

Native Warm-Season Grass Meadow

converting an abandoned field



PROJECT GOAL

To establish a native warm-season grass meadow on 8.4 acres of abandoned fields to improve habitat for rare grassland birds (e.g., Bobolinks, Eastern Meadowlarks).

Several species of grassland birds have declined in recent years as our landscape has become fragmented and farming practices have favored non-native cool-season grasses and early season mowing regimes, often disrupting breeding and foraging habitat. Warm-season grasses appear and thrive with the arrival of the summer months while cool-season grasses prefer the cooler temperatures of spring and fall. Big and little bluestem, Indian-grass, and switchgrass are warm-season grasses native to southeastern Pennsylvania and well adapted to the 4-season climate of this region. The clump-forming habit of warm-season grasses (cool-season grasses typically form dense mats) creates patches of bare ground that provide quality nesting sites and foraging corridors for grassland birds.



Bobolink

Native warm season grass meadows also produce highly nutritious seeds and attract a diversity of insects that serve as important food sources for birds.

site

Goshen Road, *privately-owned parcel*
Newtown Square, Delaware County, PA

site preparation and installation

The most important step in creating a warm-season grass meadow is site preparation. Warm-season grasses prefer marginal soils with low nutrient content. Historic uses of a project site (e.g., crop farming) may have “improved” soil conditions to favor aggressive cool-season grasses and invasive species. It is important to eliminate these warm-season grass competitors before planting a meadow.

At the Goshen Road site, a contractor certified in herbicide application treated the abandoned field, primarily made up of cool-season grasses and invasive species, with an appropriate herbicide mix in early April of 2006. In late May, a no-till drill (specially designed to handle warm-season grass seed) was used to seed the field with four species of warm-season grasses: big and little bluestem, Indian-grass, and switchgrass. No-till seeding of warm-season grasses is less costly and more effective than traditional tilling methods because it limits soil disturbance, retains the protective surface thatch



June 2006 – one month after planting



September 2008

layer, reduces soil erosion, and limits nutrient and moisture loss. The light and fluffy seeds of warm-season grasses are also difficult to plant using traditional methods.

maintenance and monitoring

The site was visited on a monthly basis during the first growing season following seeding to monitor the growth of warm-season grasses and competition from undesirable species. Canada thistle is a common invader of newly seeded meadows and spot mowing or herbicide application (most effective in late summer or early fall) may be necessary to control this problem species.

Native meadows require periodic disturbance (e.g., mowing, fire) to inhibit encroachment by shrubs and trees. Beginning with the second growing season after planting (2008), the meadow on this site will be mowed to a height of 8"–10" one or two times each year. Ground-nesting grassland birds depend on springtime cover in the meadow to protect their young, so the optimal times for mowing warm-season grass meadows are (1) early to mid-March, to limit the length of time without wildlife cover and to take advantage of the solid ground of that time of year, and (2) between late June and early July, to favor warm-season grasses and set back invasive plants, and to ensure dry surface conditions for mowing equipment. We often mow only parts of a meadow rather than an entire meadow area to ensure some undisturbed habitat is available as year-round shelter for wildlife. This patchwork effect better mimics natural habitat conditions.

Because wildflower seeds are expensive and often more difficult to cultivate than warm-season grass seeds, native wildflowers will not be introduced into the meadow until warm-season grasses are established at this site and the threat of invasive species is minimized. Wildflower seeds may be added in clearings or patches that have been mowed or burned within the warm-season grass mix.

results and lessons learned

- Some warm-season grasses such as switchgrass and big bluestem are more aggressive than others, so it is best to keep these species at lower concentrations in the seed mix.
- If the phases of a meadow installation are kept to 20 acres or less, unexpected losses due to unique site conditions or unforeseen weather events will be minimized.
- Curved edges can give your meadow a more natural look.
- Trails can be mowed around or through meadows to provide inviting access for visitors.
- Areas of turf grass (requiring weekly mowing or more) that are converted to meadow (by reducing to one or two mowings annually) can provide considerable cost savings and important environmental and ecological benefits.



planting with no-till drill