

Effect of girdling on *Ailanthus altissima* in Caumsett State Historic Park Preserve- Huntington, NY

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Methods:

Trees were girdled for the first time March 22, 2014 as part of a volunteer effort. Seventy-eight trees were identified as *Ailanthus altissima* and numbered with paint on the bark. Of the 78 trees a total of 75 were girdled.

In June 2014, park environmental stewards assessed the number of alive and dead trees. Trees were considered dead if foliage was not present. The number of sprouts was also recorded. Since it is difficult to determine if a small ailanthus tree is a seedling or a sprout, only sprouts directly located on the trunk or exposed root were counted. Seed presence or absence was used to determine tree sex. Unless seeds were seen, trees were recorded as a male. If the canopy was obstructed, sex and life state (dead or alive) was listed as undetermined. Trees that were unable to be girdled due to poison ivy and those that were unable to be located were removed from the analysis.

Fifty-six out of 75 trees were girdled for a second time in the summer of 2014. All trees were reassessed for health in July 2015 and re-girdled for a third time if alive.

Results:

Several trees had to be removed from the analysis. In the first girdling effort, two trees were accidentally skipped and one was skipped due to the presence of poison ivy growing around the trunk. These trees were excluded from the analysis since they had not been girdled and assessed in phase with the group. For this reason, only 75 out of the 78 marked trees were included. Of these, 13 trees were female and 49 male with the remaining 13 trees being listed as undetermined. During the assessment in June 2014, some trees were not observed (5 trees) and had to be removed from that year's total since it is unknown if they were alive or dead. Thirteen trees out of the 70 were recorded as dead in June 2014 (Table 1).

In July 2015, trees were reassessed. Those listed as alive were girdled for a third time; trees that were dead (42), covered in poisoned ivy (1), or could not be located (1) were not girdled. In total, 29 trees were listed as alive and therefore girdled for a third time.

The total number of dead trees was 42 out of 75 (Table 1).

Table 1. Girdling results from 2014 and 2015.

	Percentage of Trees Dead	Number of females dead	Number of Sprouts
June 2014 (3 months after 1 st girdle)	13/70 = 18.6%	3/13	77
Total dead in July 2015	42/75 = 56%	5/13	65

Percentages were calculated using the total number of trees assessed during that season including those not girdled. The effect of a third girdle on the remaining living trees needs to be appraised in 2016.

Conclusions:

Results show that after trees were girdled twice 57% are dead. However, attributing causation to girdling alone may not be accurate since control and girdled trees were not randomly selected. Future test sites could incorporate these parameters allowing for clearer analysis.

It would also be useful to record vegetation type and density immediately surrounding the Ailanthus trees. This information could be used to evaluate the impact of the allelopathic affects of this tree. Informal observations of this test site indicate that the chemicals produced by Ailanthus may not affect Mugwort.