Heritage Park Meadow

What is a meadow?

The dictionary definition is "land that is covered or mostly covered with grass". This isn't what most people think of when they hear the word meadow. People typically picture a field full of wildflowers, all different colors and in bloom from spring through fall. That isn't a meadow, it's a garden. Gardens are labor intensive, requiring weeding, fertilizing and watering. They are not self-sustaining. For our park we are talking about a particular type of meadow, a wildflower meadow. This consists of about 60% grasses and 40% perennial wildflowers. When properly set up it becomes almost self-sustaining, requiring mowing once a year and occasional removal of aggressive weeds.

Meadow at Longwood Gardens, Kennett Square Pa.

Why a meadow?

A meadow of native warm season grass plants and native perennials does a better job of absorbing storm water and reducing erosion than a closely cropped lawn does. These taller plants intercept more rainfall and overland flow and have much deeper roots - an average of four to ten feet deep versus six inches for regular lawn. Stopping the routine mowing of wetter areas or sloped areas also avoids the compaction and stripping away of important vegetation which can cause the soil to erode, or hold water and become mosquito habitat.

Areas converted from lawns to more natural meadows also allow native plant species to establish themselves and provide critical habitat for birds, pollinators, beneficial insects, and other wildlife, particularly if meadows are contiguous to other natural areas such as woods or stream corridors.

Reducing costly mowing also helps us all breathe easier by globally reducing greenhouse gas emissions. According to the US Environmental Protection Agency, a new gas powered lawn mower produces in one hour the volatile organic compounds and nitrogen oxide emissions equivalent to those produced by eleven new cars. One hour of mowing is the equivalent of driving a car 350 miles in terms of volatile organic compounds.

The Borough's Building and Grounds department is spending a lot of time mowing the entire park, not to mention the cost of all that gas.

Meadow at Longwood Gardens, Kennett Square Pa.

Concerns about a meadow in the park

The tall grass at the west end of the park, while technically a meadow, is not viewed by a number of people as aesthetically pleasing, especially when they are expecting a wildflower garden. It isn't self-sustaining, as it will eventually be colonized by the more aggressive weeds already in the park. Nettle and mugwort being the most prevalent. A properly planned and implemented wildflower meadow could provide decades of beauty with minimal maintenance.

Concerns about ticks and mosquitoes

We reached out to Neil Diboll, an internationally recognized pioneer in the use of North American plants in contemporary landscapes. Neil emphasizes aesthetics, sustainability, and ecological compatibility with the land. He is President and Consulting Ecologist of Prairie Nursery with 40 years of Ecological Landscape Consulting for Residential, Corporate and Public Spaces.

His reply in regards to this:

“Regarding the concerns about ticks and mosquitoes, it is true that populations of both tend to be higher in taller grasses and forbs than in mowed grass. However, the highest densities of ticks tend to occur in low shrub communities where they can readily latch onto passing host animals such as deer. Mice, voles, and other rodents tend to be the primary hosts in grassland systems, but overall tick populations are almost always lower in grasslands, and people are less likely to encounter them.

This link below provides more detailed information on correlations between ticks and various plant communities: https://www.popsci.com/avoid-ticks-forest#page-2

The primary factor in mosquito populations is the availability of stagnant water in which they breed. Controlling this single habitat opportunity can lead to drastic reductions in mosquito populations. Grassland seldom have stagnant water in which mosquitoes can breed, but adults will hang out in the grass after they have hatched.

If people really wanted to control ticks, they should cut down their shrubs and undergrowth in their woodlands, rather than worry about grasslands. For that matter, they should just cut down all the trees that help create the growing conditions for higher tick populations and mow everything. When I work on my home landscape, I rarely pick up ticks in my prairies, but regularly find ticks after working in my woodlands.“

We also arranged a call with Longwood Gardens and spoke to the person responsible for the meadow and he said they take no other precautions against ticks or mosquitoes aside from the following language on their website: "Insects, including ticks and mosquitoes, are a part of the ecosystem of the Meadow Garden. Stay on pathways and thoroughly check for ticks on your body and clothing after leaving the Meadow." His only suggestion was to put extra wide mowing paths around or within the meadow.

There is recent research that suggests that the highest concentrations of ticks are found at the edge of woodland adjacent to open field such as mowed lawn.

Major Botanic Gardens, Arboretums or County Parks in our area that have meadows.

If meadows were so detrimental to the public, we do not think meadows would be installed in all these public areas and be so popular.

Mercer Meadows: 1600+ acres of meadows & woodlands

Delaware Botanic Garden: 2-acre Meadow

Brooklyn Botanic Garden: Native Flora Garden expansion: A newly planted area that features a cultivated pine barrens and a meadow modeled after Long Island's Hempstead Plains

Longwood Gardens: The Meadow Garden, an 86-acre garden at Longwood Gardens, opened to the public in June of 2014.

Monocacy Meadow – Bethlehem Twsp, PA: Monocacy Meadow is an 8-acre streamside park with a mowed meadow and mature woodlands.

Location of the Heritage Park Meadow

An original plan for Heritage Park called for an extensive meadow in the center, inside the walking path, taking up about half of that area. We are proposing to create a meadow in the same location but only about one third the size of the planned meadow. It will have a 30’ buffer of closely mowed grass around it with possibly a 30’ wide path through the middle. The tall grass meadow at the west end will be mowed down after bird nesting season around the end of June. On the 1999 plan below, the border in Red is the original boundary proposed for the meadow. The border in Green is the boundary we are proposing.

The plan for the wildflower meadow

For a wildflower meadow to become fully established and have that “wow” factor, will take 3 to 4 years.

Site preparation
This is crucial. All existing turf lawn needs to be killed and removed. First this can be done by scraping it up, but this is not practical for an area of this size and it also exposes seed of unwanted plants which will germinate. Second we can smother the plants with plastic of cardboard/newspapers, but again this is not practical. Third we can use an herbicide. Roundup is usually recommended but there are better options. There is an organic product named Burnout, which is made from natural ingredients, is approved for organic gardening, and is safe for use around people and pets (Active ingredients: citric Acid 24.0%, clove oil 8.0% Inert ingredients: water, lauric acid, octanoic acid, gum arabic, xanthan gum, sodium acetate). After removing the turf, the bare soil has to be watered for 2 weeks, allowing weed seeds to germinate. Once they reach an average height of 6-8in., reapply the herbicide. Repeating this grow-kill cycle at least 2 more times or until the seed bank is exhausted.

Plant Selection
While it is possible to buy plant plugs, the cost would be prohibitive. There are meadow seed mixes available at lower cost but there are potential problems with them. They often contain undesirable flower seed, annual flower seed and the seed may come from an area far from us. Yes, the seed from a plant grown in Wisconsin probably won’t do as well here. The recommended approach is to by seed for the individual plants we want from as locally as we can get them. This will be more expensive than the mixes but it doesn’t make sense to

skimp at this point. Appendix A has a recommended list of grasses and perennial plants for our area. A good rule of thumb is that 1oz. of seed will cover between 100 and 300 sq. ft. of ground, depending on how dense you would like the meadow to be.

Planting
To plant seeds on bare ground, lightly rake the soil in your prepared area. Transfer the seed mixture into a bucket and mix in playground sand at a ratio of 10 parts sand to 1 part seed. The sand will help dilute the seed density for more even coverage, and its light color will allow you to see where you have already sown seed. Use a hand or drop spreader (these can be bought or rented) to evenly disperse the seed throughout the prepared area, perhaps switching directions half way through to encourage even coverage. Lightly walk over the area, lightly pressing the seeds into the soil. Do NOT rake! Wildflower seeds will not germinate if buried.

Care of meadow the first year
The meadow needs to be watered with a sprinkler at least once a week (or more depending on conditions) until the young plants have reached approximately 6in. in height. After that, we only need to water during dry spells. Mow the meadow every 6 weeks to a height of 4-6″. We will need to monitor the planting for weeds that can cause problems for the meadow. If needed, control can be obtained through spot herbicide application, manual weeding, or an additional mowing immediately following the most active growth period of the problem weed.

Care of the meadow in subsequent years
Mow once a year in late winter or early spring. Monitor for weeds.

Some interesting links we found during our research:

We borrowed from these in this write up.

Upper Providence Twsp, Delaware County, PA. http://www.upperprovidence.org/215/Meadows-Versus-Grass-Lawns The township's rationale for going to meadow over lawn.
Wildflower Meadows: Let's Get Real By Larry Weaner http://lweanerassociates.com/?p=1203 which has some great shots of meadows.

Duke Farms Perennial Meadow https://www.dukefarms.org/making-an-impact/stewardship-at-home/perennial-meadow/ describes planning and implementing a wildflower meadow.

Appendix A

Recommended Perennial Wildflowers for Northeastern Meadows

(D=dry, M=mesic, W=wet)
Asclepias tuberosa: Butterfly Weed | D, M
Symphyotrichum novae-angliae: New England Aster | M, W
Baptisia species: False Indigo | M, D
Boltonia asteroides: Thousand Flowered Aster | D, M
Chelone glabra: Pink Turtlehead | M, W
Chrysanthemum leucanthemum: Oxe Eye Daisy | D, M
Coreopsis lanceolata: Lance Leaf Coreopsis | D, M
Echinacea purpurea: Purple Coneflower | D, M
Eupatorium fistulosum: Joe Pye Weed | M, W

Filipendula rubra: Queen of the Prairie | M, W
Iris versicolor: Blue Flag Iris | W
Liatris species: Blazingstar | D, M, W
Lobelia cardinalis: Cardinal Flower | M, W
Lobelia siphilitca: Blue Lobelia | M, W
Mimulus ringens: Monkey Flower | W
Monarda fistulosa: Bergamot | D, M
Penstemon species: Beardtongue | D, M
Ratibida pinnata: Yellow Coneflower | D, M, W
Rudbeckia hirta: Black Eye Susan (self seeding biennial) | D, M
Solidago species: Goldenrod | D, M, W (Do not use Solidago canadensis, which, while it is native, is highly vigorous and tends to overwhelm desired vegetation.)
Tradescantia ohiensis: Spiderwort | D, M
Vernonia novaboracensis: Ironweed | M, W

Recommended Grasses for Northeastern Meadows

Andropogon gerardii: Big Bluestem | D, M
Bouteloua curtipendula: Sideoats Grama | D, M
Festuca longifolia: Hard Fescue | D, M
Festuca ovina: Sheep Fescue | D, M
Panicum virgatum: Switch Grass | M, W (live plants only as tends to form monocultures when planted from seed)
Schizacharium scoparium: Little Bluestem | D, M
Sorghastrum nutans: Indian Grass | D, M (live plants only as tends to form monocultures when planted from seed)
Elymus canadensis: Canada Wild Rye | D, M, W