

Bee Campus USA - Dickinson College

Report on 2021

Pollinator Habitat Creation & Enhancement

[Campus Pollinator Garden at Kaufman Hall](#), Dickinson College

Dickinson College planted the 2,800 sq foot campus pollinator garden in 2017 but restored the garden in 2021 with a new long-term partnership and Memorandum of Understanding with the Penn State Master Gardeners of Cumberland County. The county-level demonstration (1 of 9) garden is being maintained and enhanced by Master Gardeners in partnership with Dickinson College groundskeeping staff, faculty, staff, and volunteers with one workday being organized for each month. These hands-on learning opportunities are enhanced by workshops and experiential learning on site for both the college and Carlisle communities. Since the garden's creation, there have been four main goals that have been widely established for the garden: to support local pollinators, provide aesthetic benefits, provide educational tools for the campus and community, and to be consistently managed.

[Campus Herb Garden](#), Dickinson

A small campus garden space was replanted with herb species that support pollinators such as sage, coneflower, and lavender. The herbs and medicinal plants have 10 distinct signage with QR codes that educates people about the plant itself, how to grow it, how to use it, the benefits and properties, and recipes. The garden was planted and is maintained by the Dickinson College Farm Staff and student workers.

Green Street Project: Curb Extensions with Native Pollinator Plants

Dickinson College partnered with the Borough of Carlisle to create and install and plant two new "curb bump outs" to collect and filter water that floods on a portion of our campus (on city-owned road). Each bump-out houses a rain garden to capture and treat stormwater runoff from the surrounding area before the runoff enters the Borough Stormwater conveyance piping. Each curb bump-out also has a series of flow-through tanks located below the rain garden to retain the water and slowly release it to downstream conveyance pipes. The rain gardens consist of bio-engineered soil, then a mulch-compost mix and a variety of native plantings focused on pollinators to absorb stormwater and mitigate erosion from the top layer of soil. The project is located on public streets adjacent to Dickinson College Campus. As such, Dickinson College Grounds Staff have agreed to maintain the BMPs. The BMP will be inspected after every major rain event, cleaned out, and replanted as necessary.

Community Garden

The Carlisle [Community Garden](#) continues to enhance pollinator habitat and is housed on Dickinson's campus. The enclosed garden presently contains 37 raised beds; smaller 4'x10' beds, or larger 10'x10' beds for those who are more ambitious. Dickinson's community garden prohibits the use of all synthetic chemicals as fertilizer, herbicides, pesticides or fungicides. Community members can reserve a space and tend to their area for a small fee annually.



Home Garden Research Project with Carlisle Community

The Dickinson College Farm received a grant to work with Carlisle community members to create urban home gardens. The project included the installation of six raised beds on Dickinson's campus (next to campus pollinator garden) as a "Home Garden Research area". These raised beds are used by students and faculty to conduct research and collect data that can be used in advising community members about what to plant when in our area. The garden was planted and is maintained by the Dickinson College Farm Staff and student workers.

[Integrated Pest Management at the Dickinson College Farm](#)

The Dickinson College Farm, managing over 80 acres of land for vegetable production and net zero energy goals has their own Integrated Pest Management plan and practices. They use this method for handling pests, diseases, and insects on the farm with an end goal of reducing the overall amount of pesticides needed and/or applied.

Montgomery Demonstration Garden

Another new garden was established on Dickinson Campus in 2021, the [Montgomery Garden](#). The purpose of this garden is to showcase unique produce that grow well in this environment that can be utilized for cooking purposes. Signage at this garden provides a QR code that tells you more about the plants growing there and a QR code that showcases recipes. Several educational events have been held on campus that showcase the products grown the Montgomery Garden.

Native Pollinator Homes on Campus

Member of The Hive Beekeeping Cooperative at Dickinson maintain five native pollinator homes that were installed in 2018. Using upcycled wood and paints to make the frame and filled with biodegradable tubes, these homes allow a safe place for our native pollinators to reproduce. These homes are checked and cleared once each semester.

Penn State Extension Master Gardener Demonstration Gardens

Dickinson has partnered with the [Penn State Master Gardener](#) program for Cumberland County in supporting their efforts to create demonstration garden throughout the county, one on Dickinson's campus. In the past year, they have contributed to some great educational workshops and will use Dickinson as a partner for classroom space and technology. In addition, the Master Gardeners conducted trail clean ups, annual plant sales and workshops to increase public awareness.





Pollinator Habitat: Six raised beds for the "Home Garden Research Area" located outside of Dickinson College's Kaufman Hall. Created by the farm, it allows for students and faculty members to conduct research on garden best practices.

Pollinator Habitat: One of the five native pollinator homes built by Dickinson students that are now across campus and maintained by students.

Pollinator Habitat: Students and community volunteers working together to improve pollinator habitat in our county-level demonstration garden on October 2, 2021.



Education & Outreach

Hive Checks, Dickinson College Campus Hives Dickinson College's Center for Sustainability Education (CSE) Hive Intern and volunteers visit the two campus beehives regularly for hive health checks. A hive check is where students, faculty, and/or Dickinson staff, after going through an online training, are able to visit our beehives and learn experientially about maintenance and beekeeping. After going to check on the bees, there is a data sheet where we keep record of all changes and consistencies. Hive checks are advertised broadly to the entire Dickinson community. Sometimes guest experts are welcomed to the events for special advice.

4/19/21: Hive Check & New Hive Installation (2 participants)

6/10/21: Hive Check (2 participants) 6/16/21: Hive Check (2 participants)

7/14/21: Hive Check (2 participants) 9/15/21: Hive Check (6 participants)

9/24/21: Hive Check (6 participants)

10/27/21: Hive Check with Posse Scholarship Students in Group 16 (12 participants)

11/24/21: Hive Check (5 participants)

4/17/21: Pollinator Garden Virtual Discussion (3 participants)

Dickinson's Hive intern hosted a virtual discussion to educate the Dickinson community about how and why to plant a pollinator garden. We encouraged people to sign up to help maintain and expand accessibility to the pollinator gardens we keep at Dickinson.

4/27/21: "The Pollinators" Watch Party- Movie Night (8 participants)

"The Pollinators" is a documentary film that was screened on campus with students that highlights the importance and impact of pollinators in our world as well as the complexity of environmentally healthy solutions. Our Eco-Reps, a student organization of sustainability peer mentors and educators, hosted a watch party with students followed by a brief discussion on the topic.

4/28/21: Virtual Discussion with Greg Hildebrand of Honey Bee Friendly, Q & A with Local Beekeeping Entrepreneur (5 participants)

This one-hour online facilitated virtual discussion allowed Dickinson students a chance to meet with Greg Hildebrand of Honey Bee Friendly for a short presentation followed by Q & A. The session provided an opportunity to learn about



commercial beekeeping, large scale honey harvesting, honey flavor infusion process, and how it differs from the small-scale operation at Dickinson.

9/16/21: The Hive Volunteer Meet-up (10 participants)

The Hive Meet-Up allowed students who expressed interest in The Hive to be trained, informed, and involved in planning for the Open House, to brainstorm ideas for education and outreach activities for The Hive for the Fall 2021 semester.

10/1/21: Open House at the Dickinson Hives (75 participants)

Open to students, employees, and families, the Hive Open House allowed for people to meet the Hive volunteers, share their ideas, take part in honey tasting, check out our beekeeping gear and see the bees in action. This was a great way to get involved in Dickinson's beekeeping co-operative (The Hive) for those interested. The volunteers showcased a variety of things from an observational hive with the bees, the tools, and suits we use for beekeeping and even some fun educational games and honey tasting organized at interactive outdoor stations. The event was also used as a recruiting tool to get people to sign up for the working groups of The Hive (pollinators and native bees, beekeeping, value-added products and honey harvesting).

10/22/21: Campus Pollinator Garden Workday (48 participants)

Dickinson students, faculty and staff assisted in weeding, mulching and replanting the main campus pollinator garden in partnership with the Penn State Master Gardeners of Cumberland County. The event was advertised to relevant classes, The Hive mailing list and using campus posters.

10/28/21: Campus Sustainability Day Pollinator Outreach Table (35 participants)

Dickinson College hosted Campus Sustainability Day which was attended by over 400 Dickinsonians. Activities focused on campus-based, marketable, behavior-centered, actionable, fun, and justice and equity- focused actions. The goal was to effectively engage and inform students about our various sustainable programs on campus. The Hive hosted a table that highlighted how honey traceability and authenticity certification works. The event was also used as a recruiting tool to get people to sign up for the working groups of The Hive (pollinators and native bees, beekeeping, value-added products and honey harvesting).

11/17/21: Honey Harvesting Basics Workshop (12 participants)

A group of interested students learned the basics of harvesting honey from 10 frames of Dickinson beehives. We invited a community honey expert to lead the group in the bottling of about 42 jars of honey. The honey was used as volunteer incentives and speaker gifts.



12/1/21: Green Gifts: A Sustainable Gift-Making Workshop (200 participants)

Over 200 faculty, staff, and students joined together in a sustainable small gifts workshops to make their own beeswax candles, bee-themed greeting cards, native bee homes, jewelry, and other up-cycled projects. There was discussion on how to host more sustainable holiday celebrations while preparing gifts for friends and family. All were welcomed to this open house where participants will learn, practice, and act around the topic of sustainable gifts- with a specific focus on bees, native pollinators, and bee-products.



Education & Outreach: Hive Check with campus volunteers, September 15, 2021.



Education & Outreach: Dickinson open house for The Hive, beekeeping cooperative. Visitors observe bees in a transparent observation hive on October 1, 2021.



Education & Outreach: Using a hot knife to remove caps on honey during the honey harvesting workshop on November 17, 2021.



Courses & Continuing Education

9/21/21: ENST 345 Lab Pollinator Garden (20 participants)

For Credit Professor Maggie Douglas' Environmental Science 345 Agroecology lab went to the garden to tackle weeding with her class. Twenty students spent 2 hours improving an existing pollinator garden by weeding and planting new pollinator-friendly plants (butterfly weed). This work session also had educational value as it occurred as part of an upper-level lab course in which students learned principles of plant- pollinator interactions and weed ecology.

Online Beekeeping/Food Safety and Equipment Training (Online Module)

Continuing Education There is an online training module that was completed by approximately 100/year at Dickinson College. The training includes beekeeping modules, food safety/honey harvesting modules and ground management safety modules. In order to do hive checks a person must complete this training module. Within the module people learn about the importance of bees, educational information about bees and their anatomy, the tools associated with bee keeping, and the whole process of honey making and harvesting.

Senior Research Projects for Environmental Science Senior Seminar (For Credit)

Three environmental science majors worked on improving the Kaufman Pollinator Garden for their semester- long senior capstone projects. These projects were advised by Professor Margaret Douglas, a member of the Dickinson Pollinator Committee in partnership with the Center for Sustainability Education and the Penn State Extension Master Gardeners of Cumberland County, Pennsylvania.

Analisa Groble ('22) developed educational signage templates for the Kaufman Pollinator Garden. The signs include QR codes that educate the public about the plants like the biodiversity, the phenomenon of plant blindness, and why the pollinator garden is important for Dickinson College's Bee Campus USA affiliation. An online web resource was created to compliment the signage.

Cat Dickman ('22) created a recommendation report that includes management strategies for the Dickinson Pollinator Garden. Some management strategies including the pros and cons of chemical, manual, and biological treatment methods were outlined by species. Manual methods highlighted include tilling, hand weeding, and using shovels to dislodge root systems. Biological methods are used by planting specific desirable plants that combat the invasion of undesirable plants. These processes will be used to improve long-term management of the pollinator garden.

Olivia Trombley ('22) researched and presented on the ecological impacts of the Kaufman Pollinator Garden on Dickinson's campus. The project highlighted the importance of steppingstone habitats and their relationship to pollinators to combat the issue of ecosystem fragmentation. The project was shared with the Master Gardeners.





Curriculum: Professor Maggie Douglas' Environmental Science: 345 Agroecology class at the Kaufman Pollinator Garden learning from Penn State Master Gardener, Bob McCormack on September 21, 2021.

Service-Learning

9/21/21: ENST 345 Lab Pollinator Garden (20 participants)

Professor Maggie Douglas' Environmental Science 345 Agroecology lab went to the garden to tackle weeding with her class. Twenty students spent 2 hours improving an existing pollinator garden by weeding and planting new pollinator-friendly plants (butterfly weed). This work session also had educational value as it occurred as part of an upper-level lab course in which students learned principles of plant-pollinator interactions and weed ecology.



10/22/21: Pollinator Garden Workday (48 participants)

Dickinson volunteers participated in a day of service at the Kaufman Pollinator Garden. They came and helped weed, clean up debris, mulch, and contribute to bringing back the native plants in this unique campus space. This project was done on Dickinson's campus in partnership with the Penn State Master Gardeners' of Cumberland County. Community service hours were offered for this project.



Service Learning: Students weeding the Kaufman Pollinator Garden on October 22, 2021 during our service learning workday.



Service Learning: Students mulching beds at the Kaufman Pollinator Garden on October 22, 2021 during our service learning workday.



Service Learning: Students mulching beds at the Kaufman Pollinator Garden on October 22, 2021 during our service learning workday.



Educational Signage

Bee Campus USA Recognition Signage

We have a temporary signage at the Center for Sustainability Education office articulating the importance of pollinators and certificates that recognize Dickinson as an official member of Bee Campus USA. The signs are visible by students, faculty, staff, and prospective families. We also highlight this certification when we have information tables on campus and in the community.

Community Herb Garden Signage

The [Community Herb Garden](#), created and managed by student workers and farm interns, is located on Dickinson Ave in between Davidson- Wilson Hall and Kisner-Woodward Hall. Thanks to Hannah Grothusen ('22), there are 10 permanent signs with QR codes on the plaques to educate people on general knowledge about the plant, how to grow it yourself, benefits and properties of the plant, and recipes you can make with the herbs. Some of the herbs and medicinal plants include sage, chives, lavender, and yarrow.

Kaufman Pollinator Garden Signage Project

In 2021, four physical signs were designed for our [Kaufman Pollinator Garden](#) by Analisa Groble ('22). The four signs included the welcome sign, a native plants sign, a pollinators sign, and a sign on invasive weeds within the garden. All the signs include QR codes that sends the reader to digital pages that further educates the reader on the information the signs introduce. Some information that can be found on these pages are the biodiversity, the phenomenon of plant blindness, and why the pollinator garden is important for Dickinson College's Bee Campus USA affiliation. These signs reinforce the reader's knowledge of the local environment and the importance of why pollinator gardens are important for the ecosystem.

Montgomery Garden Signage

The [Montgomery Garden](#), managed by the Dickinson College Farm student workers, was installed in 2021 to allow students and the Dickinson community to learn about different types of plants and their uses. As part of the Burpee Fellowship position with the farm, Dee Findlay ('22) oversaw the garden's development and signage implementation. The main sign includes a QR code that has general information about the garden, what currently grows there, and more information about the specific plants. The second sign has a QR code that shows recipes people can use from the plants found in the garden.





Educational & Interpretive Signage: This is a picture of the Herb Garden sign that introduces the purpose for the garden. Around there are specific signs with QR codes that tell you about the plant, their benefits and properties, and how to use them.



Educational & Interpretive Signage: This is a picture of our sign for the Montgomery Garden. The main sign includes a QR code that has general information about the garden, what currently grows there, and more information about the specific plants.

Policies & Practices

Community Garden

The community garden, located on Dickinson's campus, prohibits the use of all synthetic chemicals as fertilizer, herbicides, pesticides or fungicides. It is asked that users respect this request as the garden is maintained as an organic garden in keeping with the college's goals of sustainability and environmental stewardship.

Kaufman Pollinator Garden

This campus space is managed with minimal and cautious use of herbicides to make sure not to do more harm than good. The only time in the garden's history where chemicals were used was at the first clearing of the garden area using Roundup because of years' worth of overgrown plants. Plants were introduced to the area a year later to make sure no chemicals would affect the plants or wildlife. Manual methods of removal include tilling, hand weeding, and using shovels to dislodge root systems. Biological methods are used by planting specific desirable plants that combat the invasion of undesirable plants.

[Pollinator Friendly Integrated Pest Management Policy](#) for Dickinson Campus

During the past 10 years, the Dickinson College's landscape has been changing to reflect important sustainability goals, which include a campus-wide dedication to hands-on sustainability education and stewardship. To reflect these goals, landscape design and management has focused not only on the health of plants, but on the areas that sustain them – from soil to water management, to insects and other wildlife, and to how the landscape is viewed. The Dickinson College landscape has become a living laboratory, enhancing what is taught in the classroom with a hands-on, real-world experience. This plan is updated annually.



Sustainable Buildings

Dickinson has committed to constructing new buildings and major building renovations to a minimum standard of [LEED](#) (Leadership in Energy and Environmental Design) silver, but has exceeded that in all new construction projects. Green building simply refers to a structure that is environmentally responsible and resource- efficient throughout a building's life-cycle. These buildings incorporate resource saving technologies such as energy wheels that efficiently exchange heat between indoor and outdoor air, high efficiency HVAC systems, sensors to optimize air flow, temperature and lighting, passive solar designs, natural lighting, high efficiency fluorescent and LED lighting, waterless urinals, and grey water systems. Furniture and fixtures are made with sustainable materials with low volatile organic compounds (VOC). Simply put, these buildings uses less energy, water and natural resources compared to a standard building of the same size. It is more efficient, and thus creates less waste.

Sustainable Grounds

Dickinson makes extensive use of native plants in its landscaping of the 200-acre main campus to limit water demand, provide habitat and food for wildlife, and avoid introduction of invasive species. Our methods include: Integrated pest management, biological controls, natural meadows, edible landscapes, rain-gardens and bioswales.

Integrated Pest Management Plan:

https://www.dickinson.edu/download/downloads/id/12306/grounds_and_landscape_management_policies_and_practices.pdf

Recommended Native Plant List:

<https://www.dcnr.pa.gov/Conservation/WildPlants/LandscapingwithNativePlants/Pages/default.aspx%20>

Recommended Native Plant Supplier List:

<https://www.izelplants.com/%20>





Policy & Practice: Dickinson College's LEED Platinum High Street Residence Hall opened its doors in 2019 and is a model for sustainable policy and practice on campus. The sustainable grounds are managed for pollinators.

Learn More

https://www.dickinson.edu/info/20052/sustainability/3325/the_hive
thehive@dickinson.edu

