invasive species** including **Multiflora Roses** to be followed by frequent monitoring (at least once monthly) with bi-annual reports to be delivered to the Town of Amherst Conservation Commission for at least **six years** following completion of construction.
3. **Introduction of sixteen native blueberry shrubs** to replace destroyed wildlife food sources in second and third assessment areas.

4. **Complete microtopography survey and restoration at a scale of 6"** to preserve important hummock-and-pool topography that fulfill important habitat requirements to birds and amphibious wildlife, as well as to ensure the immediate return of destroyed tussock sedge and red maple species that depend on specific hydrogeologic requirements.
5. **Installation of twelve piles woody debris along banks and on ground** using material preserved from initial clearing. Debris should be deposited in all assessment areas **below the former water surface** to provide **structure** for returning vegetation, as well as on banks of areas of open water in the first and second assessment areas in effort to restore **basking, shelter, and foraging habitat** for returning wildlife.
6. **Retain and replace site-specific hydric soils in their original position** in order to reduce impact on returning **vegetation, amphibian basking habitat, and foraging and nesting requirements for woodcocks and veerys.**
7. **Recreation of destroyed stream channel** along its original path through all three assessment areas according to micro topographical survey (~4.5 feet), **maintaining connectivity** through the existing dike between the first and second assessment areas in order to retain existing **high water levels at peak flood season** (~3 feet).
8. **Limit tractor-trailer impact using a push/pull method to preserve important habitat characteristics in the second assessment area.** Features such as the **large tree overhanging open water** and the adjacent **large beaver structure** will not replace themselves within two growing seasons, and also provide important nesting habitat for **wood ducks** and **hooded mergansers**, and various species of **snakes** and **turtles** respectively.
9. Conduct weekly **pre-construction meetings** to review criteria listed in this assessment and generate **bi-weekly construction reports** to be reviewed as needed by the Amherst Conservation Commission.

## Conclusion

The three assessment areas within Plum Springs Conservation Area referred to in this report provide **significant ecological benefit** to the wildlife community in the South Amherst area and completion of the 36" gas pipeline project and associated 100' buffer area will have an immediate detrimental effect on several important wildlife habitat characteristics including habitat used for **nesting and breeding, foraging, and over-wintering**. In order to ensure the least negative impact after two growing seasons, project managers should complete a full restoration of the affected site primarily focusing on **recreation of existing microtopography and hydrology** and **preserving irreplaceable wildlife habitat features**. Restoration should also include the installation of native berry-producing shrubs and artificial bird nesting habitat.