

University of Pittsburgh Campus Pollinator Habitat Plan

Last Updated: November 2021



Purpose

The purpose of the Campus Pollinator Habitat Plan is to educate students, faculty, staff, contractors, and campus visitors on the importance of pollinators and their habitats on the University of Pittsburgh's campus. This plan is meant to outline the practices for planting flora and caring for green spaces. Pollinators are necessary for plant reproduction, production of food, prevention of soil erosion, and help carbon sequestration, among other things. Pittsburgh is in the Mid-Atlantic Region, where the rusty-patched bumble bee, yellow-banded bumble bee, and the bronze copper butterfly are "threatened by habitat loss, including dramatic declines in native plant communities needed to support these animals" (Xerces Society). The Xerces Society, considers Pittsburgh part of the Great Lakes Region so many plant list resources used to create this plan may mention the [Great Lakes region](#).



Planting Standards

The University's [Sustainable Landscape Design Guidelines](#), which are followed during grounds maintenance and by all contractors conducting new landscaping projects, mandate the exclusive use of native plants except in cases of special approval from University Senior Manager of Grounds. This is a central pillar in our strategy to create pollinator habitats because native plants are ideal for attracting a diverse group of native pollinator species.

Based on the native plants recommended in the guidelines, as well as more pollinator-specific insights, the committee created a list of recommended Campus Pollinator Habitat plants to guide landscaping decisions (see Appendix).

The University's standard, as established in the Sustainable Landscape Design Guidelines, is to plant lawn only where required for athletics or other special use. The grounds department is in the process of converting unnecessary lawn space into native plant communities to reduce lawn spaces 15% by 2030 and is dedicated to creating new pollinator gardens on campus. Additionally, the University is planning to increase bare ground on campus for pollinator access and use loose leaf compost instead of mulch when applicable.

All landscaping contractors are required to demonstrate compliance with the Sustainable Landscape Design Guidelines by providing Sustainable Planting Design Documentation to the grounds department. This includes the proposed plant types and layout, plans for restoration and/or protection of existing plantings, and a landscape management plan in compliance with NOFA Standards for Organic Land Care.

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Planting Considerations

A variety of colors, shapes, and smells increases the diversity of pollinator populations. Bees specifically are attracted more to blue, violet, yellow, and white flowers. Disk-shaped flowers with accessible nectar and pollen attract a diversity of bees, whereas tubular flowers are pollinated by long tongued and small bees. It is important to plant flowers that bloom at different times of the year, to provide continuous access to pollen and nectar. In the city of Pittsburgh, it is also important to consider a plants' salt tolerance in preparation for winter months.



The [Marlie Garden](#) on campus (in front of the Chevron Science Center) can be used as an example of best planting practices. To encourage nesting and egg-laying, plants are arranged in clumps rather than individually, and shrubs, tall-grasses, and low-growing plants are included in the area. Water is easily accessible, and Chrysanthemums are planted to repel pests naturally.

Integrated Pest Management Plan

As per the University of Pittsburgh Sustainable Landscape Design Guidelines, the use of synthetic fertilizers, pesticides, and herbicides is prohibited on university grounds; exceptions are spot-spraying on flower beds and starter fertilizer used to establish lawn grasses. Where lawn is planted, the university uses disease- and pest-resistant grass seed cultivars with a variety of approved cultivars in the mix to avoid problems that would demand chemical treatment. Plants treated with neonicotinoids are prohibited. As an addition to these policies, grounds decisions consider the natural pest management benefits that come from diversity in plant size, height, and type as well as the removal of weeds that attract invasive insects and the tolerance of beneficial weeds like dandelions and clovers.

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Additional Habitat Features

Seven solitary bee houses constructed around campus in spring 2019 are maintained under committee oversight. These bee houses provide nesting habitat for cavity nester which account for 30% of the bees in Pennsylvania.

Education & Outreach

As part of the University of Pittsburgh's dedication to supporting pollinators educational outreach efforts are being made to teach our community members about native pollinator species. This includes creating updated web content on all [pollinator gardens on campus](#), annually participating in Pollinator Week to raise awareness of local pollinator species, tracking both for credit and continuing education classes that have pollinator content, creating a comprehensive tour of all the pollinator gardens on the Pittsburgh campus, and establishing signage for gardens and green roofs on campus.



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Appendix: Recommended Native Plants, Herbaceous (Pollinator Species)

Blue items are recommended by Xerces Society for the Pittsburgh region (bloom period/ maximum height/ notes)

Plants

- Lanceleaf coreopsis (Early, 2 ft, bees/syrphid flies)
- Smooth penstemon (Early, 2 ft, butterflies/moths/bees including honeybees)
- Wild indigo (Early-mid, 3 ft, diverse pollinators including lo moth)
- Great blue lobelia (Mid, 3 ft, bumble bees/shade tolerant/good for rain gardens)
- Joe Pye weed (Mid, 7 ft, butterflies/bees)
- Mountain mint (Mid, 3 ft, blue and copper butterflies/bees)
- Field thistle (Mid-late, 6 ft, butterflies/bumble bees)
- Wingstem (Mid-late, 6 ft, honey producer)
- Bottle gentian (Late, 2 ft, exclusively bumble bees)
- Seaside goldenrod (Late, 6 ft, bumble bees/monarchs/other butterflies – esp. planted in large clumps/salinity tolerant)
- Sneezeweed (Late, 2 ft, leafcutter/bumble/honey bees/attractive flowers)
- Wrinkleleaf goldenrod (Late, 4 ft, solitary wasps/pollen-eating soldier bees/hoverflies)

Shrubs and trees

- Cockspur hawthorn (Early, 20 ft, bumble bees/honeybees/mining bees/songbirds)
- Eastern redbud (Early, 30 ft, long-tongued bees/showy spring flowers)
- Highbush blueberry (Early, 12 ft, mining/mason/long-tongued bees)
- Pussy willow (Early, 15 ft, spring forage for bees/host for mourning cloak butterflies)
- Basswood (Early-mid, 60 ft, fragrant nectar-rich flowers extremely attractive to bees)
- New jersey tea (Mid, 4 ft, various species of flies/wasps/bees/butterflies – “pollinator magnet”)

University of Pittsburgh Sustainable Landscape Guidelines List:

- Nodding pink onion, *Allium cernuum*
- Lavender hyssop, *Agastache foeniculum*
- New England Aster, *Aster novae-angliae*
- Common milkweed, *Asclepias syriaca*
- Butterfly weed, *Asclepias tuberosa* (Midyear, 3 ft, monarch butterflies/bees)
- Partridge pea, *Chamaecrista fasciculata*
- Hayscented fern, *Dennstaedtia punctilobula*
- Blue false indigo, *Baptisia australis*
- Purple prairie clover, *Dalea purpurea*
- Purple coneflower, *Echinacea purpurea* (Mid, 4 ft, leafcutter bee/bees in the *Bombus*, *Melissodes*, and *Svastra* genera)
- Rattlesnake master, *Eryngium yuccifolium*
- False sunflower, *Heliopsis hianthoides*
- Alum root, *Heuchera villosa*

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- Dense spicata, *Liatris spicata* (Mid-late, 4 ft, diverse butterflies: monarchs, swallowtails, skippers, sulfurs)
- Wild bergamot, *Monarda fistulosa* (Mid, 4 ft, hawk moths/hummingbirds/long-tongued bees e.g. *Bombus pensylvanicus*)
- Smooth aster, *Aster laevis*
- Compassplant, *Silphium laciniatum*
- Cupplant, *Silphium perfoliatum*
- Blue vervain, *Verbena hastata*
- Wild ginger, *Asarum canadense*
- Swamp milkweed, *Asclepias incarnate*
- Western sunflower, *Helianthus occidentalis*
- Tickseed, *Coreopsis lanceolata*
- Partridge-berry, *Mitchella repens*
- White trillium, *Trillium grandiflorum*
- Sweet-fern, *Comptonia perigrina*
- Bloodroot, *Sanquinaria canadensis*
- Creeping phlox, *Phlox subulata*
- Wood anemone, *Anemone quinquefolia*
- Jack-in-the-pulpit, *Arisaema triphyllum*
- Christmas fern, *Polystichum acrostichoides*
- Heart-leaved aster, *Aster cordifolius*
- Crooked stem aster, *Aster prenanthoides*
- White woodland aster, *Aster divaricatus*
- Black-eyed susan, *Rudbeckia hirta* (2.9)
- Ohio goldenrod, *Solidago ohionsis*
- Anise-scented golden rod, *Solidago odora*
- Pennsylvania sedge, *Carex pennsylvanica*
- Four-leaved milkweed, *Asclepias quadrifolia*
- Red milkweed, *Asclepias incarnate*
- Beardtongue, *Penstemon digitalis* (1.9)
- Big-leaved aster, *Aster macrophyllus*
- Calico aster, *Aster lateriflorus*
- Evergreen woodfern, *Dryopteris marginalis*
- May-apple, *Podophyllum peltatum*
- False soloman's seal, *Smilacina racemosa*
- Wood geranium, *Geranium maculatum*
- Beebalm, *Monarda didyma*
- Wild iris, *Iris shrevei*
- Black cohosh, *Actaea racemosa*

Resources

- 1) https://xerces.org/sites/default/files/2018-05/17-047_03_XercesSoc_Pollinator-Plants_Great-Lakes-Region_web-3page_0.pdf
- 2) https://xerces.org/sites/default/files/2018-05/17-007_02_XercesSoc_MonarchNectarPlants_Great-Lakes_web-3page.pdf
- 3) <https://www.wildflower.org/collections/collection.php?collection=PA>
- 4) <https://extension.psu.edu/gardening-for-butterflies>
- 5) <https://extension.psu.edu/landscaping-to-attract-and- conserve-beneficial-insects>
- 6) <http://nwf.org/NativePlantFinder/>
- 7) <https://www.dcnr.pa.gov/Conservation/WildPlants/LandscapingwithNativePlants/Pages/default.aspx>