

The Xerces Society



Protecting the life that sustains us

Since 1971, the Xerces Society has worked to protect wildlife through the conservation of invertebrates and their habitat.

Photo: Endangered Fender's blue butterfly (Icaricia icarioides fenderi) by Dana Ross





Bringing communities together to sustain pollinators, in particular the more than 3,600 species of native bees in this country, by increasing the abundance of native plants, providing nest sites, and reducing the use of pesticides.





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Beekeeping ≠ Bee Conservation















Bee Diversity

Number of species

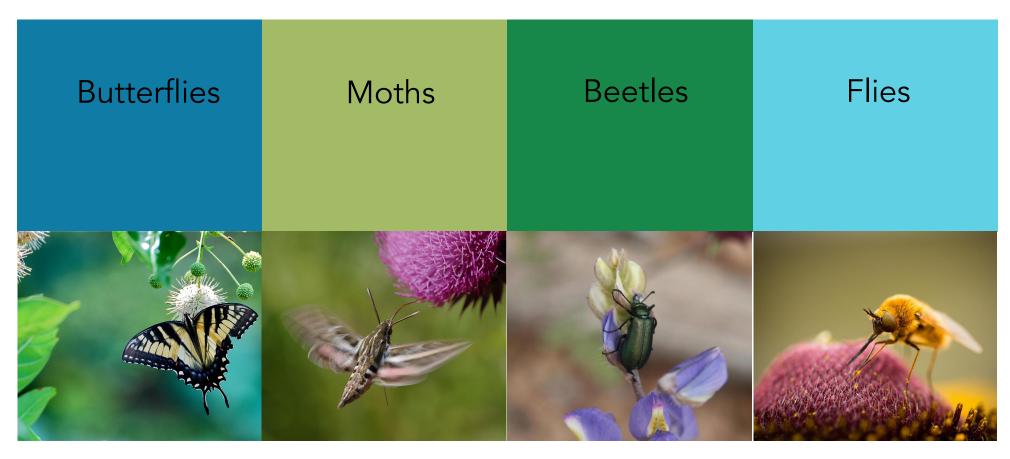
USA & Canada 3,600

Oregon 600–800?

Portland 80–100? In a single garden 20-30



Other Pollinators



Photos: Dennis Burnette, Stephanie McKnight, Whitney Cranshaw, Scott Horvath



Why Care About Pollinators?







Ecological Role

Pollinators are at the center of complex food webs.



Photos: Wildreturn, Flickr; Colleen Prieto, Flickr; U.S. Forest Service; kansasphoto, Flickr.



The Science is Clear: Pollinators are in Peril

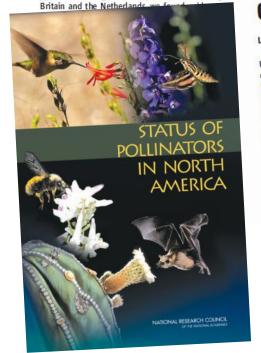
Parallel Declines in Pollinators and Insect-Pollinated Plants in Britain and the Netherlands

However, the evidence for such declines re-

To adequately demonstrate a decline in pollinator services, one would need to document (i) overall declines in

J. C. Biesmeijer, 1* S. P. M. Roberts, 2 M. Reemer A. P. Schaffers, S. G. Potts, R. Kleukers, C. D

Despite widespread concern about declines in poll patterns of change in most pollinator assemblages



Plant-Pollinator Interactions over 120 Years: Loss of Species, Co-Occurrence, and Function

Laura A. Burkle, 1,2* John C. Martin, 3 Tiffany M. Knight¹

disrupted plant-pollinator interactions in a temperate forest understory community in Illing USA. We found degradation of interaction network structure and function and extirpation

50% of bee species resulting in tempor co-occurrences betw services have decli disturbance; hower

Using historic data sets, we quantified the degree to which global change over 120 years

tanges can be attributed to shifts in forb and bee phenolog extinctions, and loss of spatial

Long-Term Trends in Eastern North American Monarch Butterflies: A Collection of Studies Focusing on Spring, Summer, and Fall Dynamics

ANDREW K. DAVIS^{1,2} AND LEE A. DYER³

journal homepage: www.elsevier.com/locate/jip

A historical review of managed honey bee populations in Europe and the United States and the factors that may affect them Dennis vanEngelsdorp ^{a.*}, Marina Doris Meixner ^b

* Department of Entomology. The Pennsylvania State University, 501 ASI Bldg. University Park, PA 16802, USA

Patterns of widespread decline in North American bumble bees

Sydney A. Cameron^{a,1}, Jeffrey D. Lozier^a, James P. Strange^b, Jonathan B. Koch^{b,c}, Nils Cordes^{a,2}, Leellen F. Solter^d,

^aDepartment of Entomology and Institute for Genomic Biology, University of Illinois, Urbana, IL 61801; ^bUnited States Department of Agriculture Agricultural Research Service Pollinating Insects Research Unit, Utah State University, Logan, UT 84322; Department of Biology, Utah State University, Logan, UT 84321; and ^dIllinois Natural History Survey, Institute of Natural Resource Sustainability, University of Illinois, Champaign, IL 61820

The monarch butterfly.

dae, Danainae), is on

appreciated insects in 1

Edited* by Gene E. Robinson, University of Illinois, Urbana, IL, and approved November 24, 2010 (received for review October 3, 2010)

Bumble bees (Bombus) are vitally important pollinators of wild plants and agricultural crops worldwide. Fragmentary observations, however, have suggested population declines in several North American species. Despite rising concern over these observations in the United States, highlighted in a recent National Academy of

study in the United States identified lower genetic diversity and elevated genetic differentiation (F_{ST}) among Illinois populations of the putatively declining B. pensylvanicus relative to those of a codistributed stable species (19). Similar patterns have been observed in comparative studies of some European species (8), but



Pollinator Declines

Globally: Up to 40% of pollinator species may be at risk of extinction in the coming years.

North America: More than a quarter of bumble bees species are in decline



Photo: Rusty-patched bumble bee (Bombus affinis), Rich Hatfield







Habitat loss and degradation







Habitat loss and degradation

Pesticide use



Habitat loss and degradation



Pesticide use



Diseases and pathogens





Habitat loss and degradation



Pesticide use



Diseases and pathogens



Climate change







Increase the availability of native flowering species







Increase the availability of native flowering species

Provide appropriate nesting substrates



Increase the availability of native flowering species



Provide appropriate nesting substrates



Find alternatives to harmful pesticides





Increase the availability of native flowering species



Provide appropriate nesting substrates

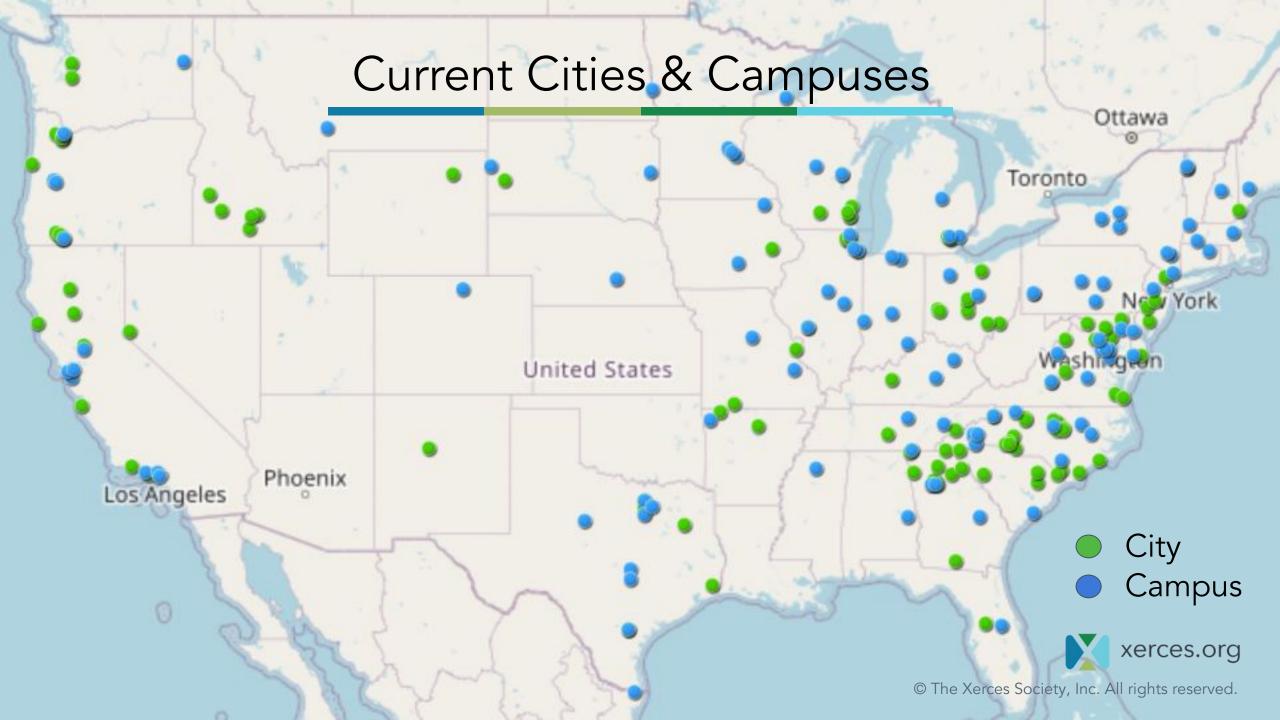


Find alternatives to harmful pesticides



Educate and spread awareness





RESOLUTION NO.

A RESOLUTION of [your city council or county commission of your city and state] designating [your city or county] as a BEE CITY USA® affiliate.

WHEREAS, the mission of BEE CITY USA is to galvanize communities to sustain pollinators, responsible for the reproduction of almost 90% of the world's flowering plant species, by providing them with healthy habitat, rich in a variety of native plants and free to nearly free of pesticides; and

WHEREAS, thanks to the more than 3,600 species of native bees in the United States, along with introduced honey bees, we have very diverse dietary choices rich in fruits, nuts, and vegetables; and

WHEREAS, bees and other pollinators have experienced population declines due to a combination of habitat loss, poor nutrition, pesticides (including insecticides, fungicides, and herbicides), parasites, diseases, and climate change; and

WHEREAS, pollinator-friendly communities can benefit local and regional economies through healthier ecosystems, increased vegetable and fruit crop yields, and increased demand for pollinatorfriendly plant materials from local growers; and

WHEREAS, ideal pollinator-friendly habitat (A) is comprised of mostly native wildflowers, grasses, vines, strubs, and trees blooming in succession throughout the growing season to provide diverse and abundant nectar and pollen, since many wild pollinators prefer or depend on the native plants with which they co-adapted; (B) is free to nearly free of pesticides, as many pesticides can harm pollinators and/or their habitat; (C) comprises undisturbed spaces (leaf and brush piles, unmown fields or field margins, fallen trees and other dead wood) for nesting and overwintering; and (D) provides connectivity between habitat areas to support pollinator movement and resilience; and

WHEREAS, Integrated Pest Management (IPM) is a long-term approach to maintaining healthy landscapes and facilities that minimizes risks to people and the environment by: identifying and removing the causes of pest problems rather than only attacking the symptoms (the pests); employing pests' natural enemies along with cultural, mechanical, and physical controls when prevention is not enough; and using pesticides only when no other method is feasible or effective; and

WHEREAS, supporting pollinators fosters broad-based community engagement in environmental awareness and sustainability; and

WHEREAS, [your city or county] should be certified a BEE CITY USA community because [this is optional section for you to highlight anything your community has already done or plans to do to conserve pollinators]; and

NOW, THEREFORE, in order to enhance understanding among local government staff and the public about the vital role that pollinators play and what each of us can do to sustain them, [your city or county] chooses to support and encourage healthy pollinator habitat creation and enhancement, resolving as follows:

- The [your city or county] [appropriate department name] Department is hereby designated as the BEE CITY USA sponsor.
- The [appropriate position title] of [department above] is designated as the BEE CITY USA Liaison.
- Facilitation of [your city or county]'s BEE CITY USA program is assigned to the [committee name] Committee.
- 4. The [committee name] Committee is authorized to and shall:
 - a. Celebration: Host at least one educational event or pollinator habitat planting or restoration each year to showcase (your city or county name)'s commitment to raising awareness of pollinator conservation and expanding pollinator health and habitat.

Bee City USA (An Initiative of the Xerces Society for Invertebrate Conservation) Resolution Template (4/19) Page 1 of 2

- b. Publicity & Information: Install and maintain at least one authorized BEE CITY USA street sign in a prominent location, and create and maintain a webpage on the [your city or county name] website which includes, at minimum a copy of this resolution and links to the national BEE CITY USA website; contact information for your BEE CITY USA Liaison and Committee; reports of the pollinator-friendly activities the community has accomplished the previous year(s); and your recommended native plant species list and integrated pest management plan (explained below).
- c. Habitat: Develop and implement a program to create or expand pollinator-friendly habitat on public and private land, which includes, but is not limited to, I dentifying and inventorying [City or County]'s real property that can be enhanced with pollinator-friendly plantings; creating a recommended locally native plant list to include wildflowers, grasses, vines, shrubs, and trees and a list of local suppliers for those species; and, tracking (by square footage and/or acreage) annual area of pollinator habitat created or enhanced.
- Pollinator-Friendly Pest Management: Create and adopt an integrated pest management (IPM) plan designed to prevent pest problems, reduce pesticide use, and expand the use of non-chemical pest management methods.
- c. Policy & Plans: Establish, through the [City or County], a policy in the [Plan name] Plan of [City's ar County's] Comprehensive Plan to acknowledge and commit to the BEE CITY USA designation and review the [Plan name] Plan and other relevant documents to consider improvements to pest management policies and practices as they relate to pollinator conservation, identify appropriate locations for pollinator-friendly plantings, and consider other appropriate measures.
- Fenewal: After completing the first calendar year as a BEE CITY USA affiliate, each February, apply for renewal of [your city or county name]'s BEE CITY USA designation following the format provided by BEE CITY USA, including a report of the previous year's BEE CITY USA activities, and paying the renewal fee based on [your city or county name]'s population.

ADOPTED by the [City Council or County Commission] of the [your city or county name, state], this _____ day of ______, 20____.



Establish a Bee City USA committee to advocate for pollinators.





Bee City Committee



Create and enhance pollinator habitat on public and private land.







Integrated Pest Management (IPM) Plan



Towns and cities are home to numerous pollinators, including the gulf fritillary (left) and the endangered rusty patched bumble bee (middle). By creating healthy, diverse, pesticide-free habitat in your yard, not only are you enriching your own life, but you are helping prevent insect declines—and potentially, extinction, (Photos: (I) Denrics Krusse; (m) Xerces Society / Sarina Jespen; (r) Matthew Shepherd).

Making Your Yard a Safe Place for Pollinators

Making your home pollinator-friendly is easy and rewarding. Most of North America's native bee species only forage over a distance of a few hundred yards, so with a little planning, your yard can provide a safe space for bees and other pollinators to thrive. All you need to give them are flowering plants throughout the growing season, undisturbed places to nest, and protection from pesticides. This guide will help you with the last item, managing yard pests in a pollinator-friendly way.

Urban Settings Provide Key Habitat for At-Risk Pollinators

Around the world, bee and butterfly populations are experiencing declines. Twenty-eight percent of North American bumble bees and 19 percent of butterfly species in the United States are at risk of extinction. Residential areas provide important food and shelter for many of our threatened and endangered pollinators. By establishing pollinator habitat in your yard, you will be an active part of restoring species on the brink.

Provide for All the Needs of Pollinators

To ensure you can support the entire life cycle of bees and butterflies, consider the following ideas for your yard:

- Select a range of native and regionally adapted plants with bloom times that overlap throughout the growing season to provide food for pollinators. Be sure to include plants that bloom early and late in the season.
- Include butterfly larval host species for caterpillars to feed on. Consult Xerces' regional plant lists (available from xerces.org) to find recommendations for your area. For more detailed information, see Gardening for Butterflies (Timber Press, 2016).
- 3. Limit planting cultivated plant varieties, especially those bred for showy blooms. While often selected for









Integrated Pest Management Policy

Ashland Parks and Recreation Commission (APRC)

Adopted by APRC on: May 24, 2010 Revised on: February 28, 2011

February 28, 2011 June 27, 2011 February 27, 2012 April 22, 2013 April 28, 2014 May 22, 2017

Integrated Pest Management Policy
Ashland Parks & Recreation Commission (APRC)
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Recommended Native Plant List



The Northeast Region encompasses southern Quebec, New Brunswick, Nova Scotts, the New England states, and eastern New York. High regional variation in topography, soils, and climate translates to tremendous ecological diversity, ranging from the coastal dunes and tidal ecosystems along the Atlantic shoreline, to the spectacularly species-rich deciduous forests and riparian communities of the Appalachian Highlands.

Corresponding to this striking diversity of plant communities is an equally remarkable range of pollimators, including twenty bumble be especies and thousands of other species of native bees, butterflies, hover flies, flower-visiting beetles, wasps, and moths. As a group, these and other pollinators maintain healthy, productive plant communities, provide food that sustains wildlife, and play an essential role in crop production. In the Northeast, several important pollinators, including the yellow-banded bumble bee (Bombus terricola) and endangered rusty-patched bumble bee (Bombus ferricola) and endangered rusty-patched bumble bee (Bombus terricola) and endangered rusty-patched bumble some flimis), are threatened by habitat loss, including dramatic declines in native plant communities needed to support these animals.

Providing wildflower-rich habitat is the most significant action you can take to support pollinators. Adult bees, butterflies, and other pollinators require nectar as their primary food source. Fernale bees also collect poller as food for their offspring. Native plants, which are adapted to local soils and climates, are usually the best sources of nectar and pollen for native pollinators. In addition, native plants often require less water than non-natives, do not need fertilizers, and are less likely to become weedy.

This guide features regional native plants that are highly attractive to pollinators and are well-suited for small-scale plantings in gardens, on business and school campuses, in urban greenspaces, and in farm field borders. In addition to supporting native bees and honey bees, many of these plants attract nectar-seeking butterflies, moths, and hummingbirds, and some are host plants for butterfly and moth caterpillars. With few exceptions, these species occur broadly across the region and can be purchased as seed or transplants. Please consult regional Floras, the Biota of North America's North American Plant Atlas (http://bonap.net/napa). or the USDA's PLANTS database (http://plants.usda.gov) for details on species's distributions in your area.

Our Bring Back the Pollinators campaign is based on four principles:

1. Grow a variety of pollinator-friendly flowers;

2. Protect and provide bee nest sites and caterpillar host plants;

3. Avoid using pesticides, especially insecticides and

4. Spread the wood!

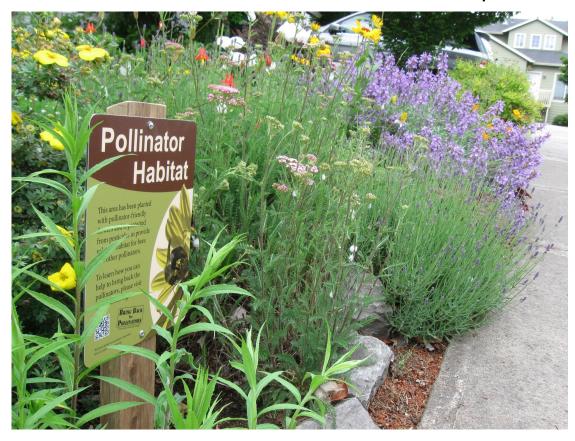
You can participate by taking the
Pollinator Protection Piedge and
registering your habitat on our
nationwide map at:







Make city or county policies and plans pollinator-conscious.





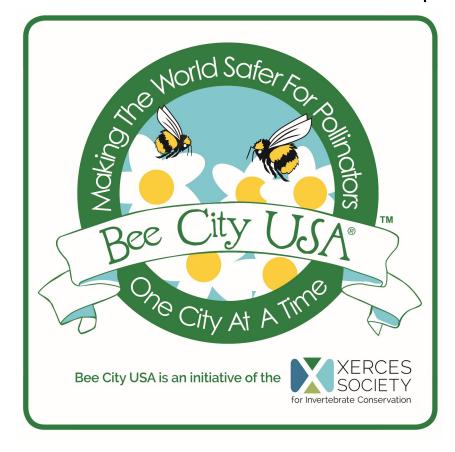
Host pollinator awareness events.







Publicly acknowledge Bee City USA affiliation with signs and an online presence.





Annually apply for renewal and report on last year's activities.



Decatur, Georgia

EDUCATION & OUTREACH



Kids hard at work assembling simple Mason Bee houses during our annual workshop in February.



Decatur's Earth Day observance was the perfect time to get city residents excited about bees.



We distributed 500 fivers about the environmental hazards posed by backyard



National Pollinator Week kicked-off in Decatur with our first-eve mini Pollinator Week festival! More than 200 people attended and learned about native plants, trees, pollinators and more courtesy of



The annual Mead Road Mardi Gras Parade gave us an opportunity to distribute 500 flyers about bee-friendly yard practices to parade watchers Our Krewe's theme this year was "Stavin' Alive

City & Community Events

- "Backvard Builders: Make a Home for Mason Bees!" was the title of our annual children's Mason Bee Workshop presented in conjunction with Wylde Center in February. Thirty-two participants were introduced to the Mason Bee, one of metro Atlanta's most important early-Spring pollinators. Covered were topics like how to spot them, where they live, their unique life-cycle and how they are similar to and different from other bees. Participants then assembled and decorated a simple Mason Bee house to hang in their yards at home
- . In February, we marched for a second year the Mead Road Mardi Gras parade, using it as a platform for distributing 500 pieces of literature about bee-friendly vard practices directly to residents. Our theme this year was "Stavin' Alive!"
- . In February, we again participated in the city's annual celebration of Georgia Arbor Day. We showed off a colony of honey bees in an observation hive to the great interest of many passers-by and distributed literature about native bees and bee-friendly yard practices.
- . The City of Decatur Employee Wellness Breakfast in March provided an opportunity for us to share local honey over a healthy morning meal and discuss how honey bees produce this sweet superfood.
- . We again brought an observation hive of bees and answered bee-related questions during Decatur's Earth Day Celebration at Decatur Rec Center in April.
- . Decatur's first ever National Pollinator Week Mini Festival was held on June 15th, kicking off the week-long annual celebration. Thirteen vendors representing a variety of environmental interests participated. More than 200 people attended the event learning about everything from native plants, to native bees, honey bees, honey production, birds, trees, seeds, crafts, facepainting and
- . Other National Pollinator Week events included screenings of the films "Hometown Habitat: Stories of Bringing Nature Home" and DisneyNature's "Wings of Life," as well as the kids' talk "Marvel-ous Bees: Superheroes of the Natural World."
- . In August, citizen scientists from across our state helped document pollinators during the Great Georgia Pollinator Census! As part of the event, organized by UGA's Cooperative Extension Office, Beecatur hosted counting locations at Wylde Center and the Willow Lane Pollinator Habitat. Statewide, 4,567 counts were submitted from 133 different Georgia counties, tallying some 133,963 insect visits!
- . In October, we marched in Decatur's Haints & Saints Halloween parade, using it as a platform for distributing literature about bee-friendly yard practices. Our theme was "Don't Turn Your Backyard Into A Graveyard."
- . The 3rd Annual "Walking Past The Dead" Tour of Trees in Decatur Cemetery in November gave us a final opportunity to table with literature and Pollinator Pledge signs and information.

Other programming presented to community groups in and around Decatur during 2019 included:

- "Bee-Yond Honey Bees: Meet Your Native Bees." at Avon Garden Club (Avondale, GA)
- "3 Spring Bees" at Little Forest Pre-School (Decatur, GA)
- "Pollinator Power!" at The Museum School, 6th Grade Environmental Education class (Avondale)
- "Pollinator Power!" at Oak Grove Elementary, pre-K classes (DeKalb County)
 "Bee-Yond Honey Bees: Meet Your Native Bees" at Delta Kappa Gamma Society International, Dekalb County Women Educators' Honor Society

Educational School Presentations

At the heart of Beecatur's ongoing educational initiatives is programming related to bees and other pollinators presented to school-aged children. In March, we produced and presented a program called "What If There Were No Pollinators?" for second graders at Oakhurst Elementary. During Renfroe Middle School's 7th Grade Spring Science Day in April, our program "Collaboration Means Working Together" looked at how honey bees maximize their abilities through teamwork. In May, we visited Westchester Elementary twice, talking about "Pollinator Power!" with the Kindergarten and 1st grade

classes there. "The Importance of Bees to our Ecosystem" was the topic discussed with 4th graders at F.Ave and, later in the year, 2nd graders at Glennwood. In October, we spoke with F.Ave's Lego Robotics Team to help them develop a team project related to bees and focused on creating more sustainable cities in the future. The superhero-themed talk "Marvel-ous Bees: Superheroes of the Natural World* was presented to 7th graders during Renfroe Middle School's Fall Science Day in November. More than 600 students participated in these presentations.

POLLINATOR HEALTH & HABITAT



In 2019, we broke ground on a new pollinator garden on city property outside the entrance to the city's Proudly displaying our new Xerces Society





This black leafcutter bee seen at our Willow Lane



through our new Gifts That Grow giving program.



A new bed of native plants going in at Willow Lane

The city's first set aside pollinator habitat (115 Willow Lane) has continued to flourish. Multiple work days were held at the site during 2019, including installation of new native plants purchased with funds from our Gifts That Grow donation program. A monthly "Wine & Weeding" program was begun to



Pay initial application and annual renewal fees.

Fee Based on Population:

- <9,999 (\$100)
- 10,000 24,999 (\$200)
- 25,000 49,999 (\$300)
- 50,000 99,999 (\$400)
- >100,000 (\$500)



Benefits of Affiliation

- Ensure survival of vital animal species including bees and other pollinators.
- Build community locally and nationally.
- Improve local food production and raise community awareness of how our food grows.
- Support small local businesses.
- Address pest problems with fewer pesticides using integrated pest management.
- Heighten awareness of biological diversity.



Apply

www.beecityusa.org/application-city

Application Process

- Form Committee
- Complete online application
- City council adopts resolution (following template), receive approval of highest elected official
- Pay application fee (scaled to population)

Learn More

www.beecityusa.org



Thank You

Questions?



