

Bee Campus USA - James Madison University

Report on 2022



Pollinator Habitat Creation & Enhancement

In August 2022, 19 students from ISAT 424 course on Natural Resource Management helped to remove invasive species from the meadow at the East Campus Hillside. Additionally, 11,326 square feet of pollinator meadow was planted in the East Campus Hillside Solar Facility. This project is also in the process of applying for the Virginia Department of Conservation and Recreation (DCR) Pollinator Smart Certification program that recognizes the efforts of organization to implement pollinator friendly solar energy developments throughout the Commonwealth of Virginia.

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

2

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

81022

How many volunteers helped with those projects?

19

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

- Meadow
- Invasive/exotic plant species removal for habitat improvement



Photo of the recently planted pollinator meadow in the East Campus Hillside Solar Array Facility



Photo of students from the ISAT 424 performing invasive species removal on the East Campus Hillside

Education & Outreach

In 2022 the EJC Arboretum, who also has a member on our Bee Campus Advisory Committee hosted the following events:

- (2) Arboretum Explorer Camps, with 108 students ages 5-10. The students did pollinator scavenger hunts and made ice cream cone/cheerio bird feeders.
- "Nature All Around Us" College for Kids course with 11 students that did pollinator related art projects and activities such as scavenger hunts, making seed balls and making bird feeders.
- A "Harvest Fest" on October 22, 2022 with 487 visitors where there were several tables set up with pollinator related education including a table with the JMU Beekeeping Club and Geography Club.

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

4

How many people attended those events (in total)?

606

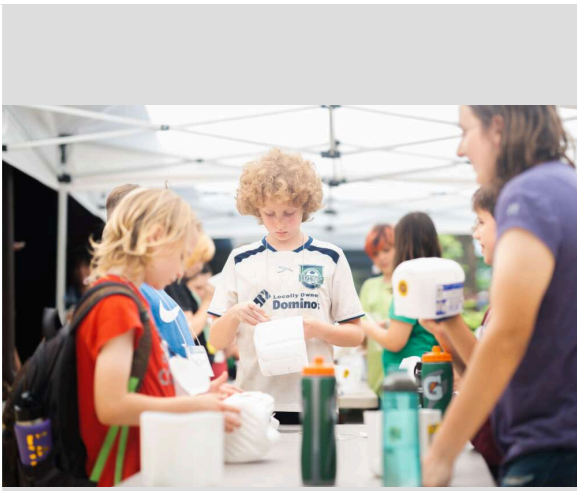


Photo of participants from the Science Explore Camp at the EJC Arboretum



Photo of participants from the Harvest Fest at the EJC Arboretum



Photo of the Geography Club table on pollinators from the Harvest Fest at the EJC Arboretum

Courses & Continuing Education

For Credit Courses: Spring 2022 courses GEOG 210 (Physical Geography) sections 1 and 2, total of 48 students (lecture was combined, two lab sections each had 24 students). • Lecture of pollination strategies and importance. Biogeography lab included importance of pollinators. Used microscopy to view pollen on early spring flowers. Geog 340 (Biogeography), total of 17 students. • This class included a week-long module (lecture, lab, and field work) covering pollination and pollinator importance. Instructed students about the diversity of pollinators on campus. Field work emphasized Virginia Bumblebees. We looked for bumblebees, flower flies, sweat bees, and mason bees on the hillside meadow and in the arboretum. The class saw a bumblebee queen. • Each student was assigned a research paper to study a native flowering plant species of the hillside or arboretum. Students included management suggestions on how to support symbiotic pollinators. Fall 2022 courses GEOG 210 (Physical Geography) sections 1 and 2, total of 44 students (lecture was combined, two lab sections each had 22 students) • A biogeography lab included importance of pollinators. Conducted a field survey of pollinators on the east campus hillside and riparian vegetation around the retention ponds. Emphasis was placed on butterflies and bumblebees. Students wanted to talk about every insect. Geog 440 (Advanced Biogeography). Total of 12 students. Geog 340 is a prerequisite of this class. Therefore, knowledge of pollination and pollinators can continue. • Students learned concepts of biodiversity by surveying and studying butterflies of Harrisonburg through the entire semester. The class of 12 was divided into 2 groups. Each group completed multiple surveys and a survey report. Included were requirements to photograph butterflies for confirmation of species. Students were encouraged to photograph other pollinators. Study sites on campus included the east campus hillside meadow, riparian vegetation around the retention ponds, the land bridge, and 2 sites in the E.J. Carrier arboretum. Student research included vegetation surveys at each site. Reports included a management section for increasing butterfly biodiversity on campus. • All students participated in the Parks for Pollinators: Harrisonburg, Pollinator Bioblitz during the month of September

(<https://www.naturalista.mx/projects/parks-for-pollinators-2022-harrisonburg-va>). Students surveyed campus habitats, took photographs of pollinators, and submitted the photos to iNaturalist. I also submitted photos while taking photos with the class. o See the images of sightings from the iNaturalist site (snippets sent via Google Drive). o See the National Recreation and Park Association recognition of Harrisonburg as one of 3 cities to win 1k toward their pollinator program. JMU students helped significantly. JMU campus habitats are important in this endeavor.

.<https://www.nrpa.org/blog/highlighting-the-2022-parks-for-pollinators-bioblitz-winners/> Geog 490 section 2 (Geography Senior Research and Field Practicum), 2 students. Senior research to build a database of butterfly sightings as reported in Geog 470's and Geog 440's semester-long butterfly biodiversity reports years 2015-2022. Seven campus sites are included. This project has continued into spring 2023 with 3 research students. I have worked with the students to submit an abstract for a presentation at the International Urban Wildlife Conference in June 2023. Continuing Education: In 2022 the EJC Arboretum, who also has a member on our Bee Campus Advisory Committee hosted the following events: • (2) Arboretum Explorer Camps, with 108 students ages 5-10. The students did pollinator scavenger hunts and made ice cream cone/cheerio bird feeders. • "Nature All Around Us" College for Kids course with 11 students that did pollinator related art projects and activities such as scavenger hunts, making seed balls and making bird feeders.

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

5

How many students attended those for-credit courses?

123

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

3

How many participants attended those courses?

119

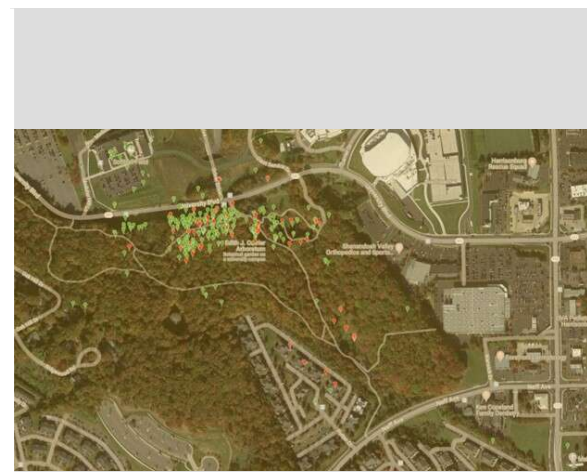


Photo of the observations made by students and reported to iNaturalist during the Pollinator Bionitz event during the month of September



Photo of a Two-spotted Bumblebee taken in the EIC Arboretum during the Bionitz event

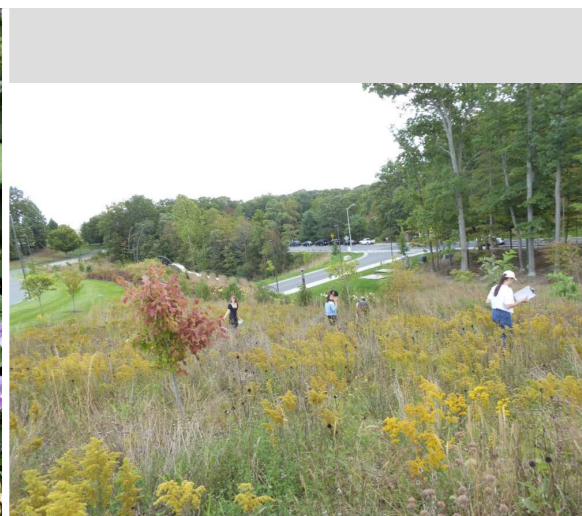


Photo of students from GEOG 440 conducting a survey of the Land Bridge Meadow in Fall 2022

Service-Learning

In August 2022, 19 students from ISAT 424 course on Natural Resource Management helped to remove invasive species from the meadow at the East Campus Hillside. On October 18, 2022, JMU partnered with the City to plant 165 trees along south edge of East Campus Creek. Three City staff, two JMU staff and 5 JMU students assisted in the planting. This tree planting including several species that attract pollinators . Another 165 trees are planned to be planted on the north side of East Campus Creek in March 2023.

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

2

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

24



Photos of students assisting with a tree planting event along the East Campus Creek



Photos of students assisting with a tree planting event along the East Campus Creek

Educational Signage

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

10



Example of signage installed at the six primary entrances to campus denoting JMU's participation in the Bee Campus USA Program. Photo by Abe Kaufman.



A sign designates our pollinator conservation and education area at the perennial meadow on the East Campus Hillside.

Policies & Practices

To make pest management practices more pollinator friendly, JMU has implemented an Integrated Pest Management (IPM) Plan that serves as a guideline for the following: (1) Outline the goals of pest management at JMU (2) Identify the responsible parties for pest management (3) Outline performance measurement, quality assurance and control strategies (4) Outline steps to identify pests at JMU (5) Outline the practices and strategies used to enforce pest control at JMU (6) Outline how pesticides are stored and applied on campus grounds (7) Outline preventive strategies for pest infestation. The JMU IPM plan applies to all 770 acres of the university campus grounds. This includes JMU designated habitat areas. The University aims to protect habitat areas on campus by using pesticide conservatively across campus and to minimize site management practices on habitat areas. The IPM promotes the use of a range of preventative and non-chemical approaches to control pest populations and stave off infestation. If an infestation with unacceptable impacts occurs, thereby warranting additional treatment, IPM favors the use of least-toxic pesticides. Chemicals and pesticides are used only in targeted locations and for targeted species. The targeted application of a toxic pesticide is allowed only after all other reasonable non-toxic options are exhausted. The type and quantity of all pesticides used on campus are tracked and the location of each use is also documented. To reduce pesticide use, mechanical practices are also employed. These include baiting, trapping, using pest monitors, and rodent stations. Another strategy to reduce pesticide use and protect habitat areas is through preventing pest infestation. Strategies include: cleaning trash regularly, clearing debris, and provide adequate drainage. In addition, new plantings are selected in habitat areas based on appropriate climatology. The IPM policies are executed by trained technicians who receive certification every two years with a four-hour training.

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

- **Implemented or maintained a written IPM plan**
- **Reduced the total area of city or campus-managed lands to which pesticides are applied**

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

Not currently

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?

We are planning to review our IPM program in the coming year and see if there are opportunities for updating

Integrated Pest Management Plan: [ipm.pdf](#)

https://www.jmu.edu/facmgt/sustainability/Bee_Campus/jmu-pollination.shtml

Recommended Native Plant List: [habitat.pdf](#)

<https://svswcd.org/wp-content/uploads/2016/08/Native-Plants.pdf>

Recommended Native Plant Supplier List: [habitat.pdf](#)

https://www.jmu.edu/facmgt/sustainability/Bee_Campus/jmu-pollination.shtml



Photo of the land bridge pollinator meadow in late summer

Learn More

<https://www.jmu.edu/beecampus>
kaufmaat@jmu.edu