Massachusetts Deer Browse Impact Survey

Property Name: Bellevue Cemetary, Still River Rd. **Town(s):**Harvard

Ownership: Town

General Surroundings: Rural/Forest/Ag Low-residential Med-residential High-residential

General level of use by public: Low Moderate Heavy Unknown

Is this property open to hunting? Yes No Unknown Special Hunting Restrictions:

General level of nearby hunting? None Limited Moderate Heavy Unknown

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Date of site visit 8/16/17 **Name(s) conducting survey:** Stainbrook

Description of the forest on the property: (e.g., conifer, mixed conifer/ hardwood, hardwood dominated; what are the dominant trees in the forest canopy; is it closed or open, is the forest older- or younger-aged, is there active logging, etc):
Mixed forest, more hardwoods - a lot of hickory, with sections of rocky terrain. Understory was quite bare, but more vegetation near wet areas.

Survey Instructions: Using the worksheet on the back, walk through a representative area (10-50%) of the forest to come up with an average level of impact on a property. Avoid areas near trails and roads as these are not representative. Pay special attention to what is able to grow and which tree species are being browsed, especially in canopy gaps (e.g., areas where the sun is able to reach the forest floor from fallen trees, recent cuts, etc.). Take a few pictures showing overall forest floor as well as specific cases of browsing, if present. Please also record a GPS track or attach a map of the property with areas surveyed marked. After filling out the survey on the back, check the box below that best describes the general level of forest impacts from deer browsing. Please email a copy of the survey, GPS track/map, and pictures to david.stainbrook@state.ma.us.

General level of forest impacts from deer browsing on the property *(check one)*:

□ **1: Little to No Impact**
Preferred hardwood tree seedlings and saplings such as maple, oak, ash, and hickory are growing up to and above 6 feet tall, with little to no sign of browsing. The shrub and herbaceous layers are well developed and show little to no impact (e.g., Pink Lady's Slipper, Trilliums, and Wild Sarsaparilla are present)

□ **2: Between Little to No Impact and Moderately Impacted**

□ **3: Moderately Impacted**
Preferred hardwood tree seedlings and saplings such as maple, oak, ash, and hickory are growing up to and above 6 feet tall, but most do show some signs of browsing. Some moderately preferred trees (e.g., cherry) may show slight browsing, but no sign of browsing on low-preference tree species such as American beech and white pine. Some preferred to moderately preferred shrubs show evidence of browsing (e.g., viburnums) and preferred herbaceous plants (e.g., Trilliums, Pink Lady's Slipper, Canada Mayflower, and Wild Sarsaparilla) are present, but show some signs of flowering parts removed.

□ **4: Between Moderately Impacted and Impacted**

□ **5: Impacted**
Preferred hardwood tree seedlings and saplings such as maple, oak, and ash are not common, and when present, show signs of moderate to heavy browsing. In their place are other tree species such as American beech, white pine, cherry, birch, etc., which may show evidence of browsing. Some low-preference shrubs show evidence of browsing (e.g., blueberry, Glossy Buckthorn). Few preferred shrubs may be found scattered in the understory and Hay-scented Fern, low-bush blueberry, huckleberry, grasses/sedges, and barberry may dominate large sections of the forest floor.

□ **6: Between Impacted and Heavily Impacted**

□ **7: Heavily Impacted**
Tree seedlings and saplings preferred by deer are almost non-existent, and when present show signs of heavy browsing. Less preferred shrubs and trees show signs of browsing and/or most saplings are unable to grow above 6ft. Low preference trees, such as white pine may show evidence of browsing. A browse line is often visible below 6ft. Foliage of native shrubs and wildflowers are very limited. Ferns, grasses/sedges, and non-preferred invasive plants such as barberry may dominate the forest floor.

Classify average level of browsing on seedlings/saplings for the following species *(minimum 20 stems)*:

Preferred Species:

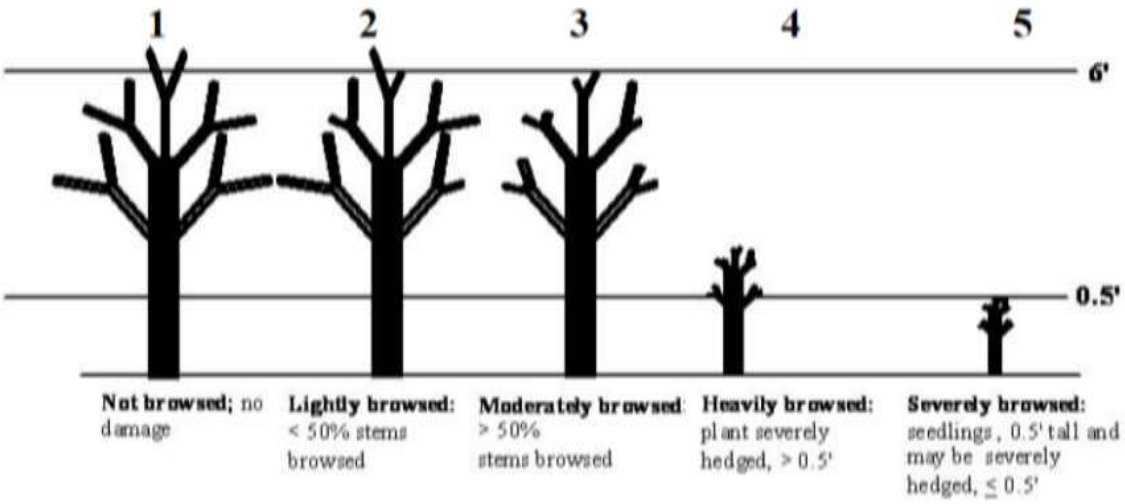
Oak	1	2	3	4	5	Present in canopy, few in understory	Not Present/Seen
Red/Sugar Maple	1	2	3	4	5	Present in canopy, few in understory	Not Present/Seen

Less Preferred Species:

Eastern Hemlock	1	2	3	4	5	Present in canopy, few in understory	Not Present/Seen
Birch	1	2	3	4	5	Present in canopy, few in understory	Not Present/Seen
American Beech	1	2	3	4	5	Present in canopy, few in understory	Not Present/Seen
Black Cherry	1	2	3	4	5	Present in canopy, few in understory	Not Present/Seen
White Pine	1	2	3	4	5	Present in canopy, few in understory	Not Present/Seen
Other: Ash	1	2	3	4	5	Present in canopy, few in understory	Not Present/Seen

Hickory (2-3)

Browsing Score



General level of deer sign on the property (e.g., scat, tracks, etc.): Low Medium High Unknown

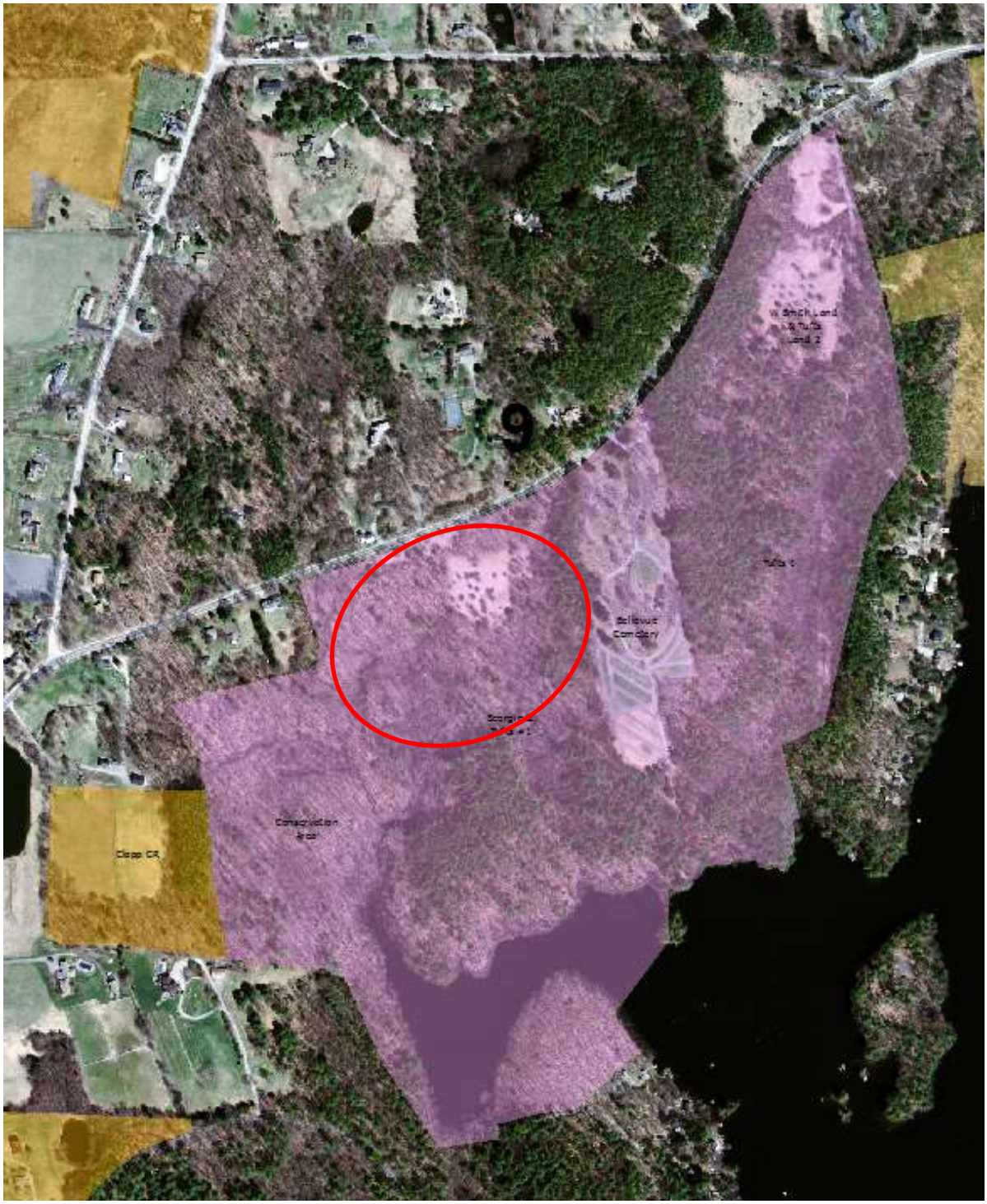
Is there any evidence of deer impacts in surrounding areas (e.g., homes with landscaping damage)?
None Very Limited Moderate Heavy Unknown

Additional Notes (e.g., describe herbaceous layer):

Very bare herbaceous layer, but there were patches with some decent maple-leaf viburnham (browsed) and Canada mayflower. Not a lot of wild sarsaparilla or other plants that deer typically eat.

Conservation agent mentioned that they sprayed some invasive plants in this section, which could explain some of the lack of herbaceous layer seen.

Map showing surveyed areas (in red circle)



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Browsing on low-bush blueberry, typically not preferred by deer.

Browsing on Oriental bittersweet, typically not preferred by deer.

Overall look of the forest showed a sparse herbaceous layer and what appeared to be a browse line. I was informed that this property may have been sprayed by town officials to remove invasive Japanese barberry, which could explain some the lack of understory, but not browsing on less preferred trees.