

Plant Enhancement Activity – PLT01 – Establish pollinator habitat



Enhancement Description

Seed nectar and pollen producing plants in non-cropped areas such as field borders, vegetative barriers, contour buffer strips, waterways, shelterbelts, windbreaks, conservation cover, and riparian forest and herbaceous buffers.

Land Use Applicability

Cropland, pastureland, rangeland and forestland

Benefits

Increased habitat for pollinators will improve fruit set, size and quality, productivity per acre, biodiversity, beneficial insect populations, and the food base for many wildlife species. The increased plant diversity of pollinator habitat will enhance wildlife habitat and may increase populations of other beneficial insects, reducing the need for pesticides.

Criteria

Pollinator habitat areas must be at least ½ acre in size for each 40 acres of cropland, pastureland, rangeland or forest land. Where the applicable land use is greater than 40 acres, the 0.5 acre habitat areas must be interspersed in the larger land use areas. For example, for an 80 acre cropland parcel, the required 1 acre of habitat should not be located in one corner of the 80 acre field. The pollinator habitat areas must include a minimum of nine flowering plant species including forbs, legumes, vines, shrubs, and/or trees.

1. Lists of plants suitable for pollinator habitat will be developed by NRCS at the state level. The lists must emphasize as many native species as practical.
2. The habitat planting will include (as a minimum) three early, three mid, and three late flowering species from the NRCS state list. Plants that produce toxic nectar will not be planted.
3. Site preparation and plant establishment shall be accomplished according to the appropriate NRCS conservation practice and specifications. Management and/or maintenance activities such as mowing, haying, burning, or grazing must be conducted outside of the growing season or bloom period. Maintenance should be done on less than 1/3 of the acreage during any given year.
4. Insecticides and herbicides should not be used in the habitat planting area. Even natural herbicides and botanical insecticides can harm bees and other pollinators. If adjacent crop areas are treated use one or more of the following actions to limit insecticides in the pollinator habitat area:
 - a. Create insecticide free buffers in the first 25 feet of crop area,
 - b. Use application methods that minimizing drift to the adjacent habitat,



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2010 Ranking Period 2

- c. Apply active ingredients in the evening when most insect pollinators are not active.
5. The planted habitat areas must be regularly inspected for invasive and/or noxious plants or other plants that may compromise the purpose of this enhancement. Undesirable species should be controlled using the least damaging method.
6. Any use of the pollinator habitat area must not compromise its intended purpose.

Documentation Requirements

1. A map showing the location and dimension of the pollinator habitat areas
2. A list of pollinator species planted
3. List of maintenance activities carried out to manage the pollinator habitat areas

ANIMAL ENHANCEMENT ACTIVITY

PLT01 – OR Establish Pollinator Habitat

Criteria for Establishing Pollinator Habitat

Pollinator habitat areas will be at least ½ acre in size for each 40 acres of cropland, pastureland, rangeland or forest land and include a minimum of nine (9) flowering plant species including forbs, legumes, vines, shrubs, and/or trees.

Your planting plan should emphasize as many native species as practical. Please Refer to Oregon Plant Materials Technical Note #13 for greater details on developing pollinator habitat ftp://ftp-fc.sc.usda.gov/OR/Technical_Notes/Plant%20Materials/PMC13.pdf . For eastern Oregon, also refer to Idaho Plant Material Technical Note #2, “Plants for Pollinators in the Intermountain West” <ftp://ftp-fc.sc.usda.gov/ID/programs/technotes/pollinators07.pdf> .

The goal of this activity is to establish flower-rich habitats. The habitat planting will include (as a minimum) three early, three mid, and three late flowering species from Tables 4, 5a, 5b and 6 in Oregon Plant Materials Tech Note No. 13 or the Idaho Plant Materials Technical Note #2 (links in the previous paragraph). Selections can be wholly herbaceous (forb/wildflowers with or without grasses), woody (i.e. trees and shrubs) or a combination. This will provide pollen and nectar resources for the entire growing season. Special care may be taken to establish plantings that complement the bloom period of adjacent crops. If you plan to seed a large block of wildflowers (i.e. meadow planting), adding some native grass to the mixture may help reduce weed invasion into the planting. For some projects, such as an insectary strip along a field margin or even within a field, only a mix of flowers may be used. For other projects such as creation of a meadow habitat, the seed mix should include both grasses and flowers. While we better understand how to establish native grasses, they may be very competitive with the wildflowers and thus prevent wildflower establishment and survival. Therefore, until we have an established protocol that has been tested, grasses should be planted in a low density to allow a greater advantage to wildflower success. Make sure your seed mixture (e.g. seeds per square foot) is less than 25% grass.

Plants that produce toxic nectar will not be planted.

Site preparation is critical to project success. It is also a process that may require several seasons of effort to reduce competition from invasive, noxious or undesirable non-native plants (e.g. existing on site or found in the soil seed-bank) prior to planting. Regardless of whether the objective is to establish herbaceous or woody vegetation, more effort and time spent eradicating undesirable plants will result in higher success rates in your desired pollinator planting. Chemical, mechanical or cultural methods may be used to achieve a good weed-free area for your pollinator planting. Note: If a site has mostly grass weed species then the landowner should consider planting forbs first to allow for easier grass weed control. If broadleaf weeds are a major problem then consider planting grasses first.

Seedbed preparation should leave the site with relatively loose, level and pliable soil, but firm enough that walking across the prepared area will result in footprints no deeper than ¼”. Less site preparation is necessary when planting plugs, live-stakes, bare-root or container stocks.

□ Trees and shrubs should be planted as live stakes, bare-root, or container stocks. Herbaceous perennial forbs and grasses should be planted as seed, plugs or container stock. Planting native perennial forbs as plugs may be recommended over seeding at this time due to the high cost and unavailability of seed (see cost estimates in Appendix A.) and for consideration of the ease of maintenance of the planting – for example, if plugs are planted in rows, a field laborer could easily determine which plants to weed out of the planting. If bare, undisturbed areas suitable for bee nesting are found outside of your planting area and located nearby, plantings of live-stakes, bare-root, container and plugs would benefit from a thick application of mulch (about 2-3”), both for moisture conservation and reduction of weed establishment and competition.

□ Hand seed, broadcast, hydroseed, drop-seed, or drill seed depending upon size of planting, size of seed, species cultural requirements and available equipment. Standard row crop planters may place wildflower seed too deep and should not be used. Note: many native species have very small seed, require light to germinate and can easily be buried too deep to germinate and establish. All small-seeded species (>1 million seeds/lb) and annuals should be broadcast seeded or dribble-drilled at the soil surface. Your habitat establishment plan may involve drilling large seed while broadcasting small seed after drilling. All seed benefits from good soil-to-seed contact, therefore, use of a minimum-disturbance packer or smooth roller is recommended after seed is broadcast. Extra nutrients generally tend to increase weedy plants over natives; we recommend no fertilizers be used during installation of native seedlings or plantings.

□ To facilitate weeding, shrubs and trees may be clumped into islands or planted in strips (hedgerows) within or to the side of an herbaceous planting. This will also allow for mowing of habitat around taller woody plants to maintain the open nature of a site. Within these habitat islands or strips, plugs and/or seeds can be planted in rows to help field hands differentiate pollinator plants from weeds.

Operation and Maintenance

□ Monitoring and controlling weeds is critical in the first and second years. If the site is well prepared, less effort will be required for weeding after project installation.

□ Management and/or maintenance activities such as mowing, haying, burning, or grazing must be conducted outside of the growing season or bloom period. Maintenance should be done on less than 1/3 of the acreage during any given year. Habitats dominated by wildflowers and grasses will need to be managed over time to maintain open, early successional characteristics. The actual management will depend on the size and location of the habitat. Management tools such as mowing or spot spraying will be appropriate for all sizes of habitat patches. Tools such as prescribed grazing or prescribed burning will be suited to larger areas. Consider rotating management and maintenance activities throughout the pollinator habitat areas to maximize spatial and temporal diversity. Also, 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 habitat.

□ Hedgerows that are primarily composed of shrubs and trees will need to have weeds controlled around their root systems during establishment. This can be accomplished by mowing or herbicides. It is not advisable to use shallow tillage, as this may disturb any ground-nesting bees in residence in the area around the shrubs and trees and result in damage to plant rooting systems. If bare, undisturbed areas suitable for bee nesting are found outside of your planting area and located nearby, plantings of live-stakes, bare-root, container and plugs would benefit from a thick application of mulch (about 2-3”), both for moisture conservation and reduction of weed establishment and competition.

□ Supplemental watering during the first couple of drought seasons may greatly improve establishment success if container stocks (e.g. potted plants) are used to establish the pollinator habitat

□ Insecticides should **not** be used in the habitat planting area. Even natural insecticides can harm bees and other pollinators. If adjacent crop areas are treated use one or more of the following actions to limit insecticides in the pollinator habitat area:

- Create insecticide free buffers in the first 25 feet of crop area,
- Use application methods that minimizing drift to the adjacent habitat,
- Apply active ingredients in the evening when most insect pollinators are not active.

- Any use of the pollinator habitat area must not compromise its intended purpose.

Documentation Requirements for *Pollinator Habitat Establishment*

- Map showing the location and dimension of the pollinator habitat areas.
- Summary of site preparation techniques used to prepare the site for pollinator plant installation
- List of pollinator species and stock types (e.g. container, bare-root, stakes, seedings, etc.) planted.
- List of maintenance activities carried out to manage the pollinator habitat areas.

State References

Oregon Plant Materials Tech Note No. 13, *Plants for Pollinators in Oregon*. ftp://ftp-fc.sc.egov.usda.gov/OR/Technical_Notes/Plant%20Materials/PMC13.pdf

Oregon–Washington Guide for Conservation Seedings and Plantings, 2000, USDA-NRCS
<ftp://ftp-fc.sc.egov.usda.gov/OR/Plants-Materials/OR%20WA%20seeding%20guide.pdf>

Plant Fact Sheets and Guides - <http://plant-materials.nrcs.usda.gov/intranet/pfs.htm>

Idaho Plant Material Technical Note #2, “Plants for Pollinators in the Intermountain West”
<ftp://ftp-fc.sc.egov.usda.gov/ID/programs/technotes/pollinators07.pdf>