

Massachusetts DFW: Post-Harvest Vascular Plant Inventory

Herm Covey WMA, Belchertown

Dates of survey: September 3 and 9, 2009

Surveyor: Contracted vendor

General Description

This survey covers two stands that are located on the east side of East Street and west of the Swift River. The second cut of a two-cut shelterwood regeneration harvest was completed in both stands during January and February of 2008 (see Forest Cutting Plan Summary at: http://www.mass.gov/dfwele/dfw/habitat/management/bdi/forest_mgt/forest_cutting_plans.htm). These stands were surveyed separately, as they are a distance apart and substantially different in structure and composition (both stands were dominated by 70+ year-old white pine, but stand 1 also had scattered red and white oak in the overstory canopy, while stand 2 did not). The majority of the tree canopy was removed in both of these stands during the second shelterwood cut (removal cut). Tree regeneration in both stands is excellent, including both native hardwoods and softwoods. Invasive shrubs will need to be controlled through a combination of mechanical and chemical means to prevent invasive plants from becoming well-established on these former agricultural lands.

In stand 1, the remaining overstory is composed of retained white pine, red oak, and white oak, with occasional black oak, Eastern hemlock, and red maple. The sub-canopy is relatively dense and contains advance regeneration (saplings and sprouts) of trees that primarily include white pine, red oak, black oak, red maple, fire cherry, black cherry and eastern hemlock, along with occasional white oak, yellow birch, black birch, grey birch, aspen, American chestnut, pignut hickory, white ash, and choke cherry as well as shrubs such as raspberry, blackberry, highbush blueberry, American hazelnut, ironwood, alternate-leaved dogwood, and autumn olive (an invasive shrub that will be controlled), with occasional chokeberry, shadbush (serviceberry), winterberry, common juniper, scrub oak, smooth sumac, staghorn sumac, maple-leaved viburnum, wild raisin, and honeysuckle & multiflora rose (two other invasive shrubs that will be controlled). Ground cover primarily includes white pine, raspberry and hay-scented fern, along with red maple, wild Sarsaparilla, Asters, yellow birch, black birch, aspen, black cherry, white oak, black oak, Eastern hemlock, poverty grass, whorled-loosestrife, Canada mayflower, partridgeberry, pokeweed, and goldenrod.

In stand 2, the remaining overstory is composed nearly entirely of retained white pine, with occasional Eastern hemlock (there was no overstory oak present to retain during the cut as there was in stand 1). The sub-canopy is relatively dense and contains advance regeneration (poles, saplings and sprouts) of trees that primarily include white pine, red oak, red maple, and black birch, along with some black oak, black cherry, white oak, white birch, aspen, and Eastern hemlock, and occasional yellow birch, grey birch, hickory, and white ash. The sub-canopy also includes shrubs such as raspberry, blackberry, and highbush blueberry, along with occasional chokeberry shadbush (serviceberry), alternate-leaved dogwood, hazelnut, hawthorn, winterberry, spicebush, maleberry, crabapple, fire cherry, scrub oak, mountain ash, willow, poison sumac, maple-leaved viburnum, wild raisin, and wild grape, and Japanese barberry, European honeysuckle, autumn olive, and oriental bittersweet (four invasive plants that will be controlled). Ground cover primarily includes white pine seedlings and hay-scented fern, along with raspberry, dewberry, Canada mayflower, poverty grass, bentgrass, sedges, and seedlings of red oak, black oak, red maple, yellow birch, black birch, white birch, grey birch, aspen, fire cherry,

and white oak trees, plus occasional Bristly Sarsaparilla, Wild Sarsaparilla, Pearly Everlasting, White Wood-aster, striped pipissewa, panic grass, lady slipper, ladyfern, Intermediate Wood-fern, Interrupted fern, Christmas fern, New York Fern, wild strawberry, wintergreen, bedstraw, hawkweed, Wild Lettuce, St. John's-wort, ground pine, clubmoss, whorled loosestrife, Pokeweed, Solomon's Seal, chokeberry, shadbush (serviceberry), hazelnut, maleberry, Partridge-berry, goldenrod, meadowsweet, steeplebush, poison ivy, blueberry, mullien, Common Mountain-holly, maple-leaved viburnum, arrowwood, and common juniper.

Significant Flora and Habitats

There were no state-listed vascular plant species or priority natural communities observed in the harvested areas. There are no wetlands in stand 1. Stand 2 contains a certified vernal pool with a significant wooded buffer. The vernal pool does not appear to have been impacted by the recent harvest. A gps point and photo were taken of a young Poison Sumac observed in the harvested portion of Stand 2.

Invasive Exotic Species

The following non-native invasive plant species were observed during this survey; Japanese Barberry (*Berberis thunbergii*), shrub Honeysuckle (*Lonicera morrowii* group), Sheep-sorrel (*Rumex acetosella ssp. angiocarpus*), Autumn-olive (*Elaeagnus umbellata*), Black Locust (*Robinia pseudoacacia*), Multiflora Rose (*Rosa multiflora*), and Oriental Bittersweet (*Celastrus orbiculatus*). Most of the previously listed invasive species are present in very low amounts. The most prevalent of the invasives in these stands are Autumn-olive and shrub Honeysuckle. Annual monitoring and active management of the invasive species is planned and will likely include pulling of young plants and cutting and chemical treatment or mechanical removal of the mature fruiting individuals in both of these forest stands.

Herm Covey Post-Harvest Vascular Plant Survey: Cover Class/Distribution* in Stand 1

Scientific Name	Common Name	Canopy	Sub-canopy	Herb/Ground Layer
<i>Acer rubrum</i>	Red Maple	+1	2/1	1/1
<i>Anaphalis margaritacea</i>	Pearly Everlasting			+1
<i>Aralia hispida</i>	Bristly Sarsaparilla			+1
<i>Aralia nudicaulis</i>	Wild Sarsaparilla			1/1
<i>Aronia sp/</i>	Chokeberry Genus		+1	+1
<i>Amelanchier sp/</i>	A Shadbush		+1	+1
<i>Apocynum androsaemifolium</i>	spreading dogbane			+1
<i>Aster divaricatus</i>	White Wood-aster			+1
<i>Aster spp/</i>	Asters			1/1
<i>Berberis thunbergii</i>	Japanese barberry			+1 exotic invasive
<i>Betula alleghaniensis</i>	Yellow Birch		1/1	1/1

Betula lenta	Black Birch	1/1	1/1
Betula papyrifera	Paper-birch	+1	+1
Betula populifolia	Gray Birch	1/1	+1
Carex debilis var/ ?	Stalked Sedge		+1
Carex sp/ (Ovalis group, cf tribuloides/scoparia)	A Sedge		+1
Carex swanii	Swan's Sedge		+1
Carpinus caroliniana	Ironwood	+2	
Carya glabra	Pignut hickory	+1	+1
Castanea dentata	American chestnut	1/1	
			+1 exotic
Celastrus orbiculata	Oriental Bittersweet		invasive
Chimaphila maculata	striped pipsissewa		+1
Chimaphila umbellata	pipsissewa		+1
Comptonia peregrina	sweet fern		+1
Cornus alternifolia	Pagoda-dogwood	+1	
Cornus sp/	Dogwood Genus		+1
Corylus americana	American hazlenut	2/2	+1
Cypripedium acaule	lady slipper		+1
Danthonia spicata	Poverty-grass		1/2
Dennstaedtia punctilobula	Hay-scented Fern		2/3
Dichanthelium acuminatum	A panic-grass		+2
Dichanthelium sp/	Panic-grass		+1
	Intermediate Wood-fern		+1
Dryopteris intermedia			1/1 exotic
			invasive
Elaeagnus umbellata	Autumn-olive, in fruit	2/2	
	Grass-leaf or Flat-topped Goldenrod		+1
Euthamia graminifolia			+1
Fraxinus americana	White Ash	+1	+1
Galium sp/	Bedstraw Genus		+1
Gaultheria procumbens	Wintergreen		1/1
Goodyera sp/	Rattlesnake-plantain		+1
Grass, unidentified	Unknown grass		1/2
Herb, unidentified	unknown		+1
Hypericum sp/	St/ John's-wort		+1
Ilex verticillata	Winterberry	+1	+1
Juniperus communis	Common Juniper	+1	
Lechea mucronata	Hairy Pinweed		+1
Lobelia inflata	Indian Tobacco		+1
	non-native		Exotic
Lonicera sp/	honeysuckle	+1	invasive
Lycopodium clavatum	Staghorn Clubmoss		+2
Lycopodium hickeyi	Hickey's Clubmoss		+1
Lysimachia quadrifolia	whorled loosestrife		1/1
Maianthemum canadense	Canada Mayflower		1/1
Mitchella repens	Partridge-berry		1/2 in fruit
Parthenocissus quinquefolia	Virginia Creeper		+1
Phytolacca americana	Pokeweed		1/1
Picea sp/	A Spruce	+2	
Pinus strobus	White Pine	2/1	3/3 2/3

Polygonatum pubescens	Solomon's Seal			+/1
Populus grandidentata	Big-toothed Aspen		1/1	+/1
Populus tremuloides	Trembling Aspen		1/1	1/1
Potentilla simplex	common cinquefoil			+/2
Prunus pensylvanica	Fire-cherry		1/1	+/1
Prunus serotina	Black Cherry		1/1	1/1
Prunus virginiana	Choke-cherry		+/1	+/1
Pteridium aquilinum var/ latiusculum	Bracken Fern			+/1
Quercus alba	White Oak	2/1	1/1	1/1
Quercus ilicifolia	Scrub-oak		+/1	
Quercus rubra	Red Oak	2/1	2/1	1/1
Quercus velutina	Black Oak	1/1	2/1	1/1
Rhus glabra	Smooth Sumac		+/1	
Rhus hirta	staghorn sumac		+/1	
				Exotic
Robinia pseudoacacia	Black Locust		+/1	invasive
				+/1 exotic
Rosa multiflora	Multiflora Rose		+/1	invasive
Rosa sp/	unknown rose			+/1
Rubus sp/	Dewberry			2/3
Rubus spp/	Raspberry/Blackberry		2/3	2/3
				+/2 exotic
Rumex acetosella ssp/ angiocarpus	Sheep-sorrel			invasive
Salix sp/	unkown willow		+/1	+/1
Solidago rugosa	Rough Goldenrod			1/1
Spiraea alba var/ latifolia	Meadowsweet			+/1
Toxicodendron radicans	Poison-ivy			+/1
Trientalis borealis	Starflower			1/1
Tsuga canadensis	Eastern Hemlock	1/1	2/1	1/1
Ulmus sp/	Elm Genus		+/1	
Vaccinium angustifolium	Lowbush Blueberry			+/2
Vaccinium corymbosum	Highbush-blueberry		1/1	+/1
	Early Sweet			
Vaccinium pallidum	Blueberry			+/1
Verbascum thapsus	Common Mullein			+/1
Veronica officinalis	Common Speedwell			+/1
Viburnum acerifolium	Maple-leaf Viburnum		+/1	+/1 in fruit
Viburnum nudum var/ cassinoides	Wild Raisin		+/1	+/1
Vitis sp/	Wild Grape			+/1

***Cover classes:**

+ <1%, 1=1-5%, 2=6-25%, 3=26-50%, 4= 51-75%, 5=>75%

***Distribution of Species:**

- 1 - growing singly, solitarily individuals tend to be scattered through portions or all of the site
- 2 - growing in patches or groups in some portion(s) of the site
- 3 - growing in patches or groups throughout the site

Herm Covey Post-Harvest Vascular Plant Survey: Cover

Class/Distribution* in Stand 2.

Scientific Name	Common Name	Canopy	Sub-canopy	Herb/Ground Layer
<i>Acer rubrum</i>	Red Maple		2/1	1/1
<i>Achillea millefolium</i>	Yarrow			+/1 exotic
<i>Agrostis perennans</i>	Upland Bentgrass			1/2
<i>Anaphalis margaritacea</i>	Pearly Everlasting			+/1
<i>Aralia hispida</i>	Bristly Sarsaparilla			+/1
<i>Aralia nudicaulis</i>	Wild Sarsaparilla			+/1
<i>Aronia sp/</i>	Chokeberry Genus		+/1	+/1
<i>Amelanchier sp/</i>	A Shadbush		+/1	+/1
<i>Aster divaricatus</i>	White Wood-aster			+/1
<i>Aster spp/</i>	Asters			+/1
<i>Athyrium filix-femina</i>	Lady Fern			+/1
<i>Berberis thunbergii</i>	Japanese barberry		+/1	
<i>Betula alleghaniensis</i>	Yellow Birch		+/1	+/1
<i>Betula lenta</i>	Black Birch		2/1	+/1
<i>Betula papyrifera</i>	Paper-birch		1/1	+/1
<i>Betula populifolia</i>	Gray Birch		+/1	+/1
<i>Carex sp/ (Ovalis group, cf tribuloides/scoparia)</i>	A Sedge			1/2
<i>Carex virescens</i>	Ribbed Sedge			1/2
<i>Carya sp/</i>	Hickory Genus		+/1	
				Exotic
<i>Celastrus orbiculata</i>	Oriental Bittersweet		+/1	invasive
<i>Chimaphila maculata</i>	striped pipissewa			+/1
<i>Cornus alternifolia</i>	Pagoda-dogwood		+/1	
<i>Cornus sp/</i>	Dogwood Genus		+/1	
<i>Corylus sp/</i>	Hazelnut		+/1	+/1
<i>Crataegus sp/</i>	Hawthorn Genus		+/1	
<i>Cypripedium acaule</i>	lady slipper			+/1
<i>Danthonia spicata</i>	Poverty-grass			1/2
<i>Dennstaedtia punctilobula</i>	Hay-scented Fern			2/2
<i>Dichanthelium acuminatum</i>	A panic-grass			+/2
<i>Dichanthelium sp/</i>	Panic-grass			+/2
<i>Dryopteris intermedia</i>	Intermediate Wood-fern			+/1
				Exotic
<i>Elaeagnus umbellata</i>	Autumn-olive		+/1	invasive
<i>Erigeron sp/</i>	Fleabane Genus			+/1
<i>Fragaria sp/</i>	Wild Strawberry			+/1
<i>Fraxinus americana</i>	White Ash		+/1	
<i>Galium sp/</i>	Bedstraw Genus			+/1
<i>Gaultheria procumbens</i>	Wintergreen			+/1
Grass, unidentified	Unknown grass			+/1
<i>Hieracium sp/</i>	hawkweed			+/1
<i>Hypericum perforatum</i>	Common St/ John's-wort			+/1
<i>Ilex verticillata</i>	Winterberry		+/1	
<i>Juncus effusus</i>	Soft Rush			+/1

Juniperus communis	Common Juniper			+/2
Lactuca sp/	Wild Lettuce			+/1
Lindera benzoin	Spicebush		+/1	
Lobelia inflata	Indian Tobacco			+/1
				Exotic
Lonicera spp	non-native honeysuckle		1/1	invasive
Lycopodium sp/	Ground-pine/clubmoss			+/1
Lyonia ligustrina	Maleberry		+/1	+/1
Lysimachia quadrifolia	whorled loosestrife			+/1
Malus sp/	Crabapple/Apple Genus		+/1	
Maianthemum canadense	Canada Mayflower			1/1
Mitchella repens	Partridge-berry			+/2
Nemopanthus mucronatus	Common Mountain-holly			+/1
Osmunda claytoniana	Interrupted Fern			+/2
Phytolacca americana	Pokeweed			+/1
Pinus strobus	White Pine	2/2	4/3	2/2
Polygonatum pubescens	Solomon's Seal			+/1
Polystichum acrostichoides	Christmas fern			+/1
Populus grandidentata	Big-toothed Aspen		1/1	+/1
Populus tremuloides	Trembling Aspen		1/1	+/1
Potentilla norvegica	Three-finger			+/1
Prunus pensylvanica	Fire-cherry		+/1	+/1
Prunus serotina	Black Cherry		1/1	
Quercus alba	White Oak		1/1	+/1
Quercus ilicifolia	Scrub-oak		+/1	
Quercus rubra	Red Oak		2/1	1/1
Quercus velutina	Black Oak		1/1	1/1
				Exotic
Rosa multiflora	Multiflora Rose		+/2	invasive
Rubus sp/	Dewberry			1/2
Rubus idaeus	Red Raspberry		2/2	1/2
	Shrub			
Rubus spp/	Raspberry/Blackberry		1/2	+/2
				+/2 exotic
Rumex acetosella ssp/ angiocarpus	Sheep-sorrel			invasive
Salix sp/	unkown willow, In fruit		+/1	
Solidago rugosa	Rough Goldenrod			+/1 in flower
Sorbus sp/	Mountain-ash		+/1	
Spiraea alba var/ latifolia	Meadowsweet			+/1
Spiraea tomentosa	Steeple-bush			+/1
Thelypteris noveboracensis	New York Fern			+/1
Toxicodendron radicans	Poison-ivy			+/1
Toxicodendron vernix	Poison-sumac		+/1	
Trichostema dichotomum	Blue Curls			+/1 in flower
Trientalis borealis	Starflower			1/1
Tsuga canadensis	Eastern Hemlock	+/1	1/1	+/1
Vaccinium angustifolium	Lowbush Blueberry			+/1
Vaccinium corymbosum	Highbush-blueberry		1/1	+/1
Vaccinium pallidum	Early Sweet Blueberry			+/1
Verbascum thapsus	Common Mullein			+/1 exotic
Viburnum acerifolium	Maple-leaf Viburnum		+/1	+/1

Viburnum dentatum	Arrow-wood Viburnum		+1
Viburnum nudum var/ cassinoides	Wild Raisin	+1	
Vitis sp/	Wild Grape	+1	

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