Conservation Cover - 327

Massachusetts Pollinator Planting Job Sheet		
Client:	**Farm #:**	**Tract #:**
Planned By:	**Date:**	

DEFINITION

Establish and maintaining permanent vegetative cover, with a focus on native species, to create flower-rich forage habitat (primarily offering nectar and pollen) for native bees, honey bees and other pollinators.

Photo: Eric Mader, The Xerces Society

WHERE USED

This activity applies on lands requiring permanent protective cover that are adjacent to or within 1500 feet of an agricultural field, are being converted from agricultural production, or any other location that is suited for pollinator habitat. Examples of appropriate locations include farm field or cranberry bog margins, road edges, and areas within or adjacent to the agricultural fields that are unsuitable for production, such as steep slopes, open upland habitat, reclaimed sand pits, forest edges, etc.. Although larger areas of habitat (1/2 acre or more) will provide resources to support more pollinators, flower-rich habitat can be created in small patches or strips and still provide benefits for pollinators. When identifying planting sites, habitat patches that are bigger, closer together, or interconnected will support more abundant populations of pollinators than small, isolated patches.

ESTABLISHMENT SPECIFICATIONS

Competition Control Before Planting

Controlling weeds prior to planting wildflowers is critical to ensuring project success because once broadleaf perennial weeds invade a wildflower planting; there are few control options other than hand weeding or spot spraying. Competition control is also a process that may require a year or more of effort prior to planting. Control should focus on the abatement of perennial weeds and will be done according to the Establishment Plan.

Seed Mixture

The species and seeding rates will be according to the Establishment Plan. For spring seedings or if soil erosion is a concern, an annual rye or oat nurse crop should be used. Oats should be seeded at 32lbs/acre; annual rye should be seeded at 4lbs/acre. Seed tags and other information may be requested by the NRCS representative to verify contract compliance.

Soil Amendments

Most native forbs and grasses tolerate low pH and nutrient conditions; therefore, with the exception of lime, soil amendments are not typically planned for pollinator plantings. If a recent soil test indicates lime is needed, adhere to the following:

- If the pH is below 5.0, lime can be applied to achieve a pH of 5.5 to 6.5. If lime will not be incorporated, apply at least 1 year prior to seeding. Surface applications shall not exceed 1.5 tons/acre and no more than 2 applications should be applied in any year.

Seedbed Preparation and Seeding

A firm seedbed is important when seeding wildflowers because it helps conserve moisture and ensures good seed to soil contact. As a general rule, a seedbed is firm when an adult's footprint is no more than ½ inch deep. To avoid bringing additional weed seeds to the surface, do not till more than 1 inch deep when preparing the seedbed.

Ideally, seed should be sown with a native plant drill or broadcast and rolled. Standard row crop planters (e.g., corn seed drills) may place wildflower seed too deep and are not recommended. If seeding very small seeds, a carrier may be needed to ensure even rates of seed flow. Appropriate carriers include any inert material such as cracked wheat, cracked corn or vermiculite.

Planting Dates

There are three periods in which wildflowers can be seeded: spring, late summer, and a dormant seeding. Spring seedings usually have more annual weeds and will require a strict mowing regiment to control them. Late summer seedings are done when days are shortening and heavy dew is typical. The exact date for late summer seedings is weather and soil moisture dependent but typically would occur in mid-August and no later than mid-September. Moisture conditions are considered ideal if the soil can be readily formed into a ball in the palm of the hand and the ball breaks easily when dropped. Late summer seedings should not be done on soils subject to frost heaving. Dormant seedings (i.e., late fall before snow fall) may pose a challenge for working the soil due to typically wet weather in Massachusetts during that time of year.

Refer to the Establishment Plan for the recommended planting period.

Weed Control During Establishment

In the first few years after seed germination, it is critical that the seedlings do not get shaded out by weeds, that annual weeds are not allowed to set seed, and that perennial weeds are controlled. Follow the recommended weed control in the Establishment Plan.

OTHER CONSIDERATIONS

Pesticide poisonings

Many insecticides are used in agricultural landscapes. If insecticide spraying is to occur, then it is critical that the pollinator planting area is outside of the crop area and/or protected from application and drift.

Site disturbance

Minimizing disturbance within pollinator plantings creates conditions that are favorable for the development of nesting opportunities for bumble bees and other ground nesting bees. However, to maintain the open, sunny nature of the habitat, mowing or burning will be necessary on an infrequent basis. See Operation and Maintenance below for details.

OPERATION AND MAINTENANCE

Habitats dominated by wildflowers and grasses will need to be managed over time to maintain open, early successional characteristics. Typical management tools/techniques include mowing or burning. Ideally, site management should only be done on a fraction (1/2 or less) of the site each year to ensure that some pollinator habitat remains uncut and can flower. If mowing is used to manage the habitat, be sure all equipment is clean and free of weed and/or grass seed prior to being used in the pollinator habitat. The stand should also be routinely monitored for weeds and invasive plant species and treated using spot spraying and/or hand weeding.

Table 1: Dry Site Pollinator Mix

Species	% composition in mix	Bloom Color & Period		
		Early	Mid	Late
Aquilegia Canadensis (Eastern columbine)	5			
Baptisia australis (Blue false indigo) *	10			
Baptisia tinctoria (Horseflyweed)	5			
Pentstemon digitalis (tall white beard tongue) *	5			
Tradescantia ohioensis (Ohio spiderwort)	5			
Asclepias syriaca (Common milkweed)	5			
Asclepias tuberosa (Butterfly milkweed)	10			
Chamaecrista fasiculata (Partridge pea)	10			
Monarda fistulosa (wild bergamot)	5			
Pycanthemum virginianum (Virginia mountain mint)	2			
Solidago juncea (early goldenrod)	3			
Aster leave (smooth aster)	10			
Aster novae-anglae (New England aster)	10			
Aster pilosus (heath aster)	5			
Solidago nemeralis (gray goldenrod)	5			
Schizachyrium scoparium (little bluestem)	5			

* non-native to Massachusetts

Table 2. Wet Site Pollinator Mix

Species	% composition in mix	Bloom Color & period		
		Early	Mid	Late
Penstemon digitalis (tall white beard tongue) *	12			
Tradescantia ohioensis (ohio spiderwort)	15			
Trifolium incarnatum (crimson clover) *	3			
Asclepias incarnata (swamp milkweed)	10			
Eupatorium maculatum (spotted joe pye weed)	10			
Eupatorium perfoliatum (boneset)	5			
Lobelia cardinalis (cardinal flower)	3			
Pycanthemum virginianum (Virginia mountain mint)	2			
Verbena hastata (blue vervain)	5			
Aster novi-belgii (new York aster)	5			
Aster umbellatus (parasol whitetop)	5			
Helenium autumnale (common sneezeweed)	5			
Aster novae-anglae (new England aster)	10			
Solidago patula (rough leaved goldenrod)	5			
Panicum virgatum (switchgrass)	5			

* non-native to Massachusetts

- To calculate seeding rates, utilize the Massachusetts Pollinator Seed Rate Calculator -

NRCS Natural Resources Conservation Service

Massachusetts Pollinator Planting Job Sheet

ESTABLISHMENT PLAN

Purpose *(check all that apply)*

☐ Reduce soil erosion and sedimentation	☐ Improve water quality	☐ Improve air quality
☐ Enhance wildlife habitat	☐ Improve soil quality	☐ Manage plant pests

Competition Control Before Planting *(check current condition and prep method)*

Current Condition	Method	
☐ Cropped – very low weed pressure	☐	✓ Mid-May: Cultivate. ✓ Late May: Surface harrow. Sow buckwheat at 70 lb per acre (broadcast) or 50 lb per acre (drilled). ✓ Early July: Disk buckwheat 6 weeks after sowing (do not disk more than 1 inch deep) and reseed a few days later. ✓ Late Summer or Late Fall: Prepare a clean seedbed and sow wildflower mix ¼ - ½" deep.
☐ Existing vegetation or recently cropped- medium to high weed pressure	☐	✓ Fall: Apply non-selective herbicide. ✓ Mid-May: Mow site as short as possible and remove clippings. Apply non-selective herbicide when weeds grow to 3-4 inches. ✓ Summer: Repeat above step each time plants grow to 3-4 inches. Do not allow annuals to flower. ✓ Late Summer or Late Fall: Prepare a clean seedbed and sow wildflower mix ¼ - ½" deep.
	☐	✓ Mid-May: Mow site as short as possible and remove clippings. Apply non-selective herbicide when weeds grow to 3-4 inches. ✓ Summer: Repeat above step each time plants grow to 3-4 inches. Do not allow annuals to flower. ✓ Late Summer or Late Fall: Prepare a clean seed bed and sow wildflower mix ¼ - ½" deep.
	☐	✓ Mid-May – Yr 1: Cultivate. ✓ Late May – Yr 1: Surface harrow. Sow buckwheat at 70 lb per acre (broadcast) or 50 lb per acre (drilled). ✓ Early July – Yr 1: Disk buckwheat 6 weeks after sowing (do not disk more than 1 inch deep) and reseed a few days later. ✓ Late Summer – Early Fall – Yr 1: Disk buckwheat. Sow winter cover crop (e.g. oats by August 30 or annual rye by October 1). ✓ Mid May – Yr 2: Cultivate. ✓ Late May – Yr 2: Surface harrow. Sow buckwheat at 70 lb per acre (broadcast) or 50 lb per acre (drilled). ✓ Early July – Yr 2: Disk buckwheat 6 weeds after sowing (do not disk more than 1 inch deep) and reseed a few days later. ✓ Late Summer or Late Fall – Yr 2: Prepare a clean seed bed and sow wildflower mix ¼ - ½" deep.
Additional Specifications:		

Seed Mixture *(check appropriate mix)*

☐Dry Site (refer to Table 1)	☐ Wet Site (refer to Table 2)

Additional Specifications:

1. Any changes to proposed seed mix must be approved by NRCS prior to planting.
2. Due to yearly changes in seed availability, some species may not be available. If the seed mix needs to be altered, the following guidelines shall be applied to every mix:
   - A minimum of 1 non aggressive, native bunch grass and 9 flowering forbs shall be planted. Grasses shall comprise <10% of the seed mix.
   - At least 3 species from each bloom group (i.e., early, mid, late) will be included in the seed mix.
   - The final combined seeding rate for all species will not be < 30 PLS per square foot.
   - No more than 15% of the seed mix can be comprised of species considered non-native in MA.

_____

☐ ***Nurse Crop*** – Use a nurse crop of _____ at a rate of _____ lb/ac at the time of planting for erosion control or weed suppression.

The basic formula to calculate PLS is:

Percent PLS = (% purity x % germination) ÷ 100 *(*% purity and % germination come from the seed tag label)

The formula to calculate the bulk seed per acre is: ***Bulk seed/ac = PLS/ac rate recommendation ÷ (PLS % ÷ 100)***

Planting Equipment *(check equipment needed)*

☐ Native seed drill

☐ Small grain seed drill

☐ Broadcast seeder – For small or fluffy seed, mix filler with the seed for even distribution.

☐ Any of the above

Planting Method *(check planting method)*

☐ No-till planting into residue or clean seed bed.

☐ Broadcast seeding. Broadcast onto a firm seedbed and incorporate seed using a rake, drag, roller, etc.

NOTE: if seed mix will be broadcast, increase seeding rates by 30%

Planting Dates *(check planting date)*

☐ Spring	☐ Late summer (generally mid August to no later than September 15th)	☐ Dormant season (i.e., late fall before the site is covered in snow

Weed Control During Establishment

First and Second Growing Seasons After Seeding

- ✓ Monitor the site for site for undesirable woody plants, herbaceous weeds and invasive species. Mow the planting area as needed to ensure that annual weeds are kept below 10 inches and to keep them from producing seeds. The mower should be set at a height of 6 to 8 inches. Any wildlife nesting season restrictions do not apply during the establishment period.
- ✓ Perennial weeds should be treated through spot spraying and/or hand weeding.

Provide a map (may be attached) showing the location of the proposed practice and practice components.
Scale 1"=_____ ft. (NA indicates sketch not to scale: grid size=1/2" by 1/2")

RESOURCES FOR MORE INFORMATION

Salon P.R and C.F. Miller, 2012. A Guide to Conservation Plantings on Critical Areas for the Northeast, USDA, NRCS, Big Flats Plant Materials Center, Corning, NY http://www.plant-materials.nrcs.usda.gov/pubs/nypmspu11417.pdf

The Xerces Society for Invertebrate Conservation – Pollinator Conservation The Xerces Society » Pollinator Conservation

RECORD OF COMPLETION AND CHECK OUT CERTIFICATION:

Treated Acres:	***Date Completed by Client:***	***Date Inspected:***	***Inspector:***
Notes:			

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