

Massachusetts Deer Browse Impact Survey

Property Name: Holy Hill Conservation Area, Shaker Meadows Town(s): Harvard

Ownership: Harvard Conservation Commission

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

Date of site visit: 5/21/19 Name(s) conducting survey: Siener

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):

Mature, closed canopy forest dominated by mix of white pine, oak and other hardwoods; other stands further east dominated by white pine and hemlock; understory either dominated by white pine saplings, witch hazel or beaked hazelnut; no logging;

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 pictures showing the 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 (e.g., if random plots used). After filling out 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.

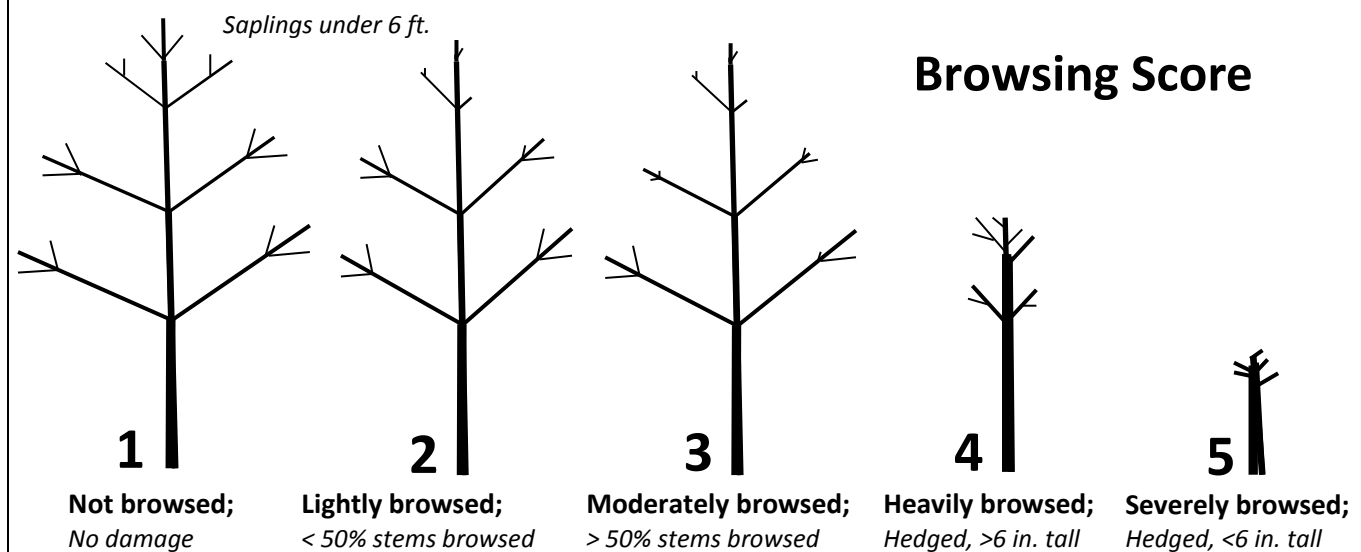
☐ **6: Between Impacted and Heavily Impacted**

☐ **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):

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
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: <u>witch hazel</u>	1	2	3	4	5	Present in canopy, few in understory	Not Present/Seen



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

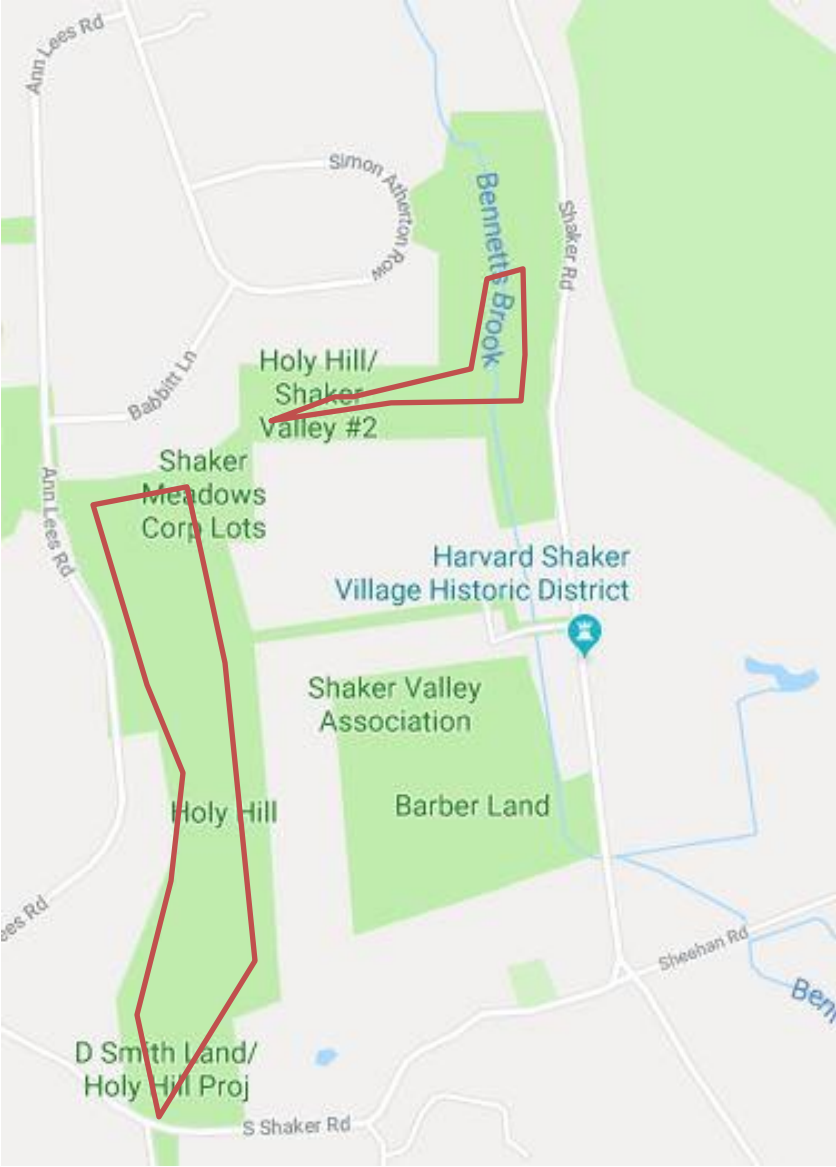
Additional Notes (e.g., describe herbaceous and shrub layer):

Preferred species some heavily browsed (browsing score) – aspen = 4; euonymus = 3-4; ash = 2-3; sassafras = 3-4; glossy buckthorn 2-3

Some light browsing present on other preferred species including ash, oak, maple, and also some light browse seen on witch hazel, maple-leaf viburnum, beaked hazelnut. White pine saplings abundant in understory with only a couple of examples of browse. Browsed mountain laurel also observed, but not a common species and only one such example of browse. I did not think this warranted ranking the forest impacts higher because other conditions appeared mostly decent. Oak and maple were common in the sapling layer >6ft tall; beaked hazelnut and maple-leaf viburnum were also reaching good heights, but browse was still present. The browse on white pine/mountain laurel may have been due to a bad acorn crop? In the herb layer, Canada mayflower and starflower were abundant and flowering. Some lady slipper and trillium present, no signs of browse. Sarsparilla not common, but when present not browsed. Poison ivy also widely abundant.

MAP OF SURVEYED AREA

Primary survey areas



IMAGES



Forest landscape at Holy Hill / Shaker Meadows. Ericaceous understory in some areas with scattered maple saplings.



Dense witch hazel understory with little browsing evident.



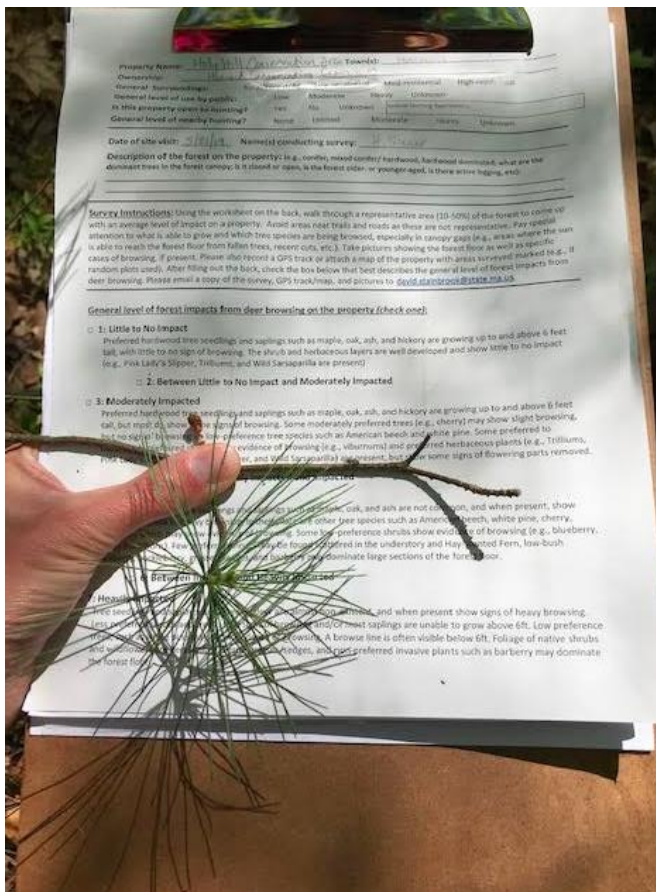
Browse on red oak saplings was light-moderate (browsing score 2).



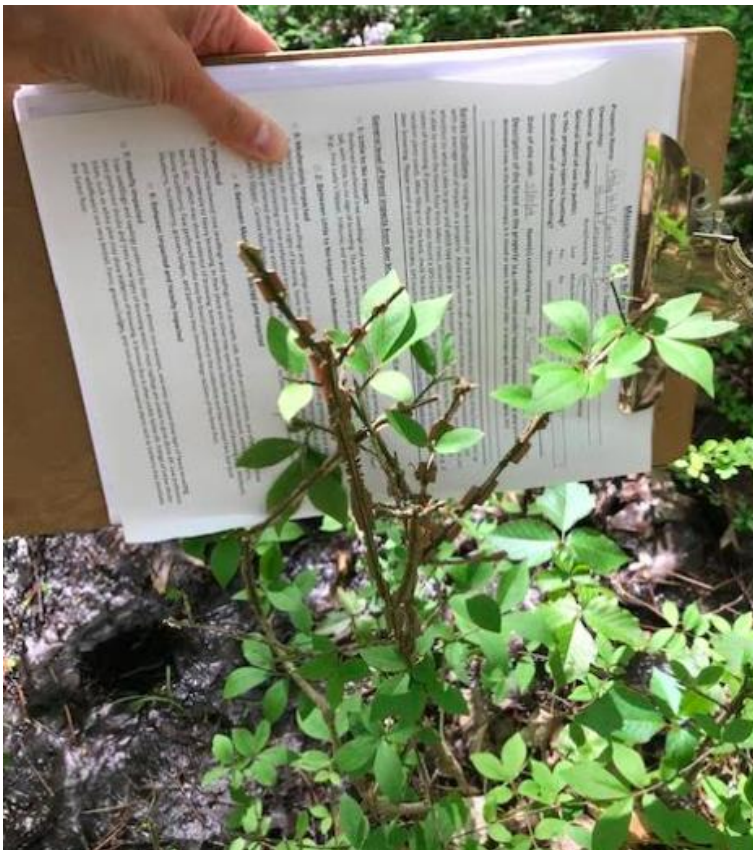
Browse on red maple saplings was light to moderate (browsing score 2). Many red maple saplings exceeded 6 ft tall



American chestnut stump sprouts were lightly browsed (browsing score 2), but many were untouched and exceeded 6 ft tall.



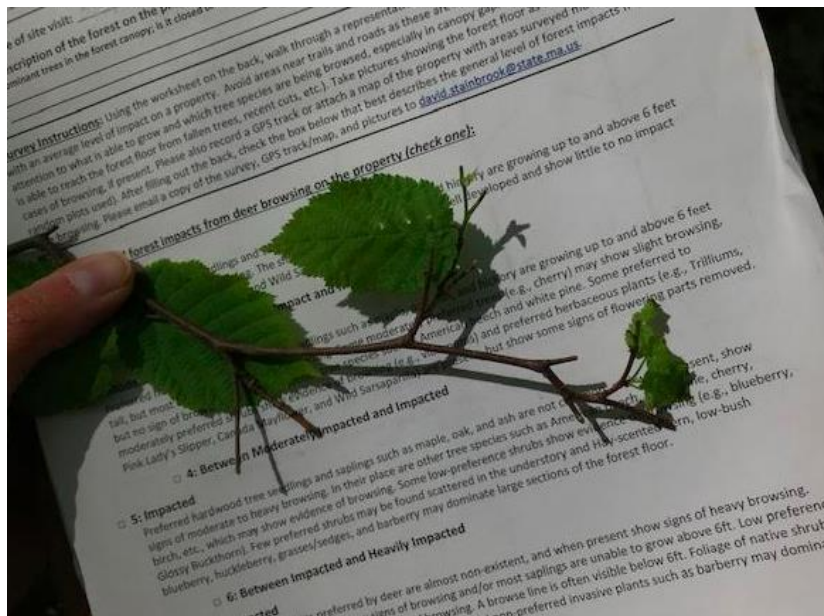
White pine browse (browsing score 2) was rare and when observed the damage was minor.



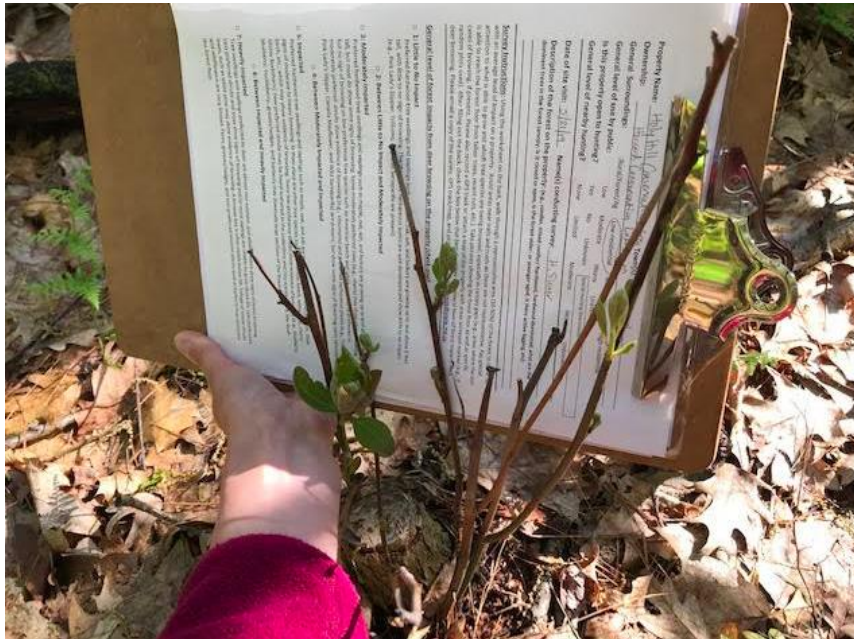
Euonymus seedlings and shrubs were browsed more heavily than oaks and maples.

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 Is this property open to hunting? ☐ None ☐ Moderate ☐ Heavy ☐ Unknown
 General level of nearby hunting? ☐ None ☐ Moderate ☐ Heavy ☐ Unknown
 Date of site visit: 5/21/19 Name(s) conducting survey: H. Siemer
 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 there forest edge- or younger aged, is there active logging, etc.):
 Survey Instructions: Using the worksheet on the back of this clipboard, select a representative area (30-50% of the forest to come up with an average level of impact on a property. Avoid areas with obvious signs of impact such as roads, trails, or areas where the sun is being browsed, especially in canopy gaps (e.g., areas where the sun is hitting the forest floor). Take pictures showing the forest floor as well as specific areas of impact (e.g., tracks, tracks, etc.). Take pictures showing the forest floor as well as specific areas of impact (e.g., tracks, tracks, etc.). Take pictures showing the forest floor as well as specific areas of impact (e.g., tracks, tracks, etc.).
 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 forest floor is covered with a thick layer of leaf litter and herbaceous plants (e.g., Trillium, Pink Lady's Slipper, etc.).
☒ 2: Between Little to No Impact and 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 not show signs of browsing. Some moderately preferred trees (e.g., cherry) may show slight browsing (e.g., Pink Lady's Slipper, Trillium, etc.).
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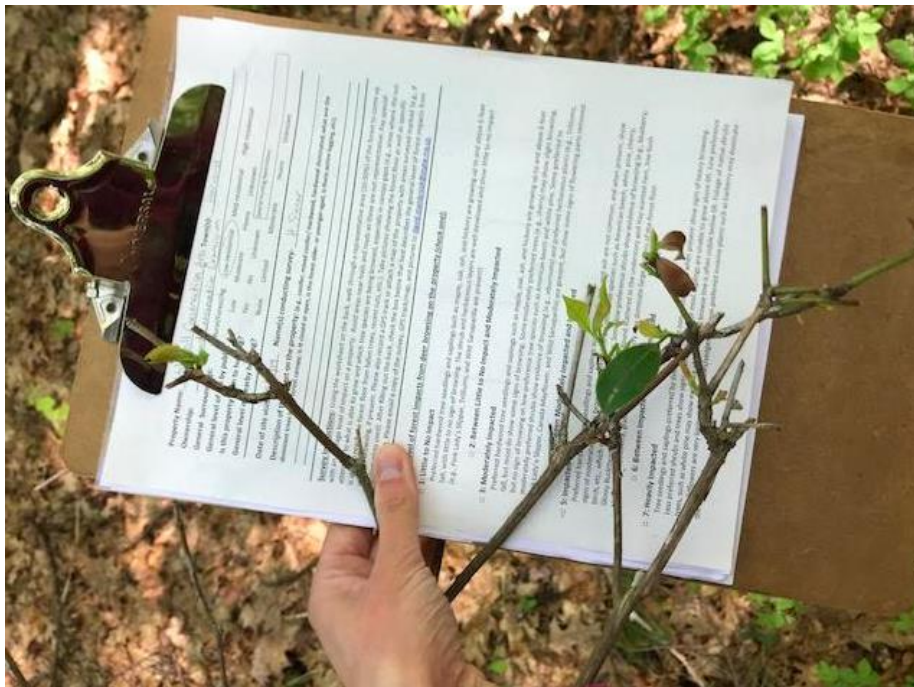
Witch hazel browse (browsing score 2). Many areas with witch hazel were unbrowsed, but a few specimens with low to moderate browse were observed.



Beaked hazelnut was browsed in some areas (browsing score 2). Many shrubs were reaching 6 ft tall.



Sassafras browse was moderate to hedged (browsing score 4).



Mountain laurel was uncommon in this forest. This was the only specimen that exhibited browse (browse score 2).



Canada mayflower and fringed polygala present on the forest floor. Canada mayflower was a common species. No sign of browse



Bloodroot leaves were present in a meadow at the site. I believe this is often a preferred species for deer to eat. Several meadows were present and none of the edges had particularly distinct browse-lines (no photo).