

BIOLOGY TECHNICAL NOTE

Habitat Development for Pollinator Insects

Two-thirds of the world's crop species depend on insects for pollination, which accounts for 15-30 percent of the food and beverages we consume. Pollinators (insects, some birds and bats) are key to the function of many terrestrial eco-systems because they enhance native plant reproduction. Native plants provide food and cover for numerous wildlife species, help stabilize the soil and improve water quality. As a group, pollinators are threatened worldwide by habitat loss and fragmentation, pesticides, disease, and parasites. This has serious economic implications for humans and for native eco-system diversity and stability.

The NRCS can assist landowners with habitat enhancement for pollinators by encouraging them to establish an array of plants that flower throughout the entire growing season to provide a source of nectar for adult pollinators and a diversity of herbaceous material for immature pollinator life stages.

Herbaceous plantings should include one grass adapted to the site and at least one **different** forb or shrub from each of the three flowering categories, i.e., early, mid, and late which are listed below. Page 3 shows alternative species example mixtures emphasizing pollinator-friendly plants.

	Early Flowering Group	Mid Flowering Group	Late Flowering Group
Native:	Lewis Flax	Indian blanket flower	Indian blanket flower
	Yarrow	Maximilian sunflower	Maximilian sunflower
	American plum	Prairie coneflower	Prairie coneflower
	Black hawthorn	Purple prairieclover	Purple prairieclover
	Chokecherry	Rocky Mountain penstemon	White prairie clover
	Golden current	White prairieclover	Dotted gayfeather
	Red-osier dogwood	Common snowberry	Globe mallow
	Serviceberry	Western snowberry	Yarrow
	Skunkbush sumac	Yarrow	Big sagebrush
	Willow	Wood's rose	Cudweed sagewort
	Shrubby cinquefoil	Shrubby cinquefoil	Green sagewort
	Wood's rose	Red-osier dogwood	Shrubby cinquefoil
			Rubber rabbitbrush
			Green rabbitbrush
Introduced:	Alsike clover	Alfalfa	Birdsfoot trefoil
	Strawberry clover	White clover (ladino)	Cicer milkvetch
	White sweetclover	Small burnet	Sanfoin
	Yellow sweetclover	Yellow sweetclover	
	Sanfoin	Sanfoin	
	Caragana		
	Nanking cherry		
	Sand cherry		
	Lilac		
	Crabapple		

Pollinator habitat plantings must remain undisturbed throughout the growing season (until after the first killing frost in the fall) so that flowers are available as a nectar source to adults and succulent herbage can be utilized by larvae. Maintenance treatments, such as grazing, burning, or haying may be required outside of the flowering period. Native and introduced species are generally not compatible in the same planting. Alfalfa, if used with native species, must be limited to no more than five percent of the seed mixture. Other introduced species, such as small burnet and sainfoin, must be used with caution. Plantings should be at least one-half acre in size.

To complete the habitat requirements of pollinator species, intersperse the kind of diverse plantings described above with various sources of cover, such as rock and log piles or trees with exfoliating bark and cavities, as well as a source of water (bird bath, damp, sandy area, small pond, etc.).

Alternative Native Species Mixture Emphasizing Pollinator-Friendly Plants
Northern Rockies

Genus	Species	Common	PLS #/Acre	% Mixture	Total #PLS
Pseudoroegneria	spicata	Bluebunch wheatgrass	6	40	2.4
Elymus	trachycaulus	Slender wheatgrass	6	10	.6
Elymus	lanceolatus	Thickspike wheatgrass	6	30	1.8
Penstemon	eriantherus	penstemon	1.5	5	.075
Linum	lewisii	Flax	3	5	.15
Gaillardia	aristata	Blanketflower	7	5	.35
Achillia	millefolium	yarrow	.5	5	.025
				TOTAL	5.4

Alternative Native Species Mixture Emphasizing Pollinator-Friendly Plants
Eastern Plains

Genus	Species	Common	PLS #/Acre	% Mixture	Total #PLS
Pascopyrum	smithii	Western wheatgrass	8	40	3.2
Nassella	viridula	Green Needlegrass	5	34	1.7
Elymus	trachycaulus	Slender wheatgrass	6	10	.6
Dalea	candidum	Prairieclover	3	5	.15
Helianthus	maximiliana	sunflower	1	1	.01
Ratibida	columnifera	Coneflower	1.2	5	.06
Liatris	punctata	Gayfeather	6.4	5	.32
				TOTAL	6.04

Alternative Introduced Species Mixture Emphasizing Pollinator-Friendly Plants
Statewide

Genus	Species	Common	PLS #/Acre	% Mixture	Total #PLS
Thinopyrum	intermedium	Pubescent wheatgrass	10	80	8
Onobrychis	viciifolia	Sainfoin	34	10	3.4
Sanguisorba	minor	Small burnet	20	5	1
Lotus	corniculatus	Birdsfoot trefoil	3	5	.15
				TOTAL	12.55