Functional Assessment of Wetlands throughout Dalton, NH

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Report Prepared for:
The Town of Dalton – Dalton Conservation Commission

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Introduction

Several wetlands throughout the Town of Dalton have been identified, inventoried and assessed as part of a three-year region-wide study of wetlands.

In the spring of 2006 North Country Council, Inc. and Watershed to Wildlife, Inc. received a grant from the Upper Connecticut River Mitigation and Enhancement Fund for this three year study. During two recent projects; a four year Vernal Pool Inventory Study funded by the Upper Connecticut river Mitigation and Enhancement Fund, and a Regional Plan for the 51 towns in northern NH, a need to improve comprehensive wetland protection, restoration, buffer improvement, inventory, and assessment has become apparent. Many towns in southern New Hampshire have adopted methods to protect wetlands from development which is occurring at a rapid rate. In the North Country and these selected towns, there are still opportunities for proactive and sustainable management of these resources rather than the more common reactive management.

Watershed to Wildlife, Inc. (WTW) is a natural resource consultant company, with wetland expertise. WTW provides natural resource inventories for municipalities, watershed management plans, wetland identification, assessment, classification, delineating and impact permitting, educational workshops, and wildlife studies. “It is the mission of WTW to is to help maintain the integrity of ecosystems while still achieving land management goals; as well as to promote an understanding of wetland and wildlife ecology, environmental impact, sustainable yield, adaptive management, and short and long range planning.” Both co-owners of WTW are NH Certified Wetland Scientists: Elise Lawson – CWS #233 and John Severance – CWS #240.

WTW has partnered with North Country Council (NCC), a regional planning commission serving 51 regional towns in northern New Hampshire providing services in planning, GIS mapping, and sustainability of natural resources. “It is the mission of NCC to encourage effective community and regional planning for the development of economic opportunity and the conservation of natural, cultural and economic resources. This will be accomplished by providing information, regional advocacy, technical assistance, community education, and direct service to the region, its organizations and political subdivisions.” Christine Walker, a Natural Resources Planner with NCC will assist Dalton with their planning options.

Goal and Objectives

The goal of this project is to provide the Town of Dalton with the ability to work towards protecting or conserving several diverse and critical wetland complexes throughout Town. The objectives are:

1. Equip Dalton to implement a program to adopt ordinances and Prime Wetland designations for protection of wetlands.
2. Provide tools for wetland protection to local Planning Boards, Select Boards, and Conservation Commissions who frequently contend with issues directly affecting wetlands.
3. Increase public awareness and education in relation to the importance of protecting wetlands through workshops and presentations.

This study enables the Town of Dalton, if they choose, to designate Prime Wetlands through methods provided by the State of NH Department of Environmental Services,

Wetlands Bureau. The New Hampshire Code of Administrative Rules sets standards for designating Prime Wetlands, using those wetlands that are worthy of extra protection because of their uniqueness, fragility and/or unspoiled character. Chapter Wt700 of these Administrative Rules set the guidelines for designation as well as the permitting process for impacting of a designated Prime Wetland.

Methodology

Evaluating Existing Digital Data

Existing digital data was analyzed to determine which wetlands were to be evaluated in the field. Data evaluated included:

- 1992, 1998, and 2003 Digital Orthophoto Quadrangles
- United States Geologic Survey Topographic Maps (Digital Raster Graphics)
- Natural Resource Conservation Service (NRCS) soil maps
- U.S. Fish and Wildlife – National Wetland Inventory data
- Wetlands digitized from 2002 and 2005 Natural Resource Inventories conducted by Watershed to Wildlife, Inc.

Using the above data sets wetlands were assessed and ranked in the office to determine whether they should be inventoried further in the field. Several wetlands ranked higher than others, based on examining aerial photographs as well as criteria established in Chapter Wt 700 (Prime Wetlands) of the NH Code of Administrative Rules. Specifically, excerpts from the Rules state the following:

Wt 701.02 Identification of Wetlands for Consideration as Prime.

a. All wetlands greater than 2.0 acres in size in the municipality shall be identified. Wetlands smaller than 2.0 acres may be identified and included in the functional ranking.

Wt 701.04 Selection of Designated Prime Wetlands.

c. In addition to their relative ranking, wetlands designated as prime shall meet the following minimum criteria:
    1. The wetlands shall have the presence of hydric soils, hydrophytic vegetation, and wetlands hydrology; and
    2. At least 50% of the prime wetland shall have Hydric A (very poorly drained) soils and the remaining soils shall be hydric B (poorly drained) soils.

NRCS soils maps were used to identify the outer perimeter borders of continuous hydric soil units (soils that are poorly and very poorly drained). Internal units of non-hydric soil units were broken out in determining wetland acreages, but were included in the inventory and assessment of functionality of the wetland complex as a whole.

Prior to conducting field work, permission was sought from landowners, where their land was posted against trespassing. In two cases, permission to access wetlands on private property was denied. Therefore, ranking of three wetlands in Town could not be done in the field. Investigators respect the rights of landowners and their decision to deny

access to their property. In New Hampshire, the public is allowed to access a private property that is not legally posted. The majority of the wetland complexes were on un-posted land and areas where landowner permission was obtained.

Field Work

Five wetlands identified from the maps were scheduled for field on site assessment. They ranged from 15 to 391 acres in area. Digital photography, global positioning system (GPS) points, soil auguring, and field notes were used to document spatial and attribute data at all sites observed. A Wetland Function – Value Evaluation Form was filled out onsite as a comparative means for each wetland. The matrix allowed for relative and objective comparison between different wetland in Town. Appendix A displays a blank Evaluation Form used at each wetland inventoried and assessed in Dalton. Functional values evaluated included:

1. groundwater recharge/discharge
2. floodflow alteration
3. fish and shellfish habitat
4. sediment/toxicant retention
5. nutrient removal
6. production export
7. sediment/shoreline stabilization
8. wildlife habitat
9. recreation
10. education/scientific value
11. uniqueness/heritage
12. visual quality/aesthetics
13. endangered species habitat
14. forested buffers

Mapping Analysis

Field data was processed as point and polygon data with linked attribute tables and photography using ArcView 3.3. Polygons and points of new coverages were digitized using aerial photography (DOQs), topographic maps, NRCS soil maps, processed GPS points, and field notes.

Analysis of wetland function and value were conducted by following and modifying the *Method for Comparative Evaluation of Nontidal Wetlands in New Hampshire*, March 1991 by Alan P. Ammann and Amanda Lindley Stone. For each wetland inventoried and rated during field work, a Wetland Function – Value Evaluation Form was filled-out. The matrices and ranking in each evaluation form allowed for side-by-side comparison of the wetlands in Dalton. Total Wetland Value Units for a wetland were calculated on these data sheets using average Functional Value.

(Average Functional Value) x (Acre of evaluation area) = Wetland Value Units

Wetland Value Units were compared for each wetland: the higher the number, the higher the wetland ranks within the Town.

Public Workshop Presentation

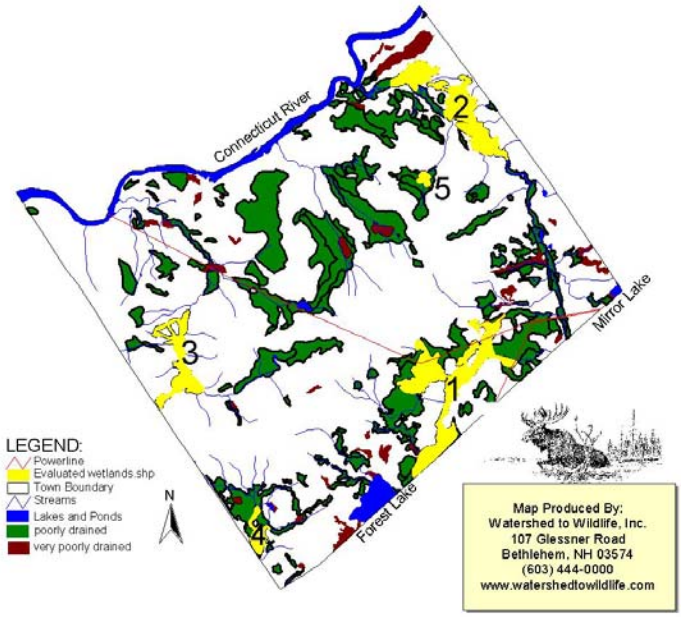
At the completion of the fieldwork and GIS analyses, Watershed to Wildlife, Inc. and North Country Council, Inc. will hold a workshop in Dalton's Town Hall to discuss results of the study and future planning options for the Town. The goal of this meeting was to increase public awareness of the importance of sustainable conservation or protection of some of the Town's wetlands and associated wildlife habitat. In addition, work from this project will be available for public viewing via 8½ by 11 paper handouts as requested through proper venues.

Results

Five wetland complexes were inventoried and ranked in the field after the initial GIS analysis using available data. There are several more wetlands in Dalton, but these were not inventoried for the following reasons:

1. Lack of very poorly drained soil (Hydric A) in the wetland
2. Denied access to private property
3. Size of wetland was under 2 acres

All five wetlands inventoried were large – the smallest being just over 15 acres in size and the largest nearly 400 acres. All contained over 50% very poorly drained soils and had a diversity of wetland types. Below is a map of the wetland areas in Dalton where wetlands were assessed and evaluated. Each wetland is numbered and in yellow.



(Please also refer to larger full-page printout of this map - an attachment at the end of this report)

Simonds Road Wetland Complex (#5)

The Simonds Road Wetland is the smallest of those inventoried and assessed in this study. Because the property is Posted and landowner permission was not granted, field investigations of this wetland were done along the road right-of-way.
This wetland is just over 15 acres and lies halfway along the length of Simonds Road, on the southwest side. Despite being relatively small, it had high assessed values due to active beaver, creating a large pond, diverse wetland edges and undeveloped upland buffer along the sides. During site evaluation, several wildlife species were observed directly (seen) or indirectly (heard or left sign, i.e. scat, tracks, evidence of feeding). The assessed value was 11.75 out of 14 with the total wetland value being 176.84 units. (11.75 x 15.05ac.)

The Simonds Road Wetland Complex has active beaver sign. The standing snags offer excellent perching sites for raptors as well as nesting sites and food for many other birds and mammals.

There are two main soil types. Nearly 8 acres of the Simonds Road Wetland contain the very poorly drained soil Peacham Muck (549A), which is 51% of the wetland delineated for Prime Wetland designation. Peacham soils are found in depressions on uplands and along the edges of streams, lakes, ponds, and marshes. It typically forms in layers of muck up to 16 inches thick, with a hardpan underneath. Pillsbury (647B+C) comprises 49% of the wetland at just over 7 acres.

The table below summarizes the National Wetland Inventory (NWI) data and wetland classification by the U.S. Fish and Wildlife Service (Classification of Wetlands and Deepwater Habitats of the United States, 1979, U.S. Department of the Interior, Fish

and Wildlife Service, Publication No. FWS/OBS-79/31). The wetland classification types were confirmed during field inventory.

NWI wetland code	NWI wetland name
PFO5Eb	Palustrine Forested, trees, seasonally flooded/saturated, impacted by beaver
PEM1E	Palustrine emergent, broad-leaved deciduous, seasonally flooded/saturated
PFO4E	Palustrine forested, needle-leaved evergreen, seasonally flooded/saturated

As confirmed during field work, the area is impacted by beaver activity. A large active lodge and beaver dam were documented. In this wetland, some of the lower ranked items on the functionality form include recreation, education, and scientific value. Although access is excellent along a town-maintained road, the land has been posted against trespassing, and landowner rights should be respected. The open water component of the wetland was adjacent to Simonds Road. This could lead to flooding problems on the road if the beaver dam grew. Other features rated very high (an American bittern was calling from the edge of the pond), but because of its relatively low acreage, this wetland ranked the lowest of the five inventoried during this study. Despite having a relatively lower rank, it is a valuable wetland to many New Hampshire species.

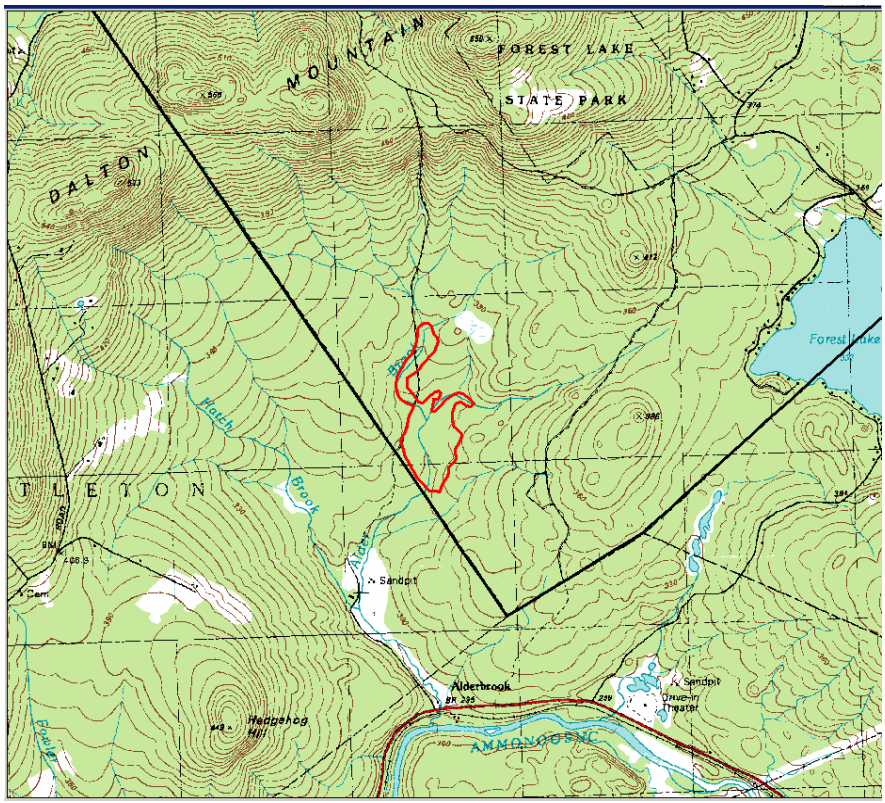
Alder Brook Wetland Complex (#4)

The Alder Brook Wetland complex is the second smallest wetland area inventoried and assessed at 46.05 acres. It is located in the southwestern portion of Dalton. It is accessed off of Route 116 between Littleton and Whitefield by driving through the Alder Brook Shooting Range. The headwaters of Alder brook is Dalton Mountain, it flows through the shooting range property in Littleton, and enters the Ammonoosuc River in Bethlehem. As with many wetlands assessed, it has been impacted by beaver over the past year and has a diversity of wetland types. The average functional rank for this wetland complex was assessed at 11.0 with a total wetland value being 506.55 (11.0 x 46.05). The table below summarizes the NWI data and wetland classification by the U.S. Fish and Wildlife Service.

NWI wetland code	NWI wetland name
PSS1Eb	Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated, and beaver
PUBFb	Palustrine unconsolidated bottom, semipermanently flooded, and diked/impounded

NWI wetland code	NWI wetland name
PSS1/EM1Eb	Palustrine scrub-shrub, broad-leaved deciduous Palustrine emergent, persistent, seasonally flooded/saturated, and beaver
PEM1Eb	Palustrine emergent, persistent, seasonally flooded/saturated, and beaver
PFO4/SS1E	Palustrine forested, needle-leaved evergreen Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated

Nearly 50.5% of the soils are very poorly drained, and the remaining 49.5% are poorly drained hydric soils. The very poorly drained soils include Peacham Muck (549A) and Peacham, Buksport, and Rumney Soils (897A). The poorly drained soils include Lyme (247B) and Moosilauke Loam (415A). The area of poorly drained soils extends beyond the area of the assessed wetland, covering over 200 additional acres of land, but was excluded to meet the NH-DES Prime Wetlands guidelines.



The Alder Brook Wetland Complex has it headwaters on Dalton Mountain, and its confluence with the Ammonoosuc River.

Some of the highest assessments ranked for this wetland type include: a diversity of wildlife habitat (potential for wildlife travel corridor), excellent riparian buffer, high

potential for aquatic species including wild brook trout, and erosion minimization. On the other hand the lower ranked areas include educational value, access, recreation, and scientific value. All of these rankings stem from access to the site. The easiest way to access it is through the Alder Brook Shooting Range, most of which is posted from trespassing for safety reasons.

Cushman Brook Wetland Complex (#3)

The Cushman Brook Wetland complex is 140.9 acres and contains a variety of habitat types including a perennial stream. The headwaters of Cushman Brook are on the Dalton Mountain Range, and it flows north directly into the Connecticut River. The wetland complex inventoried includes Riverine and Palustrine wetland types. It also includes very poorly and poorly drained soils. The table below summarizes the NWI data and wetland classification. The wetland classification types were confirmed during field work.

NWI wetland code	NWI wetland name
PSS1Eb	Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated, and beaver
PUBFh	Palustrine unconsolidated bottom, semipermanently flooded, and diked/impounded
PUBFb	Palustrine unconsolidated bottom, semipermanently flooded, and beaver
PSS1/EM1Eb	Palustrine scrub-shrub, broad-leaved deciduous Palustrine emergent, persistent, seasonally flooded/saturated, and beaver

The “b” modifier at the end of three wetland codes indicates the presence of beaver throughout this wetland. This was documented during field assessment as well. It is important to note that the data derived from National Wetland Inventory is presented at a coarse scale, and generally under-represents the actual size of the wetland. Overall, the observations in the field confirmed wetland classification types. The perennial stream (Cushman Brook) had a cobbly, rocky bottom, and has been impacted by beaver over time, with some active and inactive beaver dams. The most predominant wetland type adjacent to the stream is a scrub-shrub wetland containing a dominance of alder and willow. The scrub-shrub wetlands are wide floodplain areas along Cushman Brook. The wetland boundaries are well defined from aerial photographs and were confirmed during field work.

The riparian buffers were excellent throughout the area and Cushman Brook contains a rocky, cobbly bottom. Wild brook trout were noted during field work in the cool water.

Photos of the Cushman Brook Wetland Complex illustrating scrub-shrub floodplain habitat and excellent riparian buffers.

NRCS soil data was also evaluated and is shown in the table below.

NRCS Soil Symbol	Soil Description	Drainage Class	Acres
895A	Buksport muck	Very poorly drained	0.60
549A	Peacham muck	Very poor drained	60.17
992A	Pondicherry muck	Very poorly drained	17.17
415B	Moosilauke loam	Poorly drained	5.17
647B+C	Pillsbury sandy loam	Poorly drained	58.41
415B	Moosilauke loam	Poorly drained	2.65

Out of a total score of 14, this wetland complex received a score of 7.50. The highest scores were given to the excellent riparian buffer habitat as well as sediment and shoreline stabilization. There has been relatively little impact to the shoreline of this wetland complex with no impervious surfaces adjacent to it. The shaded stream with a rocky and cobbly bottom contains cool enough water to support a wild brook trout population. On the other hand, lower scores were given to uniqueness/heritage,

endangered species habitat, and nutrient removal. This particular wetland complex, was not as diverse as the other wetland areas assessed and ranked in Dalton. The total derived Wetland Value Unit for the Cushman Brook Wetland Complex is 1,056.75 (7.5 x 140.90ac.).

Johns River – Gilead Farm Wetland Complex (#2)

The Johns River – Gilead Farm Wetland Complex is the second largest wetland complex inventoried and assessed in Dalton. It is 303.31 acres in size, part of which lies along the Johns River less than ½ a mile from its confluence into the Connecticut River. It contains a large diversity of wetlands including Riverine, open water, emergent, scrub-shrub, and forested wetlands. The wetland complex contains two large areas of diverse wetlands connected by a narrow strip of the Johns River.

The area is rich with wildlife habitat diversity. During field inventory, signs of several species were documented including song birds, great blue heron, American bittern, beaver, muskrat, moose, deer, fox, coyote, ruffed grouse, snapping turtles, wood frogs, wood peckers, painted turtles, belted king fisher, and cedar waxwings.

The photograph on the left is where turtles laid eggs in the sandy soils of the old rail road bed. On the right, a young snapping turtle is heading towards a small pool, also used by many amphibians for breeding.

The table below lists the wetland classification types from the NWI data. The modifier (E) for all wetland classification types indicates that the area serves as a floodplain for the Johns River. This was confirmed on the aerial photos, topographic maps and during field inventory and assessment of the wetland complex.

NWI wetland code	NWI wetland name
PFO2/4E	Palustrine forested, needle-leaved deciduous/needle-leaved evergreen, seasonally flooded/saturated
PFO4E	Palustrine forested, needle-leaved evergreen, seasonally flooded/saturated
PSS4E	Palustrine scrub-shrub, needle-leaved evergreen, seasonally flooded/saturated
PSS1E	Palustrine scrub-shrub, broad-leaved

NWI wetland code	NWI wetland name
	deciduous, seasonally flooded/saturated
PFO4/SS1E	Palustrine forested, needle-leaved evergreen Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated
PSS1C	Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded
PEM1E	Palustrine emergent, persistent, seasonally flooded/saturated

This wetland complex is unique compared to the others assessed and ranked in that it is almost all composed of very poorly drained soils (90.9%), with relatively little poorly drained soils (9.1%). The three very poorly drained soil units within this wetland complex are Medomak Muck Silt Loam (406A), Wonsqueak Muck (995A), and Bucksport Muck (895A), all of which are on flat landscapes with 0 to 1 percent slope. Of the 303.31 acres, 275.44 acres contain soils containing up to 51 inches of highly decomposed organic material, classifying them as histosols. Vegetation on many areas consists of an overstory of black spruce (*Picea mariana*), white cedar (*Thuja occidentalis*), tamarack (*Larix laricina*), or alders (*Alnus rugosa*) with a ground cover of sphagnum moss. Sedges, grasses and other non-woody plants grow in some areas. Areas of this soil improve and maintain water quality by acting as natural filters to remove chemicals, nutrients, and sediment. They also recharge groundwater aquifers and store runoff water which lessens flood damage downstream.

A large portion of the Johns River Wetland Complex contains forested wetland with American larch, sphagnum moss, and cinnamon fern.

The Johns River – Gilead Farm Wetland Complex contained several beaver ponds, some with active beaver sign. This photograph shows a diversity of wetland types including open water, emergent wetlands, scrub shrub wetlands, and forested wetlands. These soils have a very deep organic layer, rich with nutrients.

The wetland complex is underlain by a large stratified drift aquifer, which follows most of the length of the Johns River floodplain in Dalton. Statified-drift aquifers represent the greatest potential groundwater source for the Town of Dalton. These aquifers represent potential usable water sources for municipal purposes and should be protected to insure their future quality and availability. Wells used by communities and private landowners draw groundwater from aquifers.

Access to the Johns River – Gilead Farm wetland complex can be made along the Johns River itself or via an old railway bed, which is also used as a snow machine trail (shown in the left photograph). The area is very scenic in both panoramic viewsheds, and as picturesque areas on a smaller scale, including blooming blue flag - shown on the right.

As shown in the above photographs, access to these wetlands for recreation, education, and scientific studies is excellent. The Johns River can be kayaked, particularly in the downstream sections near the Connecticut River. An old railroad bed (used as a snow machine trail in the winter), allows for excellent access to a variety of wetland types throughout the length of this complex. In addition, because the railroad bed

is raised, viewing and scenic values of this wetland are excellent. The functional rank was 12.88 out of 14 with a total wetland value being 3,904.19 (12.88 x 303.12ac.).

Chase Bog Brook Wetland Complex (#1)

The fifth and largest wetland complex inventoried and assessed has been inventoried and highlighted by the Town of Dalton in the past. In 2003 to 2004, through funding from the Moose Plate Grant, the Dalton Conservation Commission undertook a detailed inventory of this wetland complex as a whole. It has been called “the jewel of Dalton” by many residents, and is the largest unfragmented wetland complex in Dalton. It is surrounded by a sufficient upland buffer of undeveloped land, with the potential to support unique plant and animal species. The goal of the previous study was to evaluate the uniqueness of this wetland complex by assessing functional values, and to suggest ways to retain that functional value into the future.

To qualify for potential prime wetland ranking, the size of the wetland had to be reduced from the previous study. This was done to keep the ratios of very poorly and poorly drained soils at least 1:1 to qualify under the NH DES Wetlands Bureau guidelines for prime wetland designation. Therefore total acreage inventoried and assessed was 391.32, considerably less than the previous study which included all poorly drained soils and upland islands.

Chase Brook begins just east of Forest Lake in Dalton. It flows northeast for approximately 3.29 miles before entering the Johns River just over the townline in Whitefield. Out of a possible field ranked value of 14, this wetland received an assessed ranking of 13.50, with a total wetland value of 5,282.82 (13.50 x 391.32). As with many of the previous wetlands inventoried, the Chase Bog is heavily impacted by beaver activity. A series of new beaver ponds were documented during this study. These were not seen on aerial photographs or existing mapping data.

A newly created active beaver pond documented on June 16, 2006. Yellow spotted salamander eggs were found in the pond.

Some of the wildlife species (or sign) observed included songs birds, deer, bear, American bittern, beaver, tree frog, wood frogs, turtle, moose, black ducks, broad-winged hawk, great blue heron, belted kingfisher. The area is an excellent wildlife travel corridor with riparian buffer, dense softwood stands, and upland islands. The area also contains very good habitat for fish and shellfish. Several small brook trout were observed during field assessment.

Bird eggs were found in a forested wetland in the Chase Bog Brook Wetland Complex. Ground nesting birds hide their nests in the thick ground cover.

Wetlands classified from the NWI are listed in the following table. There are several types of each of these wetlands scattered throughout the entire complex.

NWI wetland code	NWI wetland name
PFO4E	Palustrine forested, needle-leaved evergreen, seasonally flooded/saturated
PEM1/PSS1Eb	Palustrine emergent, broad-leaved deciduous Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated, beaver
PUBFb	Palustine unconsolidated bottom, Semipermanently flooded
PSS1Eb	Palustrine scrub-shrub, broad-leaved deciduous, seasonally flooded/saturated, beaver
PFO4Eb	Palustrine forested, needle-leaved evergreen, seasonally flooded/saturated, beaver

NWI wetland code	NWI wetland name
PEM1/SS1Fb	Palustrine emergent, broad-leaved deciduous, Palustrine scrub-shrub, broad-leaved deciduous, semipermanently flooded, beaver

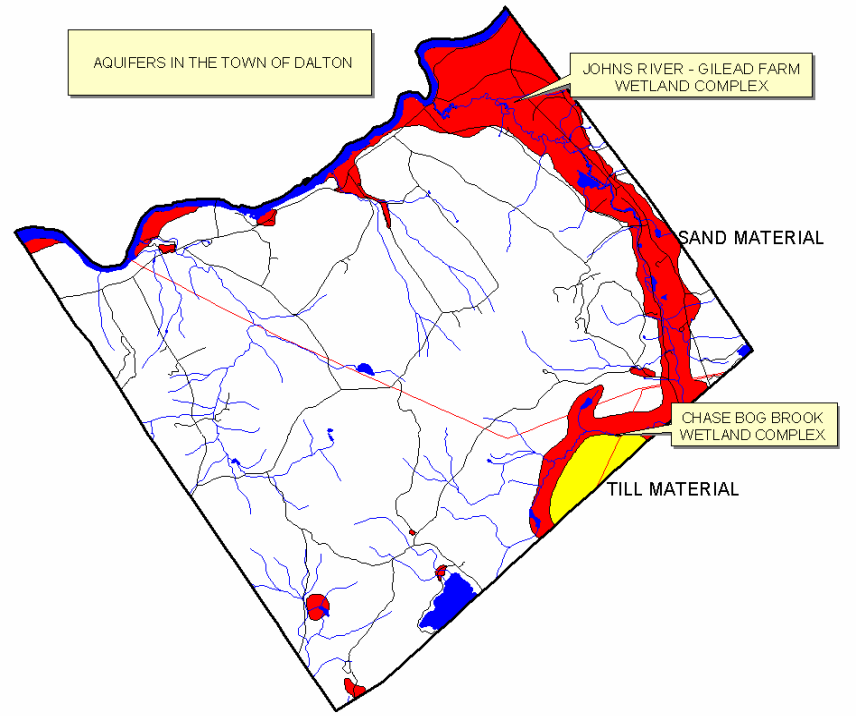
There are many open water ponds and emergent, scrub-shrub, and forested wetlands, and well vegetated upland buffers in all areas of this relatively undisturbed wetland complex. The diversity and associated cover make it an ideal place for many different plant and animal species.

Soil types from the NRCS soil map are listed in the table below.

NRCS Soil Symbol	Soil Description	Drainage Class	Acres
549A	Peacham muck	Very poor drained	64.2
15A	Searsport mucky peat	Very poorly drained	13.41
897A	Peacham, Bucksport, and Rumney soils	Very poorly drained	79.68
895A	Buksport muck	Very poorly drained	36.07
647A	Pillsbury sandy loam	Poorly drained	29.47
415B	Moosilauke loam	Poorly drained	152.25
247B	Lyme fine sandy loam	Poorly drained	16.07

Very poorly drained soils make up 50.5% of the hydric soils in the Chase Bog Brook Wetland Complex, with poorly drained soils calculating to 49.5%. The largest soils unit is Moosilauke loam found in the southwestern portion of the wetland. Moosilauke soils occur in depressions on glacial uplands. The soils are good for softwood growth, particularly red spruce and balsam fir. Areas of Moosilauke help to improve and maintain water quality by acting as natural filters to remove chemicals, nutrients, and sediment. These areas will recharge groundwater aquifers and store runoff water, which lessens flood damage.

The Chase Bog Brook Wetland complex is also part of a large aquifer. Materials are primarily sand, with a till overburden to make up this section of the aquifer. The aquifer along the Chase Bog Brook Wetland complex is connected to the Johns River/Connecticut River aquifer as discussed in the previous section. This large aquifer makes up over 4,462 acres of land in the Town of Dalton –24.65% of the land base in town. Locations of the aquifers in Dalton are shown in the map below.



The few categories that ranked relatively lower on the evaluation form were recreation and educational value. Although the area could offer unique educational potential for students and adults, it is not easy to access. The entire area has no formal trails or roads and is relatively inaccessible. One major concern would be public safety, as people could become lost in this large unfragmented area. Canoeing or kayaking in the downstream portions of Chase Brook is possible, but limited due to poor access locations, numerous obstacles of downed trees across the waterway, and several beaver dams. Over 45 beaver dams were documented in the 2003/4 study, and there are assuredly more that will be built over time as the beaver continue to thrive in this area.

This wetland complex ranked very high in all other categories including scenic viewing. There are several knolls in the area with views over beaver ponds and beyond to Dalton Mountain.

Two views into beaver ponds in different parts of the Chase Bog Brook Wetland Complex. Both areas have active beaver, large ponds and scenic vistas to the surrounding hills. The edge of Dalton Mountain is shown in the distance in the right photograph.

For detailed assessments of the Chase Bog Wetland Complex refer to the 2004 study *The Chase Bog Wetland Complex Inventory, Assessment, and Management Plan: A Comprehensive Study*.

Table summarizing wetlands inventoried and ranked in Dalton, New Hampshire

Wetland Name	Percent very poorly drained soil	Percent poorly drained soil	Functional Value	Number of Acres	Wetland Value Units	Rank
Cushman Brook	55.70	44.30	7.50	140.90	1,056.75	**3**
Johns River – Gilead Farm	90.90	9.10	12.88	303.12	3,904.19	**2**
Chase Bog Brook Wetland	50.50	49.50	13.50	391.32	5,282.82	**1**
Simonds Road Wetland	51.00	49.00	11.75	15.05	176.84	**5**
Alder Brook Wetland	50.49	49.51	11.00	46.05	506.55	**4**

Discussion and Future Applications

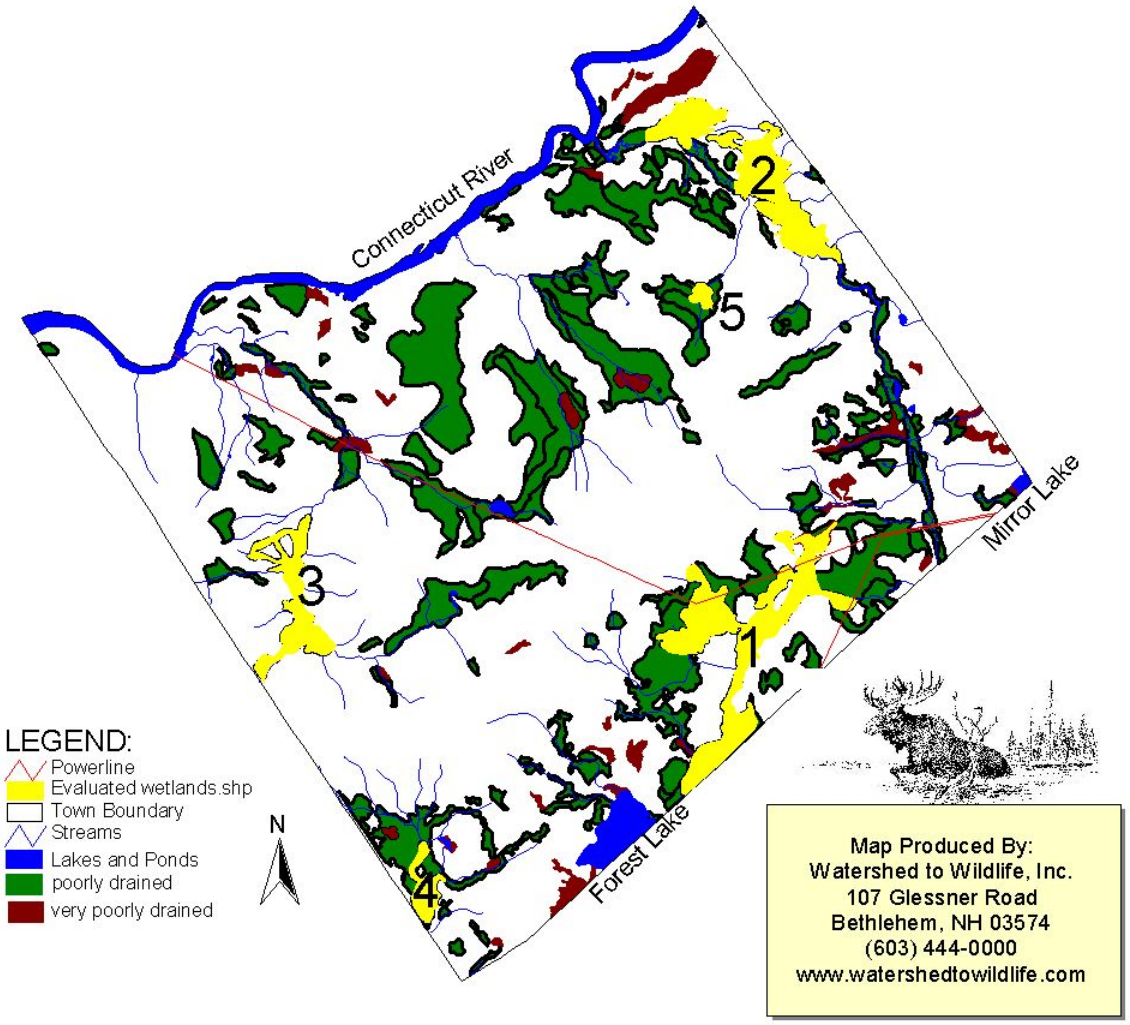
This study was done to equip the Town of Dalton to implement Prime Wetland Designation if residents choose to do so. The project was funded through the Upper Connecticut River Mitigation and Enhancement Fund, and is part of a three year study to assist nine towns in the region to work towards protection of some of their more "valuable" (higher ranked) wetland resources.

It is recommended that Dalton residents considering establishing Prime Wetlands in Town as a means to help protect these areas from developmental pressures. A town vote in favor of this special designation of wetlands is necessary first. If the Town of Dalton decides to proceed with designating Prime Wetlands it must submit a report with appropriate maps to the State of New Hampshire, Department of Environmental Services - Wetlands Bureau. The Wetlands Bureau will review the submission, and grant the designation if the submission is complete. At the time of this report 24 towns in NH have designated prime wetlands: Andover, Barrington, Bow, Brookline, Derry, Enfield, Exeter, Fremont, Gilford, Goffstown, Holderness, Hooksett, Meredith, Newington, Northwood, Nashua, New London, Pelham, Salem, Sanbornton, Sandwich, Tamworth, Weare, and Wolfeboro; none in the North Country.

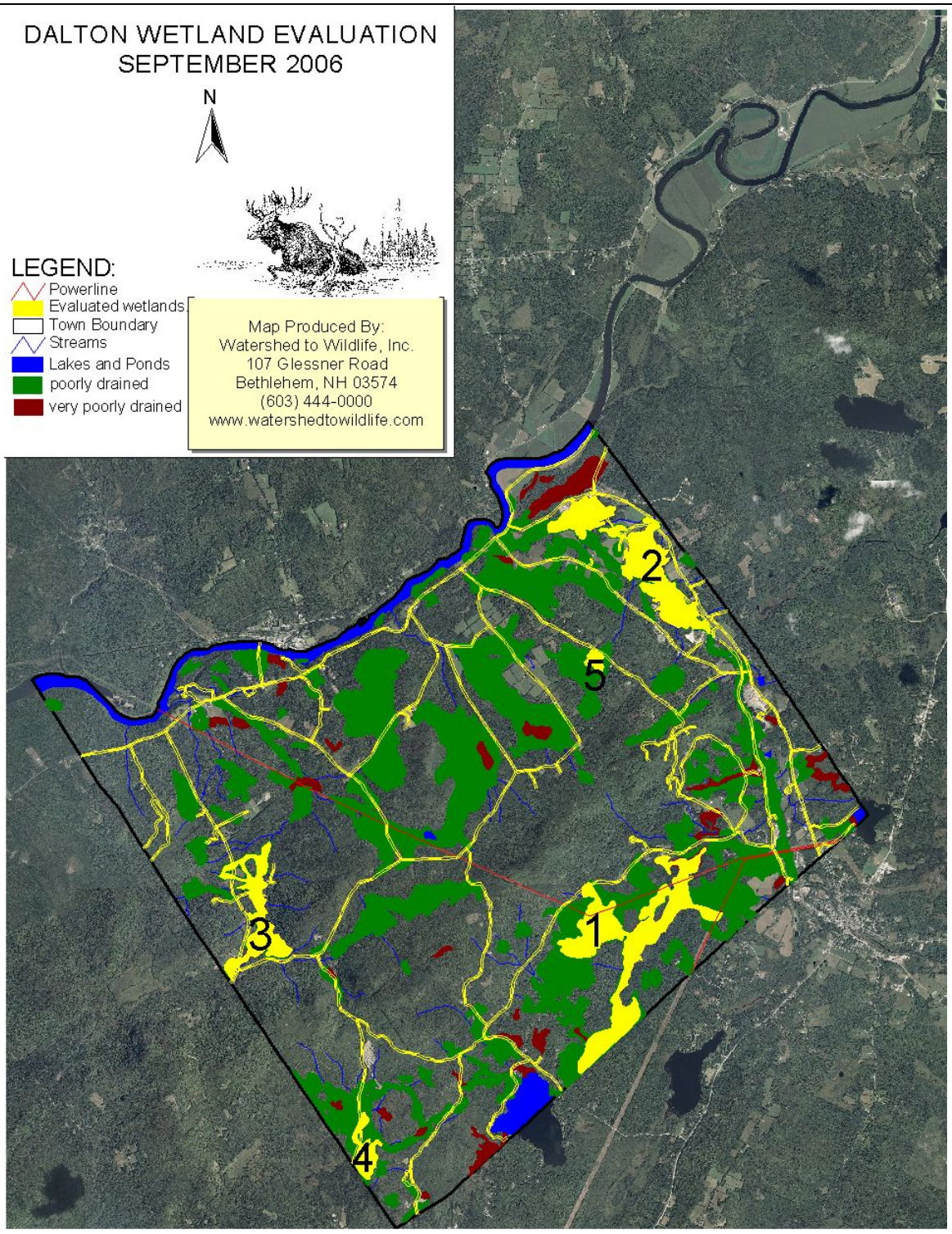
The six wetland complexes inventoried are all valuable to the Town of Dalton. Dalton has a rare opportunity compared to many other parts of the state – an ability to proactively protect large wetland areas from development. Three of the five wetland complexes are over 100 acres, with the largest being nearly 400 acres. Where many towns in the southern part of NH would consider 15 acres to be a large tract of land, Dalton's smallest wetland inventoried is this size. It should also be noted that all of these wetland complexes are larger than the figures given in this report due to the guidelines that, for the purposes of Prime Wetland Designation, require that at least 50 % of the wetland needs to have very poorly drained hydric soil. Therefore many of the poorly drained soils were omitted to keep the ratio of very poorly to poorly drained soils at least 1.1 to 0.9.

Dalton has the opportunity to do something very few communities can: proactively protect some large, unique, valuable, and diverse natural resources before it is too late.

Maps


Connecticut River
Mirror Lake
Forest Lake
1
2
3
4
5
LEGEND:
Powerline
Evaluated wetlands.shp
Town Boundary
Streams
Lakes and Ponds
poorly drained
very poorly drained
N
Map Produced By:
Watershed to Wildlife, Inc.
107 Glessner Road
Bethlehem, NH 03574
(603) 444-0000
www.watershedtowildlife.com

Maps


DALTON WETLAND EVALUATION
SEPTEMBER 2006
N
LEGEND:
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References

Ammann, A.P. and A.L. Stone, 1991. *Method for the Comparative Evaluation of Nontidal Wetlands in New Hampshire*. New Hampshire Department of Environmental Services, Concord, NH.

Cowardin, L.M., V. Carter, F.C. Golet and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington, D.C. . Publication Number FWS/OBS-79/31.

State of New Hampshire. 2004. *New Hampshire Code of Administrative Rules: Wt 100-800*. Department of Environmental Services, Public Information and Permitting Office.

Watershed to Wildlife, Inc., 2004. *The Chase Bog Wetland Complex Inventory, Assessment, and Management Plan: A Comprehensive Study*. Dalton Conservation Commission, Dalton, NH.

Watershed to Wildlife, Inc. 2005. *Natural Resource Inventory – Phase II*. Dalton Conservation Commission, Dalton, NH.

Appendix – Copy of Field Inventory and Assessment Form

WETLAND FUNCTION – VALUE EVALUATION FORM (draft 6/3/2004)

Wetland Description:	File Number:
	Wetland Identifier:
	Latitude: Longitude:
	Preparer(s):
	Date:

Function/Value	Capability Y	Capability N	Summary	Principal Yes/No
Groundwater Recharge/Discharge				
Floodflow Alteration				
Fish and Shellfish Habitat				
Sediment/Toxicant Retention				
Nutrient Removal				
Production Export				
Sediment/Shoreline Stabilization				
Wildlife Habitat				
Recreation				
Educational/Scientific Value				
Uniqueness/Heritage				
Visual Quality/Aesthetics				
ES Endangered Species Habitat				
Other				

Notes:

*attach list of considerations