



2024-2025 Youth Conservation Team Initiative

Initiative: State of Our Bees: How are Loveland's Native Bees Doing?

What? Survey bees in the greater Loveland area to identify which species are present and how well they are faring.

Where? Greater Loveland area, which includes Loveland and a buffer of approximately 5 miles around the city. Outdoor meetings to occur at Grailville, Loveland public lands, and properties of Love Our Land members and supporters (i.e., those who wish to contribute data to the initiative).

When? This initiative kicks off in October 2024. Surveying and identifying bees will take place throughout the 2024-2025 school year. A tentative schedule of the topics/activities we intend to discuss/complete is provided below. However, this is an ongoing, long-term initiative that will continue over the years with the goal of "noticing" any changes in Loveland's bee community.

Why? Biodiversity is declining across the globe, including here in Loveland, Ohio. Beyond efforts using iNaturalist, very little work has been done to understand which species comprise Loveland's current biodiversity. Scientists have identified and communicated clear links between the loss of biodiversity and the ecosystem services they offer humans. This includes access to clean water and air, fertile soil, food, and other important provisions (e.g., building materials), pollination services, and emotional and mental well-being, among many others. Moreover, losing species and their roles in ecosystems leads to an unraveling of the intricate and complex tapestry of life.

Bees have not escaped these declines, and, unfortunately, many species, such as the rusty patched bumble bee (*Bombus affinis*) have been hit hard. Greater awareness of the critical role native bees play in natural and agricultural settings and the troubling declines of some species has led to more interest in learning about and saving these vital members of global ecosystems. Before we can effectively help native bees, we must understand the bees in our community (e.g., which species are present? What resources do they need? What threatens them?). However, there is still much to be understood about the status of native bees at all scales, including locally. With the help of wildlife ecologist, Doug Gilbert, the YCT is embarking on a long-term initiative that focuses on

- 1) students learning about the bees that occur in Loveland, Ohio;
- 2) understanding historic occurrence of bees (i.e., which bees have been previously documented in Loveland);
- 3) surveying local bees to evaluate abundance and diversity of Loveland's bee community;
- 4) using data to determine conservation actions prudent to protecting and supporting a healthy native bee community;
- 5) compiling findings in a report to be shared online and sent to relevant local officials; and
- 6) sharing findings with local government and officials (e.g., Mayor & City Council; Tree & Environment Committee) during community meetings.



Similar efforts to evaluate the health of native bees are underway at various scales, most notably the recent announcement that The Xerces Society is launching their '[State of the Bees' initiative](#) to evaluate 3,600 species of North American native bees. Our efforts can contribute to their important work. What is probably most exciting is--to our knowledge--an initiative like this has yet to be implemented by a youth conservation group at a local scale. In a way our YCT members will be pioneers in this type of endeavor. Also, at the end of each year, they will have something tangible to point to—a report and presentation—and share with friends, family, and future prospective universities/colleges. Additionally, this will engage them in local government and give them an opportunity to shape the way the City of Loveland approaches actions that have potential implications regarding the health of local bees. Reporting efforts can be completed each year/every two years, or less frequently depending on the rate at which novel observations are made.

INITIATIVE OVERVIEW

Goal:

- Develop a report describing the historic and contemporary bee communities of Loveland, Ohio.
- The YCT will present findings to local officials, including the mayor and City Council members, City staff (e.g., City Manager), Tree & Environment Committee, Parks & Recreation Committee, and Beautification Committee, among others. Findings are shared with local stakeholders to increase awareness of native bees, their significance, statuses, and actions that can be taken or avoided to promote their wellbeing.
- Aid City in creating/maintaining native plantings to support native bees, particularly species of conservation concern (e.g., American bumble bee, *Bombus pensylvanicus*)

Objectives:

- YCT members complete lessons/activities that increase their knowledge regarding native bees
 - Identifying and understanding native bees - *series of lessons throughout 2024/2025*
 - Different bee species are active at different times of the year
 - Additionally, some lessons will involve assessing/identifying bees from collections (this will occur during fall/winter when no bees are active)
 - This includes taking field trips to local universities/museums to review bee collections to determine which species are known from the Greater Loveland Area (i.e., within ~5 miles of the City)
 - Genetic sequencing - January/February 2025
 - Workshop to sequence specimens
 - How to (safely) catch bees - September/October 2024 and April-May 2025
 - Active aerial netting



- Passive trapping (e.g., pan/bowl traps)
- Collecting data - October/November/December 2024
 - Making accurate and precise measurements
 - Recording data correctly
 - Creating a succinct and comprehensive datasheet
- Analyzing & Interpreting Data - November/December 2024 and January-March 2025
 - Data entry (Microsoft Excel/Google Spreadsheets)
 - Identifying appropriate analyses
 - Understanding results from various analyses
- Technical writing - December 2024 and January-April 2025
 - During this period, members will spend a portion of each meeting writing a succinct description of the results of the activity
 - Technical writing is an extremely important aspect of science, so we want to emphasize that here
- Presenting data - January-May 2025
 - By the beginning of the new year, students will have collected and interpreted data from multiple activities
 - Meetings will involve discussing how best to present these data to different audiences (e.g., city officials; citizens; other scientists)
- Using data to inform decisions and take action - February-May 2025 (into the summer)
 - This is an important part of science that can often be overlooked or lost between the scientists performing the research and policymakers and other stakeholders who the results are intended to help in making informed decisions
 - Members will have reviewed a great deal of data by February 2025 and will already be developing their own ideas on how their findings can help local native bees
 - We will explore various ways of encouraging citizens and policymakers to use the information they've collected, analyzed, and interpreted to promote conservation of native bees and other biodiversity
- Present findings regarding the status of Loveland's bee community to local stakeholders
 - Tree & Environment Committee meeting - 2025*
 - *This is dependent on how quickly we can work through existing datasets
 - This Committee is responsible for overseeing the conservation of local green spaces and some actions on private properties
 - This Committee has the potential to be the biggest advocate for the actions the YCT's findings recommend
 - Parks & Recreation Committee meeting - 2025*



- As the Committee that focuses on our parks—critical reservoirs of local biodiversity—they must be aware of the implications of the actions they take in these important green spaces
- Beautification Committee meeting - 2025*
 - This Committee develops and implements plans regarding the plants used to “beautify” much of the landscaping on City properties
 - The findings provided by the YCT and help inform the Committee’s decisions regarding the plant species they recommend be planted on the City’s properties
- City Council meeting - 2025*
 - **This is the big presentation for the year.**
 - We’ll use the other presentations as “warm-ups” for this one
 - The mayor, city manager, and city council members (among other officials) are present for this meeting
 - By the time of this presentation, the YCT will be prepared to present their findings, recommend conservation actions, and respond to questions from the audience
- Work with the City and/or other local groups to identify, design, and install a native planting to support local native bees and other biodiversity
 - This will take place following presentations with each City committee
 - With the help of City committees, identify areas where native plantings are warranted
 - This can often overlap with sites where maintenance crews aren’t able to easily mow/maintain (e.g., steep slopes; wet areas; narrow strips along roads/sidewalks; tree lawns)
 - Work with Public Works to install plantings
 - Tentatively, these plantings will occur in late spring (current school year) or fall (next school year)
 - In the event it is the latter, YCT will work to develop step-by-step directions for the next school year to ensure new members can effectively implement the plan(s)

*These dates are tentative and subject to change.

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