



Filter strip
Photo courtesy of L. Betts

Part I. Planning and Design Considerations

Applicability of Practice

Filter strips are areas of grass and other perennial (non-woody) vegetation that are established between agricultural fields and waterbodies. Filter strips established adjacent to drainage ditches, streams, lakes, ponds, seeps or other wetland habitats potentially provide many benefits to onsite and offsite aquatic habitats. These improvements to aquatic habitats may include improved water quality, reduced soil erosion, stabilized stream banks, improved floodplain function, and recharge of groundwater aquifers. Properly designed and maintained filter strips potentially provide habitat for feeding, nesting, and resting wildlife. They also may serve as important travel corridors that allow animals to move safely between habitats.

Site Considerations

- Landowner objectives (types of wildlife, intended use of the filter strip)
- Proximity to available water
- Adjacent cropland (irrigated or non-irrigated; type of crop)
- Soil qualities (texture, depth, moisture content)
- Connectivity to other wildlife habitats
- Plant hardiness zones
- Width and length of filter strip and ability to accommodate desired wildlife species
- Special wildlife needs (e.g., threatened or endangered species)



Ring-necked pheasant
Photo courtesy of NRCS

Design Considerations

Fish and wildlife design considerations in Midwestern agricultural landscapes include: (1) fish-wildlife habitat goals; (2) buffer width and length; (3) food value of plants; (4) plant selection to create non-uniform vegetative structure; (5) adjacent land uses; and (6) opportunities to link adjacent fish-wildlife habitats. As is true for all linear or strip habitats (e.g., fencerows, roadsides, or other buffer practices such as field borders, grassed waterways, windbreaks-shelterbelts, or riparian forest buffers), wider buffers with non-uniform stands of different plant types (e.g., grass and forb), will accommodate more species of wildlife than narrow buffers comprised of a single species. If the goal is to provide wildlife with secure travel corridors and year-round cover, then mixes of native grasses and forbs should be emphasized over introduced or cultivated species such

as brome grass and alfalfa. Introduced plants generally do not stand up as well as natives to adverse weather, so their value as winter cover is reduced compared to native plantings. Nonetheless, mixes of wildlife-friendly introduced grasses and forbs may provide excellent nesting and brood-rearing cover for ground-nesting birds if stands are properly maintained. Note that aggressive introduced plants such as reed canarygrass and tall fescue adversely affect wildlife and should always be avoided when planning for wildlife. Refer to the table in Part II for determining plant species suitable to meet the wildlife objectives. Recommended widths of filter strips borders used as travel corridors is 50 ft (36-ft minimum) and nesting or escape cover is 100 ft (40-ft minimum). Note that to achieve water quality benefits, filter strips may be seeded at higher rates with a greater preponderance of sod-forming grasses than is desirable for wildlife. To offset this effect it is recommended that filter strips be widened with plantings more beneficial to wildlife.

Maintenance Considerations

The amount of maintenance required and the method used to maintain field border vegetation depends on wildlife goals and types of vegetation established in the buffer. For example, maintenance requirements for buffers with brome grass and alfalfa vegetation will be different from plantings of native grasses and forbs. Within the above constraints, management should seek to maintain the viability of vegetation and minimize disturbance to wildlife especially during the reproductive period. Timing of maintenance is particularly critical if ground-nesting birds are using the buffer. Disturbances necessary for maintaining vegetation or buffer function

such as light disking, mowing, selective herbicide treatment, or grazing should be delayed until after August 1. Native plants should be burned approximately every three years; treating one-third of the area each year is preferable to treating the entire area in the same year. Regarding timing of burns, fall burns eliminate winter cover, so burning in spring before the onset of nesting (May 1) is commonly recommended for resident wildlife such as ring-necked pheasant. Fall or winter burning is recommended to maintain the forb component of buffers and enhance their value for pollinators (e.g., butterflies) and young birds.

(Note: Before conducting a prescribed burn, have a qualified professional develop a pre-prescribed burning plan for your area.)

Mowing at night causes high mortality of wildlife (adults and young) and should be avoided at all times. Maintenance schedule of filter strips may need to be adjusted to take into consideration activities occurring on adjacent areas. For example, if nests of ground-nesting birds are disturbed in nearby fields (e.g., pastureland or hayland), then displaced birds may attempt to renest in field borders. Delaying treatments beyond conventional dates may be necessary to accommodate these late nesting birds.



Monarch butterfly
Photo courtesy of NRCS

Part II. List of Recommended Plants

Native Grasses

Common Name	Scientific Name	Rooting Habit	Site Suitability ¹
Big bluestem	<i>Andropogon gerardi</i>	Bunch	D–WM
Blue joint grass	<i>Calamagrostis canadensis</i>	Sod	WM–W
Canada wildrye	<i>Elymus canadensis</i>	Bunch	DM–WM
Eastern gamagrass	<i>Tripsacum dactyloides</i>	Bunch	DM–WM
Indiangrass	<i>Sorghastrum nutans</i>	Bunch	D–WM
Little bluestem	<i>Schizachyrium scoparium</i>	Bunch	D–M
Prairie cordgrass	<i>Spartina pectinata</i>	Sod	M–W
Prairie dropseed	<i>Sporobolus heterolepis</i>	Bunch	D–W
Sideoats grama	<i>Bouteloua curtipendula</i>	Sod	D–DM
Switchgrass	<i>Panicum virgatum</i>	Sod	D–WM
Virginia wildrye	<i>Elymus virginicus</i>	Bunch	WM–W
Western wheatgrass	<i>Agropyron smithii</i>	Sod	DM–WM

—Continued

Part II. List of Recommended Plants (continued)

Native Forbs Common Name	Scientific Name	Site Suitability ¹
Black-eyed Susan	<i>Rudbeckia hirta</i>	D–WM
Butterfly milkweed	<i>Asclepias tuberosa</i>	DM–M
Cardinal flower	<i>Lobelia cardinalis</i>	WM–W
Common spiderwort	<i>Tradescantia ohiensis</i>	D–M
Compass plant	<i>Silphium laciniatum</i>	DM–M
Cream wild indigo	<i>Baptisia bracteata leucophaea</i>	D–M
Culver's root	<i>Veronicastrum virginicum</i>	M–W
False indigo	<i>Baptisia leucophaea</i>	DM–M
False sunflower	<i>Heliopsis helianthoides</i>	M
Gray-headed coneflower	<i>Ratibida pinnata</i>	D–WM
Great blue lobelia	<i>Lobelia siphilitica</i>	W
Hoary vervain	<i>Verbena stricta</i>	D–DM
Illinois bundleflower	<i>Desmanthus illinoensis</i>	DM–M
Illinois tick trefoil	<i>Desmodium illinoense</i>	D–M
Lead plant	<i>Amorpha canescens</i>	D–M
New England aster	<i>Aster novae-angliae</i>	M–WM
Pale beard tongue	<i>Penstemon pallidus</i>	D–DM
Pale purple coneflower	<i>Echinacea pallida</i>	M
Partridge Pea	<i>Chamaecrista fasciculata</i>	DM–M
Prairie blazing star	<i>Liatris pycnostachya</i>	DM–WM
Prairie dock	<i>Silphium terebinthinaceum</i>	M
Purple prairie clover	<i>Dalea purpureum</i>	D–M
Rattlesnake master	<i>Eryngium yuccifolium</i>	DM–M
Round-headed bush clover	<i>Lespedeza capitata</i>	D–M
Showy tick trefoil	<i>Desmodium canadense</i>	M–WM
Spotted Joe-Pye weed	<i>Eupatorium maculatum</i>	W
Stiff goldenrod	<i>Solidago rigida</i>	D–M
Swamp milkweed	<i>Asclepias incarnata</i>	W
Tall tickseed	<i>Coreopsis tripteris</i>	M–WM
White wild indigo	<i>Baptisia alba macrophylla</i>	DM–WM
White prairie clover	<i>Dalea candida</i>	DM–M
Wild bergamont bee balm	<i>Monarda fistulosa</i>	D–M
Wild quinine	<i>Parthenium integrifolium</i>	DM–WM

—Continued

Part II. List of Recommended Plants (continued)

Non-native Grasses Species

Common Name	Rooting Habit	Site Suitability ²
Smooth bromegrass	Sod	D,WD
Kentucky bluegrass	Sod	WD,PD
Orchardgrass	Bunch	D,WD
Timothy	Bunch	WD,PD
Red top	Sod	WD,PD
Perennial ryegrass	Bunch	WD,PD

Non-native Legume Species

Common Name	Site Suitability ²
Alfalfa	D,WD
Red clover	D,WD
Birdsfoot trefoil	WD,PD
Ladino clover	WD,PD
Alsike clover	WD,PD
Annual lespedeza ³	D,WD

¹Site Suitability: D = Dry, DM = Dry Mesic, M = Mesic, WM = Wet Mesic, W = Wet.

²Site Suitability: D = Droughty, WD = Well Drained, PD = Poorly Drained.

³Annual lespedezas are limited to Illinois NRCS Plant Suitability Zones 2 and 3 only. Common Korean and Summit are recommended varieties of Korean lespedeza. Kobe and Marion are recommended varieties of common (striate) lespedeza.

Part III. Specifications Sheet

Use Specification Sheet provided with general Filter Strips Job Sheet. Include wildlife species desired and maintenance specifications relevant to this species or assemblage of species.

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint, write USDA, Director, Office of Civil Rights, Room 326W, Whitten Building, 14th and Independence Avenue, SW, Washington, D.C. 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal employment opportunity provider and employer.