



BEE CAMPUS USA ANNUAL REPORT 2022

University of Georgia
Athens, Georgia



UNIVERSITY OF
GEORGIA
Office of Sustainability



OVERVIEW



This annual report highlights the achievements of UGA's Pollinator Protection efforts since March 2021. UGA teaching, research, operations, and outreach demonstrate a commitment to creating a secure future through a dependable food supply. This includes service-learning courses; extensive publications on pollinators including bees, monarch butterflies and beetles; ongoing research at the UGA Honey Bee Lab; UGA Extension efforts such as the Great Pollinator Count; and regular programming through the State Botanical Garden of Georgia. Additionally, the Office of University Architects and FMD Grounds Department emphasize the use of native plants and integrative pest management.

Bee Campus USA Certification at the University of Georgia maximizes pollinator habitat and health by fostering interdisciplinary collaboration between faculty whose research and teaching focus on pollinators, service and outreach efforts including Cooperative Extension and the State Botanical Garden of Georgia, and the operational staff who manage UGA's grounds. Bee Campus USA Certification also complements UGA's Tree Campus USA certification, aligns with UGA's commitment to steward natural resources, and supports University goals set forth in the 2025 Strategic Plan.

EDUCATION AND OUTREACH

Throughout 2021, the University of Georgia hosted 14 pollinator-related events, with these events bringing in approximately 133 participants. The “Connect to Protect” program 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. 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.



UGA Office of Sustainability Interns, Jenny Chen and Alan Barrett participate in Bee Campus outreach efforts at the Farm to Campus Market located on the main campus.

Bee Campus UGA hosted a tabling event at the weekly UGA Farm to Campus Market as part of the Pollinator Committee’s engagement efforts. The event encouraged healthy eating and ecological conservation. Tables were equipped with free handouts, information about on-campus pollinators, examples of DIY bee hotels, and educational social media links.

A quick personality quiz with results linking to local bee species was created specifically for the event and specimens of those bees were lent temporarily by the UGA Bee Lab for display. The quiz created an interactive way to teach students of identifying features in common bee species such as the honeybee, carpenter bee, bumblebee, green sweat bee, and osmia mason bee. With donations from the UGA Monarch Lab, common and swamp milkweeds were handed out to passing students along with information about the importance of milkweed to our monarch population. Care instructions for the plants were displayed on a plaque rather than paper handouts to reduce waste.

EDUCATION AND OUTREACH

The Great Georgia Pollinator Census, run by UGA Cooperative Extension, 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. UGA Cooperative Extension also launched a Great Pollinator Podcast in 2021. UGA Pollinator Project launched its own campus specific Pollinator Census in 2021 to engage the campus community in the local environment and provide some baseline data to guide future pollinator enhancement efforts. Leading up to the census, the pollinator committee created flyers and social media posts to increase participation in the count.

Additionally, other pollinator conservation events were held at the State Botanical Garden of Georgia throughout 2021. A Native Plant Sale was held on April 3rd and April 10th. On May 18th, an Herb Container Garden Workshop, part of the “Garden Essentials” series, taught the basics of herb care and usage while potting a selection of culinary herbs during a two-hour class. On September 15th, an event titled “Fall Wildflowers of the Georgia Piedmont” was held. Here, students learned to recognize the most common fall-blooming wildflowers in the Georgia Piedmont and were introduced to basic botanical terminology commonly used in identifying and describing fall-flowering plants. The “Monarchs & Beyond: Pollinator Stewardship” event was held on September 18th. A “Connect To Protect” Native Plant Sale was held from October 7th – 12th, which included six days of plant-shopping among 150+ plant species native to Georgia. All proceeds from the sale went towards supporting the center’s conservation efforts. On October 16th, the event titled “Grow Your Own Prairie in North Georgia” was held, where attendants were taught the basics of creating a prairie on their own property, including site analysis, species selection, and habitat management. The State Botanical Garden of Georgia 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.



Insect specimen samples are displayed from the UGA Bee Lab.

POLLINATOR HEALTH AND HABITAT

15 created/enhanced habitat projects.

127,940 square feet of pollinator habitat.

200 volunteers helping with projects.

With pollinator benefit in mind, the University of Georgia helped to create and enhance the following habitats: flower garden, vegetable garden, orchard, natural area with tree snags and stumps and bare areas for ground nesting species, meadow, native milkweed planting for monarchs and bees, invasive/exotic plant species removal for habitat improvement, native pollinator-friendly tree planting, rain garden/bioswale, and school garden.

The University of Georgia Tifton branch transformed a section of their campus into a “Connect to Protect” pollinator garden with the help of Elizabeth McCarty (an assistant professor and forest health specialist for UGA Warnell School of Forestry and Natural Resources), lab staff, and volunteers. Undergraduate and graduate students, lab techs, and even family members pitched in with mulching and weeding, along with the initial planting. The State Botanical Garden of Georgia provided guidance to assembling a plants list emphasizing natives such as butterfly weed and aster.



Volunteers create a garden outside of a building on the UGA Tifton Campus for the Connect to Protect program.

POLLINATOR HEALTH AND HABITAT



Left: Lauren Muller, State Botanical Garden of Georgia Conservation Coordinator, installs garden beds filled with native pollinator plants on East Campus Road.

Right: Volunteers clear weeds from an area surrounding Lake Herrick and begin planting milkweed plants.

New pollinator plant beds were also installed near East Campus Road and Carlton Street, next to the Tate Student Center to raise awareness of the importance of native plants and to draw attention to the university's recent Bee Campus USA designation. The beds included "Plants of the Year" identified by the Georgia Botanical Garden which are native species selected for their value towards pollinators as well as for their beauty and ease of care. The spotlighted species consisted of False Rosemary, Sweet Pepper Bush, Downy Goldenrod, and Butterfly Weed.

Dr. Sonia Altizer, the interim dean and UGA athletic association Professor of Ecology, donated 130 native milkweed plants leftover from her research on Monarch butterflies in 2021. These plants were then distributed among various community partners and incorporated into the local landscapes with help from student volunteers. This included a volunteer workday that installed over 60 plants at the Upper Pond at Lake Herrick.

A UGA Campus Sustainability Grant led by undergraduate student Abby Dillon created a new edible landscape at Lake Herrick, a recreational resource for the University of Georgia. The installation by a group of 25 volunteers in April 2021 included regional appropriate fruit trees and shrubs such as plumps, pawpaw, persimmons, and blueberries, providing experiential learning, on site education, and long term fruit foraging opportunities for students and visitors.

POLICIES AND 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, 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 re-applied on campus. Using these management tactics, the University of Georgia keeps a healthy and well-kept landscape.



The UGA Grounds Department Horticulture Crew plants drought and shade-tolerant annuals.

POLICIES AND PRACTICES

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.

CURRICULUM AND CONTINUING EDUCATION

There are many courses at UGA that teach about pollinator protection and conservation. UGA Bee Campus USA committee activity 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 192 students in these courses that actively engaged with the Bee Campus Committee.

Two continuing education courses engaged with the Bee Campus USA committee, in addition the UGA Honey Bee Program runs a robust Master BeeKeeper Program every year. There were 80 total participants at these courses.



Left: Entomology 4300/6300 students conduct maintenance at a campus "Connect to Protect" garden.

Right: Ecology 4900 Students participate in the UGA Pollinator Census in April of 2021.

CURRICULUM & CONTINUING EDUCATION

The University of Georgia offers many courses related to pollination to their students. 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 GA State Botanical Garden and the UGA Campus Pollinator Project. Graduate students in this class also created a map of blooming plans at UGA to aid in habitat planning and connectivity analysis.

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.

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.

SERVICE LEARNING



Left: A LAND 4350 Student selects a site to design a rain garden with pollinator-friendly plants.

*Right: Invasive species student group related to EDES 7350 and HIPR 6440 remove early spring annuals *Youngia japonica* and *Youngia thunbergiana**

The University of Georgia hosted 10 service-learning projects with a total 148 participants throughout 2021 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.

LAND 4350 is a hybrid lecture and studio class where students learn proper site design with an emphasis on soil and stormwater management. The course studies the sizing and placement of stormwater components and systems, and the design of soil erosion and sediment control practices. NPDES standards are identified and practices described in the Georgia Stormwater Manual and the Manual for Soil Erosion and Sediment Control in Georgia are applied.

HORT/ENTO 4770/6770 is a service learning-based course that discusses the impacts of urban systems on pollinator health and the active role citizens can play in protecting pollinators. Students receive training on plant and pollinator insect identification to better understand pollinator-plant interactions, the importance of reducing pesticide inputs and creating a coexisting pollinator and plant habitat in the urban matrix. 25-50% of overall instruction time was spent working with a public partner to assess a public property for pollinator conservation. In addition, students in the class have created Bloom maps for the UGA campus by month and season to guide conservation efforts and help the pollinator committee better understand the connectivity between these resources.

EDES 7350 is a hybrid lecture and lab course where students gain an understanding of landscape management techniques with an emphasis on the values of environmental conservation and historic preservation. Students studied habitat management problems and developed responses for two natural areas on campus and engaged in the removal of invasive plant species at both sites.

EDUCATIONAL & INTERPRETIVE SIGNAGE

In 2021, the University of Georgia had two permanent and two temporary bee signage installed on campus. This signage is described below.

[Campus Pollinator Story Map](#) developed in 2021 highlights primary pollinator areas on the UGA campus. The map is being continuously updated by committee members and UGA students as part of a service-learning component of a separate course. Many of the pollinator areas include signage and a future project for the committee includes updating those signs and creating an overall permanent and cohesive design.

The Bee Kind Sticker was created for the project in spring 2021 to engage the UGA Community in pollinator protection. The sticker is handed out at outreach events and the pollinator census and can be seen on laptops and water bottles throughout campus.

Connect to Protect is a program in collaboration with the State Botanical Garden 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. The University of Georgia recently installed a new Connect to Protect garden in collaboration with the Botanical Garden of Georgia in the Tifton Campus. A Connect to Protect sign was included at the completion of the project.

In spring 2021, The UGA Pollinator Project launched the Polinate UGA Instagram Page. This social media site is updated regularly with photos, short videos, and information relevant to pollinators on the UGA Campus.

Finally, temporary signage was placed by the Pollinator Plants of the Year that were installed on UGA's campus in spring 2021.



*Left: UGA Pollinator project design used for signage and stickers.
Right: A “Connect to Protect” sign is displayed outside at the UGA Tifton Campus.*

CONCLUSION



To keep up with pollination efforts at the University of Georgia, follow our social media and visit our website!

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

Instagram: [@pollinateuga](https://www.instagram.com/pollinateuga)

Facebook: [Pollinator Census Group](https://www.facebook.com/PollinatorCensusGroup)