

Newtown Highmeadow Vegetation Survey 2017

Prepare by Bryan Connolly Ph.D.

Home Address:
87 Bassetts Bridge Rd.
Mansfield Center, CT 06250
Cell: 860-428-8712

Work:
Framingham State University
Biology Dept.
100 State Street
Framingham, MA 01701

In August 2017 an inventory of the vascular plant species of the highmeadows area of the Fairfield Hills Campus was conducted. Fifty 1M x 1M plots were established in the upper field (see map below). Sampled areas were spaced approximately 20 M apart. The plots were marked with a 3 ft tall green metal post, that remain in the field, so that the same areas can be revisited at a later time. All species within the plot were identified and the area covered by each plant type was estimated. In addition to the structured sampling methods an informal meander survey was conducted to capture any additional infrequent species missed by the plots. In October, representative herbarium specimens of plants that occurred in the plots or were observed during the meander survey were collected. A few species had too few individuals to collect, or the only representative individuals were within plots, these species are not represented in the herbarium collections. Collecting infrequent species could change the results of future surveys, therefore they were allowed to remain growing in the meadow.

A total of 36 species were observed during the vegetation survey (see attached excel file). Twenty-eight were captured in the plot sampling methods, and an additional 8 taxa were seen during the meander survey. The dominant species in the meadow were European forage grasses typically used for hay production. The ten most frequent plants seen in the surveys were introduced species. Seven invasive species were found at site, and

15 native species were seen. If the goal of this project is to create a native herbaceous meadow for pollinator habitat, management should be conducted in a way to increase the following species:

pearly everlasting *Anaphalis margaritacea*, wrinkled leaved goldenrod *Solidago rugosa*, butterfly weed *Asclepias tuberosa*, broad-leaved mountain-mint *Pycnanthemum muticum* and tower mustard *Turritis glabra*. Supplementing the meadow with native species that are valuable for pollinators maybe another management strategy to employ.

It is hoped that this initial survey provides good baseline data that can be used to compare the vegetation to at a future time and can inform the town on making effective management decisions.



Map: approximate location of the 50 1M x 1M vegetation plots.

Newtown High Meadow Vegetation Plots

* = Vegetative grass that was not identifiable. It's percent cover was added to other European agricultural grasses as a combined value.

'combined' = value of all European agricultural grasses in the plot. Includes species indicated with asterisk (*).

Plot 1			
common name	scientific name	% percent cover	
smooth brome	Bromus inermis	50	
arrowwood	Viburnum dentatum	2	
cow vetch	Vicia cracca	2	
whorled bedstraw	Galium mollugo	2	
blackberry	Rubus allegheniensis	10	
invasive honeysuckle	Lonicera x bella	2	
Asian bittersweet	Celastrus orbiculatus	1	

Plot 2			
common name	scientific name	% percent cover	
smooth brome	Bromus inermis	*	
timothy	Phleum pratense	*	
tall oat grass	Arrhenatherum elatius	98	Combined
cow vetch	Vicia cracca	2	

Plot 3			
common name	scientific name	% percent cover	
Creeping wild-rye/quackgrass	Elymus repens	*	
orchard grass	Dactylis glomerata	*	
smooth brome	Bromus inermis	85	Combined
butter and eggs	Linaria vulgaris	12	
whorled bedstraw	Galium mollugo	3	

Plot 4			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	5	
whorled bedstraw	Galium mollugo	10	
cow vetch	Vicia cracca	1	
butter and eggs	Linaria vulgaris	1	
tower-mustard	Turritis glabra	1	
orchard grass	Dactylis glomerata	*	
smooth brome	Bromus inermis	*	
tall oat grass	Arrhenatherum elatius	82	Combined

Plot 5			
common name	scientific name	% percent cover	
tower-mustard	Turritis glabra	2	
horsenettle	Solanum carolinense	10	
dewberry	Rubus flagellaris	5	
butter and eggs	Linaria vulgaris	20	
cow vetch	Vicia cracca	3	
smooth brome	Bromus inermis	*	
tall oat grass	Arrhenatherum elatius	*	
timothy	Phleum pratense	60	Combined

Plot 6			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	15	
Creeping wild-rye/quackgrass	Elymus repens	*	
tall oat grass	Arrhenatherum elatius	*	
sweet vernal grass	Anthoxanthum odoratum	85	Combined

Plot 7			
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common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	5	
cow vetch	Vicia cracca	5	
tower-mustard	Turritis glabra	1	
whorled bedstraw	Galium mollugo	1	
Creeping wild-rye/quackgrass	Elymus repens	*	
tall oat grass	Arrhenatherum elatius	*	
sweet vernal grass	Anthoxanthum odoratum	*	
smooth brome	Bromus inermis	88	Combined

Plot 8			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	8	
cow vetch	Vicia cracca	2	
Creeping wild-rye/quackgrass	Elymus repens	*	
tall oat grass	Arrhenatherum elatius	*	
sweet vernal grass	Anthoxanthum odoratum	*	
smooth brome	Bromus inermis	*	
orchard grass	Dactylis glomerata	90	Combined

Plot 9			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	12	
cow vetch	Vicia cracca	1	
whorled bedstraw	Galium mollugo	2	
Creeping wild-rye/quackgrass	Elymus repens	*	
sweet vernal grass	Anthoxanthum odoratum	*	
timothy	Phleum pratense	85	Combined

Plot 10			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	15	

cow garlic	Allium vineale	1	
cow vetch	Vicia cracca	4	
Creeping wild-rye/quackgrass	Elymus repens	*	
timothy	Phleum pratense	*	
tall oat grass	Arrhenatherum elatius	*	
orchard grass	Dactylis glomerata	80	Combined

Plot 11			
common name	scientific name	% percent cover	
whorled bedstraw	Galium mollugo	3	
sheep's sorrel	Rumex acetosella	5	
common yellow woodsorrel	Oxalis stricta	1	
cow vetch	Vicia cracca	1	
smooth brome	Bromus inermis	80	

Plot 12			
common name	scientific name	% percent cover	
cow vetch	Vicia cracca	5	
smooth brome	Bromus inermis	*	
timothy	Phleum pratense	*	
tall oat grass	Arrhenatherum elatius	95	Combined

Plot 13			
common name	scientific name	% percent cover	
cow vetch	Vicia cracca	2	
smooth brome	Bromus inermis	*	
Creeping wild-rye/quackgrass	Elymus repens	98	Combined

Plot 14			
common name	scientific name	% percent cover	
cow vetch	Vicia cracca	1	

butter and eggs	Linaria vulgaris	1	
whorled bedstraw	Galium mollugo	1	
smooth brome	Bromus inermis	*	
timothy	Phleum pratense	*	
tall oat grass	Arrhenatherum elatius	97	Combined

Plot 15			
common name	scientific name	% percent cover	
cow vetch	Vicia cracca	1	
horsenettle	Solanum carolinense	5	
butter and eggs	Linaria vulgaris	5	
whorled bedstraw	Galium mollugo	1	
tower-mustard	Turritis glabra	1	
tall oat grass	Arrhenatherum elatius	*	
sweet vernal grass	Anthoxanthum odoratum	87	Combined

Plot 16			
common name	scientific name	% percent cover	
butter and eggs	Linaria vulgaris	1	
horsenettle	Solanum carolinense	15	
whorled bedstraw	Galium mollugo	2	
cow vetch	Vicia cracca	2	
smooth brome	Bromus inermis	*	
Creeping wild-rye/quackgrass	Elymus repens	*	
sweet vernal grass	Anthoxanthum odoratum	80	Combined

Plot 17			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	5	
tower-mustard	Turritis glabra	1	
whorled bedstraw	Galium mollugo	1	
smooth brome	Bromus inermis	*	

Creeping wild-rye/quackgrass	<i>Elymus repens</i>	*	
tall oat grass	<i>Arrhenatherum elatius</i>	93	Combined

Plot 18			
common name	scientific name	% percent cover	
cow vetch	<i>Vicia cracca</i>	5	
horsenettle	<i>Solanum carolinense</i>	5	
butter and eggs	<i>Linaria vulgaris</i>	10	
whorled bedstraw	<i>Galium mollugo</i>	10	
tall oat grass	<i>Arrhenatherum elatius</i>	*	
smooth brome	<i>Bromus inermis</i>	*	
Creeping wild-rye/quackgrass	<i>Elymus repens</i>	70	Combined

Plot 19			
common name	scientific name	% percent cover	
horsenettle	<i>Solanum carolinense</i>	10	
cow vetch	<i>Vicia cracca</i>	5	
smooth brome	<i>Bromus inermis</i>	*	
tall oat grass	<i>Arrhenatherum elatius</i>	*	
Creeping wild-rye/quackgrass	<i>Elymus repens</i>	85	Combined

Plot 20			
common name	scientific name	% percent cover	
horsenettle	<i>Solanum carolinense</i>	5	
cow vetch	<i>Vicia cracca</i>	1	
common yellow woodsorrel	<i>Oxalis stricta</i>	1	
tall oat grass	<i>Arrhenatherum elatius</i>	*	
smooth brome	<i>Bromus inermis</i>	93	Combined

Plot 21			
common name	scientific name	% percent cover	

smooth brome	Bromus inermis	80	
Asian bittersweet	Celastrus orbiculatus	5	
glossy buckthorn	Frangula alnus	2	
burning bush	Euonymus alatus	1	
poison ivy	Toxicodendron radicans	10	
cow vetch	Vicia cracca	1	
Virginia creeper	Parthenocissus quinquefolia	1	

Plot 22			
common name	scientific name	% percent cover	
cow garlic	Allium vineale	1	
butter and eggs	Linaria vulgaris	1	
smooth brome	Bromus inermis	*	
tall oat grass	Arrhenatherum elatius	98	Combined

Plot 23			
common name	scientific name	% percent cover	
butter and eggs	Linaria vulgaris	10	
horsenettle	Solanum carolinense	5	
whorled bedstraw	Galium mollugo	3	
cow vetch	Vicia cracca	2	
smooth brome	Bromus inermis	*	
tall oat grass	Arrhenatherum elatius	80	Combined

Plot 24			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	25	
cow vetch	Vicia cracca	20	
whorled bedstraw	Galium mollugo	10	
butter and eggs	Linaria vulgaris	1	
tower-mustard	Turritis glabra	1	
smooth brome	Bromus inermis	*	

tall oat grass	Arrhenatherum elatius	53	Combined
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Plot 25			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	10	
cow vetch	Vicia cracca	3	
butter and eggs	Linaria vulgaris	1	
whorled bedstraw	Galium mollugo	1	
timothy	Phleum pratense	*	
smooth brome	Bromus inermis	*	
tall oat grass	Arrhenatherum elatius	85	Combined

Plot 26			
common name	scientific name	% percent cover	
butter and eggs	Linaria vulgaris	2	
horsenettle	Solanum carolinense	5	
whorled bedstraw	Galium mollugo	40	
tall oat grass	Arrhenatherum elatius	*	
orchard grass	Dactylis glomerata	53	Combined

Plot 27			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	15	
butter and eggs	Linaria vulgaris	1	
whorled bedstraw	Galium mollugo	5	
cow vetch	Vicia cracca	5	
tall oat grass	Arrhenatherum elatius	74	

Plot 28			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	10	

whorled bedstraw	Galium mollugo	5	
tall oat grass	Arrhenatherum elatius	*	
orchard grass	Dactylis glomerata	*	
Creeping wild-rye/quackgrass	Elymus repens	85	Combined

Plot 29			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	15	
cow vetch	Vicia cracca	5	
tall oat grass	Arrhenatherum elatius	*	
Creeping wild-rye/quackgrass	Elymus repens	80	Combined

Plot 30			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	10	
cow vetch	Vicia cracca	2	
whorled bedstraw	Galium mollugo	1	
orchard grass	Dactylis glomerata	*	
tall oat grass	Arrhenatherum elatius	*	
smooth brome	Bromus inermis	87	Combined

Plot 31			
common name	scientific name	% percent cover	
leaf litter		40	
invasive honeysuckle	Lonicera x bella	2	
Virginia creeper	Parthenocissus quinquefolia	10	
whorled bedstraw	Galium mollugo	10	
red maple	Acer rubrum	2	
winterberry	Ilex verticillata	2	
cow vetch	Vicia cracca	1	
hop clover	Trifolium campestre	3	
smooth brome	Bromus inermis	30	

Plot 32			
common name	scientific name	% percent cover	
cow vetch	<i>Vicia cracca</i>	3	
whorled bedstraw	<i>Galium mollugo</i>	2	
sweet vernal grass	<i>Anthoxanthum odoratum</i>	*	
smooth brome	<i>Bromus inermis</i>	*	
tall oat grass	<i>Arrhenatherum elatius</i>	95	Combined

Plot 33			
common name	scientific name	% percent cover	
whorled bedstraw	<i>Galium mollugo</i>	10	
cow vetch	<i>Vicia cracca</i>	5	
smooth brome	<i>Bromus inermis</i>	*	
tall oat grass	<i>Arrhenatherum elatius</i>	*	
timothy	<i>Phleum pratense</i>	85	Combined

Plot 34			
common name	scientific name	% percent cover	
horsenettle	<i>Solanum carolinense</i>	10	
cow vetch	<i>Vicia cracca</i>	40	
tower-mustard	<i>Turritis glabra</i>	1	
whorled bedstraw	<i>Galium mollugo</i>	20	
tall oat grass	<i>Arrhenatherum elatius</i>	*	
Creeping wild-rye/quackgrass	<i>Elymus repens</i>	*	
timothy	<i>Phleum pratense</i>	29	Combined

Plot 35			
common name	scientific name	% percent cover	
horsenettle	<i>Solanum carolinense</i>	20	
cow vetch	<i>Vicia cracca</i>	30	

smooth brome	Bromus inermis	50	
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Plot 36			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	15	
dewberry	Rubus flagellaris	20	
orchard grass	Dactylis glomerata	*	
sweet vernal grass	Anthoxanthum odoratum	*	
Creeping wild-rye/quackgrass	Elymus repens	*	
tall oat grass	Arrhenatherum elatius	65	Combined

Plot 37			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	25	
black cherry	Prunus serotina	1	
butter and eggs	Linaria vulgaris	1	
cow vetch	Vicia cracca	1	
smooth brome	Bromus inermis	*	
Creeping wild-rye/quackgrass	Elymus repens	*	
sweet vernal grass	Anthoxanthum odoratum	72	Combined

Plot 38			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	3	
whorled bedstraw	Galium mollugo	22	
tall oat grass	Arrhenatherum elatius	*	
orchard grass	Dactylis glomerata	75	Combined

Plot 39			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	25	

whorled bedstraw	Galium mollugo	1	
timothy	Phleum pratense	*	
tall oat grass	Arrhenatherum elatius	74	Combined

Plot 40			
common name	scientific name	% percent cover	
horsenettle	Solanum carolinense	20	
whorled bedstraw	Galium mollugo	5	
tall oat grass	Arrhenatherum elatius	*	
Creeping wild-rye/quackgrass	Elymus repens	*	
smooth brome	Bromus inermis	75	Combined

Plot 41			
common name	scientific name	% percent cover	
whorled bedstraw	Galium mollugo	1	
hawkweed	Hieracium sp.	1	
tall oat grass	Arrhenatherum elatius	*	
Creeping wild-rye/quackgrass	Elymus repens	*	
smooth brome	Bromus inermis	98	Combined

Plot 42			
common name	scientific name	% percent cover	
whorled bedstraw	Galium mollugo	2	
smooth brome	Bromus inermis	*	
orchard grass	Dactylis glomerata	98	Combined

Plot 43			
common name	scientific name	% percent cover	
tall oat grass	Arrhenatherum elatius	*	
smooth brome	Bromus inermis	96	Combined
cow vetch	Vicia cracca	3	

whorled bedstraw	Galium mollugo	1	
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Plot 44			
common name	scientific name	% percent cover	
cow vetch	Vicia cracca	1	
whorled bedstraw	Galium mollugo	4	
smooth brome	Bromus inermis	*	
orchard grass	Dactylis glomerata	95	Combined
hawkweed	Hieracium sp.	<1	

Plot 45			
common name	scientific name	% percent cover	
whorled bedstraw	Galium mollugo	20	
smooth brome	Bromus inermis	*	
timothy	Phleum pratense	60	Combined
horsenettle	Solanum carolinense	20	

Plot 46			
common name	scientific name	% percent cover	
whorled bedstraw	Galium mollugo	2	
smooth brome	Bromus inermis	*	
orchard grass	Dactylis glomerata	98	Combined

Plot 47			
common name	scientific name	% percent cover	
smooth brome	Bromus inermis	*	
orchard grass	Dactylis glomerata	*	
timothy	Phleum pratense	98	Combined
whorled bedstraw	Galium mollugo	1	
cow vetch	Vicia cracca	1	

Plot 48			
common name	scientific name	% percent cover	
smooth brome	Bromus inermis	*	
orchard grass	Dactylis glomerata	*	
timothy	Phleum pratense	97	Combined
whorled bedstraw	Galium mollugo	3	

Plot 49			
common name	scientific name	% percent cover	
smooth brome	Bromus inermis	*	
orchard grass	Dactylis glomerata	42	Combined
whorled bedstraw	Galium mollugo	55	
horsenettle	Solanum carolinense	2	
glossy buckthorn	Frangula alnus	1	

Plot 50			
common name	scientific name	% percent cover	
smooth brome	Bromus inermis	*	
orchard grass	Dactylis glomerata	60	Combined
whorled bedstraw	Galium mollugo	38	
horsenettle	Solanum carolinense	2	