

Bee Campus USA - University of Wisconsin–Madison

Report on 2024

Pollinator Habitat Creation & Enhancement

Please describe pollinator habitat creation or enhancement projects in your community in 2024, and whether your committee hosted them or not.

In 2024 multiple pollinator habitat projects funded through the Green Fund, a program through the Office of Sustainability that supports student-initiated sustainability projects, have made progress (1). In 2023, a pilot pollinator lawn was highlighted at the Tripp Residence Hall. The success of this planting and the desire to continue implementing native plant and pollinator habitat resulted in a native and pollinator-supporting planting behind the School of Education building. This planting was facilitated through the Green Fund and was implemented by Grounds staff and student volunteers. Sentiments of excitement characterized the School of Education planting as it provided staff the opportunity to work on projects outside of the normal scope of their positions and engage in topics they were interested in. This project will span multiple years and engage students, faculty, and staff providing educational and functional learning opportunities. Additionally, seeds collected from the Arboretum are being grown in Grounds greenhouse facilities to support this project as well. The Grounds team has also helped support an organic land management project that aims to make traditional lawn spaces more pollinator-friendly (more information on this project can be found in the Policies and Practices section). In 2024 Allen Centennial Garden worked with the Green Fund to implement a solitary bee hotel at the entrance of the garden. The bee hotel was designed by students from the campus organizations Bees Please, Engineers for a Sustainable World, and The People's Farm. The students worked with garden staff to create a design that is indicative of the campus and harnessed natural materials such as reeds and stems from the garden itself. This bee hotel aims to supplement and support the garden as a solitary bee habitat. The Lakeshore Nature Preserve (the Preserve) managed invasive species through monitoring and physical control on over 220 acres of land. Additionally, the Preserve sowed 13 acres with native seed and administered 13 acres of prescribed fire across multiple prairie, savanna, and woodland areas. Within western Muir Woods, staff and volunteers continued to remove invasive plants to slowly expand native plant restoration. The Preserve staff plans to put educational information in this area this coming spring (2025) to help tell the story of the restoration and habitat that is being created. The Arboretum manages and enhances pollinator habitat on over 1,000 acres of ecological restorations and gardens. Habitat features and types include natural areas with tree snags, leaf litter, and stumps, bare areas for ground-nesting species, pollinator-friendly lawns, native milkweed planting for monarchs and bees, invasive/exotic plant species removal for habitat improvement, pollinator-friendly flowering trees and shrubs, wetlands, and rain gardens. Conservation and restoration methods include forestry mowing, prescribed fire, seed harvesting, seed broadcasting, removing woody and herbaceous invasives, and monitoring bumble bees, monarchs, and other pollinators. Links: (1) UW-Madison Green Fund <https://sustainability.wisc.edu/greenfund/> (2) The Lakeshore Nature Preserve <https://lakeshorepreserve.wisc.edu> (3) UW-Madison Arboretum <https://arboretum.wisc.edu/>

How many habitat projects did you help to create or enhance in 2024?

9

How many people (staff, volunteers, students, partners, etc.) helped with those projects?

1800

How many projects benefit monarchs, milkweed, or nectar plantings?

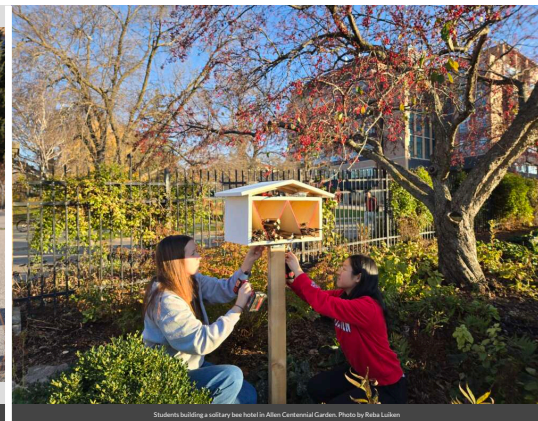
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How many total square feet of habitat were created or enhanced?

1225

Please check all that describe the habitats your affiliate helped to create or enhance last year with pollinator benefit in mind.

- Flower garden
- Vegetable garden
- Meadow
- Pollinator-friendly lawn (with flowering clover, dandelions...)
- Native milkweed planting for monarchs and bees (where appropriate)
- Invasive/exotic plant species removal for habitat improvement
- Rain garden/bioswale
- School garden
- Other



Education & Outreach

Please describe pollinator conservation events or outreach activities in your community in 2024, indicating whether your committee hosted them or not.

The University of Wisconsin–Madison (UW–Madison) built upon existing outreach and education efforts in 2024. Below is a summary of some of the key events offered by UW–Madison, as the university continues in the Bee Campus Program, the Bee Campus Committee continues to update and improve tracking of events and attendees. In 2024 the Entomology Department built upon previous outreach efforts and sought out novel opportunities for invertebrate education. In celebration of the periodical cicada emergences, the Entomology Department hosted “Cicadapalooza”, a family-friendly event at the Lake Geneva Public Library in June. “Cicadapalooza” featured talks, booths, tours, and activities centered around invertebrate diversity including pollinator research and conservation (1). Additionally, the Entomology graduate student volunteer organization, Insect Ambassadors, provided over 25 different pollinator-focused outreach presentations and over 60 overall invertebrate education presentations. Among these outreach presentations, Insect Ambassadors traveled across the state, including to the Kemp Natural Resource Station in Woodruff, Wisconsin. Allen Centennial Garden hosted multiple outreach and education events including a “Lunch and Learn” session for garden volunteers featuring graduate student and Bee Campus Committee member Victoria Salerno, discussing her PhD research focused on urban pollinator conservation and in-garden research efforts. Additionally, the garden hosted two outreach events featuring the use of solitary bee hotels for research and outreach to celebrate the in-garden art installation titled “Archipelago” (2) and for a visit from EPA Chief of Staff, Dan Utech, in September. The garden also hosted “Family Gardening Day,” a free event for families hosted on the first Saturday in May each year drawing 500 people to campus to learn about plants (and pollinators) in collaboration with the Wisconsin Energy Institute, D.C. Smith Greenhouse, and Steenbock Library. At the Arboretum, “Native by Design: Gardening for a Sustainable Future,” a native gardening conference featured keynote speaker Dr. Skye Bruce presenting “Butterflies and Botany: Cultivating Connections in Native Gardens.” The conference (attended by 100 participants) included workshops on native plant garden design and management, native trees and shrubs, native plant identification, beneficial insects, birdscaping, and monitoring monarchs and bumble bees. The native plant garden curator and Bee Campus Committee member, Susan Carpenter, delivered over 55 presentations and garden tours, reaching over 1,000 people across the state. Extension hosted multiple pollinator-focused events. In April, Julie Hill, a horticulture outreach specialist presented “Planting for a Buzz: How to be a pollinator-friendly gardener all year long” which educated about yard and garden pollinator strategies (3). In June, Extension celebrated National Pollinator Week with guest speaker Heather Holm titled “The Pollination of Native Plants,” (4) and hosted a “Blue Fruit Farm Field Day,” (5) which highlighted pollinator habitat as part of agricultural practice. The Office of Sustainability and Nelson Institute for Environmental Studies celebrated its third annual “Sustainability Symposium” which featured a talk discussing and highlighting UW’s Bee Campus efforts as well (6). The talk highlighted the 2023 progress and the importance of urban conservation and campus progress. Article Links: (1) Cicadapalooza <https://cicadas.wisc.edu/cicadapalooza/> (2) Archipelago Exhibit Article:

<https://allencentennialgarden.wisc.edu/2024/09/03/archipelago-exhibit-grand-opening/#:~:text=ToryTeppsArchipelago,featuresthreelifeboatscarryingplants,intoadeeperunderstandingofourplantrelatives.> (3) “Planting for a Buzz: How to be a pollinator-friendly gardener all year long”

<https://extension.wisc.edu/events/?trumbaEmbed=vieweventeventid172861856> (4) “The Pollination of Native Plants,”

<https://extension.wisc.edu/events/trumbaEmbed=vieweventeventid174472706> (5) “Blue Fruit Farm Field Day,”

<https://extension.wisc.edu/events/trumbaEmbed=vieweventeventid172861856> (6) Sustainability Symposium

How many pollinator-related events or outreach activities did you host or help with in 2024 (in total)?

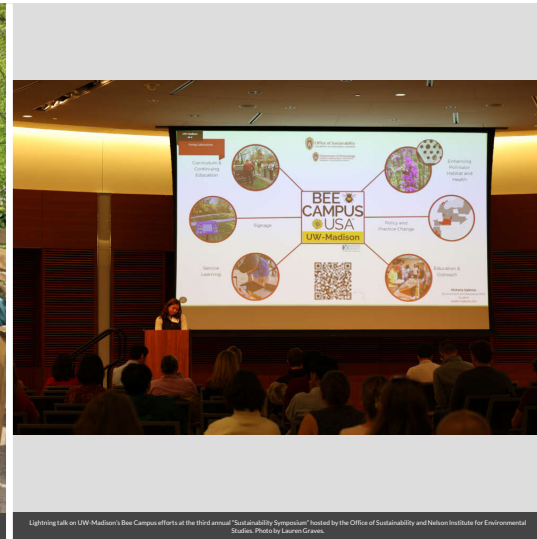
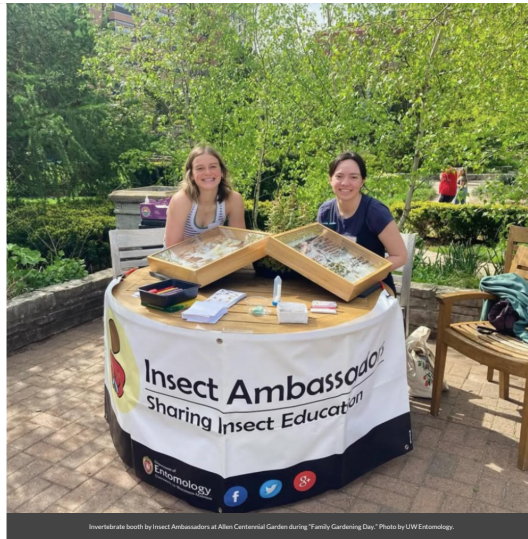
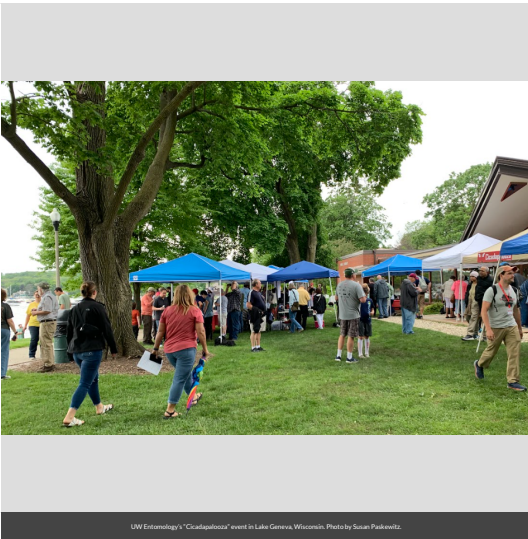
91

How many people attended those events (in total)?

4000

Number of permanent interpretive/educational/Bee Campus USA signs installed to date?

3





Curriculum, Continuing Education, & Service Learning

Please describe the curriculum your campus engaged in 2024, indicating whether it was part of a for-credit course or continuing education.

Across different departments and their affiliate programs, in and out-of-class pollinator curriculum was provided in 2023 for undergraduate and graduate students. In 2024, UW-Madison expanded its list of documented courses with a pollinator curriculum. Among these courses are:

Entomology: Over 2024 the Entomology Department provided over 5 courses with pollinator content. The course Entomology 490: Biodiversity and Global Change discussed the effects of global change on biodiversity, using insects as model organisms. In the class, students were asked to engage in case studies including one centered around pesticide use. The Entomology Department supported three undergraduate research projects for BIO 152: Introductory Biology through the Entomology independent study path (ENTOM 299) focused on native bee ecology.

Agroecology: Approximately 200 undergraduate students in the Agroecology 103: Introduction to the Ecology of Food and Agriculture course surveyed bees on campus and surrounding areas using the WiBee app and used their findings to understand relationships between habitat diversity and bee abundance. The Lakeshore Nature Preserve assisted learning through multiple courses in 2024 including: Landscape Architecture (and Environmental Studies) 581: Within Land Arch/ Env St 581: Prescribed Fire Ecology and Implementation (partially taught in the Lakeshore Nature Preserve) forty-eight students learned the why and how of managing landscapes with fire to promote ecological health and diversity, including considerations for invertebrates/pollinators. The class requires students to volunteer on three prescribed burns outside of class. Additionally, Lakeshore Nature Preserve supported three classes with over 60 students with native seed sowing activities (Landscape Architecture 363: Restoration education for equity and resilience; First-year Interest Group 106: Indigenous Arts and Sciences;

Landscape Architecture 360: Indigenous Field-Based Learning for Land Stewardship (in collaboration with Lac Courte Oreilles Ojibwe University and College of Menominee Nation). UW–Madison continued to provide two Continuing Education opportunities that had a pollinator focus within the curriculum. The first was the “Allen Centennial Garden 2024 Winter Class Series” offered virtually and Extension’s “Green Thumb Gardening Class Series.” Link: Allen Centennial Garden 2024 Winter Class Series <https://today.wisc.edu/events/view/191116>

How many of your for-credit courses included pollinator-related information in 2024?

15

How many students attended those for-credit courses?

850

How many of your continuing education courses included pollinator-related information in 2024?

2

Please describe the service-learning projects your students were engaged in 2024, indicating which, if any, were associated with a course.

UW–Madison supported service learning across campus in 2024. Allen Centennial Garden staff and Badger Volunteers program students collected seeds to maintain and build the garden’s native landscapes. At the Arboretum’s native plant garden, 72 community volunteers completed 551 hours of service and two student employees participated in land care and gardening activities that promote pollinator habitat and learned about pollinator conservation. During the summer, the native plant garden curator and two students conducted the Arboretum’s 14th year of bumble bee surveys, conducting surveys Monday through Friday (weather permitting). In other Arboretum areas, over 860 volunteers (including UW–Madison students) participated in over 2,800 hours of land care, mainly removing invasive species in prairies, savannas, and woodlands. The Lakeshore Nature Preserve worked on a restoration project in western Muir Woods that utilized volunteer groups totaling 68 volunteers including the Women in Science and Engineering Group (August 30th), Hoofers Ambassadors (October 1st), Staff members from the International Academic Program Office (October 21st), and student volunteers from a First-Year Interest Group (December 5th).

How many service-learning projects did your campus host and/or support to enhance pollinator habitat on- and off- campus?

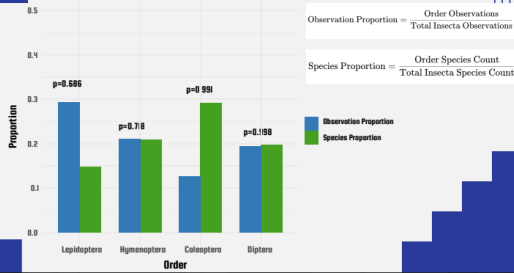
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How many students participated in service-learning projects in 2024 to enhance pollinator habitat on or off-campus?

600

Order Observations

Differences in Representation



Slide excerpt from Morgan Weissner's final presentation in Entomology 490 analyzing invertebrate observations across iNaturalists to identify monitoring gaps.

Bee Identification Quiz



Q1 Is this a bee or a non-bee?

Note: this insect is about 1/4" long

- Bee
- Non-bee

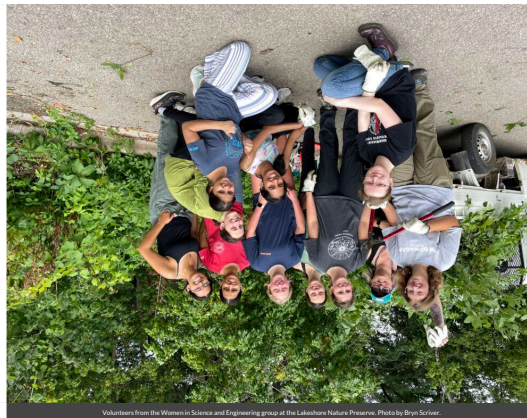
WBee, an educational and community science app, that Agroecology 103 students used to monitor pollinators.



First-Year Interest Group 106, Indigenous Arts and Science class sowing native seeds. Photo by Maria Moreno.



Brown-bellied bumblebee is a key pollinator of milkweed (Arboretum Native Plant Garden). Photo by Susan Carpenter.



Volunteers from the Women in Science and Engineering group at the Lakeshore Nature Preserve. Photo by Bryn Schier.



Spring seed sowing at the Lakeshore Nature Preserve. Photo by Maria Moreno.

Policies & Practices

Please describe actions taken to make pest management more pollinator-friendly.

The UW-Madison's 2,201-acre immediate campus footprint is home to a multitude of habitat types and is managed by multiple teams. Below are the key policy and practice updates from the main campus (Grounds), including the Lakeshore Nature Preserve and the Arboretum, one of the university's natural areas found adjacent to the main campus. Dr. Claudio Gratton, entomology professor and Bee Campus Committee member provided expert testimony to Wisconsin state senators on pending legislation on pollinator conservation. Grounds: The Grounds team in collaboration with the Green Fund has made progress towards a Re:wild Your Campus certification through an Organic Land Management Pilot Project. This project aims to keep the lawn spaces we love for recreation and find alternatives to the use of synthetic chemicals to promote a healthy environment. UW staff and faculty are using organic alternatives such as compost and corn gluten meal in combination with mechanical processes such as soil aeration to

maintain the turfgrass without synthetic inputs. The project consists of four highly visible campus locations (Henry Mall, Library Mall, the Divine Nine Plaza, and Ogg Residence Hall). These locations will be used to inform changes to land management practices and policies in the future. Arboretum: The Arboretum consists of over 1,000 acres in Madison, including remnant and restored prairies, savannas, woodlands, wetlands, a native plant garden, and a woody plant collection. Over the last 6 years, the Arboretum's primary goal for managing prairie and oak savanna units has been to maintain and where possible enhance natural biodiversity. Efforts have largely been focused on managing invasive and over-abundant species through a wide variety of methods including mowing, girdling, cutting, hand-pulling, and judicious pesticide use. Pesticide use across the Arboretum consists of spot treatment, with broadcast limited to areas with single species composition when needed. Spot treatment targeting is highly selective and focused on individual species or suites of species. A section of the Arboretum, the Native Plant Garden, only rarely uses herbicides and never uses insecticides or fungicides. All plants in the Native Plant Garden are neonicotinoid-free, sourced from native plant nurseries. Within the Arboretum's Longenecker Horticultural Gardens, Finalsan, an herbicidal soap, has been used since 2021 and has reduced glyphosate use within the area by 25%. Within subsections of the Longenecker Garden glyphosate use has been reduced by 90%. The land managers carry a battery-powered string trimmer with them as they go about their day. This allows them to use mechanical control to set back or kill herbaceous weeds without the use of any herbicide. Because the trimmer is battery-powered, it does not require the priming or idling of fossil-fuel-powered trimmers, so makes for an easier workflow, letting staff catch weeds when they are younger and easier to control. With the support of the Green Fund, the Arboretum replaced a fossil fuel-powered riding lawn mower with an electric one. Staff now use electric mowers (ride on and push) for much of our turf grass mowing. Lakeshore Nature Preserve: The Lakeshore Nature Preserve has continued to manage its roughly 300 acres of natural areas through judicious pesticide use (largely spot treatment) and manual control methods. In 2024, the Preserve staff monitored and controlled herbaceous non-native, invasive vegetation on roughly 200 acres, and additional monitoring and control of invasive brush over 20 acres. Links: (1) Re:wild your Campus <https://www.rewildyourcampus.org/> (2) Campus Planning and Landscape Architecture <https://cpla.fpm.wisc.edu/> (3) Finalsan <https://www.neudorffpro.org/products/us-finalsan.htm>

In your city or campus, are any policy initiatives underway to further protect pollinators, people or waterways from pesticides?
Across campus, stormwater retention areas with pollinator plants, used to collect, infiltrate, and clean stormwater, continue to be maintained by the Grounds team through manual control methods and judicious herbicide use. To further the goal of well-informed and pollinator-friendly landscape planning and management, Grounds in collaboration with Campus Planning and Landscape Architecture continues to develop a pollinator inventory list and map the immediate campus and its associated pesticide use.

Did your committee participate in any continuing education on ecologically-based Integrated Pest Management planning?
N/A

Please check actions you have taken to make pest management practices more pollinator-friendly.

- Implemented or maintained a written IPM plan
- Only use pesticides as a last resort within the IPM plan
- Avoided use of pesticides in public sites containing designated pollinator habitat or other sensitive features (except when targeted use is deemed the best option for invasive or noxious weed, insect or disease management)
- Implemented non-chemical pest prevention and management methods on city or campus grounds
- Reduced the total area of city or campus-managed lands to which pesticides are applied

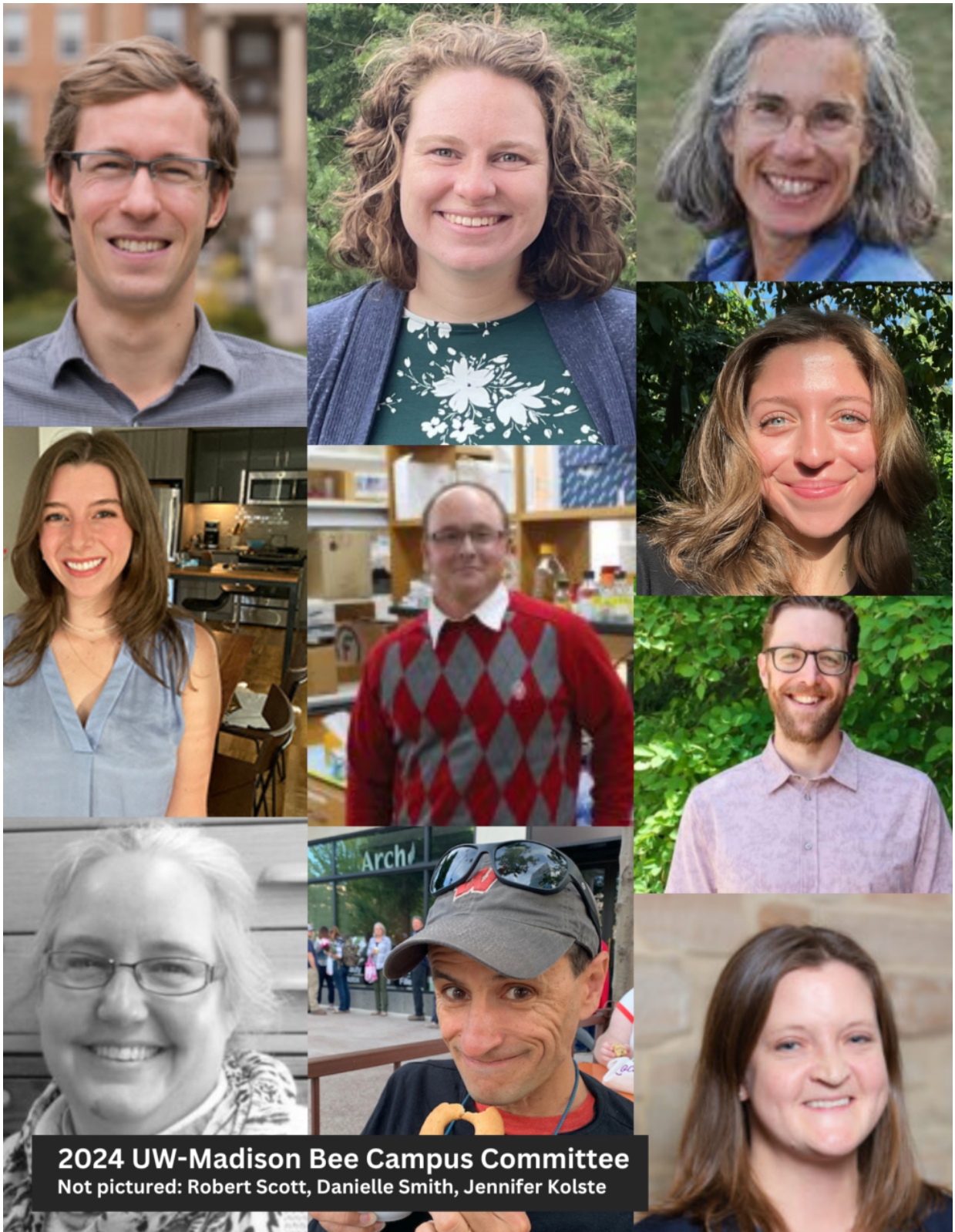


Organic Land Management team members gathering soil samples from one of four pilot sites. Photo by Lauren Graves.

Any lessons learned you would like to share?

Student participation and advocacy are key catalysts to change grounds management practices and expand pollinator habitat.

Committee Photo



2024 UW-Madison Bee Campus Committee

Learn More

Integrated Pest Management Plan:

Recommended Native Plant List:

<https://dnr.wisconsin.gov/topic/endangeredresources/nativeplants>

Recommended Native Plant Supplier List:

<https://widnr.widen.net/s/rfsbfc22w6/nh0698>

<https://sustainability.wisc.edu/certifications-and-awards/bee-campus-usa/>
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