

Increasing Wildflower Diversity In Grasslands

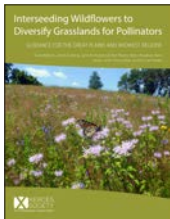
There are tens of millions of acres of grasslands in the United States, many of which are dense stands of non-native pasture grasses with few to no wildflowers. Increasing wildflowers in existing stands of vegetation is a valuable way to help pollinators. Native bees, honey bees, monarch butterflies, and other important pollinators have undergone declines recently, and need diverse wildflowers to thrive.

When wildflowers and native grasses have been lost and management, such as grazing or fire, cannot restore or increase diversity to these stands, introducing new wildflower and native grass seeds to the site through the process of interseeding may be necessary. This brochure provides guidance on how to interseed wildflowers into Conservation Reserve Program (CRP) or other grasslands lacking wildflowers.

Why Interseeding Can Be Important for CRP/ Mid-Contract Management

CRP and other plantings on previously cropped land will not have a diverse seed bank for species to establish on their own. If planted wildflowers have been lost, interseeding during mid-contract management of CRP can enhance diversity of the planting and create habitat for pollinators and other wildlife (see examples below).

For Additional Information



Detailed interseeding guidelines are available. To learn more about how to tailor interseeding to best fit local soil and climate conditions, producer/land manager experience, and equipment available, visit: xerces.org/interseeding-grasslands-for-pollinators/

Developing a Plan

Your interseeding plan should follow the 4-step process outlined below. The timing and management strategies used for each step will depend on the current vegetation*. For example, if your stand is dominated by cool-season grasses, management will target the active growth stage of the grass (fall and spring). The **Site Management Timelines & Techniques** table inside this brochure provides timelines for performing these steps based on the dominant grass species, and details how to use each management technique in the interseeding process.

The Four Steps of Successful Interseeding

- 1. Preparation for interseeding**
 - » Use disturbance management at appropriate time(s) to suppress dominant grass species
 - » Control invasive weeds
 - » Manage litter to ensure successful seed-soil contact
- 2. Interseeding**
 - » Interseed competitive native wildflower species that match soils, hydrology, and topography of your site
 - » Use appropriate seeding method and timing
- 3. Management during seedling establishment**
 - » Suppress grasses at appropriate time(s) to reduce competition with seedlings
 - » Control invasive weeds
- 4. Ongoing management**
 - » Disturb site regularly to help maintain wildflowers
 - » Disturb only 1/3 or less of site each year to maintain pollinator refuge
 - » Control invasive weeds

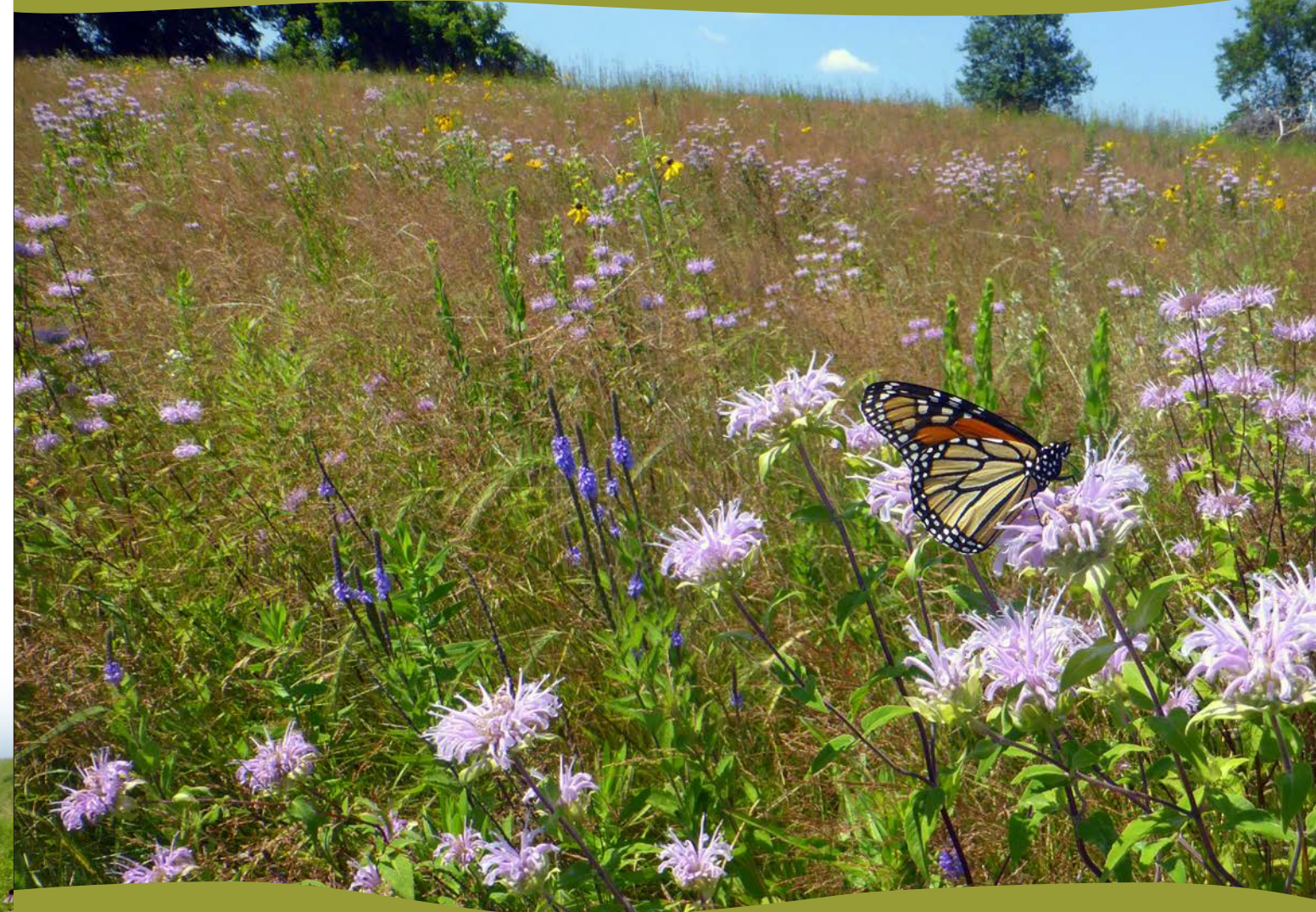
**Not all sites can be successfully interseeded. Sites dominated by some species of aggressive non-native grasses may need a complete restoration.*

Established in 1971, the Society is at the forefront of invertebrate protection, harnessing the knowledge of scientists and the enthusiasm of citizens to implement conservation programs worldwide. The Society uses advocacy, education, and applied research to promote invertebrate conservation.

The Xerces Society for Invertebrate Conservation
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INTERSEEDING WILDFLOWERS to Diversify Grasslands for Pollinators



INTERSEEDING CAN INCREASE WILDFLOWER DENSITY AND DIVERSITY

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Site Management Timelines & Techniques

The Timelines below are based on dominant grasses. Grass stands with both cool and warm season grasses can be disturbed in all growing seasons, or treated in alternate seasons in subsequent years after interseeding to help maintain wildflowers. Disturbance & Management Techniques details how to use various practices to interseed wildflowers successfully. These practices may be used alone, or in combination, depending upon which management techniques are available to land managers.

TIMELINES	YEAR 1: Preparation for Interseeding					YEAR 2: Management During Seedling Establishment				YEARS 3+: Ongoing Management		
	Dominant Grass Season→	Spring	Summer	Fall	Interseed	Spring	Summer	Fall	Interseed	Spring	Summer	Fall
	COOL SEASON GRASS		—					—				—
WARM SEASON GRASS	—		—		—		—		—		—	—

DISTURBANCE & MANAGEMENT TECHNIQUES	GRAZING	Graze intensively during the entire growing season , or target the growing season of dominant grasses. Grazing also may help remove litter. <i>Aggressive grasses or weeds may require multiple years of grazing during the appropriate season.</i>	DORMANT SEASON	Time short duration, intensive grazing to target the growth period of dominant grasses. Monitor to prevent damage to wildflower seedlings.	DORMANT SEASON	Graze 1/3 or less of the site annually. Use fencing to create a rotational grazing system, or pair with burning to patch burn graze. Vary the timing and location of grazing across years.
	BURNING	Burn to suppress grasses and remove litter. To target dominant grasses or weeds, burn during their growth period(s). <i>Aggressive species may require multiple years of burns during the appropriate season.</i>		Not recommended during seedling establishment.		Burn 1/3 or less of the site regularly. Vary the season and location of burns to target problem grasses, weeds, or woody species, and to reduce negative impacts to desirable species.
	HAYING/MOWING	Haying can help suppress grasses and remove litter. If mowing, another method will need to be used to remove litter. Haying/mowing may not adequately suppress aggressive grasses, even over multiple seasons.		Hay or mow 2 to 4 times during the second year , cutting to 8". Cut grasses and weeds before they flower and set seed.		Hay or mow 1/3 or less of the site each year , varying the locations that are treated. Vary the seasonal timing of haying or mowing.
	HERBICIDES	Multiple applications are necessary if cool season grasses are dominant. Use a GRASS-SELECTIVE HERBICIDE if desirable wildflower species are present.		Apply GRASS-SELECTIVE HERBICIDES during seedling establishment. Spot-spray invasive weeds as needed.		If other management options are not available, use GRASS-SELECTIVE HERBICIDES to suppress grasses as needed. Choose GRASS-SELECTIVE HERBICIDES with the least toxicity to pollinators and time applications to minimize exposure to pollinators. Litter removal will be necessary.
	GRASS-SELECTIVE HERBICIDES					
	INTERSEED	Do not interseed site without adequate preparation.	Dormant or early spring seed. Time the planting to regional needs.	If necessary for continued site diversity, dormant or early spring seed.		
	DISKING (PLOW)	Not recommended. Disking can be used to suppress grasses but can also increase soil erosion, promote weed growth, and disturb soil biology. Though it may be appropriate under some circumstances on previously cropped land, disking should NEVER be used on unbroken sod such as native rangeland.				



YEAR 1: REPEATED DISTURBANCES TO SUPPRESS GRASSES AND CONTROL WEEDS



YEAR 1: INTERSEED IN DORMANT SEASON OR SPRING



YEAR 2: CONTINUE MANAGEMENT TO SUPPRESS GRASSES AND SPOT-SPRAY WEEDS



YEARS 3+: DISTURB ≤ 1/3 OF SITE ANNUALLY AND SPOT-SPRAY WEEDS