

Recommended Species for Meadow Creation in Maryland's Coastal Plain

Across Maryland, more and more people are undertaking meadow-making projects. The success of these projects is complicated by a plethora of species lists and pre-packaged seed mixes that are simply inappropriate for our area.

Based on decades of experience working in meadows throughout Maryland, we recommend appropriate species (Table 1) for creating meadows in our two Coastal Plain ecoregions (Fig. 1). Ecoregions are areas of relative homogeneity in soil, climate and topography that lead to characteristic suites of species. In broad terms, Central and Western Maryland are characterized by soils formed through the weathering of relatively nutrient-rich bedrock. In contrast, Coastal Plain soils formed over unconsolidated sediments that have been repeatedly eroded and redeposited by rivers, oceans, and wind. With each erosion-deposition-weathering episode, more of the major plant nutrients leached out of the sediments. As a result, compared to the rest of our state, Coastal Plain soils tend to be nutrient poor and more acidic. The Coastal Plain also has a warmer, more humid climate, and lower, flatter topography. This is why some plant species and plant communities are found in the Coastal Plain but not in the rest of our state.

Even when plant species are common to multiple ecoregions, local populations are often best adapted to local growing conditions. For this reason, when possible and barring specific information to the contrary, it is best to source native seeds from the ecoregion where they will be used. If not, in this age of planetary warming, the ecoregion to your south is generally your next best bet. Recommended seed transfer zones can be obtained from the U.S. Forest Service (see Resources section).

Workhorse Species

Some plant species are particularly successful in the anthropogenic meadows of Maryland's Coastal Plain. Anthropogenic meadows are areas that lack the tree cover typical of the Eastern Deciduous Forest because of human activity. Examples can be seen along roadsides, under utility lines, or where pastures or crop fields have been abandoned. The meadow species that thrive in these areas are well adapted to human disturbance and require



Shaggy blazingstars blooming in a field of little bluestem.

very little maintenance. We will refer to these as “workhorse species” because they provide both the bulk of biological mass and ecosystem services in anthropogenic meadows. We recommend that your meadow contains 75% or more workhorse species, both in terms of the species and in terms of the number of seeds in your mix. Supplement your workhorse species with the other species on the list to accommodate special project goals like pollinator support or aesthetics.

About the Species Recommendation Table

The recommended species list that accompanies this fact sheet (Table 1) is an abbreviated version. The full list is available for download at go.umd.edu/nativemeadowplants. The full list not only contains more species, it contains notes that will help you to use the species more successfully.

The species listed in Table 1 are appropriate for use in both of Maryland's Coastal Plain ecoregions, whereas the full list contains a few species that are recommended for one but not the other. Workhorse species appropriate for the typical meadow project (mesic, sunny) are followed by a dot. Table columns indicate the range of growing conditions appropriate for each species. These columns can help you build the species list for your meadow project:

Plant Family – If plant or insect biodiversity is a goal for your meadow project, include as many plant families in your seed mix as possible. Plants serve as larval hosts and pollinator forage, and different insects are attracted to different types of plants.

Ecoregion – Although species overlap between the two ecoregions is the rule, acquire seeds from your own ecoregion when possible.

Bloom Season – If pollinator or beneficial insect support is important, include spring, summer and fall blooms in your species list.

Bloom Color – This is primarily a human, aesthetic consideration, although if you are targeting specific types of pollinators (hummingbirds for example), include their preferred flower colors.

Height – Short meadow is a desirable aesthetic, but just selecting short species will not result in a short meadow. In the Eastern Deciduous Forest, naturally short meadows are only found in extreme growing conditions like rock outcrops and bogs. Unless your site conditions are similarly extreme, tall species that volunteer, including some invasive ones, will quickly outcompete a short meadow mix. Mowing during the growing season will help to shorten a meadow, but is damaging to pollinators and wildlife.

Moisture – It was not our intent to present a list of species appropriate for creating a wetland, which is a special science of its own, and modification of vegetation on hydric soils is subject to local and state regulations. We have, however, included a few moisture-loving species in case your meadow project contains a small wet area. It is true that you can garden with moisture-loving species in a wider range of conditions than those indicated by the moisture columns because in gardens you remove

weeds and provide supplemental water. In a low-maintenance meadow, where plants have to compete with each other, planting species outside their recommended range is a poor investment of time and money.

Light – Species that require deep shade were not targeted for this list because recently planted meadows don't have deep shade. However, they are often near tree lines or buildings that cast some shade, and you can add variation to your meadow mix by taking shade into consideration. For the purposes of this document "full sun" means sun all day, similarly "full shade" means shade all day, and the intermediate categories refer to gradations between these extremes.

Competitiveness – This column describes how aggressive a species will be when planted within the site conditions appropriate for it. Although meadows evoke ideas of natural harmony, they are actually scenes of life-or-death competition. The key to successful, low maintenance, meadow plantings is to select the most aggressive species appropriate to your site conditions. Aggressive-but-desirable species will help your meadow resist invasion by aggressive-undesirable species, including noxious weeds and invasive plants. Less aggressive species are fine if you have the budget for frequent monitoring and more intensive maintenance.

Notes – This column is only available in the online version. It contains any important information not covered by the others, such as particular soil texture or pH requirements. You will also find some species-specific tips here.

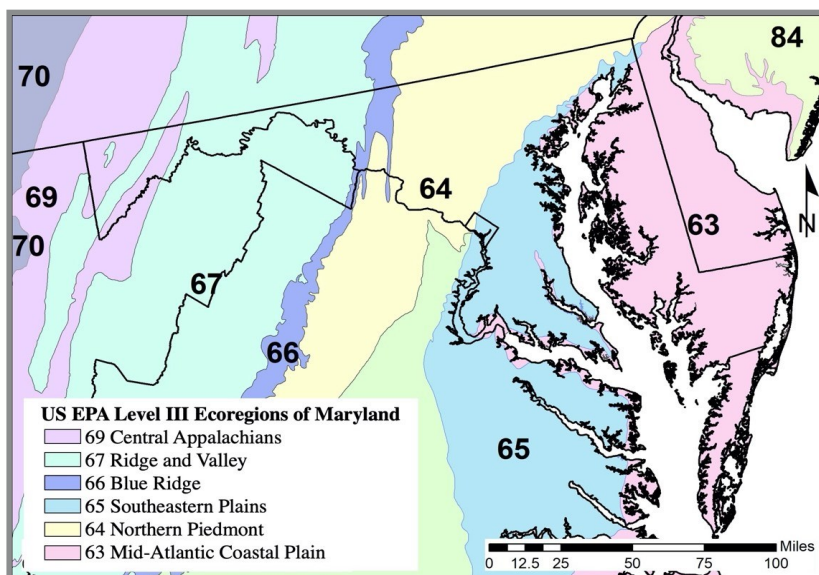


Fig. 1. EPA Level III Ecoregions of Maryland.

Maryland's Coastal Plain includes parts of ecoregions 63 and 65. It stretches roughly from the I-95 corridor eastward. Ecoregion boundaries are based on climatic and habitat conditions that influence plant community composition. You can further refine your species selections using the growing conditions listed in Table 1. Map based on US Environmental Protection Agency data set, 2013.

Common Name	Scientific Name	Family Name	Bloom Season	Bloom Color	Height (in)							
						Wet	Moist	Average	Dry	Extra Dry	Full Shade	Part Shade
Lyre-leaf Rock Cress	<i>Arabisopsis lyrata</i>	Mustard	Apr-May	White	10-18	✓	✓	✓	✓	✓	✓	✓
Daisy Fleabane •	<i>Erigeron strigosus</i> var. <i>strigosus</i>	Aster	Apr-Jul	White	36-48	✓	✓	✓	✓	✓	✓	✓
Wild Strawberry	<i>Fragaria virginiana</i>	Rose	Apr-May	White	5	✓	✓	✓	✓	✓	✓	✓
Common Cinquefoil •	<i>Potentilla simplex</i>	Rose	Apr-May	Yellow	3	✓	✓	✓	✓	✓	✓	✓
Lyre Leaf Sage	<i>Salvia lyrata</i>	Mint	Apr-May	Blue	9-18	✓	✓	✓	✓	✓	✓	✓
Clasping Venus Looking-glass	<i>Triodanis perfoliata</i>	Bellflower	Apr-Jun	Pnk/Purple	9-12	✓	✓	✓	✓	✓	✓	✓
Common Milkweed •	<i>Asclepias syriaca</i>	Dogbane	May-Jun	Lavender	36-48	✓	✓	✓	✓	✓	✓	✓
Cutleaf Evening Primrose •	<i>Oenothera lacinata</i>	Willowherb	May	Yellow	6	✓	✓	✓	✓	✓	✓	✓
American Yarrow •	<i>Achillea borealis</i>	Aster	Jun-Aug	White	18-32	✓	✓	✓	✓	✓	✓	✓
Purple Sneezeweed	<i>Helenium flexuosum</i>	Aster	Jun-Aug	Yellow	30-36	✓	✓	✓	✓	✓	✓	✓
Eastern Pricklypear	<i>Opuntia humifusa</i> var. <i>humifusa</i>	Cactus	Jun	Yellow	6-20	✓	✓	✓	✓	✓	✓	✓
Black-Eyed Susan •	<i>Rudbeckia hirta</i> var. <i>pulcherrima</i>	Aster	Jun-Aug	Gold	18-24	✓	✓	✓	✓	✓	✓	✓
Hyssop Skullcap	<i>Scutellaria integrifolia</i>	Mint	June	Blue	12	✓	✓	✓	✓	✓	✓	✓
Butterfly Milkweed	<i>Asclepias tuberosa</i> ssp. <i>tuberosa</i>	Dogbane	Jul-Aug	Orange	18-32	✓	✓	✓	✓	✓	✓	✓
Flowering Spurge	<i>Euphorbia corollata</i>	Spurge	Jul-Aug	White	48	✓	✓	✓	✓	✓	✓	✓
Slender Bushclover •	<i>Lespedeza virginica</i>	Pea	Jul-Sep	Purple	12-24	✓	✓	✓	✓	✓	✓	✓
Spotted Beebalm	<i>Monarda punctata</i>	Mint	Jul-Aug	Pink	36	✓	✓	✓	✓	✓	✓	✓
Fall Phlox	<i>Phlox paniculata</i>	Phlox	Jul-Oct	Pink	36	✓	✓	✓	✓	✓	✓	✓
Narrow-leaf Mountainmint •	<i>Pycnanthemum tenuifolium</i>	Mint	Jul	White	24-30	✓	✓	✓	✓	✓	✓	✓
Blue Vervain •	<i>Verbena hastata</i>	Vervain	Jul-Aug	Blue	24-60	✓	✓	✓	✓	✓	✓	✓
New York Ironweed •	<i>Vernonia noveboracensis</i>	Aster	Jul-Aug	Purple	48-84	✓	✓	✓	✓	✓	✓	✓
Maryland Goldenaster •	<i>Chrysopsis mariana</i>	Aster	Aug-Sep	Yellow	18-24	✓	✓	✓	✓	✓	✓	✓
Mistflower •	<i>Conoclinium coelestinum</i>	Aster	Aug-Sep	Blue	24-30	✓	✓	✓	✓	✓	✓	✓
Panicle Tick-trefoil •	<i>Desmodium paniculatum</i>	Pea	Aug-Sep	Purple	32-48	✓	✓	✓	✓	✓	✓	✓
Hyssop Thoroughwort •	<i>Eupatorium hyssopifolium</i>	Aster	Aug-Nov	White	40	✓	✓	✓	✓	✓	✓	✓
Flat-topped Goldenrod •	<i>Euthamia graminifolia</i> var. <i>graminifolia</i>	Aster	Aug-Sep	Yellow	24-32	✓	✓	✓	✓	✓	✓	✓
Shaggy Blazingstars	<i>Liatris pilosa</i>	Aster	Aug-Sep	Lavender	12-24	✓	✓	✓	✓	✓	✓	✓
Gray Goldenrod •	<i>Solidago nemoralis</i> var. <i>nemoralis</i>	Aster	Aug-Sep	Yellow	24-30	✓	✓	✓	✓	✓	✓	✓
New York Aster	<i>Symphoricarum novi-belgii</i>	Aster	Aug-Sep	Lt. Blue	12-48	✓	✓	✓	✓	✓	✓	✓
Smooth White Oldfield Aster •	<i>Symphoricarum racemosum</i>	Aster	Aug-Sep	White	10-30	✓	✓	✓	✓	✓	✓	✓
Forked Bluecurls	<i>Trichostema dichotomum</i>	Mint	Aug-Sep	Dark Blue	12-18	✓	✓	✓	✓	✓	✓	✓
Grasses, Rushes, and Sedges												
Poverty Rush (Path Rush) •	<i>Juncus tenuis</i>	Rush	NA	NA	6-12	✓	✓	✓	✓	✓	✓	✓
Shaved Sedge	<i>Carex tonsa</i>	Sedge	Mar-Jun	NA	3-6	✓	✓	✓	✓	✓	✓	✓
Southeastern Wildrye •	<i>Elymus glabriflorus</i> var. <i>glabriflorus</i>	Grass	Jun	Green	36-50	✓	✓	✓	✓	✓	✓	✓
Beaked Panicgrass •	<i>Coleaetania anceps</i> ssp. <i>anceps</i>	Grass	Jul-Oct	Brown	30-48	✓	✓	✓	✓	✓	✓	✓
Little Bluestem •	<i>Schizachyrium scoparium</i> var. <i>scoparium</i>	Grass	Jul-Oct	NA	36	✓	✓	✓	✓	✓	✓	✓
Purpletop •	<i>Tridens flavus</i>	Grass	Aug-Sep	Purple	30-36	✓	✓	✓	✓	✓	✓	✓
Broomsedge •	<i>Andropogon virginicus</i>	Grass	Sep-Jan	NA	36-48	✓	✓	✓	✓	✓	✓	✓
Purple Lovegrass	<i>Eragrostis spectabilis</i>	Grass	Sep	Purple	24	✓	✓	✓	✓	✓	✓	✓
Switchgrass •	<i>Panicum virgatum</i>	Grass	Sep-Nov	Brown	48-60	✓	✓	✓	✓	✓	✓	✓
Smooth Paspalum •	<i>Paspalum laeve</i>	Grass	Sep	NA	36-48	✓	✓	✓	✓	✓	✓	✓
Indian Grass •	<i>Sorghastrum nutans</i>	Grass	Sep-Nov	Brown	60-72	✓	✓	✓	✓	✓	✓	✓

Table 1. Check marks (✓) indicate appropriate growing conditions. Question marks (?) indicate a lack of knowledge if these conditions are appropriate. Species that are particularly effective are marked with a dot (•). For the full list, see our digital version at <https://go.umd.edu/NativeMeadowPlants>

Commercial Availability of Locally Native Seeds

The greatest chance of project success comes from using seeds sourced within your project's ecoregion. Locally native seeds also provide the most ecological benefit, particularly when it comes to providing plants in natural areas with genetically appropriate cross-pollination partners. Unfortunately, commercial availability of locally native seed is low in Maryland. Seeds must usually be purchased not only from outside your ecoregion, but from vendors outside the Mid-Atlantic area. Native seed vendors sell the species and ecotypes appropriate to their own regions, and these will generally be inappropriate for use in Maryland's Coastal Plain.

Although cultivars of native grasses are widely available, be careful to avoid purchasing them. Many were bred for pasture or soil stabilization, scenarios where rapid establishment of a monoculture is desirable, and are prone to overrun meadow plantings.

Here are some tips to help you acquire the seeds you need:

- request the species and ecoregions you actually want from growers, otherwise they will be unaware of customer demand
- ask a seed producer, native plant nursery, or local farmer to contract grow seeds for you (this requires 2 or 3 years lead time)
- wild collect your own seeds from common species such as purpletop, little bluestem, and beaked panicgrass

It is our intention to update the list over time as we learn more about what has and has not worked well in Coastal Plain meadow projects, so please send us your feedback.

Additional Resources

County Extension Office locations, extension.umd.edu

North American Native Plant Society. Seed Collecting and Saving. nanps.org/seed-collecting

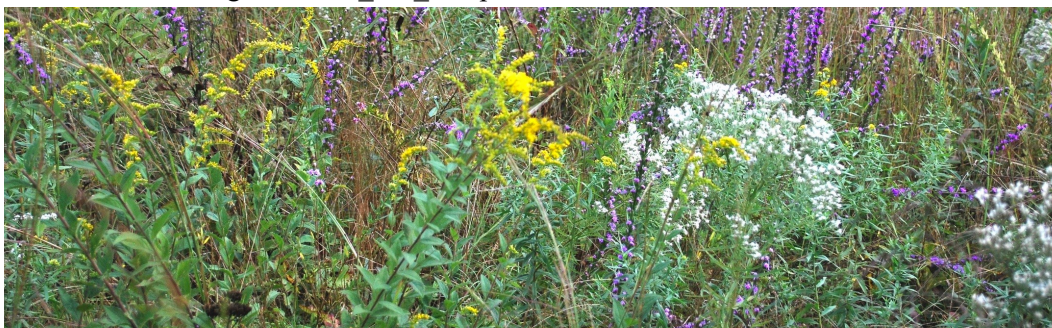
Phillips, Harry R. 1985. Growing and Propagating Wild Flowers. The University of North Carolina Press. 350 pp. (Contains an excellent section on wild collecting seeds).

Soil & Water Conservation District locations, mda.maryland.gov

U.S. Forest Service. WWETAC Seed Transfer Zones fs.fed.us/wwetac/threat-map/TRMSeedZoneMapper.php

U.S. Environmental Protection Agency. 1999. Alan Woods, James Omernik and Douglas Brown. Level III and IV Ecoregions of Delaware, Maryland, Pennsylvania, Virginia and West Virginia. National Health and Environmental Effects Research Laboratory. Corvallis, OR.

US Environmental Protection Agency. 2013. Level III Ecoregions of the Conterminous United States data set. National Health and Environmental Effects Research Laboratory. Corvallis, OR. Data sets accessed 6/1/19 from ftp://ftp.epa.gov/wed/ecoregions/us/us_eco_l3.zip



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