

Newtown, Connecticut, Fairfield Hills Campus, Highmeadow 2021 Vegetation Survey Report

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On September 7, 2021 a follow up vegetation survey was conducted in the highmeadow area of the Fairfield Hills campus in Newtown, Connecticut. The data was collected to compare to the August 2017 study. Following the same procedure as in 2017 this year's survey was conducted using 50, 1M x 1M plots. Plots were spaced approximately 20 M apart and are marked by 3ft tall green metal posts, if further data is needed these posts can be left for an additional follow up survey. All species within the plot were identified and the area covered by each plant type was estimated. In addition to the structured sampling method an informal meander survey was conducted to capture any additional infrequent species missed by the plots. On October 3, representative herbarium specimens were collected of as many plant species as possible. A few species had too few individuals, or the only representative samples were within the plots, therefore no specimen was collected. Collections of infrequent species could change the results of future surveys.

In 2021 a total of 52 species were observed in the highmeadow area. See summary table below. This is 16 more species than in 2017. Twenty-eight species were captured in the plots, the same number of species as in 2017, then 24 were seen in the meander survey 16 more than the previous study. The field is still dominated by European forage grasses, though they are giving way to weedy broad-leaved species such as wild madder (*Galium mollugo*), butter and eggs (*Linaria vulgaris*), and horsenettle (*Solanum carolinense*), these species themselves are not native but are also not invasive and produce flowers that are more useful to pollinators than the grasses.

Several native plants of high pollinator value are expanding and increasing in the meadow. Plants that were observed in 2021 and should be encouraged in the meadow include: White snakeroot *Ageratina altissima*, Common milkweed *Asclepias syriaca*, wild basil *Clinopodium vulgare*, grass-leaved goldenrod *Euthamia graminifolia*, Rabbit tobacco *Pseudognaphalium obtusifolium*, Short-toothed mountain mint *Pycnanthemum muticum*, narrowleaf mountainmint *Pycnanthemum tenuifolium*, giant goldenrod *Solidago gigantea*, wrinkleleaf goldenrod *Solidago rugosa*, and calico aster *Symphyotrichum lateriflorum*.

Several species seen in 2017 were not present in 2021: *Viburnum dentatum*, *Ilex verticillata*, *Euonymus alatus*, *Allium vineale*, *Lonicera x bella*. It is not clear why these species were not seen, they may have declined or disappeared from the meadow, or they may have not been prominent due to the weather condition of 2021. Additionally, the deer are very active in the meadow, several of the woody plant species are heavily browsed, the deer may be responsible for the decline of some species at this location.

In summary, the meadow is becoming more biological diverse, and several plant species of high pollinator value are now present. But at the same time invasive plants are on the rise as well as woody plants. Management will be needed in the highmeadow area of the Fairfield Hills campus. If left on its own the meadow will likely become filled with invasive and woody species. I would recommend removal of all invasive species observed, see table below. Especially troubling is the appearance of mugwort (*Artemisia vulgaris*) in the meadow, the current population of this species is small and should be removed immediately. A mowing plan should be developed to manage woody species. Mowing once every 3 years in the early to mid-growing season coupled with selective invasive removal may allow high pollinator value species to further expand at the study site. An additional follow up study may be useful in 3-5 years to assess the trajectory of the meadow.

