

Appendix A - 2011 Northfield Open Space and Recreation Survey, Detailed Survey Results, Survey Results Summary and Public Forum Results

Northfield Open Space and Recreation Survey

This survey is an effort of the Northfield Open Space Committee to assess public opinion regarding Open Space and Recreation policies of the Town of Northfield. The results from the survey will help the town update the Open Space and Recreation Plan created in 2005, as required by the State every seven years. Answers from the survey will also guide future decisions by other town committees.

The survey takes approximately five minutes. All answers will remain anonymous. YOUR FEEDBACK IS NEEDED TO HELP PREPARE THE NEW OPEN SPACE AND RECREATION PLAN.

Thank you!

Northfield Open Space Committee

1. Please indicate which activities you engage in and whether you are able to enjoy them in Northfield and/or another town.

	Northfield	Another town
Bicycling	<input type="checkbox"/>	<input type="checkbox"/>
Birdwatching	<input type="checkbox"/>	<input type="checkbox"/>
Boating	<input type="checkbox"/>	<input type="checkbox"/>
Cross-country skiing/Snowshoeing	<input type="checkbox"/>	<input type="checkbox"/>
Fishing	<input type="checkbox"/>	<input type="checkbox"/>
Gardening	<input type="checkbox"/>	<input type="checkbox"/>
Golf	<input type="checkbox"/>	<input type="checkbox"/>
Hiking	<input type="checkbox"/>	<input type="checkbox"/>
Horseback riding	<input type="checkbox"/>	<input type="checkbox"/>
Hunting	<input type="checkbox"/>	<input type="checkbox"/>
Ice skating	<input type="checkbox"/>	<input type="checkbox"/>
Picnicking	<input type="checkbox"/>	<input type="checkbox"/>
Rock climbing	<input type="checkbox"/>	<input type="checkbox"/>
Snowmobiling	<input type="checkbox"/>	<input type="checkbox"/>
Swimming in natural water bodies (ponds, rivers, etc.)	<input type="checkbox"/>	<input type="checkbox"/>
Swimming in pools	<input type="checkbox"/>	<input type="checkbox"/>
Walking	<input type="checkbox"/>	<input type="checkbox"/>

Other activities, or comments

Northfield Open Space and Recreation Survey

2. Do you use any of the trails in Northfield? If so, please indicate which ones and how often you use them.

	Frequently	Occasionally
Annie Wheeler Trail (along Bennett Brook)	<input type="radio"/>	<input type="radio"/>
Bennett Meadows	<input type="radio"/>	<input type="radio"/>
Brush Mountain to Crag Mountain (part of NET)	<input type="radio"/>	<input type="radio"/>
Franklin County Bikeways	<input type="radio"/>	<input type="radio"/>
Hobo Trail (off Old Wendell Road)	<input type="radio"/>	<input type="radio"/>
King Philip's Hill	<input type="radio"/>	<input type="radio"/>
Mill Brook Conservation Area	<input type="radio"/>	<input type="radio"/>
New England Trail - NET (M&M Trail)	<input type="radio"/>	<input type="radio"/>
Northfield Mountain Recreation Area	<input type="radio"/>	<input type="radio"/>
Northfield State Forest (Alexander Hill Road)	<input type="radio"/>	<input type="radio"/>
River Road in Northfield Farms	<input type="radio"/>	<input type="radio"/>
Rustic Ridge	<input type="radio"/>	<input type="radio"/>
Satan's Kingdom	<input type="radio"/>	<input type="radio"/>

Other trails, or comments

3. Do you support a network of trails for the following activities listed below?

	Yes	No
ATV	<input type="radio"/>	<input type="radio"/>
Bicycling	<input type="radio"/>	<input type="radio"/>
Cross-country skiing/Snowshoeing	<input type="radio"/>	<input type="radio"/>
Hiking/walking	<input type="radio"/>	<input type="radio"/>
Horseback riding	<input type="radio"/>	<input type="radio"/>
Mountain biking	<input type="radio"/>	<input type="radio"/>
Snowmobiling	<input type="radio"/>	<input type="radio"/>

Other activities, or comments

Northfield Open Space and Recreation Survey

4. How important are the following recreational resources to you:

	Very important	Somewhat important	Not important
Bike trails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Children's play areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Cross-Country skiing/snowshoeing trails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Hiking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Horseback riding trails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neighborhood parks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Picnic areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Playing fields	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public access to natural areas	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public access to waterbodies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public swimming pool	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Soccer fields	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other resources, or comments

5. In your opinion, how important are the following open space features to Northfield?

	Very important	Somewhat important	Not important
Air/water quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Farms and farmland	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Forests	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lower housing density	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Mountain views	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Playing fields	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public access for boating	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public access for swimming	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quiet	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rural character	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Trails	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Other features, or comments

Northfield Open Space and Recreation Survey

6. Which of the following actions do you support to protect/conserv natural resources in Northfield?

- ☐ Acceptance by the town of donated conservation land
- ☐ Acceptance by the town of donated development rights (conservation restriction)
- ☐ Educate residents about land protection opportunities and estate planning
- ☐ Educate residents and landowners about the public service costs associated with different land uses (houses, forest/agricultural, industrial)
- ☐ Encourage conservation by private nonprofits and land trusts
- ☐ Encourage conservation by state agencies
- ☐ Increase funding to the Community Preservation Act
- ☐ Reduce taxes for farmers
- ☐ Town purchase of conservation land
- ☐ Town purchase of development rights
- ☐ Town support of the Agricultural Preservation Restriction (APR) Program

Other actions, or comments

7. Are there specific areas in Northfield that the town should try to own, protect access to, or otherwise protect?

- ☐ Yes
- ☐ No

If you answered "Yes," which areas are priorities for you?

8. What do you perceive to be the obstacles to implementing an Open Space and Recreation Plan in Northfield?

- ☐ Public finances and loss of tax revenues
- ☐ Lack of information
- ☐ Lack of public process in decision-making
- ☐ Commercial and housing development

Other obstacles (please specify)

Northfield Open Space and Recreation Survey

9. Which Northfield neighborhood do you live in?

- ☐ East Northfield (including The Ridge)
- ☐ South Mountain area
- ☐ South Northfield (The Farms)
- ☐ West Northfield
- ☐ Village Center

Other area (please specify)

10. What are the ages of the people in your household?

- ☐ 0 - 5 ☐ 6 - 11 ☐ 12 - 18 ☐ 19 - 29 ☐ 30 - 65 ☐ Over 65

11. How many years have you lived in Northfield?

- ☐ Less than 5 years
- ☐ 5 - 15 years
- ☐ 16 - 30 years
- ☐ 31 - 50
- ☐ 51 - 75
- ☐ More than 75 years

12. Please provide any additional comments:

13. Optional: Please provide your name and email address.

NORTHFIELD 2011 OPEN SPACE AND RECREATION SURVEY SURVEY RESULTS SUMMARY

In August and September 2011, the **Northfield Open Committee** conducted a town-wide need-assessment survey in preparation for writing a new seven-year **Open Space and Recreation Plan for 2012 – 2019**.

Survey Method

Surveys were mailed to 1366 Northfield households. Residents were asked to fill out the survey and return it, or go online to take the survey. Comments were optional and many respondents took advantage of the opportunity to add their thoughts and suggestions. 158 Residents/Households (11.6%) responded. This was slightly better than the 10% who responded to the 2004 survey. A link to the 2011 Survey results can be found on the Northfield Open Space Committee web page on the Town of Northfield website:

<http://www.northfield.ma.us/index.php?id=155> .

Households Surveyed

Respondents represented all neighborhoods in town: East Northfield (37%); Northfield Village Center (23%); Northfield Farms (19%); South Mountain Area (12%); and West Northfield (9%.) 110 respondents, were in the age 30-65 age group; 49 residents over age 65 responded. The greater number of East Northfield respondents reflects Rustic Ridge participation. The survey did not separate senior citizens' responses from those working adults and children living at home.

Many of the respondents were relative newcomers to Northfield: 43% had lived in Northfield for 15 years or less. Twenty-four percent (24%) had lived in Northfield 15-30 years and 33% had lived in Northfield more than 30 years.

IMPORTANT OPEN SPACE FEATURES

Residents are attracted to Northfield's opens spaces, hills, forests, farms and farmland. While all, except playing fields, were very important, the top five features are undeniable "quality of life" elements for residents who have chosen Northfield as a place to live.

Rank	Feature	Very Important
1	Air/Water quality (147)	96%
2	Forests (140)	92%
3	Farms and farmland (138)	90%
4	Rural character (123)	83%
5	Quiet (118)	80%
6	Trails (112)	77%
7	Mountain Views (104)	73%
8	Public access for swimming (91)	62%
9	Public access for boating (81)	56%
10	Lower housing density (72)	52%
11	Playing fields (63)	44%

Comments on Open Space Features by residents offer ideas and suggestions:

- Consider cluster development
- Need a community beach area for swimming and family picnics
- Provide canoe and kayak access at Bennett Meadow
- Fix boat ramp for better access
- Increase density with less sprawling in the hills
- Promote working forests
- Create more views of the Connecticut River by cutting trees but not clear-cutting

IMPORTANT RECREATIONAL RESOURCES

Residents indicated that almost all recreational resources were important to them, although some resources are more highly valued.

Rank	Resource	Very Important	Somewhat Important	Not Important
1	Public access to natural areas	83%	14%	3%
2	Public access to water bodies	78%	18%	4%
3	Hiking	75%	21%	4%
4	X-Country Skiing/Snowshoe	59%	35%	7%
5	Neighborhood parks	54%	33%	13%
6	Bike Trails	51%	36%	13%
7	Children's Play Areas	51%	31%	17.9%
8	Picnic Areas	49%	36%	15%
9	Playing Fields	46%	38%	16%
10	Public Swimming Pool	39%	40%	21%
11	Soccer Fields	31%	41%	28%
12	Horseback Riding	19%	37%	44%

Additional Comments on needed resources:

- Develop a park on the river
- Develop a bike trail along the river
- Improve boat ramp
- Consider an outdoor gazebo for summer concerts
- Need a place to ice skate
- How about a children's splash pool
- Need upgraded baseball fields
- Arrange more access points on CT River for canoe and kayak launching
- Snow mobile access is important

MOST POPULAR RECREATIONAL ACTIVITIES

Rank	Activity	2011 in Town	2011 Other Town	2004 Town	Note
1	Walking	87%	42%	87%	Same
2	Gardening	76%	13%	71%	+5%
3	Hiking	72%	48%	60%	+12%
4	Bicycling	60%	32%	60%	Same
5	X-C Ski/Snowshoe	60%	23%	49% X- C 44% SnSh	+11% +16%
6	Birdwatching	49%	20%	50%	-1%
7	Picnicking	37%	27%	41%	-4%
8	Boating	36%	34%	42%	-6%
9	Swimming in Pools	34%	20%	#	#
10	Golf	28%	14%	*	*
11	Swimming in Natural Waterbodies	27%	46%	#	#
12	Fishing	19%	19%	*	*
13	Hunting	15%	9%	*	*
14	Ice Skating	10%	20%	*	*
15	Snowmobiling	8%	7%	*	*
16	Rock Climbing	7%	6%	*	*
17	Horseback Riding	6%	8%	*	*

* No data reported in 2004 survey report

The 2004 survey reported 46% for Swimming and did not make a distinction between “swimming in pools” and “swimming in natural waterbodies”

MOST POPULAR TRAILS AND RESIDENT TRAIL USE

Of the 158 residents who submitted a survey, 121 respondents use trails either occasionally or frequently. The most commonly used trails in Northfield are:

Rank	Trail	Respondents	Total surveyed
1	Northfield Mountain Recreation Area (79)	65%	50%
2	Brush Mountain to Crag Mountain (NET) (74)	61%	47%
3	New England Trail (NET) (M&M Trail) (65)	54%	41%
4	River Road, Northfield Farms (45)	37%	28%
5	Franklin County Bikeway (44)	36%	28%
6	Rustic Ridge (43)	36%	27%
7	Mill Brook Conservation Area (41)	34%	26%
8	Northfield State Forest-Alexander Hill Rd (39)	32%	25%
9	Bennett Meadow (33)	27%	21%
10	Hobo Trail – Old Wendell Rd (31)	26%	20%
11	King Philip's Hill (27)	22%	17%
12	Satan's Kingdom (26)	21%	16%

Comments: 30 Residents commented that they did not know all the names of local trails and/or where some of these trails are located. Others expressed a need for maps and better trail markings or guides.

SUPPORT FOR TRAIL NETWORKS

Residents overwhelmingly support trail networks for hiking, cross-country skiing/snowshoeing, bicycling, horseback riding, and mountain biking. There is also significant support for trail networks for snowmobiling. More than 75% oppose a trail network for all-terrain vehicles (ATVs).*

Rank	Trail Network	% of Support
1	Hiking/Walking	96%
2	X-Country Skiing/Snowshoeing	94%
3	Bicycling	93%
4	Horseback riding	90%
5	Mountain Biking	80%
6	Snowmobiling	62%
7	ATV	23%

*At least 14 out of 24 comments mentioned preference for non-motorized activities.

SUPPORT FOR CONSERVATION OF NATURAL RESOURCES

There continues to be support for the conservation of natural resources in Northfield.

Action	2011	2004
Acceptance by the town of donated conservation land	90%	88%
Acceptance by the town of donated development rights	81%	84%
Educate residents about land protection opportunities and estate planning	77%	87%
Educate residents and landowners about the public service costs and tax revenues associated with different land uses (homes, forest land, industry)	68%	87%
Encourage conservation by private nonprofits and land trusts	80%	80%
Encourage conservation by state agencies	72%	75%
Increase funding to the Community Preservation Act	61%	NA
Reduce taxes for farmers	61%	80%
Town purchase of conservation land	63%	70%
Town purchase of development rights	52%	74%
Town support of the Agricultural Preservation Restriction (APR)	67%	70%

Highlighted comments by residents on the survey enhance the picture:

- Protection needs to leave land open to hunting for the management of wildlife so the population will not grow beyond the land's carrying capacity.
- Reduce taxes for farmers and forest owners/increase funding for CPA

AREAS THE TOWN SHOULD PROTECT

53% (83) of the residents responding to an open-ended question reported areas in Northfield the town should try to own, protect access to, or otherwise protect. Some suggested more than one area.

Area	Respondents	Comment
Area for a Community Garden	1	
Commonwealth of Massachusetts DCR Pauchaug Boat Ramp	3	
NMH Field adjacent to Golf Course Birnam Rd	3	Good place for a senior center
NMH Forest above Rustic Ridge and trails	12	Too much logging <ul style="list-style-type: none"> Area around the Reservoir
NMH Land	2	As it becomes available
NMH Land along the river near Schell Bridge	9	<ul style="list-style-type: none"> Develop for recreation, boat rentals, restaurant, bike shop. Trails along the river (8)
NMH Mill Brook Conservation Area	14	<ul style="list-style-type: none"> Schell Pool for swimming Make picnic area Skating rink Get help from Mt Grace LT
NMH Northfield Inn Pool	1	
NMH Notch Mountain	1	Ecological importance
Private Crag Mountain	1	
Private Farmlands	8	<ul style="list-style-type: none"> Near center of town Shearer property From M/M Trail to Hobo Trail NMH/CSL Fields
Private Girl Scout House	1	
Private Old Mobil Station land	1	Tear down and seed
Private Old Sunoco Station	1	Tear down and seed
Public and Private Connecticut River	2	Protect access
Public and Private Forests	2	
Public and Private Large blocks contig. land	1	
Public and Private Views	2	Along the NET
Public and Private Watersheds	2	
Public and Private Ridge Tops	1	
Public and Private River Banks	1	
Public and Private Waterways	1	
Town of Northfield Brush Mountain	1	
Town of Northfield Four Mile Brook Rd	1	
Town of Northfield Main St	1	Noise from 4AM-12 midnight
Town of Northfield Route 10	1	No buildings or businesses-protect entry to Northfield
Town of Northfield Schell Bridge	7	Ask FRCOG for help
Town of Northfield Sports Fields	1	Add more
Town of Northfield Old Wendell Rd	2	Waterfalls
Town of Northfield River Rd	1	

OBSTACLES TO IMPLEMENTING AN OPEN SPACE PLAN IN NORTHFIELD

Residents were asked what they perceived to be the obstacles of implementing the Open Space and Recreation Plan in Northfield. Eighty-one percent felt that public finances and loss of tax revenue was the biggest challenge. 50% felt that lack of information was another big problem. 30% noted the lack of public process in decision-making and 21% thought that commercial and housing development was a threat.

Residents added many thoughts in the comments section at the end of the survey. The Open Space Committee selected the following comments further discussion:

“Many townsfolk cannot afford to pay additional tax on their land as a means for the town to raise conservation funds. Contributions must be voluntary. Raise awareness and people will contribute according to their means.”

“Working forest lands and farm lands provide open space and tax revenues. Support logging and farming.”

“We need better ways to maintain the wooded areas in the town. Invasive plants (particularly oriental bittersweet) are destroying trees in many of these areas.”

“...is there a good map of Northfield's recreation and open space opportunities? There are still areas of town I have yet to explore. On such a map it would be advisable to identify the places most accessible to people with limited mobility.”

“I think it would be great to have a B&B network linked by trails (hiking, biking, boating) - similar to White Mt. Hut system, would make it easy for people to through hike sections without having to carry food, shelter & bedding – would create a recreation destination.”

“We need town riverfront meeting areas - walking distance from town.”

“Much of Northfield is owned privately by NMH.”

“Loss of tax revenues due to land protection can be argued against. The houses we build, the kids that have to be transported to school. More houses mean more roads have to be maintained and sometimes constructed. These all cost the town money. So loss of land as tax revenues does not mean a cost to the town.”

The following 32 pages comprise the detailed survey results.

(Despite report numbering, there are 32 pages of detail, not 44 – blank report pages omitted.)

1. Please indicate which activities you engage in and whether you are able to enjoy them in Northfield and/or another town.

	Northfield	Another town	Response Count
Bicycling	96.9% (95)	53.1% (52)	98
Birdwatching	97.5% (78)	38.8% (31)	80
Boating	78.1% (57)	72.6% (53)	73
Cross-country skiing/Snowshoeing	99.0% (95)	38.5% (37)	96
Fishing	71.4% (30)	71.4% (30)	42
Gardening	98.4% (120)	10.7% (13)	122
Golf	93.6% (44)	46.8% (22)	47
Hiking	96.6% (114)	64.4% (76)	118
Horseback riding	62.5% (10)	81.3% (13)	16
Hunting	92.3% (24)	57.7% (15)	26
Ice skating	37.5% (15)	80.0% (32)	40
Picnicking	84.1% (58)	62.3% (43)	69
Rock climbing	64.7% (11)	58.8% (10)	17
Snowmobiling	81.3% (13)	68.8% (11)	16
Swimming in natural water bodies (ponds, rivers, etc.)	47.3% (43)	79.1% (72)	91
Swimming in pools	76.1% (54)	45.1% (32)	71
Walking	98.6% (137)	48.2% (67)	139
Other activities, or comments			34
answered question			157

2. Do you use any of the trails in Northfield? If so, please indicate which ones and how often you use them.

	Frequently	Occasionally	Response Count
Annie Wheeler Trail (along Bennett Brook)	22.2% (4)	77.8% (14)	18
Bennett Meadows	33.3% (11)	66.7% (22)	33
Brush Mountain to Crag Mountain (part of NET)	32.4% (24)	67.6% (50)	74
Franklin County Bikeways	40.9% (18)	59.1% (26)	44
Hobo Trail (off Old Wendell Road)	22.6% (7)	77.4% (24)	31
King Philip's Hill	22.2% (6)	77.8% (21)	27
Mill Brook Conservation Area	29.3% (12)	70.7% (29)	41
New England Trail - NET (M&M Trail)	33.8% (22)	66.2% (43)	65
Northfield Mountain Recreation Area	21.5% (17)	78.5% (62)	79
Northfield State Forest (Alexander Hill Road)	35.9% (14)	64.1% (25)	39
River Road in Northfield Farms	51.1% (23)	48.9% (22)	45
Rustic Ridge	46.5% (20)	53.5% (23)	43
Satan's Kingdom	19.2% (5)	80.8% (21)	26
		Other trails, or comments	38
answered question			121
skipped question			37

3. Do you support a network of trails for the following activities listed below?

	Yes	No	Response Count
ATV	23.3% (27)	76.7% (89)	116
Bicycling	92.9% (131)	7.1% (10)	141
Cross-country skiing/Snowshoeing	94.4% (135)	5.6% (8)	143
Hiking/walking	95.9% (141)	4.1% (6)	147
Horseback riding	90.2% (110)	9.8% (12)	122
Mountain biking	79.5% (93)	20.5% (24)	117
Snowmobiling	62.0% (75)	38.0% (46)	121
Other activities, or comments			24
answered question			150
skipped question			8












4. How important are the following recreational resources to you:

	Very important	Somewhat important	Not important	Response Count
Bike trails	51.4% (74)	36.1% (52)	12.5% (18)	144
Children's play areas	51.4% (72)	30.7% (43)	17.9% (25)	140
Cross-Country skiing/snowshoeing trails	58.5% (83)	34.5% (49)	7.0% (10)	142
Hiking	74.7% (109)	21.2% (31)	4.1% (6)	146
Horseback riding trails	19.1% (25)	36.6% (48)	44.3% (58)	131
Neighborhood parks	54.3% (76)	32.9% (46)	12.9% (18)	140
Picnic areas	49.0% (70)	35.7% (51)	15.4% (22)	143
Playing fields	46.3% (63)	37.5% (51)	16.2% (22)	136
Public access to natural areas	83.1% (123)	13.5% (20)	3.4% (5)	148
Public access to waterbodies	78.1% (114)	17.8% (26)	4.1% (6)	146
Public swimming pool	39.3% (57)	40.0% (58)	20.7% (30)	145
Soccer fields	30.5% (40)	41.2% (54)	28.2% (37)	131
Other resources, or comments				22
answered question				156
skipped question				2



5. In your opinion, how important are the following open space features to Northfield?

	Very important	Somewhat important	Not important	Response Count
Air/water quality	96.1% (147)	3.3% (5)	0.7% (1)	153
Farms and farmland	90.2% (138)	9.2% (14)	0.7% (1)	153
Forests	92.1% (140)	5.9% (9)	2.0% (3)	152
Lower housing density	52.2% (72)	34.8% (48)	13.0% (18)	138
Mountain views	73.2% (104)	24.6% (35)	2.1% (3)	142
Playing fields	43.8% (63)	43.8% (63)	12.5% (18)	144
Public access for boating	55.5% (81)	37.7% (55)	6.8% (10)	146
Public access for swimming	61.9% (91)	32.7% (48)	5.4% (8)	147
Quiet	79.7% (118)	17.6% (26)	2.7% (4)	148
Rural character	82.6% (123)	14.8% (22)	2.7% (4)	149
Trails	76.7% (112)	18.5% (27)	4.8% (7)	146
Other features, or comments				27
answered question				157
skipped question				1

6. Which of the following actions do you support to protect/conserv natural resources in Northfield?

		Response Percent	Response Count
Acceptance by the town of donated conservation land		90.1%	137
Acceptance by the town of donated development rights (conservation restriction)		80.9%	123
Educate residents about land protection opportunities and estate planning		77.0%	117
Educate residents and landowners about the public service costs associated with different land uses (houses, forest/agricultural, industrial)		68.4%	104
Encourage conservation by private nonprofits and land trusts		79.6%	121
Encourage conservation by state agencies		72.4%	110
Increase funding to the Community Preservation Act		61.2%	93
Reduce taxes for farmers		61.2%	93
Town purchase of conservation land		63.2%	96
Town purchase of development rights		52.0%	79
Town support of the Agricultural Preservation Restriction (APR) Program		67.1%	102
Other actions, or comments			43
answered question			152
skipped question			6





7. Are there specific areas in Northfield that the town should try to own, protect access to, or otherwise protect?

		Response Percent	Response Count
Yes		71.6%	73
No		28.4%	29

If you answered "Yes," which areas are priorities for you? 83

answered question	102
skipped question	56






8. What do you perceive to be the obstacles to implementing an Open Space and Recreation Plan in Northfield?

		Response Percent	Response Count
Public finances and loss of tax revenues		80.6%	116
Lack of information		50.0%	72
Lack of public process in decision-making		29.9%	43
Commercial and housing development		20.8%	30







Other obstacles (please specify) 33







answered question	144
skipped question	14

9. Which Northfield neighborhood do you live in?

		Response Percent	Response Count
East Northfield (including The Ridge)		36.9%	55
South Mountain area		12.1%	18
South Northfield (The Farms)		18.8%	28
West Northfield		9.4%	14
Village Center		22.8%	34
	Other area (please specify)		11
answered question			149
skipped question			9

10. What are the ages of the people in your household?

		Response Percent	Response Count
0 - 5		10.4%	16
6 - 11		11.7%	18
12 - 18		13.6%	21
19 - 29		6.5%	10
30 - 65		71.4%	110
Over 65		31.8%	49
answered question			154
skipped question			4

11. How many years have you lived in Northfield?			
		Response Percent	Response Count
Less than 5 years		9.2%	14
5 - 15 years		34.2%	52
16 - 30 years		23.7%	36
31 - 50		21.7%	33
51 - 75		7.9%	12
More than 75 years		3.3%	5
		answered question	152
		skipped question	6

12. Please provide any additional comments:		
		Response Count
		38
		answered question
		38
		skipped question
		120

13. Optional: Please provide your name and email address.		
		Response Count
		42
		answered question
		42
		skipped question
		116

Q1. Please indicate which activities you engage in and whether you are able to enjoy them in Northfield and/or another town.

1	Biking and walk around town on nice new sidewalks and along Rte 142; golf in Northfield and Gill; Cross country at Northfield Mtn; boating at Northfield Mtn and Barton's Cove.	Nov 25, 2011 11:30 AM
2	We'd love a bike path	Oct 18, 2011 4:57 PM
3	jogging	Oct 17, 2011 7:38 AM
4	non-motorized boating only	Oct 17, 2011 7:29 AM
5	Respondent added "Running" which he/she does in and out of town. "I would love more trails to run on. I run at NMH through the woods but wish I could run closer to the river. I also wish there were a place my kids could learn to ice skate outdoors.	Oct 16, 2011 1:14 PM
6	Access to basketball courts for youth during off basketball season.	Oct 12, 2011 5:57 PM
7	Would like trail maps for Northfield hiking trails	Oct 12, 2011 5:41 PM
8	miniature golf, go cart racing	Oct 12, 2011 5:30 PM
9	Swimming in natural water bodies: This is the thing I miss most	Oct 10, 2011 3:16 PM
10	Boating & swimming: don't trust the CT River (cleanliness, radiation) & don't know where else to go in NF.	Oct 10, 2011 10:34 AM
11	Kayaking. Ice skating rink in Northfield would be nice.	Oct 5, 2011 1:00 PM
12	*kayaking. {Boating is starred}	Oct 5, 2011 12:51 PM
13	Would love to see boat docks and picnic areas along river.	Oct 5, 2011 12:45 PM
14	Playing outdoor summer concerts.	Oct 5, 2011 12:16 PM
15	Skijouring. It would be nice to have a swimming hole in nature (like Wannamaker Pond) or where Northfield/Mt. Hermon School had a dam @ one time.	Oct 5, 2011 12:05 PM
16	The NMH pool is cost prohibitive for Northfield residents. Please purchase from NMH! This is a diamond in the ruff and could be a wonderful asset to our town and residents.	Oct 5, 2011 11:39 AM
17	I want to ice skate in Northfield but know of no place to go.	Oct 5, 2011 11:29 AM
18	We are seniors - 88 yrs. We used to do all of the above.	Oct 5, 2011 8:18 AM
19	I don't use any of these things any more	Sep 28, 2011 11:10 AM
20	Boating= canoeing	Sep 28, 2011 4:39 AM
21	I'd like to find a place to go swimming in Northfield that is not a pool.	Sep 25, 2011 5:04 PM
22	dog walking	Sep 25, 2011 3:43 PM

Q1. Please indicate which activities you engage in and whether you are able to enjoy them in Northfield and/or another town.		
23	We are swimmers but not in recent years; did swim at the "Hotel pool" some; have also biked in the past, especially in Northfield.	Sep 25, 2011 3:30 PM
24	boating = canoeing & kayaking	Sep 24, 2011 10:42 AM
25	The best thing about Northfield is that it remains the same. It hasn't become another faceless town like so many others in the U.S.	Sep 24, 2011 10:35 AM
26	kayak, canoe	Sep 22, 2011 3:35 PM
27	kayaking on the Conn. River	Sep 12, 2011 8:28 AM
28	We geocache in Northfield and other towns too.	Sep 10, 2011 7:00 AM
29	Tennis courts for the public Gym facilities for Northfield residents including outside activities	Sep 9, 2011 5:43 AM
30	I would walk more if it weren't for people speeding on the roads. I would hike more if it weren't for people hunting in the woods right next to the houses between School Street and Birnam Road. It's terrifying to be enjoying a nice hike through the woods near a residential area and then see someone right next to you with a huge gun. On top of it the woods in that area are being ruined with all those logging trucks. It makes me feel sick to my stomach seeing how that beautiful land is being destroyed and there's nothing we can do to stop it.	Sep 8, 2011 5:48 PM
31	Observing trees/plants and animals besides birds.	Sep 8, 2011 2:28 PM
32	it would be wonderful to have a good fresh water swimming place in Northfield	Sep 8, 2011 8:33 AM
33	Northfield Inn Pool needs an overhaul to be more community-friendly. Prices are too high. The facility could be vastly improved to better serve the needs of the town. Hours are plentiful, but the season is too short. Vernon VT and Hinsdale NH have lower prices and superior facilities. Could be such a great opportunity given some long-range planning, money, and TLC!	Sep 7, 2011 3:14 PM
34	ATV	Sep 7, 2011 12:47 PM

Q2. Do you use any of the trails in Northfield? If so, please indicate which ones and how often you use them.		
1	I would probably use trails if I had a map of them. Just walk around the road near our home which is on Rte 142.	Nov 25, 2011 11:30 AM
2	I hope to become a frequent user of all these trails once I learn where they are.	Oct 18, 2011 4:58 PM
3	It is a goal mine to do more walking/hiking in Northfield and to get to know some these trails.	Oct 18, 2011 4:57 PM
4	Trails on the mountain behind golf course have been badly altered by tree cutting	Oct 17, 2011 7:38 AM
5	I love being able to walk out my door and hike the rustic ridge trails without having to get in my car, choose a short or long walk of variable route.	Oct 16, 2011 1:25 PM
6	Do not use	Oct 10, 2011 4:38 PM
7	Rarely use the trails. Usually I walk along public roads.	Oct 10, 2011 3:21 PM
8	no	Oct 10, 2011 10:47 AM
9	No	Oct 10, 2011 10:38 AM
10	I don't know the names of all the trails I use. Would use all of them if I had a map/guide.	Oct 10, 2011 10:34 AM
11	It would be great if someone could put together a map or other resource with directions on how to access these trails. Never heard of some of these even after living here almost 20 years.	Oct 5, 2011 1:00 PM
12	Don't know King Phillip's Hill or Hobo Trail	Oct 5, 2011 12:51 PM
13	Need to be marked better.	Oct 5, 2011 12:45 PM
14	I need to try these other trails.	Oct 5, 2011 12:22 PM
15	Trails across from the Post Office (McGowan Trails)	Oct 5, 2011 12:05 PM
16	The 2 trails that comeout on School St near Mill Brook. I forget the names.I think the "Mill Brook Trail". I hope to use others in the future. (everyday in the spring after the snowis gone and before the poison ivy is up.	Oct 5, 2011 11:29 AM
17	We don't do any of these-	Oct 5, 2011 8:18 AM
18	I didn't know there were so many! Now I'll use more	Oct 5, 2011 8:06 AM
19	would like to know about trails in West Northfield	Oct 5, 2011 8:01 AM
20	I would like to do more exploration on these wonderful trails - we are so lucky to live in Northfield!	Oct 1, 2011 11:56 AM
21	We frequent NMH/CS Lewis campus. This may change once school is in session. We would look for other nearby trails.	Oct 1, 2011 11:36 AM
22	Notch Mt	Oct 1, 2011 10:57 AM

Q2. Do you use any of the trails in Northfield? If so, please indicate which ones and how often you use them.		
23	Don't use them	Oct 1, 2011 9:58 AM
24	Woods along river north of King Phillips Hill	Oct 1, 2011 9:50 AM
25	respondent wrote "no" after question #2	Sep 29, 2011 10:26 AM
26	None	Sep 28, 2011 11:10 AM
27	I would like to know more about the other trails/areas ... I have only used what I know. Do we have an in town, weekend hiking group? How about a map or guide to these areas?	Sep 28, 2011 4:39 AM
28	We would love to use some of these trails but they are all new to me! I wish there was some kind of pamphlet/book that gave descriptions and locations of all the hikes available in Northfield.	Sep 25, 2011 4:50 PM
29	Have used some of these more in the past - especially in Mill Brook and the trails above Rustic Ridge. Others listed here I've never known about - neat. Frozen snowmobile trails can be great walks.	Sep 25, 2011 3:30 PM
30	I don't know the names of all trails I use but would explore any of them.	Sep 22, 2011 3:27 PM
31	I don't use any trails in Northfield.	Sep 12, 2011 8:50 AM
32	Trails from School St. to East Northfield Reservoir. Climbing Notch Mt.	Sep 12, 2011 8:28 AM
33	We walk behind the golf course over to school street. I'm not sure what that is called, but we love that area and would love to see it preserved and maintained. A bridge over the river would make it possible to walk to the library! I don't know much about the other trails mentioned but would love to learn more.	Sep 12, 2011 5:24 AM
34	I fully support these trails although I have not used them recently - I would like to start and appreciate them.	Sep 11, 2011 5:35 PM
35	I don't know what the trails are called but I mostly go between School Street and Birnam Road.	Sep 8, 2011 5:48 PM
36	Usually stay on my own land; walk/hike elsewhere about 8 times a year.	Sep 8, 2011 2:28 PM
37	walk on old trails below the golf course and behind the library, they need maintenance	Sep 8, 2011 8:33 AM
38	Would love to do more of these trails if time allowed. The easier it is to gain access (maps, directions, mileage and difficulty details, parking) the more likely we'd be to use these trails. Also - the Mill Brook Conservation Area seems to be very poorly maintained - impassable most of the year. Would love to see those trails (all the way from the post office to the library, the golf course, School Street, etc.) rehabilitated. Is NMH the landowner? Have they abandoned the area?	Sep 7, 2011 3:14 PM

Q3. Do you support a network of trails for the following activities listed below?		
1	Do not support trails through woods for motorized vehicles.	Nov 25, 2011 11:30 AM
2	All activities should be allowed as long as the participants are respectful. Just because a person may not participate in a certain sport, they should not prevent others from enjoying it.	Oct 17, 2011 5:22 PM
3	hiking with dogs	Oct 17, 2011 7:29 AM
4	The snowmobile/ATV energy is intense and disruptive of peace and quiet in my neighborhood area, but I do my best to tolerate it and try to use early morning time to get the more peaceful experience outdoors I seek. They seem to be more of an "after the game" evening/night crowd. I like the idea of designated snowmobile trails so I know where they'll be generally and can make choices based on that. It would be interesting to explore designated trails and/or restricted areas for ATVs.	Oct 16, 2011 1:25 PM
5	Only when money is available thru donations or grants	Oct 16, 2011 1:08 PM
6	No	Oct 10, 2011 10:38 AM
7	ATV's cause excessive damage.	Oct 10, 2011 10:34 AM
8	No motorized activities. Let's keep NFLD green	Oct 5, 2011 1:00 PM
9	Skijoring	Oct 5, 2011 12:05 PM
10	Again - we are Seniors	Oct 5, 2011 8:18 AM
11	snowmobile trails are well organized	Oct 5, 2011 8:01 AM
12	I prefer non-motorized activity.	Oct 1, 2011 11:36 AM
13	Against noisy machines	Oct 1, 2011 9:50 AM
14	Motorized activities separate from pedestrian/horseback/bike.	Oct 1, 2011 9:27 AM
15	ATV & snowmobiling only on designated areas & time or year (due to erosion)	Sep 25, 2011 3:43 PM
16	Trails for horses might need more work to remove roots, etc. that could cause injuries?	Sep 25, 2011 3:30 PM
17	what is ATV?	Sep 25, 2011 3:22 PM
18	No "networks"	Sep 24, 2011 10:52 AM
19	Answer: Not sure on last 3 items: depends on impact to land.	Sep 22, 2011 3:27 PM
20	I work on public and private snowmobile trails annually	Sep 15, 2011 1:30 AM
21	As much as people hate ATV's, they proved a life saver during floods from Irene.	Sep 12, 2011 8:28 AM
22	no engines, too dangerous and disturb the quiet	Sep 12, 2011 5:24 AM
23	Snowmobiles and ATVs ruin the land and pollute the air and hurt the ears and	Sep 8, 2011 5:48 PM

Q3. Do you support a network of trails for the following activities listed below?

disturb the spirit.

24

ATV and snowmobiles during restricted hours (need quiet).

Sep 8, 2011 2:28 PM

Q4. How important are the following recreational resources to you:		
1	Would love park on river to hang out and enjoy	Oct 18, 2011 5:26 PM
2	I really appreciate the great roads in Northfield for biking and open fields for kite flying - also Satan's Kingdom for birding and nature observation.	Oct 16, 2011 1:25 PM
3	I am an athlete and a parent. We try to spend a lot of time outdoors doing these activities.	Oct 16, 2011 1:14 PM
4	I believe a trail system could be utilized to educate the public about the need to protect biodiversity and thereby help to build awareness of the importance of ecosystems.	Oct 10, 2011 4:07 PM
5	Public swimming pool would be great. NMH's too expensive.	Oct 10, 2011 10:38 AM
6	playing fields important, but not for me personally.	Oct 10, 2011 10:34 AM
7	I've always thought a bike trail along the Ct. River would be great.	Oct 5, 2011 1:00 PM
8	Not important meaning that we don't use these types of facilities. Not meaning they are not important to the community.	Oct 5, 2011 12:51 PM
9	Clean up Northfield boat ramp and maintain it for all boaters.	Oct 5, 2011 12:45 PM
10	Northfield needs an outdoor gazebo or band stand area for summer concerts, plays, etc.	Oct 5, 2011 12:16 PM
11	Please make improvements to our playing fields. These are an embarrassment compared to other surrounding towns. {"Public swimming pool" I starred twice in above choices}	Oct 5, 2011 11:39 AM
12	Ice skating. {Snowshoeing circled in above choices}	Oct 5, 2011 11:29 AM
13	need a place to swim; would like children's splash pool	Oct 5, 2011 8:01 AM
14	All of this seems very important to me, for the children in the community.	Oct 1, 2011 11:10 AM
15	Need baseball fields upgraded!	Oct 1, 2011 9:50 AM
16	Make pool fees accessible - reduce cost; Expand bike trails to reduce transp. costs; have multi-use trails/fields/picnic areas for efficiency(?) {"Fields/play/picnic areas" may go after 'bike trails'-JDM}	Oct 1, 2011 9:27 AM
17	[respondent put a "?" next to all categories from Playing Fields-Soccer Fields but did fill in priorities]	Sep 29, 2011 10:22 AM
18	I'd like more access points to the Connecticut river for putting in canoes or just to walk along the river.	Sep 25, 2011 5:04 PM
19	pet friendly	Sep 25, 2011 3:15 PM
20	Re. public access to natural areas and waterbodies: Not all natural areas and water should have access. Leave some for the animals.	Sep 22, 2011 3:27 PM
21	You seem to have forgotten Snowmobiling which is "very important" to me.	Sep 15, 2011 1:30 AM

Q4. How important are the following recreational resources to you:

22	I dream of a riverfront park & walking path south of the rehabilitated Schell Bridge that goes from the bridge to the Mill Brook conservation area along Mill St ... a boy can dream ...	Sep 7, 2011 3:14 PM
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Q5. In your opinion, how important are the following open space features to Northfield?		
1	Although peace and quiet are important, we cannot always have quiet when we live in a community. Lawn mowers, chain saws, traffic (travel and recreational), guns, and even music, dogs, construction, etc.	Oct 17, 2011 5:22 PM
2	double checks on farm & farmland, forests, quiet	Oct 17, 2011 7:29 AM
3	Support mountain views unless it involves clearcutting	Oct 10, 2011 4:45 PM
4	Areas to be preserved should be identified utilizing an objective set of analyses to identify species habitats and intact ecosystems that are critical for biodiversity and that if protected will enhance ecological resilience to climate change and other threats. The national heritage and endangered species program (NHESP) has done extensive mapping utilizing GIS capabilities	Oct 10, 2011 4:07 PM
5	How does the definition of "open space" apply to question #5? I think the question is poorly worded to get at your specific meaning. eg. what does quiet mean? or air quality? How could anyone be against good water/air quality?	Oct 10, 2011 10:47 AM
6	I'm a fan of cluster development. Where would there be public access for swimming?	Oct 10, 2011 10:34 AM
7	Non-motorized boating. No street lights. No visible development on ridges, hillsides (ex. Spanbauer's)	Oct 5, 2011 1:00 PM
8	Need a good community beach area for swimming, family picnics, etc.	Oct 5, 2011 12:16 PM
9	{"Quiet" and "rural character" have extra checks.}	Oct 5, 2011 11:56 AM
10	I think we can't stop change. It's best to manage it to maintain what we value most.	Oct 5, 2011 11:22 AM
11	We love all of these features	Oct 5, 2011 8:18 AM
12	boat ramp in poor condition. Hard to access for Kayakers. How about a paddler's access at Bennett Meadow?	Oct 5, 2011 8:01 AM
13	Public awareness of "light pollution"	Oct 5, 2011 7:51 AM
14	The rural character should not mean no gas stations!	Oct 1, 2011 11:13 AM
15	The rural character should not mean no gas stations!	Oct 1, 2011 11:13 AM
16	Houses should be denser with less sprawling in hills.	Oct 1, 2011 9:50 AM
17	public access for swimming very important "if H2O OK"	Sep 29, 2011 10:30 AM
18	Working forests play a critical role in creating forested areas with good aesthetics, and create recreational opportunities as a by-product of this use (trails on skid roads, etc.) This should be promoted on private land in town as well as on public lands (town and state owned).	Sep 26, 2011 9:09 AM
19	People should be outside enjoying themselves- doesn't have to be quiet	Sep 25, 2011 3:08 PM
20	Would like to see view of CT River - trees have really filled in - can some of them	Sep 24, 2011 10:42 AM

Q5. In your opinion, how important are the following open space features to Northfield?		
	be cleared? (This is the area on Rte 10 as you cross over the bridge.)	
21	Re. lower housing density: Need affordable housing. This might raise the density.	Sep 22, 2011 3:27 PM
22	More traffic control on Main Street in entire area where there are houses.	Sep 22, 2011 3:14 PM
23	Sidewalks are incredibly important too. Why dig up the functioning sidewalks and replace them when so many roads where children and parents walk also need sidewalks, especially Warwick Road?	Sep 8, 2011 5:48 PM
24	I am in favor of the town providing resources so that people don't trespass on private land.	Sep 8, 2011 2:28 PM
25	we live in Northfield because it is a beautiful rural community with lots of open space, farms and woods yet a cozy village feel, not far from the mainstream. Don't want that changed by a lot of development, housing tracts, condos, chain stores. We love that we can walk and hike right out our front door, and access prime birdwatching habitat.	Sep 8, 2011 8:33 AM
26	Lack of light pollution tops my list. Will C.S. Lewis College install horrid bright "historic" lamps like they have along Rte. 2 in Erving? Will any new streetscape designs involve high-glare lighting? Will any new housing developments include all-night multi-directional floodlamps? Would a new ballfield include excessive security lighting? The terrors of light pollution are too many to name here, but any open space or preservation plan should include "natural nighttime darkness" as a major benefit.	Sep 7, 2011 3:14 PM
27	I don't think we should prevent building, but zone conversation areas as non residential, no buildings.	Sep 7, 2011 1:25 PM

Q6. Which of the following actions do you support to protect/conserv natural resources in Northfield?		
1	Do not know what is meant by town support of the APR program.	Nov 25, 2011 11:30 AM
2	I only support protection if it remains open to hunting. If we do not use hunting to manage wildlife the population will grow beyond the land's carrying capacity!	Nov 25, 2011 11:16 AM
3	Notes in margins "Don't know enough about this," beside Increase funding to the CPA "With prudence," beside Town purchase of PDR	Oct 18, 2011 4:52 PM
4	Not sure what's meant by conservation restriction - if it means no development I'm all for it.	Oct 17, 2011 7:38 AM
5	All important!	Oct 17, 2011 7:29 AM
6	What is Town purchase of development rights?	Oct 17, 2011 7:23 AM
7	I think all this is great - a "diverse portfolio" strategy. Not sure about town's budget and ability to purchase or manage land (lacking info and know it might be a sensitive point.)	Oct 16, 2011 1:25 PM
8	Note: ? in box by Town purchase of PDR ? in box of Town support of APR	Oct 12, 2011 5:30 PM
9	Comments written in margins on paper survey: 1. !!!!!!! -next to increasing funding for CPA 2. (not enough info) - next to Reduce taxes for farmers 3. (don't know) - next to Town purchase of development rights	Oct 10, 2011 4:45 PM
10	Education is the key to all preservation and conservation plans. The town can partner effectively, but I do not feel that it has either the knowledge or the capacity to implement and maintain an ongoing plan.	Oct 10, 2011 4:07 PM
11	Re: Town purchase of land/rights - "These 2 sound expensive"	Oct 10, 2011 3:16 PM
12	"?" after 2 Town purchase items	Oct 10, 2011 10:50 AM
13	Reduce taxes for everyone	Oct 10, 2011 10:47 AM
14	DCR & UMASS do estate planning for free. Call your local Service Forester. Ask non-profits and land trusts to partner with the town. I don't know about current funding or proposed projects but CPA does seem important. Farmers already [get tax breaks] through Ch 61A. Town purchase of land depends on land in question & budget. Should be decided case by case based on priorities. .	Oct 10, 2011 10:34 AM
15	Reduce taxes for farmers if means tested.	Oct 5, 2011 1:00 PM
16	I would support lower taxes for some farmers based on means testing.	Oct 5, 2011 12:51 PM
17	Increase funding for CPA - starred	Oct 5, 2011 12:40 PM
18	Reduce taxes for forest owners.	Oct 5, 2011 12:16 PM
19	Increase funding to the CPA: ? Reduce taxes for farmers & residents	Oct 5, 2011 12:09 PM
20	Comment at "Reduce taxes for farmers" 'This doesn't stop them from selling and subdividing'	Oct 5, 2011 12:05 PM

Q6. Which of the following actions do you support to protect/conserv natural resources in Northfield?		
21	{"Increase funding to the CPA"} has three exclamation points after it.	Oct 5, 2011 11:39 AM
22	prefer to keep private ownership of conservation land	Oct 5, 2011 8:01 AM
23	Reduce Taxes for farmers "under a certain size and especially organic".	Oct 1, 2011 11:50 AM
24	Increase taxes for all to fund all of the above	Oct 1, 2011 10:57 AM
25	Encourage 'village' development	Oct 1, 2011 9:50 AM
26	Need more info on many of above.	Oct 1, 2011 9:27 AM
27	Do not know enough about above to comment, however would be concerned what town could afford and where money would come from.	Sep 29, 2011 10:08 AM
28	I don't know or understand much about the distinctions between these options and what the relevant costs for maintainence and liability that would be incurred and the opportunity that they would provide as far as public access and financial opportunity.	Sep 28, 2011 4:39 AM
29	The state should aid in helping the town to protect land, but I am not in favor of more land in town going under state ownership	Sep 26, 2011 9:09 AM
30	I'm not aware of what some of these programs involve, so hard to answer.	Sep 25, 2011 4:50 PM
31	I have been hunting all my life. I have always respected and "gave" to the protection of natural resources.	Sep 25, 2011 3:43 PM
32	I don't feel knowledgable to address these issues - a lot to tackle, it would appear.	Sep 25, 2011 3:30 PM
33	Prioritized: 1. conservation by state agencies 2. increase funding to CPA 3. encourage conservation by nonprofits and land trusts 4. acceptance by town of donated land 5. town purchase of conservation land 6. reduce taxes for farmers 7. educate residents about public service costs of land use	Sep 25, 2011 3:22 PM
34	[re. Reduce taxes for farmers - ? Probably] People should be aware and educated about it if they are interested in having natural resources.	Sep 25, 2011 3:08 PM
35	Farmers should be encouraged to produce and sell their products to the town and surrounding area. They should be protected from too much state or federal regulation.	Sep 24, 2011 10:35 AM
36	Let's work to restore CPA to original funding level!	Sep 12, 2011 10:54 AM
37	I am so sick of try to preserve things in Northfield at the expense of the taxpayer. Stop taking things off the tax roll.	Sep 12, 2011 8:50 AM
38	I support doing anything we can to keep the rural beauty of Northfield.	Sep 12, 2011 5:24 AM
39	Unsure what donated development rights are. Since I am unsure how much funding the Cons Pres Act has I do not know if it should be increased. Don't know enough about farming taxes to answer. Don't kno what te APR is.	Sep 11, 2011 5:35 PM

Q6. Which of the following actions do you support to protect/conserve natural resources in Northfield?		
40	Hard to knowledgeably answer those.	Sep 8, 2011 5:48 PM
41	I support the right of landowners to do what they want with their land as long as it does not negatively impact their neighbors.	Sep 8, 2011 2:28 PM
42	we should especially support businesses (farms) which act to conserve our town's rural character and open space	Sep 8, 2011 8:33 AM
43	We need to increase - again - to 3% the percentage the Town collects under the Community Preservation Act in order to qualify for state funding!	Aug 9, 2011 6:44 AM

Q7. Are there specific areas in Northfield that the town should try to own, protect access to, or otherwise protect?		
1	Forest area above Rustic Ridge--too much logging.	Nov 25, 2011 11:09 AM
2	Mill Brook Conservation Area Land along the river near Schell Bridge	Oct 18, 2011 4:58 PM
3	Schell Bridge	Oct 18, 2011 4:57 PM
4	River front access, need a trail along the river! The whole length!	Oct 17, 2011 5:31 PM
5	Rustic Ridge Trails	Oct 17, 2011 5:22 PM
6	Buy the abandoned Sunoco station. Tear it down and seed a lawn - same with Mobile/church	Oct 17, 2011 7:38 AM
7	watersheds, farming, wildlife habitat	Oct 17, 2011 7:29 AM
8	Mill Brook area	Oct 17, 2011 7:23 AM
9	Possibly - I am wondering about what will happen to the rustic ridge trails and hope the character of this area can be preserved.	Oct 16, 2011 1:25 PM
10	Probably but I don't know specifically	Oct 16, 2011 1:14 PM
11	Respondent put a "?" next to question #7	Oct 16, 2011 1:05 PM
12	Old Wendell Rd	Oct 16, 2011 1:01 PM
13	Previous Girl Scout house and land around area.	Oct 12, 2011 5:57 PM
14	Watersheds and Farmlands	Oct 12, 2011 5:49 PM
15	Northfield boat ramp, Schell Bridge	Oct 12, 2011 5:30 PM
16	Strip of land along CT river between Mill Brook and Spencer's, and Schell Bridge	Oct 10, 2011 4:45 PM
17	Again, the areas to be considered should be identified utilizing an objective set of analyses.	Oct 10, 2011 4:07 PM
18	The river	Oct 10, 2011 3:16 PM
19	Farms in and around the center of town should be protected. It is sad to see so much land being divided up for housing - for example the land on the lower end of Old Wendell has been subdivided in recent years.	Oct 10, 2011 11:26 AM
20	Don't know, like what or where?	Oct 10, 2011 10:47 AM
21	I'm partial to Crag Mtn! But I'm biased!	Oct 10, 2011 10:34 AM
22	Farmlands/hayfields (ex. Shearer property on Rt.63 that has been up for sale for years). It seems a lot of forested areas get protected, but we need farmland to be protected as well. Town could rent out the land to pay for atxes on that property.	Oct 5, 2011 1:00 PM
23	NMH forest land	Oct 5, 2011 12:51 PM

Q7. Are there specific areas in Northfield that the town should try to own, protect access to, or otherwise protect?		
24	Schell Memorial Bridge	Oct 5, 2011 12:22 PM
25	Continue to try to revitalize Schell Bridge	Oct 5, 2011 12:16 PM
26	A pond area for swimming like Schell Pond use to be with a concession area or a camping area.	Oct 5, 2011 12:05 PM
27	PLEASE purchase the swimming pool from NMH and improve it. Add swim lessons for children and low cost public access.	Oct 5, 2011 11:39 AM
28	All the existing hiking trails and woods.	Oct 5, 2011 11:29 AM
29	NMH owned lands	Oct 5, 2011 11:17 AM
30	The big empty tract of land on Birnam Rd across from the former John Spencer house- It would make a good area for a Senior Center -	Oct 5, 2011 8:18 AM
31	CT River banks, Rustic Ridge and mountain above, forests & views along the NET	Oct 5, 2011 8:06 AM
32	Millbrook Conservation area	Oct 5, 2011 8:01 AM
33	farm land from M/M trail to Hobo Trail	Oct 5, 2011 7:51 AM
34	I don't know.	Oct 1, 2011 11:56 AM
35	NMH/CS Lewis fields, forests and trails.	Oct 1, 2011 11:36 AM
36	Farmland Forest Management	Oct 1, 2011 11:27 AM
37	?	Oct 1, 2011 11:10 AM
38	(Person checked both yes and no)	Oct 1, 2011 11:01 AM
39	Notch Mt. Ecological importance	Oct 1, 2011 10:57 AM
40	I support whatever they would want to protect or get access to.	Oct 1, 2011 9:58 AM
41	River frontage	Oct 1, 2011 9:50 AM
42	Area around schell Pond - to create a park with walking paths, benches, etc. Perhaps use lot south of Trinitarian Church as winter skating rink - summer picnic area.	Oct 1, 2011 9:44 AM
43	Potentially	Oct 1, 2011 9:27 AM
44	Waterways	Oct 1, 2011 9:18 AM
45	Area for a community garden	Sep 30, 2011 6:22 AM
46	open fields	Sep 30, 2011 4:18 AM
47	CT River, Brush Mtn	Sep 29, 2011 10:30 AM

Q7. Are there specific areas in Northfield that the town should try to own, protect access to, or otherwise protect?		
48	respondent wrote a "?" next to question #7	Sep 29, 2011 10:26 AM
49	former NMH lands that become available	Sep 29, 2011 10:22 AM
50	room for police	Sep 29, 2011 10:16 AM
51	Main Street - traffic speed and noise begins about 4 am - through the day - not enough traffic control. Owning a home on Main Street is not a benefit (hard to read?) and if it continued we will lose a main asset of the town.	Sep 29, 2011 10:08 AM
52	Mill Brook area Trails along the CT River	Sep 29, 2011 7:22 AM
53	1. Forest east of Ct River 2. Schell Bridge	Sep 28, 2011 11:22 AM
54	No buildings or houses along Rt. 10 entering Nfld. Keep it scenic also anywhere else where scenery is pretty. No more storage sheds.	Sep 28, 2011 11:10 AM
55	Mill Brook area, Connecticut River banks, area along the NENST (M&M) trail	Sep 28, 2011 8:55 AM
56	River Rd., Four Mile Brook Rd.	Sep 28, 2011 5:19 AM
57	River front development for recreation and limited business. Boat rentals, restaurant, bike shop along trail, snack shop, etc.	Sep 28, 2011 4:39 AM
58	Larger blocks of contiguous, undeveloped land should be a general priority for conservation. Areas that could be developed with current town roads/access, that are not developed now should take priority due to the higher threat of development in these areas.	Sep 26, 2011 9:09 AM
59	additional sports fields somewhere in town	Sep 26, 2011 5:14 AM
60	River banks and ridge tops	Sep 25, 2011 5:04 PM
61	Not sure what is available.	Sep 25, 2011 4:50 PM
62	Schell Bridge	Sep 25, 2011 3:43 PM
63	Maybe Mill Brook where the pond is? There probably are others (in cooperation with Mount Grace Land Trust?)	Sep 25, 2011 3:30 PM
64	the area around the reservoir.	Sep 25, 2011 3:22 PM
65	boat ramp	Sep 25, 2011 3:15 PM
66	forests, trails	Sep 25, 2011 3:08 PM
67	Don't know.	Sep 24, 2011 10:42 AM
68	forest, streams, and ponds.	Sep 24, 2011 10:35 AM
69	Not sure	Sep 22, 2011 3:27 PM
70	Mill Brook and Northfield Ridge Trail system owned by NMH	Sep 12, 2011 9:19 AM

Q7. Are there specific areas in Northfield that the town should try to own, protect access to, or otherwise protect?		
71	Waterfalls off of Old Wendell Rd. Trails owned by NMH (from School St. to East Northfield Reservoir	Sep 12, 2011 8:28 AM
72	ex-NMH land on Birnam Rd and Millbrook areas.	Sep 12, 2011 5:33 AM
73	The trails I mentioned earlier behind NMH golf course and Dickinson Library (not sure what they're called) are really special and the trails in the area that was just logged by NMH are important for habitat and walking and hiking. Please try to acquire that land and protect it from further logging.	Sep 12, 2011 5:24 AM
74	Mill Brook Conservation Area presently owned by NMH; Schell Bridge area; area on west side of Main St along Mill Brook including agricultural fields currently owned by NMH	Sep 12, 2011 4:11 AM
75	Find a way to involve Franklin County Association of Governors to assist with a long term Schell Bridge initiative and finance trust.	Sep 9, 2011 5:43 AM
76	The land between School Street and Birnam Road. It's being destroyed by logging right now.	Sep 8, 2011 5:48 PM
77	Access to the CT River should be protected.	Sep 8, 2011 2:28 PM
78	area around Mill Brook behind the golf course and library; various parcels that NMH may put up for sale along the river and on the ridge	Sep 8, 2011 8:33 AM
79	An area which generates tax funds for the town	Sep 8, 2011 6:15 AM
80	River front	Sep 7, 2011 3:05 PM
81	Satan's Kingdom has enough development.	Sep 7, 2011 1:25 PM
82	boat launch area	Sep 7, 2011 12:47 PM
83	The Mill Brook area; any land along the river that becomes available; prime farmland must remain in agriculture	Aug 9, 2011 6:44 AM

Q8. What do you perceive to be the obstacles to implementing an Open Space and Recreation Plan in Northfield?		
1	Maintain strict zoning regulations.	Nov 25, 2011 11:30 AM
2	Loss of tax revenues due to land protection can be argued against. The houses we build, the kids that have to be transported to school. More houses means more roads have to be maintained and sometimes constructed. These all cost the town money. So loss of land as tax revenues does not mean a cost to the town.	Nov 25, 2011 11:16 AM
3	Much of Northfield open space is owned privately by NMH.	Nov 25, 2011 11:09 AM
4	Uneducated voters!	Oct 17, 2011 5:31 PM
5	Not enough money or interest to keep the greedy bastards out of town	Oct 17, 2011 7:38 AM
6	Note: The "perceived" loss of tax revenues	Oct 12, 2011 5:49 PM
7	Town government	Oct 12, 2011 5:30 PM
8	Note: Lack of information "(to people who object)"	Oct 10, 2011 4:45 PM
9	Attitude of Northfield residents.	Oct 5, 2011 1:00 PM
10	Have town votes on town decisions	Oct 5, 2011 12:45 PM
11	Need more commercial and housing development to keep taxes down.	Oct 5, 2011 12:16 PM
12	Improve the existing areas we have now. Print trail maps and have available to the public.	Oct 5, 2011 12:05 PM
13	I don't really know enough about it.	Oct 5, 2011 11:29 AM
14	lack of community cooperation	Oct 5, 2011 8:09 AM
15	NMH lack of cooperation	Oct 5, 2011 8:01 AM
16	lack of desire	Oct 5, 2011 7:51 AM
17	Lack of understanding. Maybe a lack of public process in decision making.	Oct 1, 2011 11:50 AM
18	Unknown	Oct 1, 2011 10:57 AM
19	Those persons who say "Whose going to take care of park, etc?" Various organization - Kiwanis, Garden Club, Village Improvement Society, etc., shd get behind parks, etc.	Oct 1, 2011 9:44 AM
20	Years ago Mountain Project would have a pool but Northfield Farms didn't want it.	Sep 29, 2011 10:16 AM
21	insufficient comprehension amongst town govt and citizens relative to the importance of open space/recreation	Sep 29, 2011 7:22 AM
22	Lack of timely information before a vote	Sep 28, 2011 11:17 AM
23	and private financing	Sep 28, 2011 4:39 AM

Q8. What do you perceive to be the obstacles to implementing an Open Space and Recreation Plan in Northfield?		
24	funds for purchase of land	Sep 26, 2011 5:14 AM
25	money	Sep 25, 2011 3:08 PM
26	Faction of voters	Sep 22, 2011 3:27 PM
27	The Open Space committee members themselves are the biggest problem with implementing a plan.	Sep 12, 2011 8:50 AM
28	The Selectboard and the Finance Board	Sep 12, 2011 6:43 AM
29	Lack of info speaks to the fact that I do not have enough info to answer the others on the list.	Sep 11, 2011 5:35 PM
30	Awareness of specific current choices.	Sep 9, 2011 5:43 AM
31	People who don't care about nature.	Sep 8, 2011 5:48 PM
32	People don't trust the town to watch over their rights and interests.	Sep 8, 2011 2:28 PM
33	Money money money money	Sep 7, 2011 3:14 PM








Q9. Which Northfield neighborhood do you live in?		
1	Lucky Clapp Rd (south of "The Village Center")	Oct 10, 2011 3:21 PM
2	Main St area {of East Northfield, I guess}	Oct 5, 2011 11:39 AM
3	Kind of on the far edge of the center	Oct 5, 2011 11:22 AM
4	Who ever heard of South Mtn?	Oct 1, 2011 11:46 AM
5	(Person checked both Village Center and South Northfield)	Oct 1, 2011 10:04 AM
6	Outside edge of Village Center	Sep 28, 2011 11:26 AM
7	east of center, en route to Warwick	Sep 28, 2011 4:39 AM
8	Alexander Hill	Sep 18, 2011 2:03 PM
9	Warwick Rd.	Sep 12, 2011 8:28 AM
10	Millers Falls Road south of Rt. 10 intersection.	Sep 9, 2011 5:43 AM
11	Central? Off Old Wendell Road and New Plain Road onto Lyman Road	Sep 8, 2011 6:15 AM

Q12. Please provide any additional comments:		
1	We have come up with ways to raise money for setting aside land through grants and fundraising. Many townsfolk cannot afford to pay additional tax on their land as a means for the town to raise conservation funds. Contributions must be voluntary. Raise awareness and people will contribute according to their means. Thank you for the work you are doing on behalf of the town!	Nov 25, 2011 11:30 AM
2	Working forest lands and farm lands provide open space and tax revenues. Support logging and farming.	Nov 25, 2011 11:16 AM
3	I wish Northfield had a "town common," a large, open space in the center of town for outdoor events and gatherings (and the farmers market). Not that it was designed to, but the new Senior Center pavilion does not serve this purpose.	Oct 18, 2011 4:58 PM
4	Open space goals are very crucial to preserving the rural character and desirability of this community.	Oct 18, 2011 4:57 PM
5	We need better ways to maintain the wooded areas in the town. Invasive plants (particularly oriental bittersweet) are destroying trees in many of these areas.	Oct 17, 2011 5:01 PM
6	It might be nice to host an east/west northfield experience - hike & picnic on both sides??	Oct 17, 2011 7:29 AM
7	The Ag Commission's map of farms and products hangs on our fridge - is there a good map of Northfield's recreation and open space opportunities? There are still areas of town I have yet to explore. On such a map it would be advisable to identify the places most accessible to people with limited mobility. I have covered several areas in Northfield for Mass Audubon's Breeding Bird Survey in the past 5 years. - As a volunteer birder submitting data.	Oct 16, 2011 1:25 PM
8	Thanks for doing this good work!	Oct 16, 2011 1:14 PM
9	Believe Schell Bridge would provide valuable family recreation as well as bringing new interest to the town.	Oct 12, 2011 5:57 PM
10	Thanks for all your work!	Oct 10, 2011 4:45 PM
11	Survey is a great idea.	Oct 10, 2011 4:38 PM
12	I feel strongly that open space & recreational planning must necessarily incorporate strategies designed to promote a comprehensive means to assist base ecosystems in mitigating the negative effects and transformations caused by climate change & other deleterious factors. It is this issue that requires Northfield to set about the task of prioritizing those areas within town of the greatest potential, size, diversity, and connectivity and to develop an ongoing management scheme in order to cope with likely adverse impacts - Local resource: John Lepore - Bernardston	Oct 10, 2011 4:07 PM
13	I have not much to say. However I would like to see some orderly development that does NOT impinge on the open areas. I am unemployed!	Oct 10, 2011 3:21 PM
14	I think it would be great to have a B&B network linked by trails (hiking, biking, boating) - similar to White Mt. Hut system, would make it easy for people to through hike sections without having to carry food, shelter & bedding - would	Oct 10, 2011 10:34 AM

Q12. Please provide any additional comments:		
	create a recreation destination.	
15	We should have a crosswalk @ the intersection of Rt. 63 & 10 for all walkers and bikes. Finish the sidewalks past Fairview Gardens and across intersection.	Oct 5, 2011 12:05 PM
16	Parks, playing fields and swim areas for children/families are lacking and need improvement.	Oct 5, 2011 11:39 AM
17	Maybe have residential areas by high density with nearby open space for people who live there.	Oct 5, 2011 11:22 AM
18	Northfield is a great place to live!!	Oct 5, 2011 8:18 AM
19	Thank you for your efforts to maintain the quality of life we have in Northfield!	Oct 1, 2011 11:56 AM
20	You should allow new business.	Oct 1, 2011 11:46 AM
21	Thankis for your efforts on this!	Oct 1, 2011 11:36 AM
22	Thanks for doing this!	Oct 1, 2011 11:27 AM
23	(Person checked both "51-75" and "more than 75")	Oct 1, 2011 10:04 AM
24	We need town riverfront meeting areas - walking distance from town.	Oct 1, 2011 9:50 AM
25	Don't get discouraged. I think the interest and the younger citizens of the town are ready to see this type of improvement followed to a successful ending.	Oct 1, 2011 9:44 AM
26	It would be great to send out a map of all the areas you listed in question 2 & their appropriate uses. I have not heard of half of these & I have lived here 37 years!	Oct 1, 2011 9:35 AM
27	I really wish there was a place to swim year-round. Perhaps an arrangement could be made with C. S. Lewis College and residents could pay to use the pool two or three nights per week. This is the most important issue for me. Also, it would be really wonderful to have spots where people could swim in natural bodies of water in Northfield. There must be ponds and streams around town that could become public areas. Thank you!	Oct 1, 2011 9:18 AM
28	GReat website. Thank you for asking	Sep 30, 2011 6:22 AM
29	Our family wants access to open lands to walk/hike on. We need cars to slow down for walkers/hikers on secondary roads.	Sep 30, 2011 4:18 AM
30	Still a great town!	Sep 29, 2011 10:30 AM
31	I rent an apartment. I know the activities are important to younger people. I am 88 years old, unable to do some.	Sep 29, 2011 10:26 AM
32	I love Northfield and its rural character. Do not put a gas station on Main St. The traffic can not handle it. Nor the "look."	Sep 25, 2011 3:43 PM
33	Stop wasting my time year in and year out with this crap. How do I go about dissolving this committee and all its hair brained ideas?	Sep 12, 2011 8:50 AM

Q12. Please provide any additional comments:		
34	The town needs more of a tax base - so industries and taxable businesses are needed. Also this town needs a GAS STATION or two.	Sep 12, 2011 8:28 AM
35	I would like to talk to whoever knows about the area behind the golf course toward school street. I think getting a bridge there would really increase traffic and make it possible to walk to town and school through the woods. Thanks!	Sep 12, 2011 5:24 AM
36	Open Space Committee should work on more public access to the Connecticut River.	Sep 12, 2011 4:11 AM
37	have chosen to continue to live in this town because of its beauty and our good neighbors	Sep 8, 2011 8:33 AM
38	Thanks for all the good work you do, and I support your efforts.	Sep 7, 2011 3:14 PM









Goal A: Ensure that Northfield sustains its small town environment characterized by general peace and quiet, clean air and water, and maintains its rural characteristics including forests, farms, wildlife habitat, relatively low-density development outside of villages, and access to trails, ponds, and natural areas.

OBJECTIVE	ACTION - supply additional action steps	Place stickers on most important objectives
A1. Get Northfield citizens more engaged in open space stewardship.	1. Recognize outstanding citizen stewards. 2. Anti-litter campaign. 3. Bittersweet eradication / Become TreeCity town ?	
A2. Periodic review of appropriate open-space-friendly zoning bylaws.	1. Work with the Planning Board on appropriate bylaws. 2. Review zoning to make sure guidelines actually support OSRP.	
A3. Identify areas of town that are most important to protect/preserve.	1. Identify scenic views, roads, and byways. 2. Identify important wildlife habitats. 3. Review TPL study recommendations. 4. River front property - Schell Bridge.	
A4. Help preserve the historic character of Northfield.	1. Support the Historical Com. and the Historical Society . 2. Sponsor community events celebrating its history - e.g., day of history. 3. Work for the rehabilitation of Schell Bridge. 4. Cooperate with efforts to preserve our old cemeteries. 5. Identify historic landscapes and prioritize. 6. Traffic management! - volume - speed - noise.	
A5. Draft Management Plans for key open space properties.	1. Prepare a draft management plan for the Mill Brook property. 2. All major brooks - yes.	
A6. Help with the management of town-owned conservation areas.	1. Explore options for stewardship of the Mill Brook area. 2. Develop easy sets of "mini-tasks" that groups, schools, etc., could work on in half-day events.	
A7. Coordinate with other groups regarding the goals of the OSRP.	1. Work with area Land Trusts. 2.	

Suggest additional objectives here:

- **More conservative tree-cutting along roads - better communication with land-owners regarding cutting (before it's done).**
- **Expand the goals of the OS plan to include public concerns about loss of habitat, tree-cutting, road work, etc. - coordinate with highway department on tree-cutting plans with respect to environmental criteria.**
- **Lower speed limit along 63 - no breakdown lane - heavy truck traffic - noise goes up Northfield Mountain and South Mountain - not suggesting widening road, just slowing vehicles down.**
- **Remove 40 mph signs for historic Main St - why not 30 mph for whole 2-mile stretch.**
- **Economic development is critical to achieving all this; I think that fiberoptic high-speed internet access to every home in town is the single most effective thing that could be impact our town economy; I wish CPA funds could be used for this purpose - economic development is also essential for community preservation.**

Goal B: Ensure that Northfield maintains or improves the quality of its air, drinking water, streams and other surface waters including the Connecticut River, and maintains the presence of farmland, forestlands, scenic views, and wildlife habitat through the conservation of locally important natural and open space resources and other methods.

OBJECTIVE	ACTION - supply additional action steps	Place stickers on most important objectives
B1. Provide municipal funding for land protection (e.g., APR).	1. Promote full funding of the CPA. 2. Provide info on the CPA committee process. 3. Pre-plan (get “shovel-ready”) a variety of projects that might obtain future \$\$. 4.	
B2. Continue to work with local land trusts and others.	1. Provide a liaison to Mount Grace Land Conservation Trust. 2. Invite MGLCT show-and-tell at the library. 3. Educate public about wildlife habitat protection. 4.	
B3. Maintain the quality of the town’s surface waters.	1. Help monitor the water quality of CT River tributaries. 2. Monitor car junk-yards along waterways. 3. Need comprehensive sewer/water plan in village center. 4. Better planned cutting along roads, waterways, and streams. 5. Monitor for nuclear contamination from Vermont Yankee - both air and water quality.	
B4. Help protect the Town’s drinking water supplies.	1. Meet with the various Water Districts. 2. Need strategy to reduce over-logging and deforestation in watersheds. 3. Use Mass Rural Water to educate public on dangers of logging in water sources. 4.	
B5. Help landowners learn about land protection options.	1. Invite Mount Grace to provide land protection information. 2.	
B6. Assist the Cons. Com. in managing conservation lands.	1. Meet with the Conservation Commission. 2. Better education on wetlands and potential impacts. 3.	
B7. Work with landowners to maintain significant scenic views.	1. Write a newsletter article about overgrown views. 2. Organize workcrews to open up overgrown views. 3. Educate public about good forest stewardship.	
B8. Work with government conservation groups.	1. Meet with Northfield State Forest and DCR representatives. 2.	











Suggest additional objectives here:

- **Improve communication and work with highway department in regards to tree cutting. Encourage highway department to communicate with landowners before cutting.**
- **Watch/clear invasive species.**
- **Educate landowners about cutting practices and forest management.**
- **Understand which pesticides/fertilizers are being used on farmland**

red text is the verbatim comments added during the forum (except pages 4-5)

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Goal C: Ensure that Northfield maintains and improves the quality and accessibility of all of its recreational facilities and programming.

OBJECTIVE	ACTION - supply additional action steps	Sticker most important objectives
C1. Design a network of bicycle routes.	1. Facilitate the formation of a Northfield Bicycle Club. 2.	
C2. Promote existing recreational facilities and services.	1. In the Newsletter, summarize the recreational facilities. 2.	
C3. Continue to develop, manage, and maintain town trail systems.	1. Work with the Northfield Trails Association. 2.	
C4. Develop a series of signs and information at trailheads.	1. Contact DCR for information on trail markings/signs. 2. Make signs and maps - put in library. 3. Ask other towns' trail groups for ideas.	
C5. Establish a constructive dialogue with all-terrain vehicle enthusiasts.	1. Encourage the development of a local ATV club. 2. Direct conflict with Goal A "General Peace and Quiet". 3.	
C6. Explore plans for reviving once-popular recreational facilities.	1. Investigate future uses of Schell and Wanamaker ponds. 2.	
C7. Develop picnic areas and playgrounds.	1. Work with the Northfield Kiwanis Club. 2. Work with Northfield Recreation Committee for sports fields. 3.	
C8. Work with DCR to manage waterfront use on the CT River.	1. Write Newsletter articles about current water-use issues. 2. Manage and supervise boat speed on the Connecticut River. 3.	
C9. Continue working with NMH and others to maintain forest access.	1. Develop a contacts mailing list to encourage coordination. 2.	
C10. Explore additional funding sources for recreational facilities.	1. Identify projects that need funding and apply for grants. 2. Find one willing billionaire. 3.	
C11. Investigate boating/swimming access to the CT River.	1. Develop a canoe launch ramp at the Bennet Brook WMA. 2.	

Suggest additional objectives here:












- **Continue open space for hunting.**
- **Identify/purchase additional land for field space for sports: softball (none at present time), soccer (3 needed), baseball, and other activities.**
- **Renovate/improve existing NES sports field.**

(suggestions made by survey respondents)

Potential Area for Protection	Place sticker on each of the five most important
Area for a Community Garden	😊😊😊😊
NMH Field adjacent Golf Course	
NMH Forest above Rustic Ridge	😊😊😊
NMH land on river near Schell Bridge	😊😊😊😊😊😊😊😊
NMH Mill Brook Conservation Area	😊😊😊
NMH Northfield Inn Pool	😊😊😊
NMH Notch Mountain	😊
Private Crag Mountain	😊😊😊😊😊😊😊😊
Private Farmlands	😊😊😊😊
Private Girl Scout House	
Private Old Mobil Station land	
Private Old Sunoco Station	
Public and Private Connecticut River	😊😊😊😊😊
Public and Private Forests	😊😊😊
Large blocks of contiguous land	😊😊😊😊😊😊
Public and Private Views	😊😊
Public and Private Watersheds	😊😊
Public and Private Ridge Tops	😊😊
Public and Private River Banks	😊😊😊😊😊😊😊😊
Public and Private Waterways	😊😊😊😊
Town of Northfield Four Mile Brook	😊
Town of Northfield Main St	😊
Town of Northfield Route 10	
Town of Northfield Schell Bridge	😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊😊
Town of Northfield Sports Fields	😊😊😊😊😊
Town of Northfield Old Wendell Rd	
Town of Northfield River Rd	

red text is the verbatim comments added during the forum (except pages 4-5)

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Action	Place sticker on each of the five most important
Acceptance by the town of donated conservation land	
Acceptance by the town of donated development rights	
Encourage conservation by private nonprofits and land trusts	
Educate residents about land protection opportunities and estate planning	
Encourage conservation by state agencies	
Educate residents and landowners about the public service costs and tax revenues associated with different land uses	
Town support of the Agricultural Preservation Restriction (APR)	
Town purchase of conservation land	
Increase funding to the Community Preservation Act	
Reduce taxes for farmers	
Town purchase of development rights	

(items listed in the order prioritized by the survey results)

APPENDIX B: Americans with Disabilities Act (ADA) Access Self-Evaluation

One of the requirements of a state-approved Open Space and Recreation Plan is an ADA Access Self-Evaluation. The ADA Self-Evaluation describes how accessible a community's conservation and recreation programs and facilities are to people with disabilities. Its purpose is to highlight what still needs to be accomplished so that more people can enjoy the parks and recreation programs offered by the town.

The following pages include all the necessary components of the Evaluation. Three areas need to be evaluated based on the ADA Access requirements: Administrative Requirements, Program Accessibility (includes the Facility Inventory and Transition Plan), and Employment Practices. The following components are included in this section:

- Designation of an ADA Coordinator
- Grievance Procedures - The Town of Northfield Section 504 Grievance Procedures
- The Public Notification Requirements
- A Transition Plan for three town-owned properties in Northfield (Northfield Elementary School Playground, King Phillips Hill and the Northfield Town Forest) and the Library, Town Hall, Boy Scout House, and Transfer Station
- Participation of Individuals with Disabilities or Organizations Representing the Disabled Community
- A description of fair compensation policy
- Northfield's Affirmative Action Policy Non-Discrimination Against the Handicapped.

Town of Northfield
Americans with Disabilities Act
Grievance Procedure
Revised October 15, 2012

This Grievance Procedure is established to meet the requirements of the Americans with Disabilities Act (ADA) of 1990. It may be used by anyone who wishes to file a complaint alleging discrimination on the basis of disability in employment practices and policies or the provision of services, activities, programs or benefits by the Town of Northfield.

The complaint should be in writing and should contain information about the alleged discrimination such as name, address, phone number of complainant and location, date and description of the problem. Reasonable accommodations, such as personal interviews or a tape recording of the complaint will be made available for persons with disabilities who are unable to submit a written complaint.

The complaint should be submitted by the grievant and/or his or her designee as soon as possible but no later than 60 calendar days after the alleged violation to:

Thomas W. Hutcheson, Town Administrator/ADA Coordinator
69 Main Street
Northfield, MA 01360
(413) 498-2901, Fax (413) 498-5103
admin@townnfld.com

The ADA Coordinator shall attempt to resolve the grievance within a reasonable time. The ADA Coordinator will attempt to meet with the complainant to discuss the complaint and possible resolutions. The ADA Coordinator will respond in writing and, where appropriate, in a format accessible to the complainant such as audiotape. The response will explain the position of the Town of Northfield and offer options for substantive resolution of the complaint. The ADA Coordinator will also file a report of the resolution with the Board of Selectmen.

Should the grievance not be resolved, then the ADA Coordinator will present to the Board of Selectmen a proposed solution for their action.

If the proposed resolution is not acceptable to the complainant, then the complainant and/or his designee shall have the right to appeal directly to the Board of Selectmen. The Board of Selectmen will respond in writing and, where appropriate, in a format accessible to the complainant such as audiotape, with a final resolution of the complaint.

All complaints received by the ADA Coordinator, appeals to the Board of Selectmen and responses from the ADA Coordinator and Board of Selectmen will be kept by the Town of Northfield for a period of at least three years.

PUBLIC NOTICE

The Town of Northfield does not discriminate on the basis of disability in access to or operation of its programs, services, and activities. The Town of Northfield does not discriminate on the basis of disability in its application, hiring and employment practices.

The Town of Northfield has designated the following person to coordinate efforts to comply with these requirements. Questions, requests for auxiliary aids and services or modifications of policies and practices and complaints should be directed to:

Name: Thomas W. Hutcheson
Title: Town Administrator
Address: 69 Main Street
Northfield, MA 01360
Phone: (413) 498-2901
Fax: (413) 498-5103
Email: admin@townnfld.com

TOWN OF NORTHFIELD ADA INVENTORY OF TOWN PUBLIC ACCESS LANDS

The general public uses the following three town-owned areas: The Elementary School playground often, King Phillips Hill, infrequently, and the Brush Mountain Town Forest, occasionally. A brief assessment of each site's resources follows, including accessibility issues. The standards by which the areas are judged are used by the Massachusetts Division of Conservation Services and are based on state and federal guidelines. The inventory was completed by the Northfield Open Space Committee, assisted by the Franklin Regional Council of Governments Planning Department staff experienced in assessing parks and playgrounds for their level of accessibility.

Northfield Elementary School Playground

The Town of Northfield Elementary School includes a playground and sports field complex in back of the school and on the southern side of the building. There are two handicapped accessible parking spaces (adequate for a lot with 43 spaces) in back of the school closest to the rear entrance. The pavement surrounding the two spaces is undulating and contains cracks. There is no paved or other hard surfaced path between the parking areas and the baseball diamond viewing area. Nor is there a hard surface link between the parking spaces and a paved path that begins along the western side (back) of the school. This path begins at a rear door and runs south along the back of the school to a larger paved area, which contains two inaccessible picnic tables and a basketball net. Within a short distance of this larger paved area are the following playground facilities separated by uneven lawn areas:

For Younger Children:

- 1 play structure surrounded by a plastic-wood frame on the ground and filled with wood chips, stone dust, and sand surface materials.
- 1 swing set.
- 1 climbing structure.

For Older Children:

- 1 play structure with wood chips surface.
- 1 swing set.
- 1 climbing structure.

In addition, the playground includes a sandbox, one half of a soccer field, and a poorly maintained baseball diamond. The viewing area for spectators is located down slope from the parking lot at the rear of the school.

It is suggested that a path made with TR7, a stone dust material, be created from the paved handicapped parking spaces to the sidewalk that begins some twenty feet away at the rear of the school. When packed down, the TR7 material can provide an adequate

surface for anyone with mobility challenges. This will provide access to the basketball net and potentially to the other play structures. It is also suggested that a path made with TR7 be created to connect the paved area behind the school to the younger children's play structure. Finally, it is suggested that the town create a short ramp to a raised level platform so that people with mobility disabilities can travel from the parking spaces to the spectator stands closest to the pavement.

King Phillips Hill

This is a parcel of land approximately fourteen acres in size that is located off Old Bernardston Rd. near Rte. 10, west of the Connecticut River. An historical marker is located at the base of the hill describing how King Phillip and other Native Americans used the hill as a defensive position in the 1600s. The hill is very steep and the trail that accesses its top is difficult to find and barely navigable. The hill is covered with mature sugar maple and northern red oak. The hill is currently completely inaccessible for people with physical disabilities. Efforts to improve its accessibility would appear to be impractical. To increase the site's accessibility would require a severe impact to the natural state of the area, which would likely compromise the site's historical value.

Brush Mountain / Northfield Town Forest

Brush Mountain is an area about 50 acres purchased by the town in 2006; it is at the top of Brush Mountain where the New England Trail (NET, formerly the M&M Trail) passes. It also encompasses the Calvin Swann historic homesite. Adjacent to and downhill to the west of this 50 acres is the approximately 150 acres of the Northfield Town Forest. This 150 acres was purchased with Forest Legacy funds and donated to the town in 2011. Both properties front on Gulf Road and are accessible via a parking area and kiosk at the top of Gulf Road.

The NET is an unimproved but maintained forest trail; it is walkable by persons with minor ambulatory disabilities, but is not wheelchair negotiable. The town forest area has two old logging roads that are fairly level (though one does go down a gentle hill at one end) and are quite open for walking. The few remaining obstacles are in the process of being removed so that the trails through the town forest are easily accessible to persons of all ages and abilities. There are no plans to pave these trails, however, to make them wheelchair-accessible.

**Town of Northfield
ADA TRANSITION PLAN**

ADA Coordinator: Thomas W. Hutcheson, Town Hall
TOWN HALL, 69 Main Street, Northfield, MA 01360
Date October 24, 2012

Item/ Element	Modification	Page Refer- ence	Possible Solutions	Solution Selected	Target Date for Comple- tion	Designated Responsible Person	Est. Cost told contractor overhead &	Comments	Follow-Up
Parking	Provide 2 std & 1 van-accessible spaces	5	Re-stripe 1 van space at left of Seniors door & 1 space to right with access aisle between & 3rd space, where existing plus raise sign poles	Re-stripe 1 van space at left of Seniors door & 1 space to right with access aisle between & 3rd space, in main lot Add & Adjust signs & posts	2001	Highway Dept	included in restriping entire lot	May be money for signs thru FRTA	Completed 2003
Site Access & internal vertical access	Make path of travel accessible	6	1) Remove ramp and 2) regrade landscape to meet ong side entrance, 3) install interior elevator in that stairwell.	Consult elevator company and architect, Site & install elevator & path accordingly	2003	Town	\$1 1/linear ft for path \$200,000 for saadard size elevator	Limited-use elevator or vertical platform lift cannot be used for 3 full floors in this building	Completed 2003
Entrance	1) At front entrance show direction to access entrances 2) Mark accessible entrances as such 3) Front door 6-sec closing speed 4) Side Entrance lamp obstacle: door hardware 5) Back door too heavy	7	1) & 2) Anchor 3 plastic signs to masonry 3) Adjust closer 4) Raise lamp fixture, Replace hardware 5) Adjust closer	1) & 2) Anchor 3 plastic signs to masonry 3) Adjust closer 4) Raise lamp fixture, Replace hardware 5) Adjust closer	2001	Town	1&2) \$320 3)\$25 4)\$500 lamp \$230 lock 5) \$25		1,2,3,5 completed 2003
Rest Rooms	1) Accessible signs at each room 2) Stall door clearance, self-closing, coat hook 3) Access urinal height 4) (Optional) Emergency aud/vis alarms	8	1) Add 2 signs on wall 2) Men's & women's: Reverse hinge side; Mount so self-closing, Lower coat hooks 3) Lower urinal 4) Install 2 emerg , AN alarms	1) Add 2 signs on wall 2) Men's & women's: Reverse hinge side; Mount so self-closing; Lower coat hooks 3) decommission urinal 4) (Opt.) Install 2 emery , AN alarms	1) 8/99 2) 2001 3) 2003 4) Optal -2003	Town	1) \$0 2) \$1000 3) \$250 4)\$646	1) have signs now	Completed 2003
Kitchen	1) Accessible counters 2) Base cab hardware 3) Sink hardware 4) Refrigerator access 5) Kitchen door	9	1) Remove base cabinets or add table 2) Replace hardware 3) Replace with levers 4) Reorient to face Outward 5) Widen doorway or replace hinges with swing-clear type	1) Remove base cabinets or add table 2) Replace hardware 3) Replace with levers 4) Reorient to face out 5) Widen & replace w/ baticw wood door or replace hinges with swing-clear type		Town	1) \$470 to remove cabs 2) \$65 3) \$440 4) \$25 labor 5) \$960 widen 6) \$415 hinges		

Dining Room	1) Door hardware 2) Directional signs to rest rooms 3) TV hearing access 4) Listening access 5) Coat racks	10	1) Replace or adapt knobs w/levers 2) Attach accessible signs to door 3) Provide post 1992 TV or buy de-coder 4) share use of FM ALS 5) Replace racks	1) Adapt handles 2) Attach accessible signs to glass panel 3) provide post 1992 TV or buy dc-coder 4) Share FM ALS 5) Replace 1 rack	1) 2001 2) 2001 3) 2001 4) 2001 5) 2003	Town Town 3) COA or Town Town Town	1) \$50 2) \$70 2) \$300 new TV; \$150 decoder 4) \$0 SL \$150	3) Does town or COA own it?	12.5 completed 2003
Offices & Conference Room	1) Listening access 2) Accessible ID signs for offices 3) Access Doors 4) Counters 5) General access	11-14	1) Buy ALSs--personal & FM systems. TTY & keep centrally located for use by all 2) Attach Signs to all 7 offices & 2 conference rooms; Lobby Directory 3) Lower 2 Dutch doors or add foldup shelf; Replace knobs w/levers at Police & Town Clerk & Assessor 4) Add foldup shelf at Police counter 5) Offices in basement & top floor, provide service on accessible level	1) Buy ALSs--personal & FM; TTY--keep centrally located for use by all 2) Attach Signs to all 7 offices & 2 conference rooms; Lobby Directory 3) Lower 2 Dutch doors or add foldup shelf, Adapt knobs w/levers at Police & Town Clerk 4) Add foldup shelf at Police counter 5) Offices in basement & top floor, provide service on accessible level	1) 2001 TTY & FM ALS; 2003 Personal ALS 2) 2001 3) Now Clipboard 2001 Shelves; 2001 Adapt knobs 4) Now clipboard 2001 shelf 5) now temp	Town	1) \$1900 FM; \$250 TTY; \$129 Personal ALS 2) \$630 3) \$0 Clip board; \$145 each shelf 4) \$0 clip board; \$145 shelf 5) \$0	5) Until elevator is installed	2, 3, 5 completed 2003
Auditorium	1) TV Studio access 2) Identification sign 3) Effective group communication 4) Access to stage	15-16	1) Make room level or relocate 2) Install ID signs 3) As needed share building's FM system 4) Install ramp or platform lift or eliminate stage or prohibit all public access	1) & 2) Pending determination of space usage 3) As needed share building's FM system 4) Pending determination of space	Set Dates alter architect space study circa 6/2000	Town	1) \$? 2) @ \$70 ,,) \$0 4) \$3500 wood ramp; \$12,000 lift	2 completed 2003	

TRANSITION PLAN—Thomas W. Hutcheson, Town ADA Coordinator

PINE STREET SCHOOL 13 Pine Street

Date: October 24, 2012 After space study in 2001, Town transferred ownership to the Historic Society, not a public body

Item/Element	Modification	Page Reference	Possible Solutions	Solution Selected	Target Date for Completion	Designated Responsible Person	Est. Cost including contractor overhead & profit	Comments	Follow-up
Parking	Provide accessible parking	18	Create 1 van space along street within 200 of bldg.	Create 1 van space along street within 200 of bldg.	2003	Highway Dept	\$1255		Town no longer owns building
Site Access	Access path of travel to access entrance	19-20	Create accessible walkway within 200' of parking to front threshold	Create accessible walkway within 200' of parking to accessible entrance	2003	Highway Dept	\$11 /linear ft.		Town no longer owns building
Internal Access	Provide access to all events, member meetings & rest room	19	1) Conduct all meetings and events on ground floor 2a) Install limited-use elevator or 2b) Install enclosed vertical platform lift	1) Conduct all meetings and events on ground floor or at other accessible location 25) Install limited-use elevator OR 2b) Install enclosed vertical platform lift	1) Now 2a or b) 2003	Town	1) \$0 2a) \$120000 or 2b) \$25,000	Type & location of elevator/lift to be determined 2001 by building usage study & architects. Meanwhile hold member meetings on ground floor or at other accessible place.	Town no longer owns building
Front Entrance	1) Obstruction 2) Access landing 3) Accessible door 4) Access, door hardware	21	1) Raise fixture 2) If to be access entrance! rebuild sloped landing 3) Replace with single door or widen both doors 4) Replace door knob	1) Raise fixture 2) If to be access entrance, rebuild sloped landing 3) Replace with single door 4) Replace lockset	2003	Town	1) \$25 2) \$? 3) \$1800 for single solid wood 4) \$230		Town no longer owns building
Stairs	Access height handrails	22	Raise rail on stairs to basement	Raise rail on stairs to basement	2003	Town	\$25/hr		Town no longer owns building
Rest Room	Access, Rest Room	23-24	Create an accessible single-user unisex rest room	Create an accessible single-user unisex rest room	2003	Town	\$10,500		Town no longer owns building
Display & Meeting Rooms	1) Effective communication	25	1) Provide FM ALS	1) Provide FM ALS	2001	Historical Society & Town	\$1900	Till 2001 will rent ALS from Clark School as needed	Town no longer owns building

TRANSITION PLAN: Thomas W. Hutcheson, ADA Coordinator							Transfer Station			
TRANSFER STATION										
Date: October 24, 2012 NOTE: Transfer Station appears to be accessible										
Item/ Element	Modification	Page Refer- enCo	Possible Solutions	Solution Selected	Target Date for Comple- don	Designated Responsible Person	Est. Cost Includg contractor overhead & profit	Comments	Follow-Up	
4										

ADA TRANSITION PLAN

DICKINSON MEMORIAL LIBRARY Main Street, Northfield, MA

August 19, 1999

html Element	Modification	Page Refer- ence	Possible Solutions	Solution Selected	Target Date for Comple- tion.	Designated Responsible Person	Est. Cost lucida, contractor overhead & profit	Comments	Follow-Up
Parking	1) Within 200' of access entrance provide 1 van-access parking space. If >25 lot spaces, provide total 2 access spaces 1 being for van OR If access space cannot be within 200' provide a passenger drop-off area within 100' of access entrance	5	Install van space and/or drop-off area along Main St. AND/OR Redevelop existing parking area and install 1-2 access spaces and provide path of travel to access entrance						
Site Access (if other than existing)	1) Directional signage to access entrance 2) Access walk/path	7-8	1) Install directional sign 2) Per access specifications, install new pathway (S curb cut if applicable)				1) \$70 ea. plastic sign		
Existing Front Entrance	1) Access signage 2) Provide access, doorway	9	1) Install plastic or metal signs on facade or door 2a) Widen each leaf or replace with single door; 2b) Adjust door closer speed 2c) Replace door handle				1) \$70 ea. plastic 2a) \$2150 2c) \$230		
Proposed Elevator	Provide access to programs & rest room	4	Install elevator per access specifications				\$120,000		
Rest Rooms	Provide accessible rest room(s)	10-11	1) Remodel existing to create one accessible single-user room 2) Install directional & ID access signage 3) (Optional) Install audio/visual emergency signal				1) 56000-9000 2) \$70 ea. plastic sign 3) \$.323 each		

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Circulation Desk	Effective oral communication for: 1 a) w/ <u>hearing</u> disability 1 b) Group readings w/ <u>hearing</u> disability 2) IV captioning for deaf/)-IH and Blind viewers	12	1a) Personal Amplifier 1 b) FM system 2) Stock Captioned Videos & have a TV w/ <u>captioning</u> access			1a) \$179 1 b) 5,500-600		
Reading Areas & Stacks	1) Knee clearance under a) research tables b) computer keyboard shelves 2) Access path of travel: a) stable surface b) 36" clear width	13-14	is) Add blocks to reading table legs or replace tables ib) Replace computer work station w/ table or adjustable station or provide alternative counter or usage on lap. 2a) Fasten area rugs to floor at edges 2b) Rearrange stacks to provide 36" clearance			1 a) \$50 each 1b) \$1500-1800 <u>Adjustable</u> workstation		
Stairs	Accessible Stairs: a) to top level b) to bottom level	15	a) add rails to bare sides & <u>midlanding</u> . b) extend rails to wrap around at top & bottom			a) \$25/fl wood dowel type b) \$150/ <u>ea</u> 17" <u>extention</u> , wood dowel		
Upper Level	Accessible path of travel: a) Stable surface b) 36" with c) Clear of obstacles in museum room	16	a) Fasten area rugs to floor at edges b) Relocate glass cabinet on landing to provide clearance c) Relocate items in pathway in museum					

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ATTACHMENTS

- A. Position Classification Plan
- B. Compensation Plan
- C. Required DET Notice
- D. Acknowledgment of Receipt of Personnel Policy

- 2.3 EQUAL OPPORTUNITY/AFFIRMATIVE ACTION - The Town recognizes the rights of individuals to work and advance on the basis of merit, ability, and potential without regard to race, sex, color, disability, religion, national origin, sexual orientation, age or service in the military. Non-discrimination and equal opportunity are the policy of the Town in all of its hiring programs and activities.
- 2.4 EMPLOYMENT APPLICATION - All applicants for employment will complete an official employment application form that shall be retained by the Department Head and the Personnel Officer. The form will include a statement signed by the applicant certifying to the truthfulness and accuracy of all information provided on the form. Resumes may be accepted as supplement to the application, but not as substitutes.
- 2.5 SCREENING/INTERVIEW – The Department Head will screen applications based on criteria established prior to receipt of resumes. The following are general guidelines for screening candidates and conducting interviews:
- a. Devise standard selection questions that are not gender or race biased and use the same questions for all candidates;
 - b. Screen resumes for minimum entrance requirements;
 - c. Select candidates for interview;
 - d. Notify successful candidates of selection (by telephone) and then interview those candidates (interviews are subject to the provisions of the Open Meeting Law);
 - e. Select candidates for final (or second interview) interview, contact references and conduct final interviews;
 - f. Select final candidate. Secure approval from the Board of Selectmen if offering higher than minimum entrance rates;
 - g. Offer the candidate employment in writing and
 - h. Notify unsuccessful candidates by telephone or by mail.

5.14 NON-DISCRIMINATION POLICY - The Town recognizes the right of individuals to work and advance on the basis of merit, ability, and potential without regard to race, sex, color, disability, religion, national origin, sexual orientation, age or service in the military. Non-discrimination and equal opportunity are the policy of the Town in all of its employment programs and activities. Toward this end, the Town commits itself to take affirmative measures to ensure equal opportunity in the areas of recruitment, hiring, promotion, demotion or transfer, layoff or termination, rates of compensation, in-service or apprenticeship training programs, and all terms and conditions of employment. The Town is committed to fostering and encouraging a workplace comprised of individuals of diverse backgrounds, races, genders, abilities, religious beliefs, sexual orientation, and ages.

All Town employees are encouraged to take diligent, affirmative steps to ensure equal opportunity and respect for diversity, not only in the internal affairs of the Town departments and agencies, but also in their relations with the public, including those persons or organizations doing business with the Town. The policy of the Town is to:

- a. Recruit, hire, and promote in all job classifications without regard to race, sex, color, disability, religion, national origin, sexual orientation, age, or service in the military.
- b. Make decisions about employment so as to encourage the development of a diverse workforce.
- c. Ensure that employment and promotion decisions are made in accordance with the principles of equal opportunity, by imposing only valid, job-related requirements for employment and promotional opportunities.
- d. Ensure that all other personnel actions such as compensation, benefits, transfers, layoff, recall, training, and social and recreational programs will be administered without regard to race, sex, color, disability, religion, national origin, sexual orientation, age or service in the military..
- e. Prohibit any kind of harassment based on race, sex, color, disability, religion, national origin, sexual orientation, age or service in the military.

No retaliatory action against those persons who file complaints of discrimination or against individuals who cooperate in such investigations will be tolerated.

Violation of this policy will lead to appropriate disciplinary action up to and including termination from Town service.

Anyone who feels that he or she has been discriminated against by the Town on the basis of race, sex, color, religion, national origin, sexual orientation, age, or service in the military in employment practices may file a grievance in accordance with the procedures described in Section 5.2 of this document.

- 5.15 AMERICANS WITH DISABILITIES ACT - It is the policy of the Town to comply with requirements of the regulations contained in the U.S. Americans with Disabilities Act of 1990. This policy applies to all employees of the Town. The Town will not discriminate against people with disabilities in any employment practices or in terms, conditions, or privileges of employment. The Town has and will continue to establish occupational qualifications for each position, including the education, skill, and work experience required, and the physical, mental and environmental standards necessary for job performance, health, and safety.

The Town will provide reasonable accommodation to the known physical or mental limitations of a qualified applicant or employee unless such accommodation will impose undue hardship on the Town. The Town will provide reasonable accommodation:

- To ensure equal employment opportunity in the application process.
- To enable a qualified individual with a disability to perform the essential functions of the job.
- To enable an employee with a disability to enjoy equal benefits and privileges of employment.
- The Town need not provide reasonable accommodations for an individual who is otherwise not qualified for a position.

- The duty to provide reasonable accommodation is ongoing and may arise anytime an employee's job changes.
- It is the obligation of the individual with the disability to request the accommodation.
- If the cost of providing the accommodation is determined to meet the criteria of undue hardship on the Town, the affected individual will be offered the opportunity to provide the accommodation or partial accommodation him or herself.

Some examples of reasonable accommodation include, but are not limited to, the following:

- Making facilities readily accessible and usable;
- Restructuring a job reallocating or distributing marginal job functions;
- Altering when or how an essential job function is performed;
- Creating part-time or flexible schedules;
- Obtaining or modifying equipment or devices;
- Permitting the use of accrued or unpaid leave for treatment.

When attempting to identify what is a reasonable accommodation, the Department Head should do the following:

- a. Examine the particular job involved, determining its purpose and its essential functions.
- b. Consult with the individual with the disability to find out his or her specific physical or mental abilities and limitations.
- c. In consultation with the individual, identify potential accommodations and assess how effective each would be.
- d. If an individual requests an accommodation which the Department Head considers to be unnecessary, the Department Head may ask for written documentation from a physician or other professional with knowledge of the individual's functional limitations.
- e. The determination that any reasonable accommodation represents an undue hardship will be made by the Board of Selectmen.

No pre-employment inquiries may be made about an applicant's disability. This prohibition does not prevent an employer from obtaining necessary information regarding an applicant's qualifications, including medical information necessary to assess such qualifications and to ensure health and safety on the job. Before making a job offer, the Town may ask questions about an applicant's ability to perform specific job functions and may make a job offer that is conditioned on satisfactory results of a post-offer medical examination or inquiry. The Town may not make inquiries about specific disabilities. Questions which may not be asked during a pre-employment interview include (but are not limited to):

- Have you ever had, or been treated for any of the following conditions?
- Please list any conditions or diseases for which you have been treated in the past three years.
- Have you ever been hospitalized? If so, for what conditions?
- Have you ever been treated by a psychiatrist or psychologist? If so, for what condition?
- How many days were you absent from work because of illness last year?
- Do you have any disabilities or impairments which may affect your performance in the position?
- Are you taking any prescription drugs?
- Have you ever been treated for drug addiction or alcoholism?
- Have you ever filed a workers' compensation claim?

In addition, these questions may not be asked of a previous employer or other reference provider for an applicant during reference checks. In addition, the hiring manager may not ask the reference provider about the applicant's:

- Disability;
- Illness; or,
- Workers' compensation history.

Even if the applicant is qualified to perform the job, the Town may deny employment if such employment would pose a direct threat to the health and safety of the individual or others, if such threat cannot be eliminated through reasonable accommodation. Such determination must be made by the Board of Selectmen/designee after careful review of the circumstances.

An employee who is an alcoholic is considered to be a person with a disability under the terms of the ADA. However, the Town may discipline, discharge or deny employment to an alcoholic whose use of alcohol adversely affects job performance or conduct to the extent that he or she is "not qualified" for the position.

Persons addicted to drugs, but who are no longer using drugs illegally and who are receiving treatment for drug addiction, or who have been rehabilitated successfully, are protected from discrimination by the ADA. However, the Town will discharge or deny employment to current illegal users of drugs, in accordance with policies established herein. The Town may ask questions regarding the use of alcohol or illegal use of drugs. However, the employer may not ask whether the applicant is a drug addict or alcoholic, or whether he/she has ever been in a drug or alcohol rehabilitation program.

Violation of this policy will lead to appropriate disciplinary action up to and including termination from Town service.

Discrimination Grievance Procedure

The purpose of this procedure is to encourage local resolution of grievances concerning employment. It is important to note that grievants are not required to exhaust the Town's procedures prior to filing a state or federal complaint or taking court action.

Anyone who feels that he or she has been discriminated against by the Town on the basis of race, sex, color, disability, religion, national origin, sexual

orientation, age or service in the military in employment practices may file a grievance.

Grievances should be in writing and should include information about the alleged discrimination such as name, address, phone number of grievant and location, date and description of the problem. Reasonable accommodations, such as personal interviews or a tape recording of the complaint will be made available for persons with disabilities who are unable to submit a written complaint.

The grievant should first attempt to resolve the grievance at the level of the Department Head. The Department Head will notify the Administrative Assistant if such a grievance is submitted. If the grievance is not resolved to the satisfaction of the grievant, or if the Department Head lacks authority or jurisdiction to correct the problem, the grievance should be submitted by the grievant and or his/her designee as soon as possible to the Board of Selectmen.

Within fifteen (15) calendar days after receipt of the grievance, the Board of Selectmen will meet with the grievant to discuss the grievance and possible resolutions. Within fifteen (15) calendar days after the meeting, the Board of Selectmen will respond to the grievant in writing, or, where appropriate, in a format accessible to the grievant such as audiotape. The response will explain the position of the Town and may offer options for substantive resolution of the grievance.

All grievances received by the Board of Selectmen and responses from the same, will be kept by the Town for at least three (3) years. Such documents will remain strictly confidential.

This grievance procedure is meant to be informal, and cannot be legally binding on either party. Any grievance or complaint involving existing or threatened civil or criminal litigation may not be addressed in this informal procedure.

No retaliatory action will be taken against those persons who file complaints of discrimination on the basis of race, sex, color, disability, religion, national origin, sexual orientation, age, or service in the military or against individuals who cooperate in such investigation.

Historic Resource Inventory for Northfield

Massachusetts Cultural Resource Information System MACRIS

MACRIS Search Results

Search Criteria: Town(s): Northfield; Resource Type(s): Area, Building, Burial Ground, Object, Structure;

Inv. No.	Property Name	Street	Town	Year
NFL.A	Main Street Historic District		Northfield	
NFL.B	East Main Street		Northfield	
NFL.C	West Main Street		Northfield	
NFL.D	East Northfield		Northfield	
NFL.E	Ridge		Northfield	
NFL.F	South Mountain Road		Northfield	
NFL.G	Northfield Mount Hermon School		Northfield	
NFL.H	Mount Hermon Station Road		Northfield	
NFL.I	Northfield Farms		Northfield	
NFL.J	Northfield Center Cemetery		Northfield	
NFL.K	Northfield Mount Hermon School Farm		Northfield	
NFL.196		Alexander Hill Rd	Northfield	1740
NFL.929	Bennett Brook Road Bridge	Bennett Brook Rd	Northfield	1978
NFL.928	Birnham Road Bridge	Birnham Rd	Northfield	1937
NFL.203	Dickinson, Nathaniel House	Caldwell Rd	Northfield	1840
NFL.926	Central Vermont Railroad Bridge	Caldwell Rd	Northfield	1904
NFL.57	Spencer, Rodman House	8 Chula Vista Ln	Northfield	1965
NFL.924	Schell Memorial Bridge	East Northfield Rd	Northfield	1903
NFL.925	East Northfield Road Railroad Bridge	East Northfield Rd	Northfield	1909
NFL.197	Stratton, Harvey House	Gulf Rd	Northfield	1814
NFL.198	Robbins, George House	Gulf Rd	Northfield	1814
NFL.199	Dyke, Samuel House	Gulf Rd	Northfield	1844
NFL.251	Moody, Ambert House	Highland Ave	Northfield	1895
NFL.252	Thomson, M. P. House - Bonnyblink Boarding House	18 Hotel Rd	Northfield	1894
NFL.195	Morgan, Apollos House	Lower Nfld Farms Rd	Northfield	1815
NFL.10	Powers Barn	Main St	Northfield	1920

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Inv. No.	Property Name	Street	Town	Year
NFL.12	Morgan Garage	Main St	Northfield	1921
NFL.26	First Parish Church of Northfield, Unitarian	Main St	Northfield	1870
NFL.28	Hastings, C. Block	Main St	Northfield	1848
NFL.30	Dunnell House	Main St	Northfield	1970
NFL.45	Girl Scouts Little House	Main St	Northfield	1951
NFL.49	U. S. Post Office - Northfield Main Branch	Main St	Northfield	1970
NFL.72	Holton Hall - Northfield Seminary	Main St	Northfield	1885
NFL.88	Trinitarian Congregational Church	Main St	Northfield	1889
NFL.93	Prentice, Dr. House	Main St	Northfield	1850
NFL.95	Trinitarian Congregational Church	Main St	Northfield	1979
NFL.97	Dickinson Memorial Library	Main St	Northfield	1897
NFL.106	Spencer Gas Station	Main St	Northfield	1919
NFL.108	Northfield Baptist Church	Main St	Northfield	1961
NFL.115	Northfield Town Hall	Main St	Northfield	1927
NFL.116	Minot, R. H. Tin Store	Main St	Northfield	1871
NFL.119	Wright, Martha Bakery Building	Main St	Northfield	1891
NFL.127	Whitney Brothers Gas Station	Main St	Northfield	1955
NFL.138	Miller, Doris Camp	Main St	Northfield	1970
NFL.246	Northfield Seminary - Holton Hall	Main St	Northfield	1885
NFL.800	Moody, Dwight L. and Emma G. R. Graves	Main St	Northfield	1899
NFL.901	Belcher Memorial Fountain	Main St	Northfield	1909
NFL.902	Beers Massacre Memorial	Main St	Northfield	1897
NFL.906	Belding, Aaron Plaque	Main St	Northfield	
NFL.907	First Public Religious Service Marker	Main St	Northfield	1897
NFL.910	Northfield First Settlement Marker	Main St	Northfield	1897
NFL.911	Fort Marker	Main St	Northfield	1897
NFL.912	First Grist Mill Monument	Main St	Northfield	1941
NFL.915	Preston, Charles Leroy Plaque	Main St	Northfield	1929
NFL.916	Moody, Dwight L. Plaque	Main St	Northfield	1937
NFL.917	Power, Thomas Esq. Plaque	Main St	Northfield	1933
NFL.919	Sons and Daughters in Armed Forces Plaque	Main St	Northfield	1949
NFL.920	World War I Marker	Main St	Northfield	1919
NFL.927	Route 63 Bridge - Main Street Bridge	Main St	Northfield	1941
NFL.137	Morse House	1 Main St	Northfield	1968
NFL.6	Vielmetti House	2 Main St	Northfield	1930
NFL.4	Callender, Daniel L. House	4 Main St	Northfield	1846
NFL.136	Wright, John House	5 Main St	Northfield	1847
NFL.5	Stratton, Wright House	8 Main St	Northfield	1858

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Inv. No.	Property Name	Street	Town	Year
NFL.135	Millard, Herbert House	9 Main St	Northfield	1925
NFL.7	Slate, Charles House	12 Main St	Northfield	1927
NFL.131	Field, Ebenezer House	15 Main St	Northfield	1721
NFL.8	Hogan, John House	16 Main St	Northfield	1970
NFL.134	Messer, William House	19 Main St	Northfield	1960
NFL.9	Powers, Stanley House	20 Main St	Northfield	1927
NFL.133	Morgan, Michael House	21 Main St	Northfield	1940
NFL.125	Field, Zechariah House	25 Main St	Northfield	1795
NFL.11	Mattoon, Isaac House	26 Main St	Northfield	1801
NFL.124	White, Ebenezer Tavern	27 Main St	Northfield	1784
NFL.14	Stratton, Dr. Elijah House	30 Main St	Northfield	1844
NFL.122	Stearns, Charles Henry House	31 Main St	Northfield	1850
NFL.132	Lane, Capt. Samuel House	33 Main St	Northfield	1845
NFL.13	Stearns, George House	34 Main St	Northfield	1843
NFL.130	Stone House	35 Main St	Northfield	1905
NFL.15	Coe, Rev. W. W. House	36 Main St	Northfield	1928
NFL.129	Wright, Horace House	37 Main St	Northfield	1822
NFL.16	Shepard, Dunham House	38 Main St	Northfield	1966
NFL.128	Parsons, Albert Collins Store	39 Main St	Northfield	1877
NFL.17	Mattoon, Elijah House	40 Main St	Northfield	1820
NFL.18	Stearns, A. D. House	42 Main St	Northfield	1852
NFL.126	Watriss, Oliver House	45 Main St	Northfield	1795
NFL.19	Mattoon, James - Green, C. H. House	46 Main St	Northfield	1868
NFL.123	Ward, Dr. Rollin C. House	47 Main St	Northfield	1875
NFL.20	Holton, Joe House	48 Main St	Northfield	1945
NFL.21	Pomeroy, William House	50 Main St	Northfield	1783
NFL.121	Parsons, A. C. - Mead, Dr. Marshall House	51 Main St	Northfield	1855
NFL.120	Prior, Isaac House	55 Main St	Northfield	1820
NFL.22	Montague, Frank House	56 Main St	Northfield	1927
NFL.23	Pomeroy, William Store	60 Main St	Northfield	1839
NFL.118	Wright House	61 Main St	Northfield	1750
NFL.117	Cook - Hillock House	65 Main St	Northfield	1808
NFL.24	Stearns, Samuel S. House	66 Main St	Northfield	1828
NFL.25	Everett - Cook House	68 Main St	Northfield	1837
NFL.27	Keet, Newton W. Motorcycle Repair Shop	70 Main St	Northfield	1901
NFL.114	Pomeroy, Dr. Medad House	73 Main St	Northfield	1765
NFL.29	Lyman, Caleb House	76 Main St	Northfield	1801
NFL.113	Proctor, Arthur W. Block	77 Main St	Northfield	1898

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Inv. No.	Property Name	Street	Town	Year
NFL.34	Walker House	78 Main St	Northfield	1900
NFL.112	Lily Dan Restaurant	79 Main St	Northfield	1940
NFL.111	New England Telephone Company Building	81 Main St	Northfield	1940
NFL.32	Saint Patrick's Church	82 Main St	Northfield	1886
NFL.110	Shuman, Samuel N. House	83 Main St	Northfield	1920
NFL.33	Murdock, B. B. House	84 Main St	Northfield	1840
NFL.109	Lyman, Thomas House	85 Main St	Northfield	1828
NFL.107	Northfield Baptist Church Parsonage	87 Main St	Northfield	1961
NFL.31	Swan, Mary House	88 Main St	Northfield	1807
NFL.100	Hall, Dr. P. House	89 Main St	Northfield	1846
NFL.35	First Parish Unitarian Parsonage	90 Main St	Northfield	1858
NFL.99	Hunt, Capt. Samuel Tavern	91 Main St	Northfield	1775
NFL.36	Pomeroy, Charles House	92 Main St	Northfield	1879
NFL.37	Nevers, Capt. John House	94 Main St	Northfield	1811
NFL.38	Quinland House	96 Main St	Northfield	1919
NFL.103	Blake, Dr. House	97 Main St	Northfield	1780
NFL.104	Reed, Herbert Gas Station	97 Main St	Northfield	1930
NFL.39	Elementary School Complex	98 Main St	Northfield	1941
NFL.918	Civil War Tablet	98 Main St	Northfield	1911
NFL.102	Belding, Jonathan House	103 Main St	Northfield	1750
NFL.101	Dutton, Samuel W. House	107 Main St	Northfield	1835
NFL.98	Wright, Dr. House	111 Main St	Northfield	1936
NFL.43		112 Main St	Northfield	1900
NFL.41	Dickinson, Obadiah House	116 Main St	Northfield	1785
NFL.96		117 Main St	Northfield	1869
NFL.42	Barber, Luman House	118 Main St	Northfield	1945
NFL.40	Evans, Peter House	120 Main St	Northfield	1716
NFL.44	Tyler, Sally R. Cottage - Missionary I	124 Main St	Northfield	1927
NFL.46	Schell Cottage - Missionary House	126 Main St	Northfield	1928
NFL.47	Fairbanks House	130 Main St	Northfield	1948
NFL.48	Callendar, Daniel House	134 Main St	Northfield	1793
NFL.50	Billings House	138 Main St	Northfield	1820
NFL.51	Greenfield Cooperative Bank	144 Main St	Northfield	1974
NFL.52	Brigham, Albert S. House	146 Main St	Northfield	1899
NFL.53	Sanborn, Clifford Furniture Store	148 Main St	Northfield	1915
NFL.94	Belcher, William House	153 Main St	Northfield	1788
NFL.54		154 Main St	Northfield	1875
NFL.55	Field, Clifford House	158 Main St	Northfield	1935

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Inv. No.	Property Name	Street	Town	Year
NFL.92	Holton House	159 Main St	Northfield	1882
NFL.56	Jacobus - Philbrick House	160 Main St	Northfield	1914
NFL.91	Long, Alvin A. House	163 Main St	Northfield	1850
NFL.58	Williams, Samuel B. House	166 Main St	Northfield	1853
NFL.90	Long, John House	167 Main St	Northfield	1830
NFL.59	Robbins, Charles C. Store	168 Main St	Northfield	1910
NFL.89	Phillips, Mary House	169 Main St	Northfield	1895
NFL.87	Alexander, Henry House	173 Main St	Northfield	1836
NFL.60	Fisher, Francis House	174 Main St	Northfield	1855
NFL.86	Alexander, Thomas House	175 Main St	Northfield	1848
NFL.61	Comins, John S. House and Bakery	176 Main St	Northfield	1870
NFL.85	Billiel House	177 Main St	Northfield	1970
NFL.62	Stratton, Wright House	178 Main St	Northfield	1841
NFL.82	Fisher House	179 Main St	Northfield	1890
NFL.83	Rockwood House	179R Main St	Northfield	1971
NFL.84	Wayside Inn Barn	179 1/2 Main St	Northfield	1890
NFL.63	Kelavista Inn	180 Main St	Northfield	1923
NFL.81	Colton, Capt. Richard House	181 Main St	Northfield	1828
NFL.80	Buffum, Edward House	185 Main St	Northfield	1919
NFL.64	Rice, Elizabeth and Mary House	186 Main St	Northfield	1900
NFL.79	Colton, E. Wells House	187 Main St	Northfield	1890
NFL.65	Alexander, Simeon House	188 Main St	Northfield	1776
NFL.66	Jordon, Paul Gas Station and Garage	190 Main St	Northfield	1947
NFL.67	Buffmun General Store	194 Main St	Northfield	1910
NFL.78	Moody, Medad A. House	197 Main St	Northfield	1863
NFL.68	Webster Drugstore	198 Main St	Northfield	1903
NFL.77	Towner, Daniel B. - Fitt, Arthur Percy House	201 Main St	Northfield	1887
NFL.69	Alexander, Charles House	204 Main St	Northfield	1890
NFL.71	Northfield Seminary - Revell Hall	206 Main St	Northfield	1879
NFL.207	Northfield Mount Hermon School - Olivia Music Hall	206 Main St	Northfield	1909
NFL.208	Northfield Mount Hermon School - Skinner Gymnasium	206 Main St	Northfield	1895
NFL.209	Northfield Mount Hermon School - Inman Shelter	206 Main St	Northfield	1962
NFL.210	Northfield Seminary - Wilson, Mira Bigelow House	206 Main St	Northfield	1930
NFL.211	Northfield Mount Hermon School - Marquand Hall	206 Main St	Northfield	1884
NFL.212	Northfield Mount Hermon School - Home	206 Main St	Northfield	1907

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Inv. No.	Property Name	Street	Town	Year
	Science Hall			
NFL.213	Northfield Mount Hermon School - Countway Hall	206 Main St	Northfield	1966
NFL.214	Northfield Mount Hermon School - Sage Chapel	206 Main St	Northfield	1909
NFL.215	Northfield Mount Hermon School - Gould Hall	206 Main St	Northfield	1912
NFL.216	Northfield Mount Hermon School - Merrill-Keep Hall	206 Main St	Northfield	1937
NFL.217	Northfield Mount Hermon School - Meany Gymnasium	206 Main St	Northfield	1971
NFL.218	Northfield Mount Hermon School Auditorium	206 Main St	Northfield	1894
NFL.219	Northfield Mount Hermon School - Moody Infirmary	206 Main St	Northfield	1890
NFL.220	Northfield Mount Hermon School - Weston Hall	206 Main St	Northfield	1886
NFL.221	Northfield Mount Hermon School - Wilson Hall	206 Main St	Northfield	1956
NFL.222	Northfield Mount Hermon School - Hibbard Hall	206 Main St	Northfield	1962
NFL.223	Northfield Mount Hermon School - Palmer Hall	206 Main St	Northfield	1927
NFL.224	Northfield Mount Hermon School - Kenarden Hall	206 Main St	Northfield	1913
NFL.225	Northfield Seminary for Young Ladies - Stone Hall	206 Main St	Northfield	1884
NFL.226	Northfield Seminary - Talcott Library	206 Main St	Northfield	1887
NFL.227	Northfield Seminary - East Hall	206 Main St	Northfield	1880
NFL.230	Alexander, Elisha - Moody, Dwight L. House	206 Main St	Northfield	1829
NFL.243	Moody, Dwight L. Playhouse	206 Main St	Northfield	1913
NFL.247	Northfield Mount Hermon School - Power House	206 Main St	Northfield	1905
NFL.248	Northfield Mount Hermon School - New Laundry	206 Main St	Northfield	1926
NFL.967	Northfield Mount Hermon School - Northfield Campus	206 Main St	Northfield	1879
NFL.73	Duley, Frank House	212 Main St	Northfield	1925
NFL.76	Lyman, Elisha House	251 Main St	Northfield	1800
NFL.254	Northfield Mount Hermon School - Woodard House	251 Main St	Northfield	1858
NFL.74	Northfield Seminary - Bonar Hall	256 Main St	Northfield	1890
NFL.75		262 Main St	Northfield	1855
NFL.148	Field, John House	Maple St	Northfield	1842
NFL.149	Stearns, Calvin House	Maple St	Northfield	1807
NFL.1	Comins, A. House	Millers Falls Rd	Northfield	1850
NFL.2	Scott House	Millers Falls Rd	Northfield	1930
NFL.3	Stearns, Dwight House	Millers Falls Rd	Northfield	1951
NFL.165	Alexander, Simeon House	Millers Falls Rd	Northfield	1774
NFL.166	Stratton, Hezekiah Jr. House and Tavern	Millers Falls Rd	Northfield	1763
NFL.167	Tripp, Martha House	Millers Falls Rd	Northfield	1860

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Inv. No.	Property Name	Street	Town	Year
NFL.168	Field Memorial Library	Millers Falls Rd	Northfield	1898
NFL.169	Gilbert, Lyman Jr. House	Millers Falls Rd	Northfield	1850
NFL.172	Stratton House	Millers Falls Rd	Northfield	1871
NFL.173	Field, George Sr. House	Millers Falls Rd	Northfield	1803
NFL.174	Stratton, Elihu House	Millers Falls Rd	Northfield	1830
NFL.175	Darling, Abbie S. House	Millers Falls Rd	Northfield	1893
NFL.176	Cady, Jesse House	Millers Falls Rd	Northfield	1835
NFL.177	Whittacker, Charles House	Millers Falls Rd	Northfield	1896
NFL.178	Morgan, Frederick Sr. House	Millers Falls Rd	Northfield	1801
NFL.179	Holton, Elisha House	Millers Falls Rd	Northfield	1814
NFL.180	Morgan, Calvin N. House	Millers Falls Rd	Northfield	1833
NFL.181	Gilbert, Lyman Sr. House	Millers Falls Rd	Northfield	1826
NFL.182	Northfield District #4 Schoolhouse	Millers Falls Rd	Northfield	1841
NFL.183	Field, George 2nd House	Millers Falls Rd	Northfield	1820
NFL.184	Stratton, Hezekiah 3rd House	Millers Falls Rd	Northfield	1825
NFL.185		Millers Falls Rd	Northfield	1818
NFL.186	Alexander, Samuel House	Millers Falls Rd	Northfield	1843
NFL.187	Gage, Anson House	Millers Falls Rd	Northfield	1853
NFL.188	Sawyer, Asahel House	Millers Falls Rd	Northfield	1837
NFL.189	Stratton, Alberto House	Millers Falls Rd	Northfield	1831
NFL.190	Smith, Aldolphus House	Millers Falls Rd	Northfield	1825
NFL.191	Field, Walter House	Millers Falls Rd	Northfield	1854
NFL.206	Colportage Building - Bookstore Building	19 Moody St	Northfield	1898
NFL.205	Moore Cottage - Philips, Adoniram Judson House	31 Moody St	Northfield	1890
NFL.204	Moody, Simeon House - Birthplace, The	32 Moody St	Northfield	1823
NFL.202	Belding, Elijah Eastman House	Mount Herman Stn Rd	Northfield	1840
NFL.908	King Phillip's Hill Marker	Old Route 10	Northfield	1930
NFL.900	King Phillip's Hill	Old Rt 10	Northfield	1675
NFL.150	Holton, Capt. Samuel S. House	Old Wendell Rd	Northfield	1853
NFL.200	Field, Sharon House	Old Wendell Rd	Northfield	1851
NFL.802	Center Cemetery	Parker Ave	Northfield	1686
NFL.930	Northfield Center Cemetery Circulation System	Parker Ave	Northfield	1767
NFL.931	Northfield Center Cemetery Fence Posts	Parker Ave	Northfield	1884
NFL.932	Northfield Center Cemetery - North Vault	Parker Ave	Northfield	1838
NFL.933	Northfield Center Cemetery - South Vault	Parker Ave	Northfield	1838
NFL.934	Northfield Center Cemetery - Allen Family Monument	Parker Ave	Northfield	1860

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Inv. No.	Property Name	Street	Town	Year
NFL.935	Center Cemetery - Belding Family Monument	Parker Ave	Northfield	1862
NFL.936	Center Cemetery - Belding, Stephen Headstone	Parker Ave	Northfield	1736
NFL.937	Center Cemetery - Dickinson, William F. Headstone	Parker Ave	Northfield	1806
NFL.938	Center Cemetery - Doolittle, Benjamin Headstone	Parker Ave	Northfield	1995
NFL.939	Center Cemetery - Field, Seth Headstone	Parker Ave	Northfield	1792
NFL.940	Center Cemetery - Field, Seth Headstone	Parker Ave	Northfield	2002
NFL.941	Center Cemetery - Field, Zechariah Headstone	Parker Ave	Northfield	1746
NFL.942	Center Cemetery - Hubbard, Anna Headstone	Parker Ave	Northfield	1795
NFL.943	Center Cemetery - Hubbard, Rev. John Headstone	Parker Ave	Northfield	1794
NFL.944	Center Cemetery - Hunt, Capt. Samuel Tablestone	Parker Ave	Northfield	1770
NFL.945	Center Cemetery - Janes, Ebenezer Headstone	Parker Ave	Northfield	1808
NFL.946	Center Cemetery - Janes, Sarah Headstone	Parker Ave	Northfield	1766
NFL.947	Center Cemetery - Lyman, Cynthia Headstone	Parker Ave	Northfield	1839
NFL.948	Center Cemetery - Lyman, Cynthia Headstone	Parker Ave	Northfield	1830
NFL.949	Center Cemetery - Lyman, Eunice Headstone	Parker Ave	Northfield	1801
NFL.950	Center Cemetery - Lyman, Lt. Joshua Headstone	Parker Ave	Northfield	1777
NFL.951	Center Cemetery - Minot Family Obelisk	Parker Ave	Northfield	1865
NFL.952	Center Cemetery - Moody, Betsey & Edwin Headstone	Parker Ave	Northfield	1896
NFL.953	Center Cemetery - Nevers, John Headstone	Parker Ave	Northfield	1847
NFL.954	Center Cemetery - Pomeroy, Mehitabel Headstone	Parker Ave	Northfield	1770
NFL.955	Center Cemetery - Purple Family Monument	Parker Ave	Northfield	1857
NFL.956	Center Cemetery - Stebbins, Isabel Monument	Parker Ave	Northfield	1935
NFL.957	Center Cemetery - Stratton, Charles Monument	Parker Ave	Northfield	1869
NFL.958	Center Cemetery - Stratton, Eleazar Headstone	Parker Ave	Northfield	1795
NFL.959	Center Cemetery - Stratton, Elisabeth Headstone	Parker Ave	Northfield	1789
NFL.960	Center Cemetery - Stratton, Hannah Headstone	Parker Ave	Northfield	1846
NFL.961	Center Cemetery - Stratton, Hezekiah Headstone	Parker Ave	Northfield	1825
NFL.962	Center Cemetery - Stearns, Calvin Monument	Parker Ave	Northfield	1857
NFL.963	Center Cemetery - Wright, Azariah Headstone	Parker Ave	Northfield	1772
NFL.964	Center Cemetery - Wright, Eliezer Headstone	Parker Ave	Northfield	1753
NFL.965	Center Cemetery - Wright, Miriam Headstone	Parker Ave	Northfield	1755
NFL.966	Center Cemetery - Wright, Col. Phineas Headstone	Parker Ave	Northfield	1795
NFL.170	Sanborn, William House	Pine Meadow Rd	Northfield	1855

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Inv. No.	Property Name	Street	Town	Year
NFL.171	Metcalf, Thomas House	Pine Meadow Rd	Northfield	1855
NFL.164	Pine Street School	13 Pine St	Northfield	1903
NFL.921	Three State Boundary Marker	Route 142	Northfield	1897
NFL.922	Massachusetts and Vermont Boundary Marker	Route 142	Northfield	1896
NFL.923	Massachusetts and Vermont Boundary Marker	Route 142	Northfield	1896
NFL.904	Beers, Capt. Richard Marker	Route 63	Northfield	1930
NFL.909	Indian Council Fires Marker	Route 63	Northfield	1930
NFL.913	Wheelock, Eleazer Monument	Route 63	Northfield	
NFL.905	Dickinson, Nathaniel and Asahel Monument	Rte 63	Northfield	1872
NFL.151	Stearns, Calvin House	Saint Mary's St	Northfield	1847
NFL.105	Northfield Fire Station	School St	Northfield	1952
NFL.201	Merriman, Samuel House	South Mountain Rd	Northfield	1835
NFL.801	South Mountain Cemetery	South Mountain Rd	Northfield	1815
NFL.903	Beers, Capt. Richard Grave Marker	South Mountain Rd	Northfield	1897
NFL.152	Webb, J. O. House	Turnpike Rd	Northfield	1854
NFL.192	Field, Walter House	Upper Nfld Farms Rd	Northfield	1833
NFL.193	Field, Thomas J. House	Upper Nfld Farms Rd	Northfield	1850
NFL.194	Holton, Horace House	Upper Nfld Farms Rd	Northfield	1815
NFL.139	Farnsworth House	Warwick Ave	Northfield	1868
NFL.140	Fisher House	Warwick Ave	Northfield	1853
NFL.141	Field, William House	Warwick Ave	Northfield	1835
NFL.142	Stowbridge, Gordon House	Warwick Ave	Northfield	1830
NFL.157	Wright, Reuben House	Warwick Ave	Northfield	1850
NFL.158	Coy, Ira House	Warwick Ave	Northfield	1840
NFL.159	Irish, Albert H. House	Warwick Ave	Northfield	1900
NFL.160	Arling, A. J. House	Warwick Ave	Northfield	1892
NFL.161	Pomeroy House	Warwick Ave	Northfield	1836
NFL.162	Alexander House	Warwick Ave	Northfield	1890
NFL.163	Casey, John Jr. House	Warwick Ave	Northfield	1890
NFL.143	Webb, J. O. House	Warwick Rd	Northfield	1849
NFL.144	Johnson, Henry House	Warwick Rd	Northfield	1869
NFL.145	Murdock, B. B. House	Warwick Rd	Northfield	1861
NFL.146	Johnson, Henry House	Warwick Rd	Northfield	1861
NFL.147	Alexander House	Warwick Rd	Northfield	1876
NFL.153	Murdock, B. B. House	Warwick Rd	Northfield	1861
NFL.154	Putney House	Warwick Rd	Northfield	1890
NFL.155	Marsh House	Warwick Rd	Northfield	1857
NFL.156	Johnson House	Warwick Rd	Northfield	1868

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Inv. No.	Property Name	Street	Town	Year
NFL.231	Northfield School Farm Cow, Horse and Hay Barn	Winchester Rd	Northfield	1893
NFL.232	Northfield School Farm Wood Shed	Winchester Rd	Northfield	
NFL.233	Northfield School Farm Storage Building	Winchester Rd	Northfield	
NFL.234	Northfield School Farm Farm Shop	Winchester Rd	Northfield	
NFL.235	Northfield School Farm Office Building	Winchester Rd	Northfield	
NFL.236	Northfield School Farm Garage	Winchester Rd	Northfield	
NFL.237	Northfield School Farm Bull Barn	Winchester Rd	Northfield	
NFL.238	Northfield School Farm Garage	Winchester Rd	Northfield	
NFL.239	Northfield School Farm Cement Shed	Winchester Rd	Northfield	
NFL.240	Northfield School Farm Outbuilding	Winchester Rd	Northfield	
NFL.241	Northfield School Farm Refrigerator Building	Winchester Rd	Northfield	
NFL.968	Northfield School Farm Cow, Horse & Hay Barn Silo	Winchester Rd	Northfield	
NFL.969	Northfield School Farm Dumpster Shed	Winchester Rd	Northfield	
NFL.970	Northfield School Farm Gas Tanks Shelter	Winchester Rd	Northfield	
NFL.253	Levering, Arthur R. House and Photography Studio	33B Winchester Rd	Northfield	1894
NFL.229	Northfield Seminary - Crane Cottage	45 Winchester Rd	Northfield	1875
NFL.249	Northfield Mount Hermon School - Crane Annex	45 Winchester Rd	Northfield	1920
NFL.245	Howard, Anson - Walker, Cornelia Moody House	51 Winchester Rd	Northfield	1820
NFL.228	Northfield Seminary - Hillside Cottage	61 Winchester Rd	Northfield	1886
NFL.250	Janeway, Col. J. Jacob Carriage House	148 Winchester Rd	Northfield	1880



Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

February 28, 2012

Jerry Wagener
Northfield Open Space Committee via email
Town Hall
61 Main St.
Northfield, MA 01301

Re: Open Space Plan; 04-16327 (2012 update), Town of Northfield

Dear Mr. Wagener:

Thank you for contacting the Natural Heritage and Endangered Species Program regarding the update for the Open Space and Recreation Plan for the Town of Northfield. Enclosed is information on the rare species, natural communities, and other aspects of biodiversity that we have documented in Northfield. This letter and the information are intended to be included in the Open Space and Recreation Plan.

Based on the information discussed below, NHESP recommends land protection in the following areas to provide the greatest benefit for biodiversity conservation in Northfield: Lands around the Connecticut River and its tributaries, their shores, and upland buffers (including Kidds Island, Little Meadow, Bennett Meadow, areas around Pauchaug WMA); large blocks of land in the northwest part of town around the Satan's Kingdom WMA; and large blocks of land in the eastern part of town around the town's water district and conservation lands and Northfield State Forest. Expanding existing conservation lands is an excellent way to promote biodiversity; where they don't currently exist, protecting areas that can be enlarged in the future would be good planning for biodiversity protection.

Enclosed is a list from our database of rare species known to occur in Northfield. Also attached is a discussion and maps of the new BioMap2 Core Habitats (BC) and Critical Natural Landscapes (CNL) and the components that occur in them in Northfield. We include details about the species and natural communities in the BioMap2 discussion that doesn't fit in this letter. I encourage you to download species, natural community, and BioMap2 fact sheets from our website to include in your OSRP with the species list and BioMap2 discussion. Species fact sheets are accessible from:

http://www.mass.gov/dfwele/dfw/nhosp/species_info/fact_sheets.htm Natural Community descriptions and fact sheets are available at: http://www.mass.gov/dfwele/dfw/nhosp/natural_communities/fact_sheets.htm

We have produced fact sheets describing the various other components of BioMap2 (relevant to Northfield are Aquatic Cores and Upland Buffers of Aquatic Cores and Landscape Blocks) which are on our website at: http://www.mass.gov/dfwele/dfw/nhosp/land_protection/biomap/biomap_methodology.htm

The components are described in full in the BioMap2 summary report available from: http://www.mass.gov/dfwele/dfw/nhosp/land_protection/biomap/biomap2_summary_report.pdf

Northfield includes populations of many state-listed and other species of conservation interest, uncommon natural communities, and large blocks of relatively undeveloped forest. As we wrote in the comments for the 2004 OSP, of the rare species in Northfield, most are associated with the particular conditions of the Connecticut River and its floodplains, and tributaries. Rare dragonflies, freshwater mussels (more in the past), fish, birds, and floodplain plants have habitat in and around the river, with other species and natural communities occurring in the large blocks of land to the east and west.



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Bald Eagles nest along the Connecticut River in riverside forests, including in the Northfield area. In the winter, a combination of northern and local birds congregate around open water of the Connecticut where they can fish. American Bitterns nest in the nearby marshes, and do best in large, relatively undisturbed areas. Northern Harriers are hawks that nest in shrublands next to grasslands: the decrease in these habitats may account for the species being last reported in Northfield in 1932. Eastern Silvery Minnow has been found at the mouth of one of the tributaries to the Connecticut, and Spring Salamanders use clean, fast flowing, high gradient streams found in the higher, remote parts of the watershed.

Of the four state-listed freshwater mussels known from the Connecticut River in Northfield, two have not been found for over fifty years. The most recently observed (in 2004), Triangle Floater, has been determined to be more common than previously thought, and is being delisted this year. Freshwater mussels live in the bottoms of rivers or ponds, and depend on clean, pollutant - and sediment - free water. They are dependent on healthy fish populations to distribute their young.

The Spine-crowned Clubtail and Riverine Clubtails are dragonflies that represent just two of the many species of dragonflies that occur along the Connecticut and its tributaries in Northfield. Dragonflies lay their eggs in river water where the young, the nymphs, develop in the sediments for one or two years. Adult habitat is usually surrounding uplands that provide resting and feeding areas.

The best habitat for adult Purple tiger beetles is ridgelines of rock outcrops, where it was last collected in Northfield in 1898. The reason for its current absence is not known.

All of the state-listed plants known from Northfield occur in wetlands. Winged Monkey-flowers grow along shady streambanks in floodplains, Spike Sedge and Spike-rush grow in shallow water or marshes, and Frank's Lovegrass grows on river mud flats. Adder's-tongue Fern occurs in wet meadows; it was last reported in Northfield over a hundred years ago, which could be the result of a decrease in beaver activity which produce wet meadows combined with increased forestation since that time. The non-regulated Plant Watch List Species in Northfield include two ferns of forests and an aquatic plant of shallow water, Lesser Bladderwort.

Several uncommon types of natural communities occur in Northfield. Major-river Floodplain Forests need the flooding of large rivers for their maintenance. High-terrace Floodplain Forests are maintained by less regular flooding – they are often on prime agricultural lands above the line of annual flooding, and as a result many occurrences were long ago converted to agriculture. Remaining areas of High-terrace Floodplain Forest are uncommon statewide, and many are degraded by presence of abundant non-native species. Both types of floodplain community are maintained by flooding regimes. Black Gum Swamps are small deciduous swamps in discreet basins, whereas, Black Ash Swamps are often particularly diverse parts of larger red maple swamps where extra nutrients are available. Occurrences of both types of swamp are known from the Satan's Kingdom WMA in northwestern Northfield. In extreme eastern Northfield, shared with Warwick is a Level Bog. Level Bogs occur in poorly drained small basins or around ponds, where cool, low nutrient, acidic water allows peat to build up. Northfield also has an excellent example of the widespread Northern Hardwoods – Hemlock – White Pine Forest. Natural Communities occur in particular habitats and protecting them provides protection to the species, common and less so, that make up the community or use them as part of a habitat.

Northfield has four Certified Vernal Pools and 79 "Potential Vernal Pools" (PVPs) that were identified through interpretation of aerial photographs. We encourage certification of as many of the PVPs as possible to increase the habitat protections of these vernal pools. Information on vernal pools is available from our web site. Northfield's vernal pools are shown on the included map with natural community occurrences. Locations of Potential Vernal Pools (PVPs) are available as a datalayer from MassGIS at <http://www.state.ma.us/mgis/pvp.htm>. There are a few clusters of vernal pools in town that provide particularly good habitat for species that depend on vernal pools for habitat. Two high quality clusters of potential vernal pools were identified in the BioMap2 report in Northfield: both are in ioMap2 cores in the northwestern part of town, BC2910 and BC2945. The clusters mean that there are alternate habitats if something happens to one pool, and slightly different conditions in each may provide different habitats for pool dependent species. Visiting and evaluating more of the PVPs for certification would provide more protection to these wetlands and the species that use them.

Enclosed is a discussion, with maps, of the new BioMap2 cores and Critical Natural Landscape for Northfield --see the NHESP website for the full report and discussion of BioMap2 at http://www.mass.gov/dfwele/dfw/nhesp/land_protection/biomap/biomap_home.htm. Northfield has several BioMap2 areas – the areas of most importance to protect in order to maintain the biodiversity of the Town,

region, and state. BioMap2 Core Habitats (BC) were produced by NHESP to identify the areas of most importance for biodiversity: they are based on known locations of rare species and uncommon natural communities, and incorporate the habitats needed by those species to maintain the local populations. They update the original BioMap, and are based on more components (such as selected species from the State Wildlife Action Plan (http://www.mass.gov/dfwele/dfw/habitat/cwcs/cwcs_home.htm), as well as cores of exemplary aquatic areas (streams and lakes), wetlands, forests, and clusters of vernal pools). There are also areas of Critical Natural Landscape (CNL) the protection of which will enhance the viability of the BioMap2 areas and pick up large Landscape areas that are themselves very important for all species. Note that the CNL areas often include and buffer the Core Habitats, but can also exist without the particular components of BioMap2 Core Habitats (BC). Both BC and CNL areas are intended as targets for land acquisition to protect biodiversity. Land that abuts currently protected open space within the BioMap2 Cores or CNL should be targeted for acquisition. Many of the polygons of both aspects of BioMap2 extend into other municipalities: these large polygons provide opportunities to protect large unfragmented areas that will provide the best opportunities to limit further species loss from the town and region. The BioMap2 Core and CNL polygons are available from MassGIS. <http://www.mass.gov/mgis/biomap2.htm> There is also an interactive application to see the broad outlines of the polygons in each Town that is linked from the NHESP website.

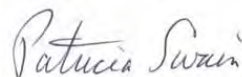
The NHESP produces maps for use under the Wetlands Protection Act (Estimated Habitat maps, provided to the Conservation Commission and shown in reduced form in the *Natural Heritage Atlas*, and the Massachusetts Endangered Species Act (also in the *Natural Heritage Atlas*). Included with this letter are copies of the Priority and Estimated Habitat maps (2008 version, soon to be replaced, see below). These data layers are also available from MassGIS, requiring access to some form of GIS to view them, at <http://www.state.ma.us/mgis/wethab.htm> and <http://www.state.ma.us/mgis/prihab.htm>. These two sets of maps are created for regulatory use. BioMap2 and the original BioMap and Living Waters projects are focused on conservation and cover broader areas and non-regulated components of biodiversity. Town commissions and boards are encouraged to request the assistance of the Natural Heritage and Endangered Species Program in reviewing any project proposed in the habitat areas of the regulatory areas of the maps in the *Natural Heritage Atlas*. The Estimated Habitat maps and the Priority Habitat maps are planned to be updated later in 2012 and will be on a four year schedule after that. Notice of availability of draft and final maps of the 2012 Priority and Estimated Habitats will be posted on the NHESP website.

Management and monitoring of conservation lands become important as acquisition and protection are accomplished. All wetlands particularly need to maintain their natural water regime, including normal fluctuations and connections with the uplands and other wetlands. Water quantity and quality are ongoing issues for wetlands. Another aspect of managing conservation lands that is important in many areas is controlling invasive non-native species that alter the habitat and occupy space that native species would otherwise use. We strongly recommend monitoring conservation land, and removing non-native species before they become a problem and impact native species.

Please note that this evaluation is based on the most recent information available in the Natural Heritage database, which is constantly being expanded and updated through ongoing research and inventory. Should new rare species information become available, this evaluation may need to be reconsidered.

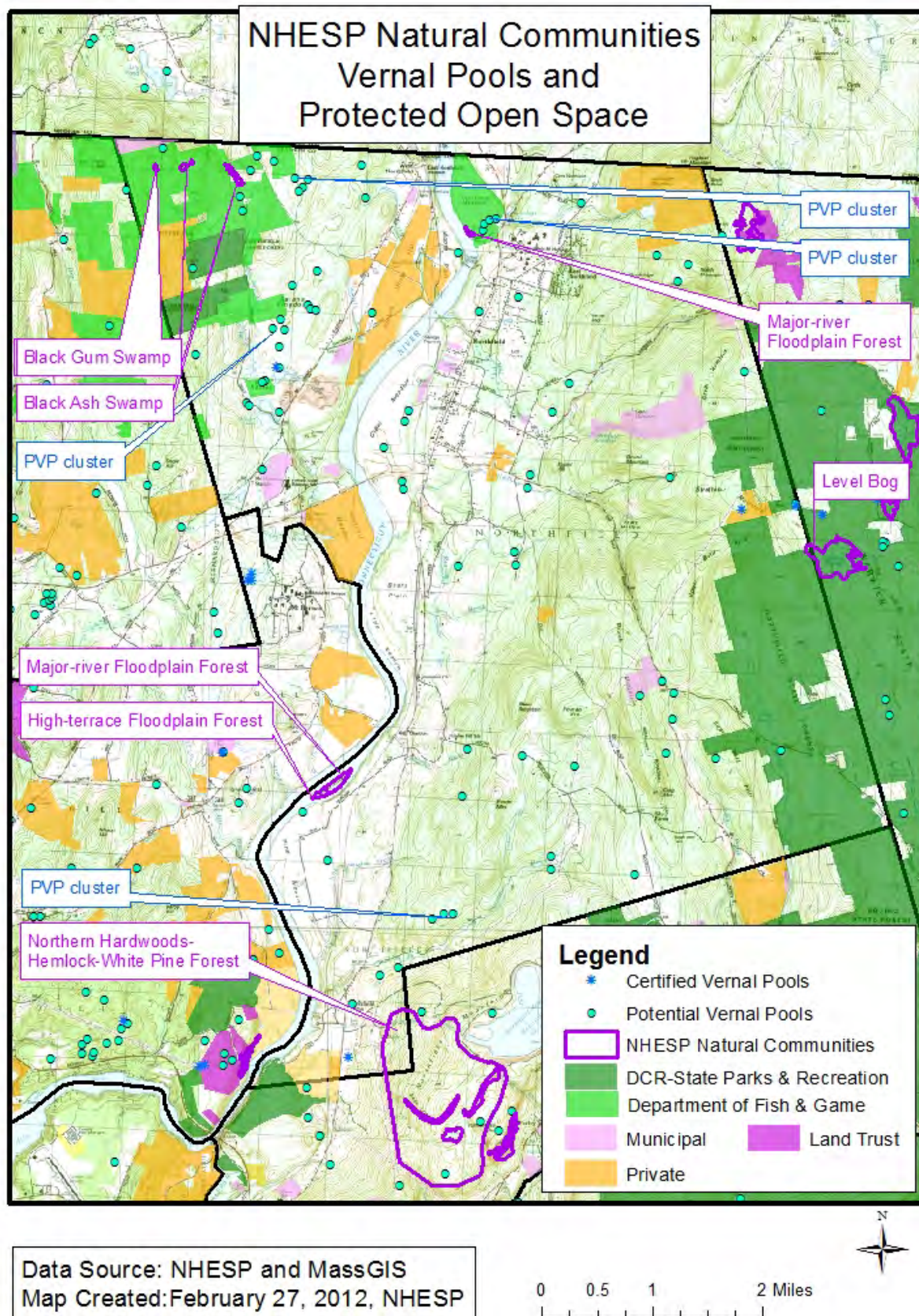
Please do not hesitate to contact me at (508) 389-6352 or by email at pat.swain@state.ma.us if you have any questions.

Sincerely,



Patricia C. Swain, Ph.D.
Ecologist

cc: Melissa Cryan, EOEEA, DCS





Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

Northfield BioMap2 Core Habitats and Critical Natural Landscapes

BioMap2 Cores in Northfield: For discussion of BioMap2 and the differences between the two major parts (Core Habitat (BC) and Critical Natural Landscape (CNL)), please see the NHESP website.

http://www.mass.gov/dfwele/dfw/nhesp/land_protection/biomap/biomap_home.htm

BioMap2, like its predecessors, BioMap and Living Waters, is intended to be a guide to biodiversity conservation and is not regulatory. Priority Habitats and Estimated Habitats continue to be part of the regulations protecting rare species and are the representations of the regulated habitats of state listed species under the Massachusetts Endangered Species Act (MESA).

Rare species ranks under the Massachusetts Endangered Species Act (MESA) are: SC – Species of Special Concern; T – Threatened; and E- Endangered. Delisted or Delisting – removal from the MESA list; most such species remain of conservation interest. FE – Federally Endangered. SWAP species are non-MESA listed wildlife species of conservation concern and WL species are Watch List Plant species, non-MESA listed plants of conservation concern.

SWAP – State Wildlife Action Plan, is discussed at

http://www.mass.gov/dfwele/dfw/habitat/cwcs/cwcs_home.htm

WL – plant **Watch List (WL)**, an unofficial, non-regulatory list of plants of known or suspected conservation concern that NHESP is interested in tracking, is discussed at

http://www.mass.gov/dfwele/dfw/nhesp/conservation/plants/plant_conservation.htm

Natural Communities are assemblages of species that occur together in space and time. These groups of plants and animals are found in recurring patterns that are classified and described by their dominant biological and physical features. NHESP Natural Communities are discussed at:

http://www.mass.gov/dfwele/dfw/nhesp/natural_communities/natural_communities.htm

Priority Natural Communities include types of natural communities with limited distribution, or relatively few occurrences, and/or low acreages in Massachusetts, these are ranked S1 – S3, with S1 being Extremely Imperiled and S3 being ranked Vulnerable.

Communities ranked S3 and S4 are considered to be Secure, and are not included as Priority Types; however NHESP tracks occurrences that are considered to be Exemplary representatives of these types.

Vernal pools are discussed at:

http://www.mass.gov/dfwele/dfw/nhesp/vernal_pools/vernal_pools.htm

Certified Vernal Pools (CVP) have been identified on the ground and ‘certified’ as meeting particular criteria for habitat; Potential Vernal Pools (PVP) were identified through interpretation of aerial photographs as being likely to be vernal pools.

There are seven **BioMap2 Core Habitats (BC)** in Northfield – see the attached map for locations of the Cores.

There are six parts of four areas of **Critical Natural Landscape (CNL)** in Northfield – they are also shown on the attached map (several numbered areas appear to be discontinuous, but are actually connected through adjoining towns).

Each CNL is often around one or several of the Core Habitats. However, because BioMap2 Cores and CNL are complementary and were calculated somewhat differently, there are areas where one or the other will occur alone.



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BioMap2 Cores in Northfield:

BC2890, no CNL, in northwestern Northfield, contains a small area of Satan's Kingdom WMA, just east of CNL1326. The BioMap2 components of **BC2890** in Northfield include:

<i>Enallagma laterale</i>	New England Bluet	Delisted 2012	New England Bluets are damselflies whose habitat includes open water in swamps, and ponds and lakes. It occurs only in the northeastern United States and is most common from eastern Massachusetts into Connecticut.
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BC2910 no CNL is in northwestern Northfield just north of BC2890, also east of CNL1326. The BioMap2 components in **BC2910** includes:

Vernal Pool Core	Vernal Pool Core - identifies the highest quality most interconnected clusters of Potential Vernal Pools and the habitat between them.
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BC2943 and CNL1322 are very large areas along the Connecticut River, that, connected by tributaries, extend to include higher lands to the east, continuing into Warwick, and to the south where tributaries and the CNL continue into Erving.

In Northfield, along the Connecticut River and associated wetlands, the BioMap2 components in **BC2943** and **CNL1322** include:

<i>Botaurus lentiginosus</i>	American Bittern	E	American Bitterns are heron-like birds that nest primarily in large cattail, tussock or shrub marshes and are very sensitive to disturbance.
<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	Bald Eagles nest in tall trees along large lakes and rivers. The bulk of their diet consists of fish. Large lakes and rivers also support important winter congregations of Bald Eagles.
<i>Gyrinophilus porphyriticus</i>	Spring Salamander	Delisted	Spring Salamander adults inhabit clean, cold, high-gradient brooks and headwater seeps in forest habitat. Larvae are entirely aquatic.
<i>Gomphus abbreviatus</i>	Spine-crowned Clubtail	SC	Larvae of Spine-crowned Clubtail dragonflies are aquatic and burrow just under the silty to sandy bottom sediments of medium to large rivers.
<i>Gomphus fraternus</i>	Midland Clubtail	E	Midland Clubtails in Massachusetts are known only from the Connecticut River. As with all dragonflies, the larvae are aquatic and inhabit river sediments.
<i>Gomphus vastus</i>	Cobra Clubtail	SC	Cobra Clubtails are large dark brown dragonflies whose aquatic nymphs live in large, sandy-bottomed rivers and lakes. Adults feed and mature in vegetation of adjacent uplands.
<i>Gomphus ventricosus</i>	Skillet Clubtail	SC	Skillet Clubtails are dragonflies whose nymphs are aquatic, living in the sandy bottoms of rivers of various sizes.
<i>Neurocordulia yamaskanensis</i>	Stygian Shadowdragon	SC	Umbur Shadowdragons are dragonflies that inhabit lakes with rocky shores and medium to large rivers with little aquatic vegetation. They fly only at dusk when they feed and mate in a frenzy of activity.
<i>Stylurus amnicola</i>	Riverine Clubtail	E	Riverine Clubtails are large, semi-aquatic dragonflies of medium to large rivers.
<i>Stylurus scudderi</i>	Zebra Clubtail	Delisted 2012	These dragonflies inhabit sand-bottomed streams and small rivers with riffles as larvae. Adults feed over the same streams. Surrounding upland forests provide protection while adults reach sexual maturity.
<i>Stylurus spiniceps</i>	Arrow Clubtail	Delisted 2012	The Arrow Clubtail is a large dragonfly whose aquatic nymphs inhabit medium to large, swift-flowing, sandy-bottomed rivers and occasionally large lakes. The terrestrial adults inhabit riparian areas and the surrounding uplands, and return to the water body to mate and lay eggs.
<i>Eleocharis intermedia</i>	Intermediate Spike-sedge	T	This densely tufted grass-like annual is found on muddy, alkaline river banks and pond shores, usually during low water when mud is exposed.
<i>Mimulus alatus</i>	Winged Monkey-flower	E	Winged Monkey-flower, a perennial herbaceous plant with pale lavender flowers, grows, in Massachusetts, in annually flooded floodplain forests along tributaries to the Connecticut River.
Priority Natural Community	High-terrace floodplain forest	S2 - Imperiled	High-Terrace Floodplain Forests are deciduous hardwood forests that occur along riverbanks, above the zone of annual flooding. They flood often enough for the soil to be moderately enriched.
Priority Natural Community	Major-river floodplain forest	S2 - Imperiled	Major-River Floodplain Forests are dominated by silver maple, occurring along the floodplains of large rivers where soils are enriched with nutrients brought by annual floods, resulting in a diversity of plants and insects.
Aquatic Core	Aquatic Cores are habitat for aquatic Species of Conservation Concern. In addition to various rivers and streams, a 30 meter band around each river segment is mapped, as well as wetlands that are wholly or partially contained within the band. The resulting Aquatic Cores are designed to protect 10 MESA-listed fish, 17 non-listed fish, as well as 145 MESA-listed species with all or a portion of their life cycle in aquatic habitats.		
Aquatic Buffer	Upland Buffers of Aquatic Core identifies upland areas adjacent to all Aquatic Cores. If protected, these upland areas will help protect river, stream, lake, and pond habitat over the long-term.		

In Northfield, in the eastern uplands BioMap2 components of **BC2943** and **CNL1322** include:

<i>Rhionaeschna mutata</i>	Spatterdock Darner	SC	These dragonflies inhabit vegetated ponds and pools, often with spatterdock as both larvae and adults. Surrounding upland forests provide protection while adults reach sexual maturity.
<i>Gyrinophilus porphyriticus</i>	Spring Salamander	Delisted	Spring Salamander adults inhabit clean, cold, high-gradient brooks and headwater seeps in forest habitat. Larvae are entirely aquatic.
Priority Natural Community	Level Bog	S3 - Vulnerable	Level bogs are dwarf-shrub peatlands, generally with pronounced hummocks and hollows in sphagnum moss. These wetland communities are very acidic and nutrient-poor because the peat isolates them from nutrients in groundwater and streams.
Aquatic Core	Aquatic Core s are habitat for aquatic Species of Conservation Concern. In addition to various rivers and streams, a 30 meter band around each river segment is mapped, as well as wetlands that are wholly or partially contained within the band. The resulting Aquatic Cores are designed to protect 10 MESA-listed fish, 17 non-listed fish, as well as 145 MESA-listed species with all or a portion of their life cycle in aquatic habitats.		
Aquatic Buffer	Upland Buffers of Aquatic Core identifies upland areas adjacent to all Aquatic Cores. If protected, these upland areas will help protect river, stream, lake, and pond habitat over the long-term.		
Forest Core	Forest Core - identifies the best examples of large, intact forests that are least impacted by roads and development, providing critical "forest interior" habitat for numerous woodland species.		
Landscape Block	Landscape Blocks are large areas of high quality intact and predominately natural vegetation.		
Wetland Core	Wetland Core - identifies the most intact wetlands within less developed landscapes.		
Wetland Buffer	Upland Buffers of Wetland Core - identifies upland areas adjacent to all Wetland Cores.		

BC2945 and **CNL1326** are in northwestern Northfield on the northern border. BC2945 is east of the larger BC2949. The BioMap2 components in **BC2945** and this part of **CNL1326** in Northfield include:

Vernal Pool Core	Vernal Pool Core - identifies the highest quality most interconnected clusters of Potential Vernal Pools and the habitat between them.		
Landscape Block	Landscape Blocks are large areas of high quality intact and predominately natural vegetation.		

BC2949 and **CNL1326** are large areas in northwest Northfield that extend into adjoining Bernardston.

In Northfield, the BioMap2 components in **BC2949** and **CNL1326** include:

Priority Natural Community	Black Ash Swamp	S2 - Imperiled	Black Ash Swamps are a variant of red maple swamps with black ash co-dominant in the canopy. The soils that support Black Ash Swamps are enriched with less acidic, more nutrient-rich groundwater seepage.
Priority Natural Community	Black Gum Swamp	S2 - Imperiled	Black Gum Swamps are forested hummocky peatlands that occur in poorly-drained basins. Black gum is an abundant or dominant canopy tree, with red maple, growing primarily on the hummocks which results in a relatively open canopy.
Forest Core	Forest Core - identifies the best examples of large, intact forests that are least impacted by roads and development, providing critical "forest interior" habitat for numerous woodland species.		
Landscape Block	Landscape Blocks are large areas of high quality intact and predominately natural vegetation.		
Wetland Buffer	Upland Buffers of Wetland Core - identifies upland areas adjacent to all Wetland Cores.		





Division of Fisheries & Wildlife

Wayne F. MacCallum, *Director*

Rare Species and Natural Communities Documented in Northfield AS OF February 27, 2012

<u>Scientific Name</u>	<u>Common Name</u>	<u>MESA Status*</u>	<u>Most recent Year</u>
VERTEBRATES			
<i>Botaurus lentiginosus</i>	American Bittern	E	2007
<i>Circus cyaneus</i>	Northern Harrier	T	1932
<i>Haliaeetus leucocephalus</i>	Bald Eagle	T	2010
<i>Glyptemys insculpta</i>	Wood Turtle	SC	2006
<i>Gyrinophilus porphyriticus</i>	Spring Salamander	Delisted	1995
<i>Hybognathus regius</i>	Eastern Silvery Minnow	SC	1980
INVERTEBRATES			
<i>Alasmodonta heterodon</i>	Dwarf Wedgemussel	E, FE	1948
<i>Alasmodonta undulata</i>	Triangle Floater	Delisted	2004
<i>Lampsilis cariosa</i>	Yellow Lampmussel	E	1935
<i>Strophitus undulatus</i>	Creeper	SC	1997
<i>Cicindela purpurea</i>	Purple Tiger Beetle	SC	1898
<i>Enallagma laterale</i>	New England Bluet	Delisted	2002
<i>Gomphus abbreviatus</i>	Spine-crowned Clubtail	E	2008
<i>Gomphus borealis</i>	Beaverpond Clubtail	Delisted	2002
<i>Gomphus fraternus</i>	Midland Clubtail	E	2005
<i>Gomphus vastus</i>	Cobra Clubtail	SC	2008
<i>Gomphus ventricosus</i>	Skillet Clubtail	SC	2008
<i>Neurocordulia yamaskanensis</i>	Stygian Shadowdragon	SC	2010
<i>Ophiogomphus aspersus</i>	Brook Snaketail	SC	2007
<i>Rhionaeschna mutata</i>	Spatterdock Darner	SC	2002
<i>Stylurus amnicola</i>	Riverine Clubtail	E	2010
<i>Stylurus scudderi</i>	Zebra Clubtail	Delisted	2003
<i>Stylurus spiniceps</i>	Arrow Clubtail	Delisted	2010
VASCULAR PLANTS			
<i>Botrychium angustisegmentum</i>	Narrow Triangle Grape-fern	WL	
<i>Botrychium matricarifolium</i>	Daisy-leaf Moonwort	WL	
<i>Eleocharis diandra</i>	Wright's Spike-rush	E	2009
<i>Eleocharis intermedia</i>	Intermediate Spike-sedge	T	2009
<i>Eleocharis ovata</i>	Ovate Spike-sedge	E	2009
<i>Eragrostis frankii</i>	Frank's Lovegrass	SC	1984
<i>Mimulus alatus</i>	Winged Monkey-flower	E	2007
<i>Ophioglossum pusillum</i>	Adder's-tongue Fern	T	1961
<i>Utricularia minor</i>	Lesser Bladderwort	WL	
NATURAL COMMUNITIES			
Black ash swamp	S2, Imperiled		2000
Black gum swamp	S2, Imperiled		2000
High-terrace floodplain forest	S2, Imperiled		1997
Level bog	S3, Vulnerable		2000
Major-river floodplain forest	S2, Imperiled		1997
Northern hardwoods - hemlock - white pine forest	S5, secure		2000
CERTIFIED VERNAL POOLS			
Certified Vernal Pool (# 4)			2000



Natural Heritage & Endangered Species Program

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<http://www.nhesp.org>

NHESP rare species and natural communities Northfield 2012

***Ranks given are as of the changes incorporated in 2012.**

**Most Recent Year means the year of the most recent record in the NHESP database.
Some Watch List dates are not available.**

KEY TO MESA STATUS: E = Endangered. T = Threatened. SC = Special Concern. FE = Federally Endangered. WL = unofficial Plant Watch List, not regulated. Delisted = species no longer protected under MESA. Occurrences that are more than 25 years old are not regulated; many very old observations have been searched for and are no longer present at the site. H = Historic, species documented to have occurred in Massachusetts in the past, but not in the past 25 years.

Natural Communities are not regulated. S (state abundance) ranks are on a 1 to 5 scale, with S1 being considered Critically Imperiled, generally having 1 to 5 good occurrences or extremely low acreage statewide, S3 being Vulnerable, and S5 being Demonstrably Secure. Community types ranked S1, S2, and S3 are priority for conservation protection. Communities listed that are ranked S4 or S5 are considered to be exemplary examples of the type.

Massachusetts Natural Heritage & Endangered Species Program

Priority Natural Communities

Terrestrial	Provi- sional Rank	Palustrine	Provi- sional Rank
Maritime Juniper Woodland/Shrubland	S1	Calcareous Basin Fen	S1
Maritime Oak - Holly Forest/Woodland	S1	Coastal Interdunal Marsh/Swale	S1
Maritime Pitch Pine On Dunes	S1	Estuarine Intertidal: Sea-Level Fen	S1
Sandplain Grassland	S1	Alluvial Atlantic White Cedar Swamp	S2
Sandplain Heathland	S1	Atlantic White Cedar Bog	S2
Scrub Oak Shrubland	S1	Black Ash Swamp	S2
Serpentine Outcrop Community	S1	Black Ash-Red Maple-Tamarack Calcareous Seepage Swamp	S2
Calcareous Forest Seep Community	S2	Black Gum Swamp	S2
Calcareous Rocky Summit/Rock Outcrop Community	S2	Black Gum-Pin Oak-Swamp White Oak "Perched" Swamp	S2
Dry Riverside Bluff	S2	Calcareous Pondshore/Lakeshore	S2
Hickory - Hop Hornbeam Forest/Woodland	S2	Calcareous Seepage Marsh	S2
High Elevation Spruce - Fir Forest/Woodland	S2	Calcareous Sloping Fen	S2
Maritime Dune Community	S2	Coastal Atlantic White Cedar Swamp	S2
Maritime Erosional Cliff Community	S2	Coastal Plain Pondshore	S2
Maritime Rock Cliff Community	S2	Cobble Bar Forest	S2
Pitch Pine - Scrub Oak Community	S2	High-Terrace Floodplain Forest	S2
Ridgetop Pitch Pine - Scrub Oak Community	S2	Inland Atlantic White Cedar Swamp	S2
Yellow Oak Dry Calcareous Forest	S2	Kettlehole Level Bog	S2
Circumneutral Rocky Summit/Rock Outcrop Community	S2S3	Major-River Floodplain Forest	S2
Calcareous Rock Cliff Community	S3	Northern Atlantic White Cedar Swamp	S2
Calcareous Talus Forest/Woodland	S3	Riverside Seep	S2
Circumneutral Rock Cliff Community	S3	Small-River Floodplain Forest	S2
Circumneutral Talus Forest/Woodland	S3	Spruce-Tamarack Bog	S2
Coastal Forest/Woodland	S3	Transitional Floodplain Forest	S2
Maritime Beach Strand Community	S3	Acidic Graminoid Fen	S3
Maritime Shrubland Community	S3	Acidic Shrub Fen	S3
Rich, Mesic Forest Community	S3	Alluvial Red Maple Swamp	S3
Riverside Rock Outcrop Community	S3	High-Energy Riverbank	S3
Black Oak - Scarlet Oak Forest/Woodland	S3S4	Kettlehole Wet Meadow	S3
		Level Bog	S3
		Riverine Pointbar And Beach	S3
		Spruce-Fir Boreal Swamp	S3
Estuarine			
Estuarine Intertidal: Brackish Tidal Marsh	S1	Estuarine	
Estuarine Intertidal: Fresh/Brackish Tidal Shrubland	S1	Estuarine Intertidal: Coastal Salt Pond Marsh	S2
Estuarine Intertidal: Fresh/Brackish Tidal Swamp	S1	Estuarine Subtidal: Coastal Salt Pond	S2
Estuarine Intertidal: Freshwater Tidal Marsh	S1	Marine Intertidal: Rocky Shore	S2
Estuarine Intertidal: Fresh/Brackish Flats	S2	Estuarine Intertidal: Salt Marsh	S3
Estuarine Subtidal: Fresh/Brackish Flats	S2	Estuarine Intertidal: Saline /Brackish Flats	S3

Massachusetts Natural Heritage & Endangered Species Program

Priority Natural Communities

Natural Community Ranks

Each type of natural community is assigned an “element rank”, based on the species element ranking developed for the Natural Heritage system by The Nature Conservancy and maintained by NatureServe. The state rank (S) reflects the rarity and threat within Massachusetts. Every state assigns its own “S” rank based on the rarity and threat within that state, with regard to regional conditions. Global ranks for communities are not included because each state has its own classification system and the US National Vegetation Classification system uses a different system.

Massachusetts NHESP considers natural community types ranked S1, S2, and S3 to be a Priority for conservation, or Priority natural communities. Community types ranked S4 and S5 are more common, and only exemplary examples of these are tracked in the NHESP database.

State Ranks

S1 = Typically 5 or fewer occurrences, very few remaining individuals, acres, or miles of stream or especially vulnerable to extirpation in Massachusetts for other reasons.

S2 = Typically 6 - 20 occurrences, few remaining individuals, acres, or miles of stream or very vulnerable to extirpation in Massachusetts for other reasons.

S3 = Typically 21 - 100 occurrences, limited acreage, or miles of stream in Massachusetts.

S4 = Apparently secure in Massachusetts.

S5 = Demonstrably secure in Massachusetts

SU = Status unknown in Massachusetts.

SH = No extant sites known in Massachusetts, but it may still exist.

Update 2006



Natural Heritage & Endangered Species Program

Commonwealth of Massachusetts
Division of Fisheries & Wildlife
Route 135
Westborough, MA 01581
(508) 389-6360 / fax (508) 389-7891
<http://www.nhesp.org>

Natural Community Fact Sheet Floodplain Forests

Community description

Floodplain forests are deciduous forested wetland communities which develop next to rivers and streams that flood regularly in the spring. To be considered a true floodplain forest, the forest community must receive annual (or semi-annual) overbank flooding and alluvial silt deposition. In early summer after the spring floodwater's recede, floodplain forests are recognized by their savanna-like forest structure of well-spaced, multi-trunked, tall trees over an open understory and a bare, freshly-deposited silt forest floor. By mid-summer, the floodplain forest is transformed into a lushly vegetated community with abundant woody and herbaceous vines and a tall, thick herbaceous layer dominated by ferns and nettles. All floodplain forest communities in Massachusetts have Silver Maple (*Acer saccharinum*) as the dominant tree taxon, but associated plant species vary depending on the intensity and duration of flooding and on geographic location. Based on these differences, three floodplain forest community types are currently recognized in Massachusetts



Major River Floodplain Forest, Connecticut River.
Nettles under widely spaced trees.
Photo: J. Kearsley, NHESP

(Table 1). These three communities have been designated Priority Natural Communities for protection within the Commonwealth by the Massachusetts Natural Heritage & Endangered Species Program (NHESP) due to their distinct vegetation and limited distribution. Undisturbed floodplain forests support a diversity of plants and animals (many of which are only found in floodplain habitats), serve as wildlife corridors, protect the quality of water in adjacent streams by buffering them from upland uses, and serve as important floodwater storage areas. High-quality examples of floodplain forest communities are tracked by NHESP.

Table 1. Floodplain Forest Community Types in Massachusetts

Community Name	Rivers	Sites in MA	Example
Major-River Floodplain Forest , silver maple-cottonwood-stinging nettle association	Connecticut Deerfield Housatonic	20	Fannie Stebbins Wildlife Refuge (East Longmeadow)
Transitional Floodplain Forest	CT River tribs. Housatonic	6	Lower Sawmill River (Montague)
Small-River Floodplain Forest , silver maple-green ash-false nettle-sensitive fern association	CT River tribs. Three Mile, Concord, Ipswich, Assabet	12	Wenham Swamp (Mass. Audubon Ipswich River Sanctuary; Wenham)

The three floodplain forest communities can be viewed as points on a continuum from most severely scoured and well-drained (major-river type) to least severely scoured and poorly drained (small-river type). Transitional Floodplain Forests are intermediate between the two extremes and experience moderate flooding. Differences in soil profiles and vegetation composition make these communities distinguishable in the field; however, as with all natural communities, transitions and mixes do occur. The three community types can occur together as a

floodplain forest community complex at a single site. For example, a forested floodplain on the Connecticut River may be characterized by the major-river floodplain forest community type on the level floodplain and by the small-river floodplain forest community type in poorly-drained depressions within the level floodplain. Other associated community types can be high energy riverbanks on well-scoured, riverine gravel bars; high terrace forests on abandoned river terraces above the active floodplain; and alluvial swamp forests in seasonally-flooded low areas. Vernal pools can also occur within floodplain forest communities in old meander scar depressions.

Environment

All three floodplain forest community types occur within the zone of active flooding of rivers and streams on mineral soils that receive annual silt deposition. They differ in the size of river on which they are found and in the severity of flooding. As their name implies, **Major-river Floodplain Forests** occur along mainstem sections of large rivers (the Connecticut, Housatonic, and Deerfield Rivers in Massachusetts). Soils are predominantly sandy loams without soil mottles and without a surface organic layer. Flooding at these sites is usually severe. An “island variant” of Major-river Floodplain Forests occurs on elevated sections of riverine islands and riverbanks of major rivers where there are high levels of disturbance. **Transitional Floodplain Forests** occur on third-order or smaller tributaries of the Connecticut River, on portions of the Housatonic River, and in depressions within Major-river Floodplain Forests of the Connecticut and Deerfield Rivers. Soils are intermediate in severity of flooding, soil texture, and drainage between major-river and Small-river Floodplain Forests. Soils are either silt loams or very fine sandy loams, and soil mottling is generally present within 60 cm (2 ft.) of soil surface. A surface organic layer is typically absent. **Small-river Floodplain Forests** occur on third-order or smaller tributaries of the Connecticut and Nashua Rivers, on small rivers of eastern Massachusetts where banks are low and overbank flooding occurs (Ipswich, Assabet, Concord, Shawsheen, and Three Mile), and on edges of riverine islands of the Merrimack River. Annual flooding occurs, but the water volume and degree of scour are much less than in Major-river Floodplain Forests. Soils are hydric silt loams and fine sandy loams with soil mottling within the top 60 cm (2 ft.) and sometimes with a surface organic layer.

Characteristic plant species in Massachusetts

Silver Maple (*Acer saccharinum*) is the defining species of all three floodplain forest communities. Depending on the floodplain forest type, silver maple is mixed with varying amounts of other deciduous tree species. Ferns and/or nettles are the most common herbaceous species, and the type of ferns or nettles is a good indicator of the different community types. **Major-river Floodplain Forests** have Silver Maple strongly dominant in the overstory (>60% cover) mixed with lesser amounts of Cottonwood (*Populus deltoides*). American Elm (*Ulmus americana*) and/or Slippery Elm (*U. rubra*) occur in the subcanopy. Shrubs are generally lacking. The herbaceous layer is usually dominated by a 1-2 m (3-6 ft.) tall, dense cover of Stinging Nettles (*Laportea canadensis*). Ostrich Fern (*Matteuccia struthiopteris*) is sometimes abundant. Whitegrass (*Leersia virginica*) is consistently represented, but in low amounts (typically <5% cover). Other common associates are Woodreed (*Cinna arundinacea*) and Jack-in-the-pulpit (*Arisaema triphyllum*). The “island variant” of Major-river Floodplain Forests has similar species, but Silver Maple is not dominant in the overstory and the herbaceous layer is typically strongly dominated by ostrich fern. The overstory is an even mix of Silver Maple, Cottonwood, Sycamore (*Platanus occidentalis*), and American Ash (*Fraxinus americana*), with Box Elder (*Acer negundo*) and Hackberry (*Celtis occidentalis*; on the Housatonic River) common in the subcanopy. Species typical of disturbed areas, such as Staghorn Sumac (*Rhus typhina*) and Bittersweet (*Celastrus orbiculata*), are also common in this variant, as are the vines, Riverbank Grape (*Vitis riparia*) and Virginia Creeper (*Parthenocissus quinquefolia*).

Transitional Floodplain Forests have a vegetation association intermediate between Major-river and Small-river Floodplain Forests. Silver maple is dominant in the canopy, but unlike in major-river forests, cottonwood is typically absent. Similar to small-river forests, Green Ash (*Fraxinus pennsylvanica*) and American Elm are present. A shrub layer is generally lacking; however, saplings of overstory trees are common. Vines are abundant with Hog Peanut (*Amphicarpaea bracteata*) most common. Stinging Nettle is not dominant, but it is present in low amounts (5-15% cover). The herbaceous layer is typically an even mixture of Stinging Nettle, Ostrich Fern, Sensitive Fern (*Onoclea sensibilis*), and False Nettle (*Boehmeria cylindrica*).

As in major-river and transitional floodplain forest types, silver maple is dominant in the overstory of **Small-river Floodplain Forests**, but the understory more closely resembles that of red maple-alluvial swamp forests. Cottonwood and red maple are both typically absent in the canopy of small-river floodplain forest communities. Pin)ak (*Quercus palustris*) is a common canopy associate in the Connecticut River basin, and River Birch (*Betula*

nigra) in the Merrimack River basin. Small-river Floodplain Forests have a more substantial shrub layer than both major-river and transitional types, but less than alluvial swamp forests. The shrub layer consists mainly of Silky Dogwood (*Cornus amomum*) and Buttonbush (*Cephalanthus occidentalis*). There is greater herbaceous plant diversity in Small-river Floodplain Forests than in major-river and transitional types. Sensitive fern and false nettle are most common, and associates include the moisture-loving plants, Water Hemlock (*Cicuta maculata*), Swamp Candles (*Lysimachia terrestris*), and Water Parsnip (*Sium suave*).

State-protected rare plant species in Massachusetts

Six rare plant species occur primarily in floodplain forest communities in Massachusetts: Green Dragon (*Arisaema dracontium*, T), River Birch (*Betula nigra*, WL), Gray's Sedge (*Carex grayi*, T), Cat-tail Sedge (*Carex typhina*, T), Winged Monkey-flower (*Mimulus alatus*, E), and Swamp Dock (*Rumex verticillatus*, T). Two of the species, River Birch and Winged Monkey-flower, are identified as regionally rare taxa for New England meaning that there are fewer than twenty occurrences known from the region. Five of the species (all except River Birch) are protected under the Massachusetts Endangered Species Act. In a statewide inventory and vegetation classification of Massachusetts' floodplain forest communities conducted in 1997, these six rare plant species were found to occur primarily in Transitional and Small-river Floodplain Forest communities. These two floodplain forest community types are less severely scoured and more poorly drained than Major-river Floodplain Forests, but more well-drained than Alluvial Swamp Forests.

E=State Endangered, T=State Threatened, WL=State Watch list, not regulated

Characteristic animal species in Massachusetts

Floodplain forests are insect-rich habitats that attract warblers, thrushes and other songbirds. In particular Yellow-throated and Warbling Vireos, which like to nest in the canopies of riverside trees, are frequently observed in floodplain forest communities. Raptors such as Bald Eagles and Red-shouldered Hawks also use riverbank trees as perch sites. In spring floods, Wood Ducks and Hooded Mergansers like the shady edges of floodplain forests and the interior meander scar pools. Eastern Comma Butterflies feed on elm, nettles and hops, and the shady riverbanks are patrolled by several dragonfly species such as Beaked and Fawn Darners. Where vernal pools occur in floodplain forests, many frog species (such as Leopard, Pickerel and Red Spotted Frogs), American Toads, and Mole Salamanders can be found. Floodplain forests also provide sheltered, riverside corridors for deer and migratory songbirds.

State-protected rare animal species in Massachusetts

Of Massachusetts' state-protected rare animal species, only the Ostrich Fern Stem Borer (*Papaipema* sp.2; SC) is limited to floodplain forest communities. However, many state-protected rare animal species use floodplain forests as an important component of their habitat. Bald Eagles (*Haliaeetus leucocephalus*; E) use floodplain forests as nesting habitat along the Connecticut River, and they can often be seen perched on floodplain forest trees facing the river. Northern Parula Warbler (*Parula americana*, T) can be found in floodplain forests, particularly where the moss-like lichen, Old-Man's Beard (*Usnea* sp.) occurs. Associated vernal pools provide breeding habitat for Four-toed Salamanders (*Hemidactylium scutatum*; SC) and Eastern Spadefoot Toads (*Scaphiopus holbrooki*; T), and feeding habitat for Wood Turtles (*Clemmys insculpta*; SC) and Blanding's Turtle (*Emydoidea blandingii*; T). Intact floodplain forests also provide shade for streams and rivers, and forest trees and other vegetation help to stabilize riverbanks and limit surface runoff. These functions may be important for maintaining water quality for state-protected rare freshwater mussels, such as the Dwarf Wedgemussel (*Alasmidonta heterodon*; E, FE), Triangle Floater (*Alasmidonta undulata*; SC) and Swollen Wedgemussel (*Alasmidonta varicosa*; E).

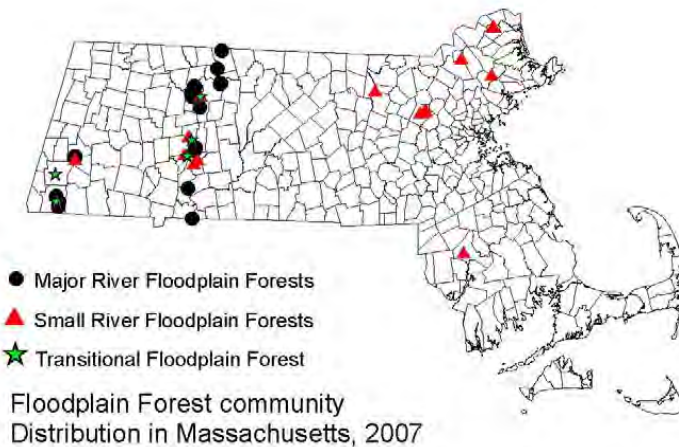
SC=State Special Concern, T=State Threatened, E=State Endangered, E, FE= Federally Endangered

Range of Floodplain Forests & Distribution in Massachusetts

Floodplain forests similar in vegetation composition to those found in Massachusetts occur on large rivers throughout the north-central United States. Silver Maple-dominated forests range from New England and New York west to Wisconsin and south to Missouri and New Jersey. In 1997, NHESP conducted an intensive survey of the state's rivers to identify floodplain forest communities and to define the variation in vegetation observed across the range of hydrologic, physiographic and climatic conditions occurring in the Commonwealth. Thirty-eight natural or semi-natural floodplain forest sites ranging in size from 1 to 30 ha (2.5-75 acres) were identified in Massachusetts: 20 were primarily major-river floodplain forest communities, 6 were transitional, and 12 were

small-river types. Of the 38 sites identified, only ten were found to be high-quality examples based on their condition, size, and landscape context. The ten high-quality floodplain forests included five major-river sites (four on the Connecticut River and one on the Housatonic River), one transitional site on the Mill River in Hatfield, and four small-river sites (three in the Connecticut River basin and one on the Three Mile River).

With the exception of the one site on the Housatonic River, all of the high-quality examples of Major-river Floodplain Forests occur on either public land or privately owned conservation land. Transitional and Small-river Floodplain Forests are less well-protected in Massachusetts. Due to their limited occurrence in the state and the habitat that they provide for state-protected rare plant and animal species, transitional and small-river floodplain forest communities in particular warrant active land protection efforts.



Threats and Management Recommendations

Floodplain forests are considered to be among the rarest and most threatened natural communities in Massachusetts. Due to their high soil fertility and scenic qualities, floodplain forests have largely been converted to agriculture or lost to housing and industrial development. Although land acquisition and conservation restrictions are important ways to protect the remaining examples of floodplain forests in Massachusetts, land protection alone will not maintain these sites as high-quality, natural floodplain forest communities. The natural hydrologic regime that created these special communities and their natural closed-canopy forest structure must be maintained. In the 1997 statewide floodplain forest community inventory, non-native plant species were observed at all floodplain forest sites surveyed, but they appeared to be localized to areas where the canopy was opened, the herbaceous layer was cleared, and the soil was disturbed. Non-native plant species were most abundant along rivers in eastern Massachusetts and on riverine islands and riverbanks of the Connecticut River that are heavily used by campers and boaters for recreation. Openings in the canopy and soil disturbance allow shade-intolerant non-native plant species to establish and spread displacing the native plant species. Japanese Knotweed (*Polygonum cuspidatum*) currently poses the greatest threat to Major-river Floodplain Forests because of its ability to spread rapidly and shade out all other herbaceous plants. There are no truly effective way to eradicate Japanese knotweed once it has established. The best way to avoid its spread is to prevent its establishment by avoiding all clearing and disturbance within floodplain forest areas, particularly on the sandier banks. The non-native plant species, Moneywort (*Lysimachia nummularia*), Forget-me-not (*Myosotis scorpioides*), and Glossy Buckthorn (*Frangula alnus*), are most prevalent in small-river and transitional floodplain forest types, and all efforts should be made to mechanically remove these species.

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Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries & Wildlife

Route 135, Westborough, MA 01581

(508) 389-6360 / fax (508) 389-7891

www.nhesp.org

Northern Hardwoods - Hemlock – White Pine Forest

State Status: None
Federal Status: None

Description: Northern Hardwoods – Hemlock - White Pine Forests have a closed canopy dominated by a mix of deciduous and evergreen trees, with sparse shrub and herbaceous layers. This is the predominant hardwood forest of much of northern New England, and the cooler parts of Massachusetts. It is broadly defined and is characterized by variability among the dominant species.

Environment: The community shows its best development on moist, fertile well drained soils in cooler parts of the state and on north facing slopes. It is widespread in dry to mesic, moderately to barely acidic conditions with moderate levels of nutrients within the cooler areas.

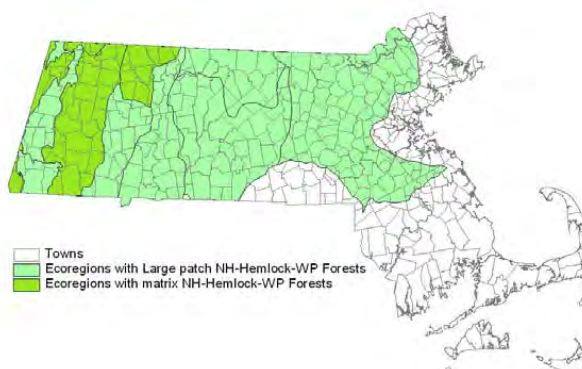
Characteristic Species: The forest is generally dominated by a mix of sugar maple (*Acer saccharum*), beech (*Fagus grandifolia*), and yellow birch (*Betula alleghaniensis*), in variable proportions, mixed with hemlock and white pine. Beech tends to dominate on drier sites.

Occurrences with large proportions of white pine are usually recovering from a past disturbance where the land was open, including natural large wind throws, heavy logging, and lands cleared for farming or pasture. Hemlock may dominate in ravines or cool edges of wetlands.

Red oak (*Quercus rubra*) is the only oak species expected in the Northern Hardwoods communities. Black cherry (*Prunus serotina*), white birch (*Betula papyrifera*), red maple (*Acer rubrum*), and other early successional tree species are often scattered in Northern Hardwoods forest occurrences in a subcanopy with striped maple (*Acer pensylvanicum*), and sometimes hop-hornbeam (*Ostrya virginiana*).

The shrub layer is usually sparse, but may have clumps of hobblebush (*Viburnum lantanoides*) or red-berried elderberry (*Sambucus racemosa* ssp. *pubens*). Individuals of fly-honeysuckle (*Lonicera canadensis*) or skunk currant (*Ribes glandulosum*) are characteristically present.

The diverse but sparse herbaceous layer includes Christmas fern (*Polystichum acrostichoides*), Canada mayflower (*Maianthemum canadense*), clubmosses (*Lycopodium* and other species in the group), wild sarsaparilla (*Aralia nudicaulis*), and white wood aster (*Eurybia divaricata*). Painted trillium (*Trillium undulatum*) early yellow violet (*Viola rotundifolia*), bluebead lily (*Clintonia borealis*), and bloodroot (*Sanguinaria canadensis*) appear in the spring.



Range: Variations on the Northern Hardwood community type occur from the upper Midwest to northern New England, and south along the Appalachian mountains. In Massachusetts the forest type tends to be found in the higher, cooler western part of the state, with scattered occurrences on north facing slopes and cool ravines throughout all but the southeastern part of the state. The ranges of the dominant species are larger than the range of the Northern Hardwoods-Hemlock-White Pine Forest type.

Related communities: To the south or in warmer areas, the community grades into the Oak-Hemlock-White Pine Forest. To the north, at higher elevations, and in cooler areas, it grades into Spruce-Fir-Northern Hardwoods. Within the area dominated the Northern Hardwood matrix forest, a variety of variants have been identified and named. Rich, Mesic Forest Communities occur on rich, moist soils, are usually dominated by Sugar Maple, and are known for a particularly diverse spring herbaceous flora. Red Oak-Sugar Maple Transition Forests have species of northern hardwoods and central hardwoods (oaks and hickories) together, but few of the more northern species. Hemlock ravine communities may be separated when hemlocks dominate in large enough areas to name. This matrix forest type includes many patch and small patch communities within its geographic extent. When the matrix community is mapped, there is an implicit recognition that it includes small patch community types such as occur on specialized conditions within the broad area of the prevailing forest type. Examples include rocky outcrops, rock cliffs, forest seeps, and wetlands. For conservation planning, the largest areas of common types of matrix

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forest are considered to be the most important to protect, since they will include the most diversity and provide the most habitat for animals.

Management considerations: Control of non-native invasive species may be the most important management activity to maintain Northern Hardwood forests. Invasive non-native species alter the habitat and occupy space that native species would otherwise use. Monitoring conservation land, and removing non-native species before they become a problem and impact native species is important. For those areas where vehicles are in use, either for timber harvest or recreation, cleaning vehicles before entering the forest to remove seeds or other ‘propagules’ (pieces of plants that might grow) trapped in mud on the vehicles, is a good step to stop the spread of invasives. Many species of invasives do well in the conditions in which Northern Hardwoods Forests grow: preventing invasives from becoming established is an important step to maintaining the appropriate native biodiversity of the forests.

There are a variety of diseases and insects that attack individual tree species that occur in Northern Hardwoods Forests. Maintaining large and naturally diverse forests may be a major step to hinder movement of pathogens among individuals.

Status in Massachusetts: This forest type is ranked as S5 in Massachusetts, meaning it is considered to be secure in the state. However, as in most of Massachusetts’ natural communities, 350 years of European settlement has changed the proportion of species and species composition in the community. Protection of the least impacted occurrences provides an insight into the original forests of the state. There are some areas of remnant Old Growth occurrences of Northern Hardwood-Hemlock-White Pine Forests. Most of these are on state land and have been identified and protected. Most Old Growth is in Forest Reserves that include other forests that will also be left to develop naturally. The Old Growth areas are important to protect, but they are not necessarily typical of the pre-settlement forest type: they were left uncut because of occurring on steep slopes or in boulder fields. Additional forest areas with minimal past disturbance have been identified for protection and inclusion in large forest blocks. Central areas in large blocks of forest are being managed for ‘interior forest’ to provide protected habitat for species needing those conditions. Many of these areas are in western Massachusetts where Northern Hardwoods – Hemlock – White Pine Forests predominate.

2008



Photograph of Northern Hardwoods – Hemlock – White Pine Forest showing the diversity within sites. Here deciduous northern hardwoods dominate one slope and hemlock the other. Hobblebush flowers along the stream. The relatively open understory below the hardwoods is typical. Photo: P. Swain.

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**Natural Community Fact Sheet:
Bogs and Fens – Non-Forested Acidic Peatlands**

Community description

Peatlands, commonly called “bogs” or “fens,” are wetland communities with accumulations of incompletely decomposed organic material, or peat. Acidic peatlands form on poorly drained sites in areas with cool moist summers, where precipitation exceeds evapotranspiration. The combination of cool temperatures and low amounts of dissolved oxygen and nutrients in the water limits the decomposition of organic matter by microorganisms. Consequently, dead vegetation builds up, forming a layer of peat. The peat layer locks up essential nutrients making them unavailable to plants, and if the peat is sufficiently thick, it cuts off plants’ access to nutrient-rich groundwater below. The amount of nutrient availability in peatland communities depends on the degree of isolation from the water table and the amount of stream flow through the system. Ombrotrophic (or “rain-nourished” peatlands, called bogs) are the most isolated, highly acidic, and nutrient-poor, while minerotrophic (or “mineral-nourished” peatlands, called fens) typically have nutrient-rich stream and /or groundwater inputs. Acidic fens are intermediate between the two extremes of nutrient-rich and nutrient-poor. This fact sheet deals with the acidic end of the spectrum of peatland communities (that is, bogs and acidic fens). Calcareous fens, which also occur in Massachusetts, are described separately.



Acidic peatland around a pond, with leatherleaf, highbush blueberry (red fall colors) and larch in foreground. Photo: P. Swain, NHESP.

The Massachusetts Natural Heritage & Endangered Species Program (NHESP) inventoried the state’s acidic peatlands in order to classify the range of vegetation associations, to assess community quality, and to establish land protection priorities. Based on that work, four acidic peatland communities are currently recognized in the *Classification of Natural Communities of Massachusetts* – Level Bogs, Kettlehole Level Bogs, Acidic Shrub Fens, and Acidic Graminoid Fens (Table 1). The word “level” is used to differentiate Massachusetts’ bogs from the raised or domed bogs of more northern latitudes. In raised bogs, the peat becomes so thick that the surface of the bog is actually domed, and the only way nutrients enter the system is through precipitation. The climate of Massachusetts is not cold enough to support development of raised bogs.

Table 1. Non-forested Acidic Peatland Community Types in Massachusetts

Community Name	Abundance rank	NHESP High Quality Sites	Examples
Level Bog	S3	34	Ponkapoag Bog, Canton; Poutwater Pond Bog, Holden
Kettlehole Level Bog	S2	22	Arcadia Bog, Belchertown; Gale Rd. Bogs, Warwick
Acidic Shrub Fen	S3	16	Turner Pond Bog, New Bedford; Long Pond, Royalston
Acidic Graminoid Fen	S3	22	Grassy Pond, Acton; East Brimfield Lake Bog, Brimfield
TOTAL		94	

Good examples of acidic peatland communities are limited in Massachusetts, in part because Massachusetts is at the southern limit of their geographic range and climatic conditions are marginal. The sites that do occur are threatened by wetland alterations (including dock building, small-scale peat mining operations, and conversion to commercial cranberry bogs), encroaching development, changes in hydrology, and nutrient enrichment from leach fields, road salt run-off, and siltation. Due to their limited occurrence and their distinct assemblages of plant and animal species, the four types of acidic peatland communities in Table 1. have been designated **Priority Natural Communities** for protection within the Commonwealth by the Massachusetts Natural Heritage & Endangered Species Program (MNHESP) due to their unique vegetation and limited distribution. High-quality examples of these wetland communities are tracked by MNHESP.

Environment

Level Bog communities receive little or no streamflow and they are isolated from the water table, making them the most acidic and nutrient-poor of peatland communities. The pH of Level Bogs is in the range of 3 to 4. Level bogs develop along pond margins, at the headwaters of streams, or in isolated valley bottoms without inlet or outlet streams. **Kettlehole Level Bogs** are a subset of Level Bogs that occur in iceblock depressions (commonly called kettleholes) in sandy glacial outwash. They are typically small (<3 acres), round, and they lack inlets and outlets. Acidic fens are less acidic and nutrient-poor than Level Bogs because they tend to have more surface water inflow, and they have some groundwater connectivity. **Acidic Shrub Fens** and **Acidic Graminoid Fens** most often occur along pond margins, slow-moving streams, and along the outlet streams of stream headwater peatlands. More information is needed to identify the physical, geochemical, or hydrological differences between Acidic Shrub Fens and Acidic Graminoid Fens.

Characteristic plant species in Massachusetts

A variety of species of *Sphagnum* moss (*Sphagnum* spp.) are the most common plants in all acidic peatlands. As with vascular plants, particular species depending on acidity and nutrient availability. **Level Bogs** and **Kettlehole Level Bogs**, the most acidic and nutrient-poor of peatland communities, are characterized by a mixture of tall and short shrubs that are predominantly ericaceous (members of the Heath family, the Ericaceae). Leatherleaf (*Chamaedaphne calyculata*) is dominant. Other typical ericaceous shrubs include rhodora (*Rhododendron canadense*), sheep laurel (*Kalmia angustifolia*), bog laurel (*K. polifolia*), bog rosemary (*Andromeda polifolia* var. *glaucophylla*), Labrador tea (*Ledum groenlandicum*), and low-growing large and small cranberry (*Vaccinium macrocarpon* and *V. oxycoccus*). Scattered stunted coniferous trees (primarily tamarack (*Larix laricina*) and black spruce (*Picea mariana*)) occur throughout. A mixture of specialized bog plants grow on the hummocky sphagnum surface, including carnivorous pitcher plants (*Sarracenia purpurea*) and sundews (*Drosera rotundifolia* and *D. intermedia*).

Acidic Shrub Fens are composed primarily of interwoven shrubs with sphagnum moss growing at the shrub bases. Typical species include leatherleaf, high-bush blueberry (*Vaccinium corymbosum*), swamp azalea (*Rhododendron viscosum*), and fetterbush (*Leucothoe racemosa*). Scattered red maples (*Acer rubrum*) also occur, sometimes with alder (*Alnus* spp.) and sweet-pepperbush (*Clethra alnifolia*). There is a limited number of herbaceous species, including St. John's-wort (*Hypericum* spp.) and arrowhead (*Sagittaria* spp.). **Acidic Graminoid Fens** are the most species-rich of the acidic peatland communities. They have many similar species to Acidic Shrub Fens, but graminoid (grass-like) and herbaceous species are dominant. Typical graminoids include cotton-grasses (*Eriophorum* spp.) and other sedges such as beaked sedge (*Carex utriculata*), slender woolly-fruited sedge (*C. lasiocarpa* var. *americana*), white-beaked sedge (*Rhynchospora alba*), and twig-sedge (*Cladium mariscoides*). Threeway sedge (*Dulichium arundinaceum*) is characteristic of wet, nutrient enriched edges of Acidic Graminoid Fens. Associated herbaceous species are St. John's-wort, pickerel weed (*Peltandra virginica*), and rose pogonia (*Pogonia ophioglossoides*). Large cranberry can also be abundant.



Sphagnum magellanicum, a common sphagnum moss in Massachusetts acidic peatlands. From: Damman, A.W.H. & T.W. French. 1987. The ecology of peat bogs of the glaciated northeastern United States: a Community Profile. U.S. Fish Wildl. Serv. Biol. Rep. 85(7.16).

Rare plant species in Massachusetts

Five of Massachusetts' rare plant species – pod-grass (*Scheuchzeria palustris*; E), dwarf mistletoe (*Arceuthobium pusillum*; SC), mud sedge (*Carex limosa*; WL), three-leaved Solomon's Seal (*Maianthemum trifolium*; WL), and northern yellow-eyed grass (*Xyris montana*; WL) – occur almost exclusively in acidic peatlands. Two of those species (pod-grass and dwarf mistletoe) are protected under the Massachusetts Endangered Species Act. Pod-grass, mud sedge, and northern yellow-eyed grass occur most commonly in open sphagnum lawns of Level Bog communities where they are not shaded by woody shrubs. Three-leaved Solomon's seal is usually found on the dry, stable sphagnum hummocks of northern kettlehole bogs where it grows with leatherleaf and bog laurel. Dwarf-mistletoe is a parasitic plant that grows on the branches of black spruce trees; it is limited to northern Level Bogs where black spruce occurs. Several other rare plant species can occur in acidic peatland habitats in Massachusetts, but they are also found in other community types. They are golden-club (*Orontium aquaticum*; E), arethusa (*Arethusa bulbosa* T), bog-sedge (*Carex exilis*; WL), bog-willow (*Salix pedicellaris*; WL), and rough aster (*Eurybia (was Aster) radula*; WL).

E=State Endangered, T=Threatened, SC=State Special Concern, WL=state Watch List (not regulated).

Characteristic animal species in Massachusetts

Due to the extended periods of saturation, lack of nutrients, and the high acidity and low oxygen content of the water, acidic peatlands are inhospitable to many animal species. Winged animals and large terrestrial animals can use peatlands as part of their habitat and then move on when conditions are unfavorable. Moose and white-tailed deer use acidic peatlands for browsing and grazing, and their trails are often evident across the peat mat. Bears are attracted to the cranberries and blueberries in season. Many bird species use peatlands for part of the year as nesting or foraging habitat. Massachusetts' birds that can be found in acidic peatlands include Swamp and White-tailed Sparrows, Common Yellowthroat, Olive-sided and Alder Flycatchers, Red-winged Blackbirds, and Gray Catbirds. Many species of dragonflies and damselflies inhabit acidic peatlands, especially where there is adjacent open water. The acidity and low oxygen content of Level Bogs make them poor habitat for most amphibians and reptiles, although some species can breed in the shallow pools that form among the sphagnum hummocks.

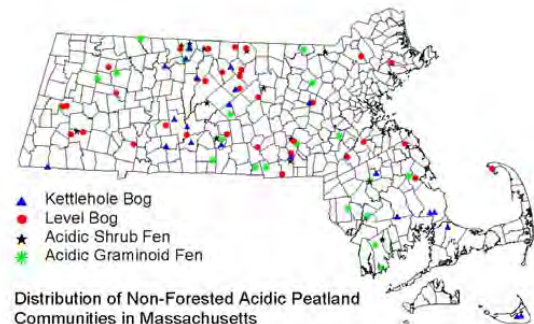
Rare animal species

The Southern Bog Lemming (*Synaptomys cooperi*; SC) and three state-protected rare dragonfly species—the Ringed Boghaunter Dragonfly (*Williamsonia lintneri*; E) and Ebony Boghaunter (*W. fletcheri*; E), and the Kennedy's Emerald (*Somatochlora kennedyi*; E)—are limited to acidic peatlands in Massachusetts. Several other state-protected rare animal species use acidic peatlands as an important component of their habitat. Four-toed Salamanders (*Hemidactylium scutatum*; SC) breed in nests in Sphagnum moss. Spotted turtles (*Clemmys guttata*; delisted in 2006, but protected on state lands) occupy a variety of wetland habitats in Massachusetts, including acidic peatlands. Larvae of the Pitcher Plant Borer moth (*Papaipema appassionata*; T) feed on the stems and roots of pitcher plants, and larvae of the Chain Fern Borer (*P. stenocelis*; T) feed on the rhizomes of Virginia Chain Fern. They are limited to sites where those plant species occur. Hessel's Hairstreak (*Callophrys hesseli*; SC) is found in acid bogs with Atlantic White Cedar.

SC=State Special Concern, T=State Threatened, E=State Endangered

Range of Acidic Peatlands & Distribution in Massachusetts

In North America, bogs and acidic fens are northern community types that are distributed across Canada and northern sections of the United States. Massachusetts is at the southern limit of the geographic range of acidic peatlands, meaning that climatic conditions are marginal and occurrences are patchy. Level Bogs occur throughout the state, but most occur in north-central Massachusetts on the Worcester Plateau. Kettlehole Level Bogs are most abundant in parts of the state with large deposits of



glacial outwash sediments, i.e., the Connecticut Valley, southern Plymouth County, and Cape Cod. Acidic fens are more broadly distributed, but most of the best occurrences are in the eastern half of the state. At present, over 300 non-forested acidic peatlands are known to occur in the state, with about 100 of the four types high enough quality to be in the NHESP database. Due to their limited acreage, acidic peatlands warrant active land protection efforts.

Threats and Management Recommendations

Although land acquisition and conservation restrictions are important ways to protect the remaining examples of non-forested acidic peatlands in Massachusetts, land protection alone will not maintain these sites as high-quality, natural communities. Alterations of hydrology and surface and peat water chemistry impact species composition and community quality. For example, cat-tails (*Typha* spp.), although native to Massachusetts, do not normally occur in Level Bog or Acidic Fen communities; their occurrence in peat areas is indicative of alteration to the natural hydrology and chemistry of peatland systems. Cat-tails are associated with high concentrations of calcium, other nutrients, and high alkalinity. Cat tails in bogs are usually associated with episodic water runoff across roads, railbeds, and other sources of introduced nutrients. Road salt runoff has been linked to the occurrences of the highly invasive Common Reed grass, *Phragmites* (*Phragmites australis*), and to overall changes in plant species composition in some peatlands.

Acidic Shrub and Graminoid Fens, which are naturally more nutrient-enriched than Level Bogs, appear to be more susceptible to invasions by non-native species. However, when the normal hydrologic and geochemical conditions of Level bogs are altered (such as through road construction or nutrient loading from lawns, railroad track fill, and road salt runoff), invasive species can establish and expand. Although more work on the geochemical and hydrological parameters of both natural and “impacted” peatlands is needed in order to understand the underlying causes of non-native species invasions and factors influencing species composition, available data indicate that all efforts should be made to limit nutrient-loading and run-off into these naturally acidic community types.

While hydrology and geochemistry appear to have the greatest effect on species composition, trampling has the greatest impact on peat mat integrity and quality. Trampling by humans flattens the natural hummock-hollow topography of peatlands, wears permanent trails into the mat, and kills plants. All efforts must be made to limit trampling, particularly at sites that are frequently visited by researchers and students. Whenever possible, site visits should only be made to those publicly owned peatlands with established boardwalks. There are many in the state, including: Ponkapoag Bog in Canton, Ward Bog in Andover, Black Pond Bog in Norwell, Poutwater Pond Bog in Holden, and Hawley Bog in Hawley.

*JBK-Originated: 1999
Species ranks and maps updated: 2007*

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Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries & Wildlife

Route 135, Westborough, MA 01581

(508) 389-6360 / fax (508) 389-7891

www.nhesp.org

Black Ash Swamp (S2)

State Status: None

Federal Status: None

Description: This plant community is a deciduous swamp forest characterized by a high diversity of tree species, including black ash and red maple. These swamps are associated with groundwater seepage and are relatively wet with seasonal inundation. Black Ash Swamps have a relatively diverse herbaceous layer under a canopy of trees with many tall shrubs in the understory.

Environment: Black Ash Swamps occur in a wide variety of topographic and hydrologic settings, usually with significant groundwater seepage influence. The rich composition and diversity of plants in this community may indicate weakly acidic to circumneutral conditions. They often occur in depressions at or near the headwaters of streams, especially in the northern part of the state. Occasionally they occur on sloping edges of river floodplains adjacent to upland slopes where seepage input occurs, or as small seepy pockets within a larger matrix of red maple swamps. The surface topography is hummock and hollow with fluctuating surface water levels in between the hummocks.

More information is needed on the soils and geology of this community type. The degree of groundwater influence, the concentration of dissolved minerals in the groundwater, and the frequency and duration of flooding appear to be variable among different Black Ash Swamps. These factors significantly influence the vegetative composition growing in a swamp.

Characteristic Species: Red maple (*Acer rubrum*) and black ash (*Fraxinus nigra*) are usually prominent in the canopy or sub-canopy of these swamps. The black ash trees do not usually grow very large in these wet environments and are subject to windthrow. Other common associates in the canopy include white pine (*Pinus strobus*), hemlock (*Tsuga canadensis*), and yellow birch (*Betula alleghaniensis*) which vary in abundance from site to site. The subcanopy is often well-developed and is characterized by black ash and often American elm (*Ulmus americana*).

The shrub layer is variable in cover although relatively high in species diversity. The most characteristic shrub encountered in these swamps is winterberry (*Ilex verticillata*). Other common associates include highbush



Illustration of black ash swamp by Libby Davidson from *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* by Elizabeth H. Thompson and Eric R. Sorenson. Vermont Department of Fish & Wildlife and The Nature Conservancy. 2000.

blueberry (*Vaccinium corymbosum*), poison-sumac (*Toxicodendron vernix*), speckled alder (*Alnus incana* ssp. *rugosa*), and spicebush (*Lindera benzoin*). Occasional shrubs include witch hazel (*Hamamelis virginiana*), silky dogwood (*Cornus amomum*), northern arrow-wood (*Viburnum dentatum* var. *lucidum*), and mountain holly (*Ilex mucronata*, formerly *Nemopanthus mucronatus*). In addition, most of the species that occur in the tree canopy are also present in the shrub layer.

The herbaceous layer is lush and diverse. Cinnamon fern (*Osmunda cinnamomea*) and skunk cabbage (*Symplocarpus foetidus*) are usually the most abundant herbaceous species present. One of the most striking characteristics of this swamp forest is the high coverage of ferns, including royal fern (*Osmunda regalis* var. *spectabilis*), marsh-fern (*Thelypteris palustris*), and sensitive fern (*Onoclea sensibilis*), in addition to cinnamon fern. Other herbaceous associates include jewelweed (*Impatiens capensis*), swamp saxifrage (*Saxifraga pennsylvanica*), water avens (*Geum rivale*), goldthread (*Coptis trifolia*), tussock sedge (*Carex stricta*), fowl meadow-grass (*Glyceria striata*), and delicate sedge (*Carex leptalea*). The micro-topography is hummock and hollow with mosses (*Sphagnum* spp.), particularly on the hummocks. No state-listed rare plant species are known from this community type.

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Range: In Massachusetts, this community type is not common, although it is widespread further north in Vermont and New Hampshire. Black Ash Swamps appear to be located primarily in north-central and eastern portions of Massachusetts. More research is needed to determine the actual range and variation of Black Ash Swamps in the state.

Related Communities: Black ash grows in a variety of settings in Massachusetts and the definition of this community type is not always clear. Other community types with significant black ash components are Black Ash-Red Maple-Tamarack Calcareous Seepage Swamps and Red Maple - Black Ash - Bur Oak Swamps. These types tend to have a more diverse herbaceous component than the Black Ash Swamp. The Calcareous Seepage Swamp includes calcareous indicator species. Both have occasional tamarack (*Larix laricina*) in the overstory and ironwood (*Carpinus caroliniana*) in the sub-canopy.

Black Ash Swamps are a variant of Red Maple Swamps and are sometimes very similar to them in overall species composition. One principal difference is in the proportion of red maple vs. black ash (and other canopy species) in the two community types. Other communities that sometimes contain black ash as minor components are Hemlock-Hardwood Swamps and Spruce-Fir Swamps. Ongoing studies in Massachusetts and surrounding states are sorting out the similarities and distinctions among these community types.

Management Considerations: Logging, development, pollution, exotic species, and changes in hydrology are the most common threats to Black Ash Swamps. Due to the wet organic soils in this community it is important to avoid logging and the use of heavy machinery, except during frozen or very dry conditions. Swamps that are adjacent to developed areas may be affected by changes in hydrology, degraded by stormwater and wastewater discharges or invaded by exotic flora. Sedimentation from logging or construction activities is a significant threat to the ecological integrity and composition of Black Ash Swamps. In addition to human alterations, beavers (*Castor canadensis*) can cause significant flooding and subsequent changes in community type from a forested wetland to open water, marsh or shrub swamp.

The use of undisturbed natural buffers around the best occurrences of Massachusetts Black Ash Swamps is encouraged. Natural wooded buffers reduce the potential for impacts to the swamps from surrounding changes in the environment and will help protect habitats for wildlife that are dependent upon these swamps for food, cover, breeding, or nesting sites.



Black Ash

Illustration by C.E. Faxon from *Native and Naturalized Trees of Massachusetts*, Cooperative Extension Service, University of Massachusetts, Amherst. 1978.

2001
Updated 2011

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Natural Heritage & Endangered Species Program

Massachusetts Division of Fisheries & Wildlife
Route 135, Westborough, MA 01581
tel: (508) 792-7270, ext. 200; fax: (508) 792-7821
www.state.ma.us/dfwele/dfw/nhesp

Black Gum Swamps

State Status: None
Federal Status: None

Description: This plant community is a deciduous swamp forest characterized by black gum (*Nyssa sylvatica*) as an abundant canopy tree or as the dominant. Some of these swamps contain large, very old black gum trees, due to the low commercial value of the wood. These swamps are located in small poorly drained basins with accumulations of peat or muck. They are characterized by hummocks and hollows that are seasonally flooded. Under the tree canopy, Black Gum Swamps usually have highbush blueberry in the shrub layer, cinnamon fern prominent on the hummocks and Sphagnum mosses carpeting the hollows.

Environment: Black gum trees occur in a variety of settings, including isolated shallow depressions or basin wetlands, in seepage swamps, and along fringes of ponds or shorelines. The focus of this fact sheet is the community type that occurs in small topographically defined basins.

Black gum swamps in Massachusetts occur below 1000 ft. in elevation, have relatively small watersheds, limited drainage and are usually isolated from perennial streams. They often have a small intermittent outlet channel, but usually have no defined inlet. These depressions often are perched on hillside benches or concavities in glacial till soils. Organic muck and peat soils that are saturated and/or seasonally flooded in these areas create acidic and nutrient poor conditions. Black gum swamps often function as vernal pools, providing important habitat diversity for wildlife, including amphibian breeding sites.

Characteristic Species: Black gum is often the dominant species, but it is sometimes co-dominant with red maple (*Acer rubrum*) in a fairly open tree canopy. Other associates in the canopy are white pine (*Pinus strobus*), hemlock (*Tsuga canadensis*), black ash (*Fraxinus nigra*), and red spruce (*Picea rubens*), although these are lower in abundance. The subcanopy in these forested swamps is usually well developed and includes a mixture of the canopy species and yellow birch (*Betula alleghaniensis*).

The shrub component is variable in cover and grows primarily on the tops and sides of the hummocks. Characteristic shrubs of these swamps are winterberry (*Ilex*



Illustration of black gum swamp by Libby Davidson from *Wetland, Woodland, Wildland: A Guide to the Natural Communities of Vermont* by Elizabeth H. Thompson and Eric R. Sorenson. Vermont Department of Fish & Wildlife and The Nature Conservancy. 2000.

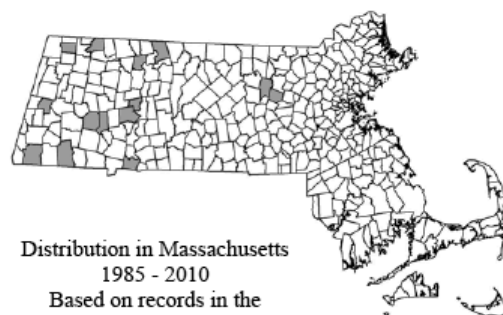
verticillata or *I. laevigata*) and highbush blueberry (*Vaccinium corymbosum*). Other associates that may be present include maleberry (*Lyonia ligustrina*), mountain holly (*Nemopanthus mucronatus*), mountain laurel (*Kalmia latifolia*), buttonbush (*Cephalanthus occidentalis*), and wild raisin (*Viburnum nudum* var. *cassinoides*).

Cinnamon fern (*Osmunda cinnamomea*) is usually the most abundant herbaceous species present, growing primarily on the mossy hummocks. Although the herbaceous component is generally not diverse, other potential associates are royal fern (*Osmunda regalis* var. *spectabilis*), marsh-fern (*Thelypteris palustris*), goldthread (*Coptis trifolia*), beggar-ticks (*Bidens frondosa*), northern water-horehound (*Lycopus uniflorus*), swamp-dewberry (*Rubus hispidus*), marsh St. John's-wort (*Triadenum virginicum*), and Massachusetts fern (*Thelypteris simulata*). On the drier hummocks starflower (*Trientalis borealis*) and wild sarsaparilla (*Aralia nudicaulis*) may occur in small amounts. Saturated or flooded hollows carpeted with mosses (primarily *Sphagnum* spp.) and scattered three-seeded bog sedge (*Carex trisperma*) are characteristic of this community type. Silvery bog-sedge (*Carex canescens* ssp. *disjuncta*), bladder-sedge (*Carex intumescens*), tussock-sedge (*C. stricta*), or fowl meadow-grass (*Glyceria striata*) may also be present, depending upon the site.

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Dogwoods (*Cornus spp.*), Spicebush (*Lindera benzoin*), and Winterberry (*Ilex verticillata*). Non-native invasive shrubs are often common in these forests, including Japanese Barberry (*Berberis thunbergii*), Multiflora Rose (*Rosa multiflora*), Burning Bush (*Euonymus alatus*), Tartarian Honeysuckle group (*Lonicera spp.*), and Buckthorns (*Rhamnus frangula* or *R. cathartica*). The herbaceous layer is usually species rich with a mixture of those species characteristic of floodplain forests, such as Wood Nettle (*Laportea canadensis*), Sensitive Fern (*Onoclea sensibilis*) and Ostrich Fern (*Matteuccia struthiopteris*), in addition to rich upland herbs such as Lady Fern (*Athyrium filix-femina*), Zigzag Goldenrod (*Solidago flexicaulis*), White Snakeroot (*Eupatorium rugosum*), Jack-in-the-pulpit (*Arisaema triphyllum*), and Bellwort (*Uvularia sessilifolia*). Other characteristic herbaceous taxa include numerous Asters, Honeysuckle (*Cryptotaenia canadensis*), Bottlebrush Grass (*Hystrix patula*), Canada Mayflower (*Maianthemum canadense*), Floodplain Avens (*Geum laciniatum*), Jumpseed (*Polygonum virginianum*), Wiegand's Wild Rye (*Elymus wiegandii*), and Enchanter's Nightshade (*Circaea spp.*). Large grape vines (*Vitis sp.*), Virginia Creeper (*Parthenocissus quinquefolia*), and Poison Ivy (*Toxicodendron radicans*) may also be abundant. Spring ephemerals such as Dutchman's Breeches (*Dicentra cucullaria*) and Trout Lily (*Erythronium americanum*) often grow here, too. This community type is especially prone to many non-native species including the shrubs listed above, in addition to Oriental Bittersweet (*Celastrus orbiculata*) and Garlic Mustard (*Allaria petiolata*). Black Maple (*Acer nigrum*) prefers the rich, moist soil of alluvial hardwood forests, and most of the current locations in Massachusetts are in High-terrace Floodplain Forests. Other state-listed rare plant species that may occur in this forest type are: Smooth Rock-cress (*Boechera laevigata*; T), Narrow-leaved Spring Beauty (*Claytonia virginica*; T), Hairy Wild Rye (*Elymus villosus*; T), Long-styled Sanicle (*Sanicula odorata*; T) and Barren Strawberry (*Waldsteinia fragarioides*; SC).

Range: Our data indicates that most known examples occur in the north central and western portions of the state. Data includes terraces associated with the Connecticut, Deerfield, Farmington, Green, Housatonic, Mill, Nashua, and Westfield Rivers. More information is needed to be sure of the frequency and distribution of this community throughout Massachusetts. New Hampshire and Vermont have similar communities associated with high-energy, high-gradient rivers and on high terraces above low-gradient rivers. Connecticut describes a similar community on the upper reaches of their riparian floodplains.



Distribution in Massachusetts
1985 - 2010
Based on records in the
Natural Heritage Database

Related communities: High-terrace Floodplain Forests are most closely related to the Transitional Floodplain Forests, Small-River Floodplain Forests, and Rich Mesic Forests in Massachusetts, although with less frequent flooding and higher plant species diversity than other floodplain forests and with very different ecology and landscape position than with Rich Mesic Forests. It is also related to the newly described Alluvial Hardwood Flats Community of small northern rivers.

Threats and Management Recommendations: High-terrace forests are rare in the state due their high soil fertility, infrequent flooding and riparian locations resulting in the past to conversion to

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Massachusetts Division of Fisheries & Wildlife
1 Rabbit Hill Road, Westborough, MA 01581
tel: (508) 389-6360, fax: (508) 389-7894
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High-terrace Floodplain Forest (S2)

State Status: None
Federal Status: None

Description: High-terrace Floodplain Forests in the upper floodplain are characterized by a tall and diverse canopy of deciduous trees with a species-rich herbaceous layer. Occurrences tend to be relatively small narrow forests on high alluvial terraces that flood only occasionally or for a shorter duration than other types of floodplain forests. This community type also occurs on riverbanks of high-gradient, northern rivers, such as the Green and Hoosic Rivers. The vegetation composition of this forest type has similarities with other floodplain forests and with Rich, Mesic Forests. As with other types of floodplain forests and Rich, Mesic Forests, the rich soils and moist conditions make disturbed areas in them prone to invasions by exotic plant species. High-terrace Floodplain Forests (S2) are designated as NHESP Priority Natural Communities and tracked within the Commonwealth by the NHESP due to their high species diversity, distinct vegetation assemblage, susceptibility to disturbance, and limited occurrences.

Environment: High-terrace Floodplain Forests are found on high alluvial terraces of large rivers around the state, on raised areas within other types of floodplain forests and on raised banks adjacent to high energy, high gradient rivers and streams in the northern and western portions of the state. In general, these communities fall within the 100-year flood zone of rivers, although they do not usually receive annual flooding. Soils are typically well-drained to moderately well-drained very fine sandy and silt loams over sandy subsoils. These are often upland soils, but hydric soil inclusions may be present, especially in old meander swales.

Characteristic and indicator species

These floodplain forests have an assemblage of plant species that includes many that also occur in lower floodplain forests and in Rich Mesic Forests.



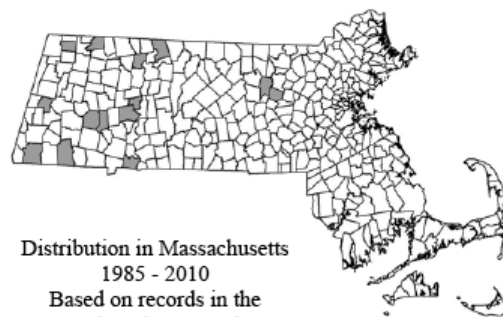
High-terrace Floodplain Forest showing late summer mixed herbaceous layer and shrubbier aspect of the community compared to other types of floodplain forest.
Photo: M.W. Nelson, MA NHESP.

The tree canopy usually includes Sugar Maple (*Acer saccharum*), Elms (*Ulmus spp.*), Ashes (*Fraxinus spp.*), Bitternut Hickory (*Carya cordiformis*), and Basswood (*Tilia americana*). Associates may include Red and Silver Maple (*A. rubrum* and *A. saccharinum*), Hickories (*Carya ovata* and *C. ovalis*), Oaks (*Quercus spp.*), Black Cherry (*Prunus serotina*), Birches (*Betula spp.*), Bitternut, (*Juglans cinerea*), Sycamore (*Platanus occidentalis*), and Cottonwood (*Populus deltoids*). High-terrace Floodplain Forests typically have more structural and species diversity than other floodplain forests. Ironwood (*Carpinus caroliniana*) is a good indicator species of this community and typically contributes to an open subcanopy that may include species from the canopy as well. The shrub layer varies from sparse to well-developed and may include Viburnums (*Viburnum spp.*), Bladdernut (*Staphylea trifolia*),

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Dogwoods (*Cornus spp.*), Spicebush (*Lindera benzoin*), and Winterberry (*Ilex verticillata*). Non-native invasive shrubs are often common in these forests, including Japanese Barberry (*Berberis thunbergii*), Multiflora Rose (*Rosa multiflora*), Burning Bush (*Euonymus alatus*), Tartarian Honeysuckle group (*Lonicera spp.*), and Buckthorns (*Rhamnus frangula* or *R. cathartica*). The herbaceous layer is usually species rich with a mixture of those species characteristic of floodplain forests, such as Wood Nettle (*Laportea canadensis*), Sensitive Fern (*Onoclea sensibilis*) and Ostrich Fern (*Matteuccia struthiopteris*), in addition to rich upland herbs such as Lady Fern (*Athyrium filix-femina*), Zigzag Goldenrod (*Solidago flexicaulis*), White Snakeroot (*Eupatorium rugosum*), Jack-in-the-pulpit (*Arisaema triphyllum*), and Bellwort (*Uvularia sessilifolia*). Other characteristic herbaceous taxa include numerous Asters, Honewort (*Cryptotaenia canadensis*), Bottlebrush Grass (*Hystrix patula*), Canada Mayflower (*Maianthemum canadense*), Floodplain Avens (*Geum laciniatum*), Jumpseed (*Polygonum virginianum*), Wiegand's Wild Rye (*Elymus wiegandii*), and Enchanter's Nightshade (*Circaea spp.*). Large grape vines (*Vitis sp.*), Virginia Creeper (*Parthenocissus quinquefolia*), and Poison Ivy (*Toxicodendron radicans*) may also be abundant. Spring ephemerals such as Dutchman's Breeches (*Dicentra cucullaria*) and Trout Lily (*Erythronium americanum*) often grow here, too. This community type is especially prone to many non-native species including the shrubs listed above, in addition to Oriental Bittersweet (*Celastrus orbiculata*) and Garlic Mustard (*Allaria petiolata*). Black Maple (*Acer nigrum*) prefers the rich, moist soil of alluvial hardwood forests, and most of the current locations in Massachusetts are in High-terrace Floodplain Forests. Other state-listed rare plant species that may occur in this forest type are: Smooth Rock-cress (*Boechera laevigata*; T), Narrow-leaved Spring Beauty (*Claytonia virginica*; T), Hairy Wild Rye (*Elymus villosus*; T), Long-styled Sanicle (*Sanicula odorata*; T) and Barren Strawberry (*Waldsteinia fragarioides*; SC).

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Related communities: High-terrace Floodplain Forests are most closely related to the Transitional Floodplain Forests, Small-River Floodplain Forests, and Rich Mesic Forests in Massachusetts, although with less frequent flooding and higher plant species diversity than other floodplain forests and with very different ecology and landscape position than with Rich Mesic Forests. It is also related to the newly described Alluvial Hardwood Flats Community of small northern rivers.

Threats and Management Recommendations: High-terrace forests are rare in the state due their high soil fertility, infrequent flooding and riparian locations resulting in the past to conversion to

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prime agricultural land and more recently to development. Remaining examples of the community appear to be small and widely distributed. Most have been altered in some way because of adjacent agricultural activities and these forests often occur outside of regulated wetland resource areas. Disturbance of forest structure from logging, road work, and clearing of natural vegetated buffers increases the susceptibility of these communities to invasions by non-native plants. Most known examples have non-native plant species comprising a substantial percentage of overall plant cover. All efforts should be made to protect remaining examples of High-terrace Floodplain Forests and to mechanically remove non-native plant species.

Status in Massachusetts: High-terrace Floodplain Forests tend to be small, disturbed, and few in number in the north central and western portions of the state. Due to their high floral diversity and unique vegetative assemblage, small size, limited distribution, and susceptibility to clearing for agriculture and recently to development, these floodplain forests are considered a Priority Natural Community that is tracked in Massachusetts by the Natural Heritage and Endangered Species Program.

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