

Bee Campus USA - University of Georgia

Report on 2022

Pollinator Habitat Creation & Enhancement

With pollinator benefit in mind, the University of Georgia helped to create and enhance the following habitats: flower garden, vegetable garden, natural area with tree snags and stumps, bare areas for ground nesting species, meadow, pollinator friendly lawn, native milkweed plantings, invasive/exotic plant species removal, native pollinator-friendly tree, shrub, and hedgerow planting, rain garden/bioswale, roadside/rights of way, and school garden. In total, UGA hosted 17 habitat projects that enhanced or created over 7 acres of pollinator habitat. Most recently, Dr. Sonia Altizer, the interim dean and UGA Athletic Association Professor of Ecology, donated leftover milkweed plants from her research on Monarch butterflies in 2022. This month, the Pollinator Project collaborated with UGA Sustainability Certificate Students and the UGA Grounds Department to coordinate a volunteer workday to install the milkweed plants on UGA's campus within its Green Zone. Nearly 80 native milkweed plants were installed by 15 volunteers in February 2023. In February 2023, the State Botanical Garden of Georgia with 8 student volunteers installed a new pollinator garden at the Georgia Center for Continuing Education. This garden is entirely composed of the Georgia Pollinator Plants of the Year for 2022 and 2023. The curators hope to continue installing the selected pollinator plants every year. The UGA Golf Course started a commitment to sustainable bee management in November 2021. The assistant manager of the golf course, Scott Griffith, collaborates with the lab manager of the UGA Bee Laboratory, Jennifer Berry, to install a bee hive at the UGA Golf Course behind the 10th hole in March 2022. They aim for the hives to showcase the importance of pollinators and hope to expand the program to include at least 5 hives. In addition to the bee hives at the UGA Golf Course, both the UGarden and SBG maintain several bee hives on their grounds. UGA's Office of Sustainability sponsored a UGA Campus Sustainability Grant led by undergraduate students Elizabeth Esser and Claudia White that aimed at removing invasive plants from UGA's campus and landscaping with native, pollinator-friendly plants. The Bee Beautiful project collaborated with the UGA Grounds Department, the SBG, and the College of Environment + Design to install over 50 native plants at two sites on UGA's Campus with the help of 15 volunteers. Over the summer, UGA sponsored a CURO research project led by Abby Lauterbach, an undergraduate student in Horticulture, that focused on what types of habitat best supported bee diversity and abundance in Athens. The study found that landscapes with urban agriculture favored bee diversity and abundance because of their diverse floral resources more than purely ornamental landscapes. "Sites with the presence of Urban Agriculture had an average of twice as many genera than ornamental sites" (Lauterbach 2022).

How many habitat projects did you help to create or enhance last year?

17

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

304920

How many volunteers helped with those projects?

350

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
- Natural area with tree snags and stumps, and bare areas for ground nesting species
- 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
- Native pollinator-friendly tree planting
- Native pollinator-friendly shrub border/hedgerow planting
- Rain garden/bioswale
- Roadside/rights of way planting
- School garden



This month, the Pollinator Project collaborated with UGA Sustainability Certificate Students and the UGA Grounds Department to coordinate a volunteer workday to install the native plants on UGA's campus within its Green Zone. Nearly 80 native enhanced plants were installed by 35 volunteers in February 2023.



In February 2023, the State Botanical Garden of Georgia with 8 student volunteers installed a new pollinator garden at the Georgia Center for Continuing Education. This garden is a prime component of the Georgia Pollinator Project of the Year for 2022 and 2023.



UGA's Office of Sustainability sponsored a UGA Campus Sustainability Grant led by undergraduate students Elizabeth Esser and Claudia White that aimed at removing invasive plants from UGA's campus and landscaping with native, pollinator-friendly plants. The Bee Beautiful project collaborated with the UGA Grounds Department, the SBC, and the College of Environment. Design to install over 10 native plants at two sites on UGA's Campus with the help of 15 volunteers.

Education & Outreach

Throughout 2022, the University of Georgia hosted 18 pollinator-related events, with these events bringing in over 2,600 participants. The “Connect to Protect” program, an initiative of the State Botanical Garden of Georgia (SBG), combined public displays of native plants with educational materials to foster a widespread understanding of the role of native plants and pollinators in Georgia landscapes. In addition to heading the Connect to Protect Program, the State Botanical Garden of Georgia hosted numerous events throughout 2022 that promoted the education and outreach of Bee Campus UGA. The SBG hosted a series of workshops to encourage pollinator conservation, such as an introductory beekeeping series and a pollinators specialization series. The garden also offers a Certificate in Native Plants that gives individuals the opportunity to explore and develop skills in plant identification, propagation, and conservation. Additionally, the garden hosted its 32nd Annual Insect-ival which is aimed at celebrating insects and connecting community members with entomology experts in September 2022. The SBG held its 11th Annual Native Plant Sale in October 2022. In addition to providing shoppers with over 150+ native plants that support pollinators, experts from the botanical and gardening community answer questions about incorporating native plants into every space to aid pollinators. All proceeds from the sale went towards supporting the center’s conservation efforts. The SBG also runs a Pollinator Plants of the Year program to recognize top performing landscape plants that support pollinators and grow beautifully. Nominations are solicited from gardeners throughout Georgia and are then determined by a selection committee. Lastly, the garden offers an experiential learning opportunity for UGA students through its Learning by Leading Program that provides students with leadership development and real-world experience to address environmental issues, including pollinator conservation. The State Botanical Garden of Georgia was one of many partners of UGA Cooperative Extension that worked to host the annual Great Pollinator Census in August 2020. The Great Georgia Pollinator Census, is a state-wide pollinator count held every August as part of a citizen science project created by the University of Georgia where Georgians count the insects that land on a chosen pollinator plant for 15 minutes and put the insects into one of eight categories. In addition to hosting the census, UGA Cooperative Extension shared information on what the public can do to help protect pollinators through events and on their website, including a step by step guide to creating pollinator friendly spaces, eco-friendly gardening, building bee boxes and more. The UGA Pollinator Project collaborated with UGA Dining Services to launch a pilot educational campaign on the importance of pollinators in the food system through the UGA dining halls. Educational table tents on UGA’s pollinator initiatives and the importance of pollinators were placed on all of the dining tables in each of the 5 dining halls. Additionally, a decal sticker was made and placed on all of the dishes in the dining halls that required pollination. The imagery on this decal was used to promote the event and reach an even larger audience through social media. The Pollinator Project also hosted walking tours of campus to highlight the spaces on campus that promote pollinator population health, including our two Connect to Protect pollinator gardens. We held a walking tour of campus and workday on pollinator gardens with an Ecology of Campus class of 16 first-year students. The event encouraged first-year students to think about how landscapes can support pollinators and how they can participate in ecological conservation. In April 2022, the UGA Pollinator Project completed its 3rd annual Pollinator Census. UGA’s Pollinator Census is an outgrowth of the Great Georgia Pollinator Census (now the Great Southeast Pollinator Census), and is an event aimed to engage the campus community in the local environment and provide baseline data to guide future

pollinator enhancement efforts. This year's census focused on creating new technological tools to collect the census data, allowing participants to engage in the census and submit their results via an online survey and mapping tool called SURVEY 123. Billed as taking the "census mobile" a StoryMap was created that walked participants through how the new survey worked, including color photographs to help identify the different types of pollinators. The benefits of an all digital census are that participants can georeference the exact location where their pollinator survey was taken, more information on plant types and pollinators can be easily referenced, the data can be quickly and accurately captured in a permanent geo-spatial database, and the time consuming and error laden process of transferring data from a paper survey to spreadsheet to analysis tools can be avoided. Additional links and an explanation were provided on how to use the iNaturalist SEEK app to aid in correctly identifying the selected pollinator plant, adding a layer of quality control to the census. Additional features of the StoryMap include: Maps and description of Pollinator Landscapes on campus, census results in real time, census data summary analysis, and the ability for students and researchers to access the census data for Living Lab research. We believe that these tools could be a model for other Bee Campus USA schools engaged in collecting census data. Last year, we engaged nearly 80 students in the pollinator census. Leading up to the census, the UGA Pollinator Project created flyers and social media posts and hosted a tabling event on UGA's central campus during Earth Week to increase participation in the count. An engaging quiz, titled "What Kind of Bee are you" was created by two UGA interns Alan Barrett and Jenny Chen. The University of Georgia hosted the 4th National Protecting Pollinators in Urban Landscapes Conference in collaboration with Michigan State University, North Carolina State University, and the Cincinnati Zoo and Botanical Garden in October 2022. This conference brought together researchers, educators, and practitioners to discuss and learn about urban pollinator protection through a series of educational workshops, including bee identification, challenges of urban pollinators, and landscaping for pollinators. UGA Co-hosted a workshop on protection efforts with the City of Decatur, and the Xerces Society. The Pollinator Project also led a walking tour of campus to provide visual examples of urban landscapes that protect pollinators.

How many pollinator-related events did your affiliate host or help with last year (in total)?

18

How many people attended those events (in total)?

2600



The UGA Pollinator Project collaborated with UGA Dining Services to launch a pilot educational campaign on the importance of pollinators in the food system through the UGA dining halls. Educational table tents on UGA's pollinator initiatives and the importance of pollinators were placed on all of the dining tables in each of the 3 dining halls.



The Pollinator Project also hosted walking tours of campus to highlight the spaces on campus that promote pollinator population health, including our two Connect to Protect pollinator gardens. We held a walking tour of campus and workshop on pollinator gardens with an Ecology of Campus class of 16 first-year students. The event encouraged first-year students to think about how landscapes can support pollinators and how they can participate in ecological conservation.



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Courses & Continuing Education

There are many courses at UGA that teach about pollinator protection and conservation. UGA Bee Campus USA committee actively collaborated with 5 specific courses. This is a small sample of the many ways faculty are teaching their students about this topic. Course offerings come from the College of Agriculture, the College of Environment and Design, the Odum School of Ecology and the Entomology Department. There were 150+ students in these courses that actively engaged with the Bee Campus Committee. Two continuing education courses are engaged with the Bee Campus USA committee through UGA's Cooperative Extension. Additionally, the UGA Bee Program runs a robust Master BeeKeeper Program through the Young Harris Beekeeping Institute (YHBI) every year. Over 200 students participated in the 10 courses offered by the YHBI this past year. The University of Georgia offers many courses related to pollination. These classes and their descriptions are listed below. ENTO 3010, Bees, Beekeeping, and Pollinator Conservation. Students learn about honey bees and beekeeping, other crucial pollinators, pollination ecology, conservation, and habitat restoration. The practice of beekeeping is stressed during the first two-thirds of the course followed by pollination ecology, other beneficial pollinators, their roles in agriculture, and why we need to conserve them. ENTO 4300/6300 Insect Outreach. This is an entomology class taught by Dr. Carmen Blubaugh in which graduate and undergraduate students work on individualized capstone projects that focus on collaborative research in school gardens across Athens/Clarke County. The course includes preparing display collections of pests and beneficial insects, restoring beneficial insect habitats, and developing interpretive materials in collaboration with the State Botanical Garden of Georgia and the UGA Campus Pollinator Project. Graduate students in this class also created a map of blooming plants at UGA to aid in habitat planning and connectivity analysis. LAND 6310 Landscape Ecology: Materials and Processes. This is a hybrid lecture and lab course where students study landforms, geology, hydrology, soils, and biotic communities, with an

examination of ecological concepts and their applications at the landscape scale. ECOL 4450/6450-4450L/6450L Spatial Ecology. This is a hybrid course that studies how ecological interactions and processes vary in space. Students become familiar with technologies for collecting, managing, analyzing, and displaying spatial data, and also how to consider space in ecological research and models. HORT(ENTO) 4770E/6770E Discover the Wonderful World of Plants and Pollinators and Your Place in It. A service learning course taught each Maymester to introduce students to arthropod-mediated ecosystem services (AMES), pollinator health, pollinator- plant interactions, and pollinator habitat enhancement. The goal is to engage students on grand challenges in pollinator protection and conservation, with emphasis on floral resource establishment in the residential matrix. Finally, students must execute a service- learning project in collaboration with a community partner that applies knowledge learned in the course.

How many of your for-credit courses included pollinator-related information last year?

5

How many students attended those for-credit courses?

150

How many of your continuing education courses included pollinator-related information last year?

3

How many participants attended those courses?

300



UGA Bee Program runs a robust Master BeeKeeper Program through the Young Harris Beekeeping Institute (YHBI) every year. Over 200 students participated in the 10 courses offered by the YHBI this past year.

Service-Learning

The University of Georgia hosted 17 service-learning projects with over 100 student participants throughout 2022 to help enhance pollinator habitat on and off-campus. Many of these service-learning projects were associated with a course at the university, and these courses are listed below. ECOL 4900 Environmental Practicum. This is a studio ecology class where students work in teams to address pressing environmental concerns identified by community stakeholders. Students will be involved in the planning and implementation of the project(s) and 25-50% of the overall instructional class will be engaged in the service-learning component. Students created and maintained an all-native pollinator garden in the quad of the Odum School of Ecology. ENTO 4300/6300 Insect Outreach. Students established prairie planter display beds in the prairie restoration at the botanical garden and developed interpretive material to be linked to small plant identifier

signs with QR codes. Students developed instructions for weeding pollinator garden beds at DW Brooks, and created an identification guide to the native plants found there. UNIV 2302S Success for Transfer Students. Provides transfer students opportunities in writing, reading, research, and communication strategies for success within the University's unique learning environments. To enhance the transfer experience, students will examine resources and the missions, purpose, and character of the University. Students removed the invasive English Ivy from various areas on campus, planted lantana, and pruned pollinator plants in various on campus habitats. SUST 4500 Sustainability Capstone. Student capstone team worked with the UGA Grounds Department to create a restoration plan for the Lumpkin Woods area on UGA's campus. The students coordinated invasive species removal events in the area. A current capstone team is working to create a planting and management plan for the area, including native plants and a Connect to Protect Pollinator garden.

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

17

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

100



Educational Signage

In 2022, the University of Georgia installed over 12 temporary bee signage on campus. To date, we have also installed 2 permanent Connect to Protect garden signs on campus. This signage is described below. There are two Connect to Protect garden signs on UGA's campus: one at the Odum School of Ecology and one at the DW Brooks Mall. Connect to Protect is a program in collaboration with the SBG that combines displays of native plants with educational materials to foster an understanding of the role that native plants play in maintaining biodiversity. The project provides the public with information, plant materials, and educational tools for teaching the significance of incorporating native plants in large and

small scales alike. Connect to Protect gardens range in size from potted gardens to full sized gardens. For the CURO research project described previously, 10 temporary signs with insect collection traps were placed around ornamental and urban agriculture landscapes on UGA's campus to mark the sites of pollinator community sampling. Most recently, two educational signs were installed at the new pollinator garden at the Georgia Center for Continuing Education. These signs provide information about the Georgia Pollinator Plants of the Year installed in the garden. Throughout 2022, we created temporary bus card signs for all the UGA buses to promote our collaborative project with UGA Dining Services, the annual Pollinator Census, and the importance of pollinators during Earth Week. In addition to the Bee Kind Sticker that was created for the project in spring 2021 to engage the UGA Community in pollinator protection, a Bee Pollinated sticker was created for an educational campaign on the importance of pollinators in our food system in collaboration with UGA Dining Services. These stickers have become recognizable iconography for the UGA Pollinator Project. The Bee Kind Sticker is handed out at outreach events and the pollinator census and can be seen on laptops and water bottles throughout campus. Since the launch of the UGA Pollinator Project's Instagram @pollinateuga, we have gained more than 500 followers. Weekly posts containing information, photos, and videos are used to highlight the importance of pollinators in our food and ecosystems, the plants and habitats that support them, and the projects that are being implemented to safeguard pollinators in the Athens community. In 2022, we updated our Campus Pollinator Story Map and transitioned it to ERSI Story Maps to highlight the primary pollinator areas on the UGA campus and properties.

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

2

Number of temporary interpretive/educational/Bee Campus USA signs installed last year?

12



For the CURO research project described previously, 10 temporary signs with insect collection traps were placed around ornamental and urban agriculture landscapes on UGA's campus to mark the sites of pollinator community sampling.



Two educational signs were installed at the new pollinator garden at the Georgia Center for Continuing Education. These signs provide information about the Georgia Pollinator Plants of the Year installed in the garden.

Policies & Practices

As a university, we have taken action to make pest management practices more pollinator-friendly. To name a few, we have implemented/maintained a written 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, reduced the total area of campus-managed lands to which pesticides were applied, and sourced plants for city or campus grounds that were not treated with neonicotinoids. The University of Georgia maintains healthy and vigorous landscapes through regular monitoring by all crew leaders for pest problems in the landscape. If a problem has been identified, the IPM supervisor and the Horticulturalist will attempt to address the problem in the most environmentally-sound method possible. These methods include the spot treatment of affected plants with appropriate herbicide and toleration of insignificant damage caused by disease or insects. Until the damage reaches 40% or more of planting, hand-pulling is the primary pest-management solution as an effort to reduce unnecessary pesticide use. When unavoidable, the most environmentally-friendly pesticide is used and applied at the lowest recommended rate. Effort is made to ensure pesticide does not come into contact with sensitive plant materials or animals and doesn't runoff into streams or lakes. Properly planted and well-adapted turf and ornamentals are chosen for their pest resistance and their ability to thrive in the locations selected for them. Irrigation is tested periodically to ensure there are no leaks, breaks, and to make sure they are not covering



hardscapes. Sufficient organic mulch is applied to ensure good soil moisture and adequate weed control. Additionally, effort is made to leave leaf fall as mulch where practical. All remaining leaf and limb debris is collected, composted, and then reapplied on campus. Using these management tactics, the University of Georgia keeps a healthy and well-kept landscape.

What actions have you taken to make pest management practices more pollinator-friendly?

- Implemented or maintained a written 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
- Sourced plants for city or campus grounds that were not treated with neonicotinoids

In your city or campus, are any policy initiatives underway to further protect pollinators, people or waterways from pesticides?

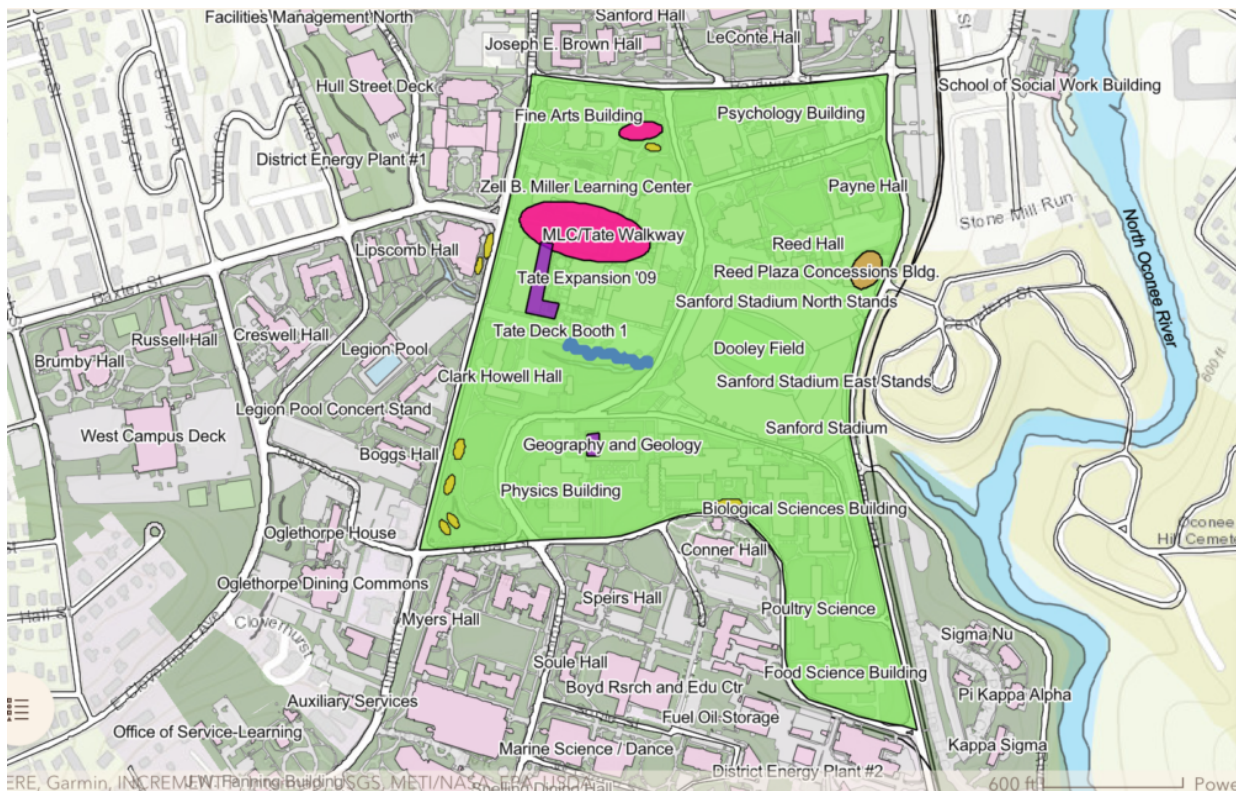
To further protect pollinators, people, and waterways from pesticides, the University of Georgia provides a Pesticide Safety Education Program through UGA Cooperative Extensions. The program covers a broad range of pesticide safety topics including pest identification, personal safety, pesticide drift, and runoff prevention, pollinator protection, water quality protection, and feed and food safety. During the National Pesticide Safety Education month, Georgia's PSEP offers online training modules covering core pesticide safety topics that teach basic pesticide safety to homeowners, public service employees, and public volunteers. As for reviewing IPM plans, the UGA IPM supervisor reviews IPM plans and programs submitted by fellow Bee Campus USA-certified campuses. Most recently, UGA's Facilities and Management established a Green Zone throughout central campus that is focused on improving our relationship with the land around us. One of the main goals of this space is to phase out gas-powered landscaping equipment for state-of-the-art electric tools and vehicles. This change, along with integrating more sustainable land management practices such as mulching grass and leaves on-site, reducing synthetic chemical use (fertilizers, pesticides, herbicides, etc.), planting native shrubs and flowers, and improving the green roofs within in the Green Zone aims to reduce on-site emissions, pollution, noise, water usage, and waste.

Please describe actions by your affiliate to attend training on ecologically-based Integrated Pest Management and/or to review IPM plans and programs considered of high quality by Bee City USA?

UGA IPM Crew is routinely educated and certified in the application of chemicals on campus. Chemical applications are applied on an as-needed basis and comply with products' prescribed guidelines.

Recommended Native Plant List:

Recommended Native Plant Supplier List:



UGA's Facilities and Management established a Green Zone throughout central campus that is focused on improving our relationship with the land around us.

Learn More

<https://sustainability.uga.edu/community-engagement/pollinators/>
sustain@uga.edu

<https://www.instagram.com/pollinateuga/>