Brushwood South Wetlands – Summary Description

Including all wetlands in Brushwood Community Forest "south wetland" area and wetlands in adjacent Fairlee Municipal Forest

Brett Engstrom
Consulting Ecologist
Marshfield, Vermont

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The wetlands of the so-called "South Wetland" area encompass one extensive, contiguous wetland complex heavily influenced by beaver activity, plus an assortment of small wetlands perched in adjacent uplands. Based on ground-truthing work done in 2012-2013, a total of at least 42 acres of wetlands occur and are shown on the wetlands natural community map accompanying this description. Descriptions of 39 individual wetland units shown on the map are found on the last two pages of this report.

Set in the valley surrounded by May, Bald Top, and Spaulding hills and related minor summits, these wetlands lie largely on the ill-defined divide between the Mill Pond and Glen Falls Brook drainages. In fact the 35-acre beaver wetland complex has the unusual characteristic of flowing in opposite directions into these two drainages. About one-quarter of the total wetlands, and a third of the beaver wetland complex, occur in Brushwood Community Forest while the remainder are in the Fairlee Municipal Forest.

The large beaver wetland complex is a series of beaver impoundments, or beaver flowages, made up of serial ponds and shallow emergent marshes, plus an alder swamp, hemlock-balsam fir-black ash seepage swamp, and red spruce-hardwood swamp. To this is added an unclassified seepage meadow located at the head of the diverging beaver flowage system.

The remaining 7 acres of wetlands are spread out among 19 separate small basins surrounding the big wetland complex. These include a series of beaver ponds in the Glen Falls Brook drainage (3 above and 3 below the big wetland complex), plus a variety of tiny perched wetlands, vernal pools, seeps, and swamps. Four various small wetlands lie along Brushwood Road in West Fairlee and are outside these principal drainage systems.

These are a remarkable assemblage of wetlands, both because of their extent, fine condition, and diversity, and because of their setting. East of the Green Mountains, (i.e. the Vermont Piedmont biophysical region), wetlands of this extent (the 35-acre beaver wetland complex) and density (including the 19 other wetlands) are uncommon. The equally large wetland complex found three tenths of a mile down the Mill Pond Brook drainage compounds the significance of the extent and diversity of wetlands in the Brushwood Forest. The Brushwood South Wetlands' diverse assemblage of different wetland types include three open, four forested, one shrubby, two open water, plus one unknown types as listed in the following table. Note that capitalized wetland types are described in Vermont current natural community classification (found in *Wetland, Woodland, Wildland*), while others are unique natural wetlands not found in the classification.

Open Wetlands	**Forest Wetlands**	**Shrub Wetlands**	**Other Wetlands**
Shallow Emergent Marsh	Hemlock-Balsam Fir-Black Ash Seepage Swamp	Alder Swamp	Vernal Pool
perched pool & floating mat	Red Maple-Black Ash Swamp		beaver pond
seepage meadow	Red Spruce-Hardwood Swamp		perched wetland
	Seep		

The other remarkable aspects to these Brushwood South Wetlands is their almost pristine condition , their remote setting, rare and uncommon plants, and wildlife. Only a couple individual patches of two invasive plants were noted in the all the wetlands visited. Furthermore, these wetlands sit in an extensive undeveloped forest area (roughly 10,000 acres) with only a few class 4 roads and camps. Such a large block of unfragmented forest in this section of the Connecticut Valley and downstream is highly unusual. Also, one rare aquatic plant and several vigorous colonies of an uncommon plant live in these wetlands, while one rare and 4 uncommon plant species occur in the surrounding uplands. Finally, there is enormous value of these wetlands and surrounding uplands for wildlife, which Susan Morse will describe in a separate report.

The watershed values of the South Wetlands extend the significance of the wetlands beyond their immediate vicinity. Through floodwater retention these wetlands play an important role in reducing the risk of damaging floods down the watershed. Post Tropical Storm Irene, the role of wetlands and other natural landscape features in ameliorating flood hazards has come to the fore. Beyond its biological and ecological values, the South Wetlands have intrinsic watershed values that benefit the public at large.

Brushwood South Wetlands' Natural Community Descriptions - *final*, to accompany natural community map

Brett Engstrom, 7/5/2013

Id	Natural Community Type	Acres	Description
0	Shallow Emergent Marsh	4.24	Beaver impoundment marsh with standing dead trees in W. and S. arms. Head of Glen Falls Bk. drainage.
1	perched pool & floating mat	0.74	Perched basin with no outlet. Elongate wetland with open water N. and what looks like floating mat thick with American bur-reed + iris, meadowsweet, Carex lupulina, marsh fern. 1-2m lag around mat.
2	Vernal Pool	0.03	15x10m, still with up to 20cm deep water on 28 Sept. 2012 visit. Fully shaded in mature hemlock grove west of rd. Second smaller pool 10m to west.
3	Vernal Pool	0.01	5x10m still with water on 28 Sept. 2012 visit. Fully shaded in mature hemlock grove west of rd. Larger pool 10m east.
4	beaver pond	0.20	~12x35m beaver pond w/ lush patches of bur marigold & rice cutgrass. Partly shaded. Dam @ N. end. Fresh (last year) beaver hut on E. side constructed around base of fir & red maple.
5	Red Maple-Black Ash Swamp	0.23	Beaver impounded small black ash-red maple-yellow birch swamp, now mostly with standing dead pole trees. Thick nodding bur marigold & heart-leaved tearthumb. On seepage at head; woods rd. on W. side. At least 0.75m deep muck soil
6	beaver pond	1.10	Beaver pond with numberous white pine + red spruce, hemlock, fir, & red maple snags, with great blue heron nests. Patches of bur-reed, Carex canescens, woolgrass on stumps & mounds. Large aquatic vegetation in water.
7	perched wetland	0.52	Elongate perched wetland east of woods rd., not visited. Apparently on bench. Likely bedrock controlled. Perhaps functional vernal pool. Needs visit in spring.
8	Shallow Emergent Marsh	0.16	2 tiny (70m2 and 30m2) beaver impoundments above heron rookery beaver pond. With nodding bur marigold, Glyceria grandis, American bur-reed, iris, water starwort, woolgrass,
9	beaver pond	0.89	Large beaver impoundment up drainage from heron rookery, not visited. Basin shown with numerous standing dead trees on orthophoto.
10	beaver pond	0.35	Shown on orthophoto; not visited. On Glen Falls Brook.
11	beaver pond	1.99	Shown on orthophoto; not visited. On Glen Falls Brook.
12	beaver pond	0.55	Shown on orthophoto; not visited. Above Glen Falls Brook.
13	Vernal Pool	0.03	~18x7m, still with 20cm deep water in center on Oct. 4, 2012, visit. Located in saddle S. of summit. Major canopy gap overhead due to recent tipovers. Some Bidens in pool, moss on logs, Carex brunnescens, C. lupulina. 1 dead fingernail clam

14	Seep	0.11	15x20m bench seep ringed with white ash + yellow birch, red maple. Lush sensitive fern, Carex utriculata?, Aster puniceus, Scirpus (microcarpus), Juncus effusus, golden saxifrage, marsh fern, + couple cattails. 15-25cm muck.
15	Hemlock-Balsam Fir-Black Ash Seepage Swamp	0.11	~15x30m seepage swamp w/ few pole black ash + sapling hemlock. Lush golden saxifrage-swamp saxifrage-sensitive fern + cinnamon fern, wood nettle, Ranunculus recurvatus. 1+m deep muck soi. Old tipovers
16	Vernal Pool	0.02	5x10m, w/ up to 40cm tannic water on Oct. 4, 2012, visit. Immediately adjacent & S. of Blood Brook Rd. in gap. H-NHF surrounding. Large mossy log with vasc. plants growing on.
17	Shallow Emergent Marsh	0.15	North-most impoundment in west lobe of large beaver wetland complex.
18	beaver pond	0.38	Second impoundment going south. Open water of pond with many standing dead pole hardwoods (red maple?). Thick Utricularia vulgaris in water.
19	Shallow Emergent Marsh	7.34	Diverse graminoid marsh area of primary beaver wetland complex. More alder on margins and up drainage (S). Bluejoint, woolgrass, Carex canescens, bulrush, Juncus effusus, rice cutgrass + cattail, bur-reed, Carex lacustris.
20	Alder Swamp	2.56	Narrow band of thin alder cover in up drainage part of 2nd impoundment of main beaver wetland complex. 20-30cm muck to gravel & sand soil. Seepage on west edge.
21	Shallow Emergent Marsh	1.37	Up drainage of second beaver dam: major mix of marshy vegetation, including cattail, sedges, rice cutgrass. Recently dead standing dead fir and other trees. Standing water covered with duckweed.
22	beaver pond	2.38	Third major beaver impoundment: standing water with numerous pole conifer (fir & spruce) snags w/ fine twigs but no needles.
23	beaver pond	0.64	Fourth major beaver impoundment pond. Tall dam, 1.5-2m high.
24	Shallow Emergent Marsh	1.63	Marsh surrounding beaver pond, dominated by bur-reed, cattail, and woolgrass (Scirpus cyperinus). Seepage influenced on west side.
25	seepage meadow	1.00	Sloping, open, seepage meadow dominated by common horsetail, Canada goldenrod, sensitive fern, marsh fern, dwarf raspberry, cattail, swamp saxifrage. 45cm muck to silty muck soil. Tiny surface flow channel.
26	Hemlock-Balsam Fir-Black Ash Seepage Swamp	1.09	10-20cm dbh fir-white spruce + hemlock, white ash, black ash, yellow birch, white pine. 30cm muck over fine sand & clayey silt soil. No understory or shrubs. Beaver impoundment is causing some tree mortality.
27	Shallow Emergent Marsh	4.55	Upper end of third major beaver impoundment. Mountain holly scattered throughout this old swamp, now marsh wetland. Thick mountain holly and winterberry in NE arm where over 1m muck soil.
28	Shallow Emergent Marsh	0.87	Marsh & shrub wetland complex at what appears to be watershed divide. Waters appear to flow NW and SE from this wetland. Rd. to log landing crosses SE end.
29	Shallow Emergent Marsh	0.26	Unclear if this is marsh or upland. Open/shrubby area on margin of beaver pond.
30	Shallow Emergent Marsh	0.25	Small (100m2) iris dominated wetland nestled amongst dense ~5m fir, spruce, & white pine regeneration. Low bedrock spine to W. separates this from swamp.

31	beaver pond	3.40	Large beaver pond with 2 long arms. At head of Glen Falls Brook drainage.
32	seepage meadow	0.05	Small, gently sloping, alluvial fan/seepage marsh flowing into S. end of large beaver marsh. Lush geum, Carex gynandra, rough-stemmed goldenrod. More Torreyochloa pallida.
33	Red Spruce-Hardwood Swamp	1.82	Freshly impounded red spruce-fir-red maple-yellow birch + white pine & alder swamp, trees pole to 20cm dbh. Many conifers with red needles to N. Sphagnous carpet, w/ Carex trisperma, cinnamon, sensitive, marsh ferns. 0.5+m deep muck
34	Alder Swamp	0.28	South Wetland's second (east) north outlet. Brushwood Rd. X, Along drainage, both sides of rd. w/ 18-24" culvert. Aldery.
35	Seepage Meadow	0.05	Seepage marsh thumb of main wetland complex. Can hear water trickling thru boulders underground. Coming from perched Iris wetland uphill to south. No surface flow.
36	Seep	0.04	~10x7m, NE-flowing, seepage drainage w/ Carex cf disperma, jewelweed, sensitive & lady ferns, woodland horsetail, Glyceria striata. 3 pole black ash trees
37	perched wetland	0.12	25x15m with opening above. Single 15cm black ash in center. Viola macloskeyi abundant. Seepage in slightly sloping outlet to N. Skidder trail X. In West Fairlee.
38	Seep	0.07	~20x10m seep with marsh violet (Viola cucullata) flowering. Old skidder trail X.