Establishing Pollinator Habitat from Seed

Creating pollinator habitat is deeply satisfying on many levels. Seeing an ever-changing field of blooms progress through the seasons, with various colorful butterflies and active songbirds is stimulating and enriching. Knowing that these increasingly rare plants are checking the decline of once common wildlife, is an expression of goodwill and proper stewardship to the planet that supports us. Once you realize that establishing a beautiful meadow is more than putting a few potted plants in the ground, seed becomes necessary. Careful planning and preparation are required. This introductory pamphlet will orient you to the possibilities and the tasks required.

Site Preparation

When you dig in for the long haul, your rewards will be a beautiful and complex prairie ecosystem that emerges after three to five years of nurturing. Whether you start with mowed lawn, old field, or working land, the first season will revert to bare ground for a blank slate for your seed mix. Eliminating existing vegetation will reduce competition from the entrenched plant stock that may be non-native, invasive, or unhelpful to the desired pollinators and wildlife.

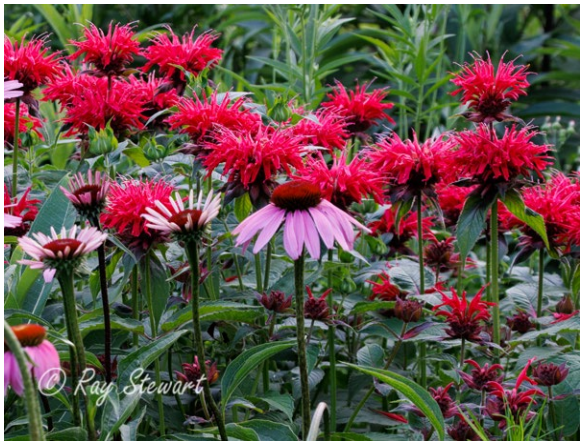

Figure 1: Purple Coneflower and Bee Balm photo by Ray Stewart

Choose a vegetation elimination method and consider the labor, time and expense, as well as the broader impact of your choice. The size of your project may influence your decisions on the use of mechanical, physical, or chemical applications. Solarization is a popular method employed in sensitive areas, small patches, and for those who choose not to use herbicide. With this method the area is covered to eliminate all light from reaching the soil, sometimes with heavy (4 mil) plastic that bakes the ground and neutralizes fast-growing weed seed. Repeated mechanical tilling or discing can remove living plant material but is likely to stimulate seeds that have been lying dormant, sometimes for decades. Herbicide application with some form of Glyphosate (Roundup) is popular for larger areas and may require multiple applications.

A quick method for converting a few hundred square feet of lawn into a garden uses a sod cutter. This machine is often available from an equipment rental store by the hour or by the day. Lawns are typically shallow-rooted allowing a horizontal cutter to remove all vegetation in a single pass. Once exposed, the soil can be amended if desired and seeded without delay. Size, time and expense are all variables in site preparation. Choose the option that is best for your needs and expectations.

Provenance

Native plants are the most valuable to the local ecology. Native means that it lived in the area before European settlement. The plants evolved in the local climate, soils and with the resident biota. Native plants are recognized by the local insect population that will take advantage of them. Conversely, native plants are highly adapted to the browsing, grazing and predatory pressures that naturally occur. Many plants have ranges such as New York to Chicago and south to the Gulf Coast. There is some debate about whether a native species that occurs throughout this range originating in Memphis would be equally suited in Cleveland, for example. This is the issue of provenance – geographical sourcing of plant material. While it is likely that genetic differences exist for any species across a vast range, it is uncertain whether there can be a general rule regarding the suitability of sourcing from far afield. Scientific field work on such prospects is scarce.

For many, locally sourced seed or plant material is believed to be superior and undoubtedly fits smartly into the local landscape. Geographically distant sources may provide identical species but may be less suitable as subspecies, varieties or races within a species may not be as well adapted locally.

Sowing

Figure 2: Prairie Milkweed photo by Ray Stewart

Seeding is a long-term proposition. Many native perennials spend their first year or two building their root systems before growing upwards and producing flowers. Three to five years will pass before a mature and stable habitat is established. After vegetation is removed, prepare for direct sowing by gently smoothing the surface by removing any roots, clods or stubble. Minimize soil disturbance to reduce activation of dormant seeds that inevitably reside in the topsoil. One more round of weed treating or pulling may still be needed. If applying Glyphosate, wait at least three days before taking the next step.

When selecting a seed mix, use a diversity of plants for season-long blooms. Three by three species should be your minimum. When considering the blooming seasons of spring, summer, and fall – choose three different species for each. More diversity is even better since each season may be ten weeks long and most plants will flower just half of that time, or less. Bunch grasses should also be part of your pollinator habitat. While grasses do not provide nectar or pollen, they can be essential larval hosts for butterflies, as well as nesting and over-wintering sites for bumblebees, wildlife, and other insects.

Broadcast seeding is the most common method. Spreaders are available in varying sizes – from hand-held to tractor mount - depending on the requirements of the job. Mix seed with a carrier material like sand, sawdust, or vermiculite to help distribute the seed broadly and to make visible where the seed lands. Seed to soil contact is imperative. Using a roller to press seeds on to the soil assures that soil moisture will be available at the right time. Vehicles can also be driven across the area if this is practical. In native prairies seeds fall to the ground where they may get trampled by bison or the like. Seasonal freeze/thaw cycles stir up the soil surface to create good seed/soil contact and provide optimal conditions. Your patience is required as some seeds will remain dormant for two or three years before they sprout.

Late Fall is the typical planting time for pollinator habitat. Germination by cold treatment is favored and may be required in some species. Spring planting is not ideal. Favorable conditions, mild temperatures and moderate moisture point to Fall as the preferred time. Alternately, winter sowing is used in large scale restoration but can be used at any scale. The ideal time is mid to late winter when the ground is frozen, favoring heavy equipment, and two to three inches of snow cover the ground. Broadcasting cover is easily seen on the white snow so getting a uniform application is improved. What may appear to be harsh conditions are actually ideal. As spring approaches and snow melts, the seed is introduced into moist soil where germination can begin. Results will appear as the growing season commences.

Follow Through

Watering is seldom needed once the first flush of growth appears. However, drought conditions may damage new plants. If irrigation is practical, water enough to prevent wilt until sufficient precipitation returns.

Figure 3: Pollinator Mix photo by Ray Stewart

Plan on mowing several times the first growing season. Unintended weeds are quicker than the intended pollinator plants. These are often annuals that rapidly grow, flower, and set seed. Mow when vegetation reaches 12 inches to prevent weed seed from multiplying. Repeat as needed the first year. Survey your site for harmful invasives and noxious weeds. Teasel, Canada Thistle, and Miscanthus can take over large swaths of habitat. Eliminating them at their first appearance will save a great deal of effort. Woody plants can be problematic as well but will mostly be controlled by mowing.

Generally, when establishing pollinator habitat with seed, the most work is invested up front. Site clearing and seeding takes the most time and effort. Maintenance and management tasks decline as the site matures and the intended new plant mix becomes established and dominates its new home. Vigilance will always be required since most of Ohio will revert to forest in time and many unwanted interlopers are looking to get a foothold.

There is great joy to experience the dynamic nature of a well-established pollinator meadow with its annual succession of growth and shifting equilibrium. As more birds, bees and butterflies discover the haven you provide, the complexity of wildlife interactions expand. Rare and wondrous encounters will be yours to discover as you observe and nurture your personal wildlife refuge.

More information:

Seed sources:

https://www.prairienursery.com/

https://www.opnseed.com/

https://www.prairiemoon.com/

Site preparation:

https://www.xerces.org/pollinator-resource-center/great-lakes

The Nature Conservancy step-by-step guide

Pollinator Partnership Ecoregional Planting Guides

Invasive plant species

https://www.oipc.info/

Buckeye Yard & Garden Online
https://bygl.osu.edu/node/983

Ohio Department of Natural Resources/Invasive Plants

Maintenance details

Missouri Botanical Garden

Maintaining Diverse Stands (PDF)

MISSOURI BOTANICAL GARDEN