

Restoration of Meadows in Darien

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INTRODUCTION

As a habitat for many unique species of perennials, pollinators, and migratory birds, meadows are some of the most important ecosystems in New England.¹ However, as a result of natural succession processes and urban development, the amount of meadow cover in the region has been decreasing at an alarming rate.² Furthermore, many meadow areas have been taken over by invasive species that hinder their ecological function by reducing the presence of native plants beneficial to the meadow's inhabitants. Thus, it is imperative that the remaining meadows in New England be conserved.

This project aims to conserve two meadows in Darien, CT by identifying the presence of harmful invasive species and increasing the abundance of ecologically valuable native perennials.



Fig. 1. Aerial of Mather Meadows, Darien, CT

METHODS

Mather Meadows Mapping

Mather Meadows, a 10-acre meadow property owned by the Darien Land Trust (DLT), is known to have significant quantities of various invasive plant species. However, the density of the flora within the area makes it difficult for one to locate the invasives for further management. Because of this, part of the project involved the creation of a map of the meadow plants that allows one to easily locate invasive species.

On November 3rd, 2019, a test mapping of a portion of East Mather was completed (see above). Three eastward-set transects of roughly 80 meters each were walked, with a data point made roughly every 10 meters. At each of these data points, the latitude and longitude were recorded and a picture of the nearest plant was taken.



Conservation Ambassador Program

Mather Meadows Mapping continued

Limitations: The coordinate locations of data points were not very accurate and the plants in the picture were difficult to identify because of the season. Furthermore, the meadow was completely mowed the following week as part of the Darien Land Trust management regime, and thus could not be mapped. Mapping will resume in the following summer.



Fig. 2. Intended site transects (l) vs. actual EpiCollect5 data points (r)

Mather Meadows Plant Trial

In 2019, plugs of various perennials that are native to New England and known to be of value to pollinators, were planted in a corner of East Mather to test how well they would fare in the Mather Meadows environment. On November 2nd, qualitative data on each of the plants present, was recorded. Seeds of the plants deemed to be most successful (highlighted in green) were harvested on December 8th, when the plants were dry.



Fig. 3. Seeds harvested from plants deemed most successful

Plant species	Observations
<i>Symphyotrichum novae-angliae</i> (New England aster)	Completely absent; unclear what happened to it
<i>Calamagrostis 'Karl Foerster'</i> (Feather reed grass)	Still tall and green. Some grass blades look cut, but not all of them. Signature feather not present; perhaps it is not the season
<i>Deschampsia cespitosa</i> (Tufted hairgrass)	Seems to have been grazed (see also, Molina)
<i>Eryngium yuccifolium</i> (Rattlesnake master)	Very successful. Still in full bloom; saw bees and butterflies on it
<i>Eupatorium purpureum</i> (Sweet Joe pye weed)	Looks like it's beginning to wither, but still had pollinators
<i>Helenium autumnale</i> (Common sneezeweed)	Completely ravaged by deer
<i>Molina caerulea</i> , subsp. <i>Edith Dudsuz</i> (Edith Dudsuz purple moor grass)	Looks like many short shrubs; must have been cut or grazed
<i>Parthenium integrifolium</i> (Wild quinine)	Very successful, but did not see many pollinators; the plant looks healthy
<i>Pycnanthemum flexuosum</i> (Appalachian mountain mint)	In full bloom, but did not see many pollinators
<i>Sanguisorba officinalis</i> (Greater burnet)	Fairly successful, but doesn't attract pollinators
<i>Solidago speciosa</i> (Showy goldenrod)	Very successful. Saw very large numbers of bees on it
<i>Vernonia noveboracensis</i> (New York ironweed)	Looks mostly dead, but withered plant remains standing

Table 1. Observations of successful plants

Brendan Meadows Seeding

Brendan Meadows, another meadow property owned by the Darien Land Trust, is almost entirely dominated by invasive species, primarily mugwort. Last year, invasives were mechanically removed from a large plot and 32 native perennials were planted in their place. However, the invasive species have begun to reinvade the perennial garden.

On December 28th, most of the aboveground portions of the invading plants were again mechanically removed by hand. In hopes of suppressing the regrowth of invasives via active revegetation, the seeds harvested at Mather Meadows were sown at Brendan Meadows.



Fig. 4. A lot of space between plants allowed for re-establishment of invasive species at Brendan Meadows

FUTURE WORK

In the future, some basic qualitative data will be recorded at Brendan Meadows on whether or not the seeded perennials are able to grow, and on how successful they are at suppressing the growth of invasives. In addition, full mapping of the plants at all of the meadow areas at Mather Meadows will be completed using the transect method with EpiCollect5.

REFERENCES

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