Bring Back the Pollinators

Annual Report 2019

XERCES SOCIETY
for Invertebrate Conservation

Protecting the Life that Sustains Us

The Xerces Society for Invertebrate Conservation is a nonprofit organization that protects the natural world by conserving invertebrates and their habitat. Established in 1971, the Society is at the forefront of invertebrate protection, harnessing the knowledge of scientists and the enthusiasm of everyday people to implement conservation programs worldwide. The Society uses advocacy, education, and applied research to promote invertebrate conservation.

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The Xerces Society is an equal opportunity employer and provider.

Front Cover Photograph: Xerces Society / Eric Lee-Mäder

Flower-rich habitat created on a Bee Better Certified farm in California. Transforming landscapes so that pollinators have a safe place to live is at the heart of the Xerces Society's successful Bring Back the Pollinators campaign.

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September 2019

The Xerces Society for Invertebrate Conservation

www.xerces.org

Bring Back the Pollinators Campaign Overview

Thanks to you, we are building a future where all landscapes—towns, cities, farms, and natural areas—have thriving, diverse, and abundant native pollinator populations protected from harmful pesticides. Your support has made the following accomplishments possible over the last year:

- Over 200,000 acres of pollinator habitat on farms have been restored with our support.
- More than 23,000 people learned how to protect pollinators and adopt natural pest control methods that conserve beneficial insects.
- Seven more farms have become Bee Better Certified and are now supporting bees, butterflies, and other beneficial insects with high-quality habitat protected from pesticides.
- Nearly 300 farmers, ranchers, and foresters received direct assistance to create and protect habitat for pollinators and other beneficial insects.
- We initiated a rapid response to the western monarch's alarming decline and are engaging agencies, farmers, and volunteers to take action so monarchs will continue to overwinter in California for decades to come.
- Five more communities passed local policies to protect pollinators from pesticides, culminating in a total of 28 communities in 12 states that have taken actions for pollinators over the last five years.
- Over 400 volunteers in four states collected data on bumble bees and searched for rare species as part of our newest community science project.
- We completed a series of 61 Conservation Biocontrol workshops in 49 states to help farmers integrate beneficial insects back into farms for natural pest control.
- Twenty-two new Bee Cities and 49 new Bee Campuses have made formal commitments to creating sustainable habitats for pollinators and adopting pollinator-friendly pest management practices.
- We worked with several of the world's largest food companies to provide a far-reaching advisory role on how to best protect pollinators and other wildlife on the farms in their supply chains, impacting tens of thousands of acres, and helping to re-shape the food system in ways that are better for bees.

"If we hope to stem the losses of insect diversity and the services they provide, society must take steps at all levels to protect, restore, and enhance habitat for insects across landscapes—from wildlands to farmland to urban cores. But there is hope because everyone can make a difference. Farmers can add additional habitat and curb pesticide use, governments can make climate adaptation a goal, and even a backyard or apartment balcony can be an important stopover for the smallest of animals upon which we all depend." –Scott Hoffman Black, Xerces Society Executive Director

Introduction

Pollinators and other insects are experiencing a global crisis. A growing body of research over the last decade shows declines in both the number of insect species and the overall amount of insects. News stories have carried warnings about an impending "insect apocalypse." A recent paper published in *Conservation and Practice* titled "Declines in insect abundance and diversity: We know enough to act" found that there is strong evidence from many studies and assessments that insects are declining and imperiled across multiple continents. According to the study, 40% of invertebrate species that have been assessed by the International Union for Conservation of Nature are considered to be threatened with extinction.

The implications of these declines are profound. Insects are an essential part of all ecosystems, contributing to the survival of wildlife, the pollination of crops, and the health of our environment. Ninety-four percent of the world's animal species are insects and other invertebrates. Their loss could trigger cascading effects on foodwebs and ecosystem functions.

To protect the world's biodiversity, we must preserve the insects and the plants that help all other life on Earth function. The Xerces Society is dedicated to protecting the life that sustains us, recognizing invertebrates' fundamental role in providing ecosystem services upon which we all depend. As a leading voice in pollinator conservation, we promote practical solutions that address the root causes of pollinator declines: habitat loss, pesticide use, unsustainable farming practices, disease, and climate change. By restoring and protecting networks of interconnected habitats across landscapes—from farms and natural areas to urban yards and parks—we can help these important animals thrive.

Our conservation work is guided by the following core elements needed to sustain pollinator populations:

1. Abundant pollinator habitat in all landscapes
2. Conservation programs and policies for our most at-risk species
3. Reduced use of pesticides
4. Conservation science to guide solutions
5. Pollinator champions from all walks of life

Abundant Pollinator Habitat in All Landscapes

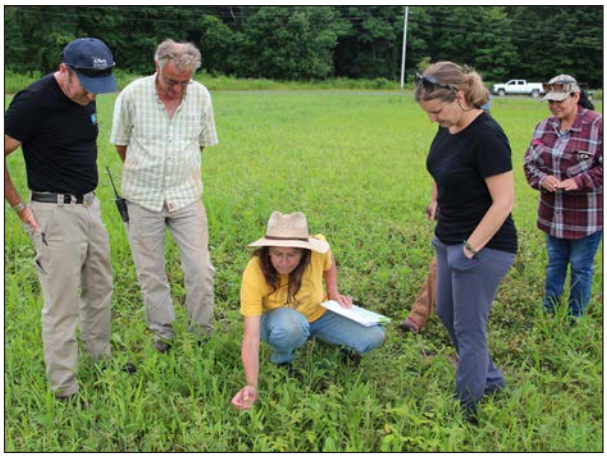
Pollinator conservation begins with habitat. Bees and butterflies need plants that bloom throughout the growing season, in areas that are protected from pesticides and offer overwintering and nest sites. The Xerces Society partners with farmers to add habitat back into agricultural areas, land managers to protect and maintain habitat in natural areas and along roadsides, and communities to create habitat in backyards, schools, and public spaces.

Over the last decade, our work has culminated in:

- The restoration of over 900,000 acres of pollinator habitat on farms;
- Habitat patches in gardens, yards, and greenspaces totaling tens of thousands of acres; and
- Over 1.5 million acres of restored or protected habitat for at-risk species like the monarch butterfly and the rusty patched bumble bee.

Farms

Restoring pollinator habitat on farms can offset and reverse the loss of habitat and ecological function that has resulted from a century of industrial agriculture. By integrating habitat features like wildflower meadows, hedgerows, cover crops, field borders, and beetle banks into their fields, farmers are supporting pollinators and beneficial insects that provide natural pest control, as well as birds and other wildlife.



On the left, Xerces staff work with farmers to assess the early establishment of a wildflower meadow planting at Hudson Valley Farm Hub, New York, to ensure a diversity of native plants are successfully established to provide season-long, continuous bloom. The success of the planting after a year is shown on the right. (Photos: Courtesy of Hawthorne Valley Farmscape Ecology Program.)

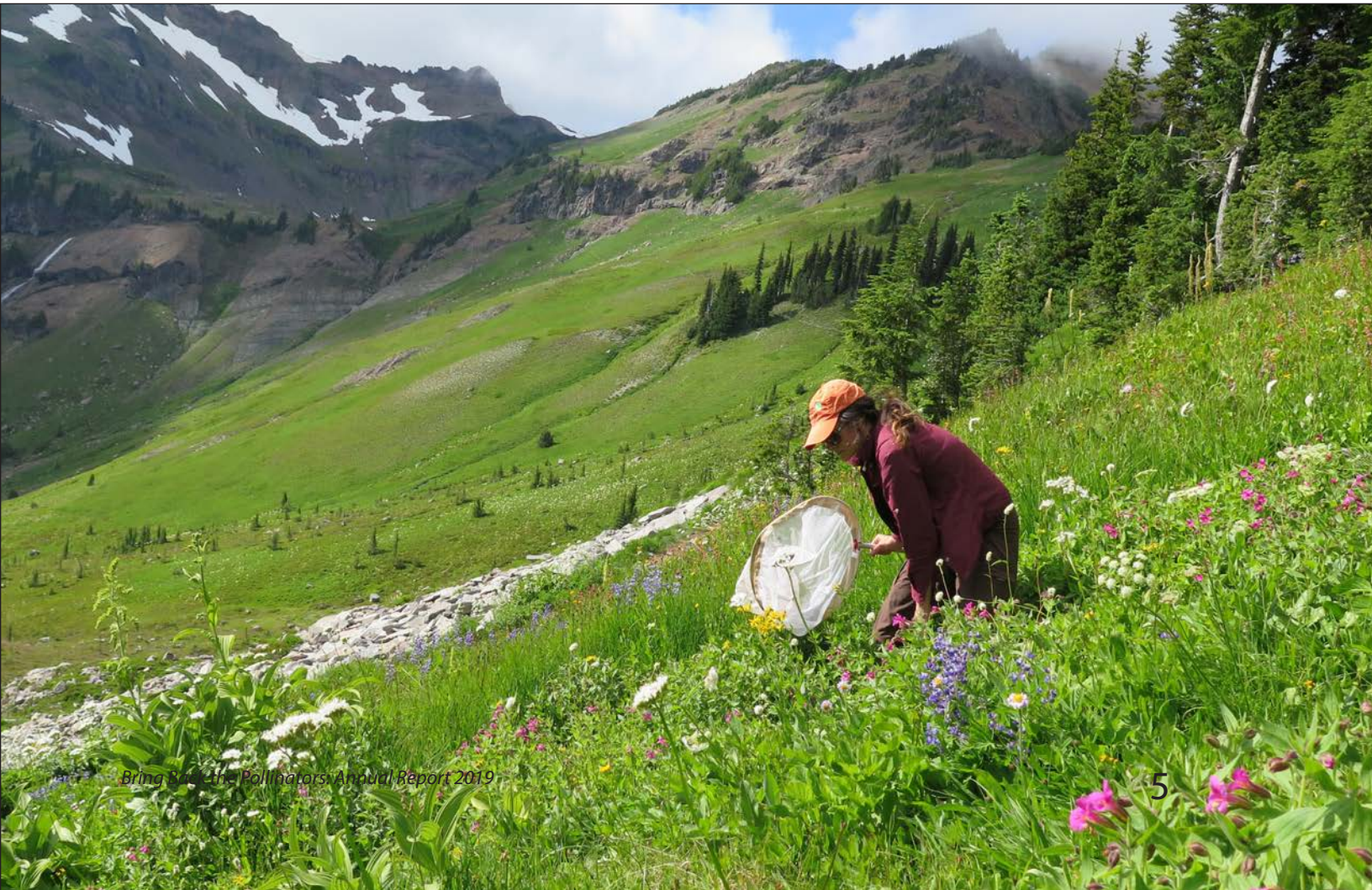
Nationally, the Xerces Society helps farmers create high-quality pollinator habitat that is protected from pesticides. This habitat contributes to agricultural biodiversity and can create corridors for pollinators and other wildlife to move across the landscape. Xerces Society staff members provide one-on-one conservation support to farmers and other agricultural and land management professionals to help them plan and successfully carry out their habitat projects. By working closely with farmers, and aligning conservation strategies with their goals, we have been successful in securing long-term commitments to maintaining on-farm habitat for pollinators and making lasting impacts in agricultural landscapes.

Natural Areas

In prairies, forests, and other natural areas, pollinators sustain wildland plant communities that provide food and shelter for myriad other wildlife. As pressure on pollinators increases from human activities and other factors, undeveloped habitat and natural areas can play a substantial role as long-term refugia for these animals.

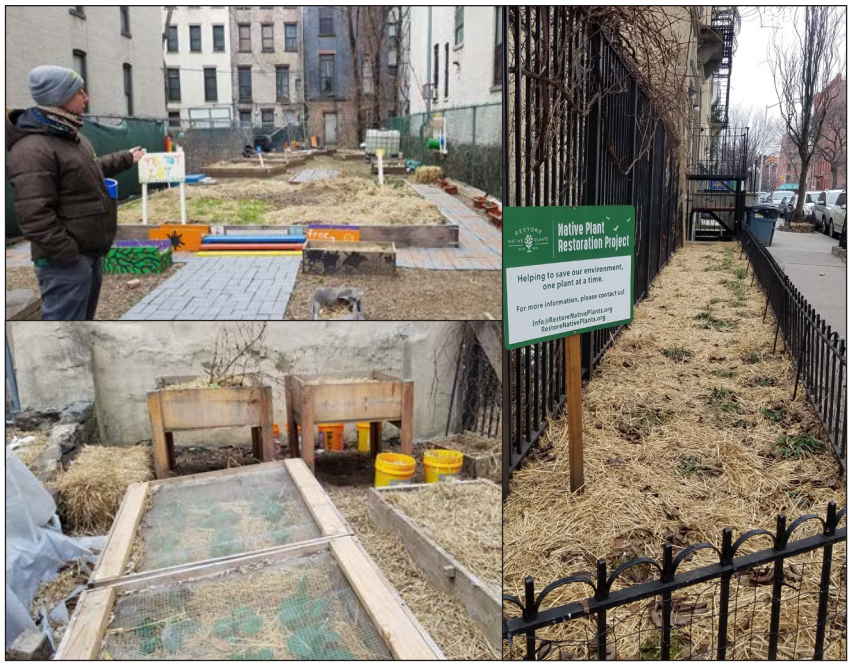
We provide guidance and resources to land managers for maintaining these landscapes so that pollinators can thrive and habitat for our most imperiled bees and butterflies is protected. We work on public lands managed by the U.S. Fish and Wildlife Service (USFWS), Bureau of Land Management, and U.S. Forest Service, and on National Wildlife Refuges to incorporate pollinator habitat into existing restoration projects; provide input on restoration planning for pollinators; and identify new opportunities to restore, enhance, and sustain habitat for pollinators, including at-risk species like the monarch butterfly.

Understanding the species and the management issues of natural areas is key to conserving invertebrate diversity. (Photo: Xerces Society / Candace Fallon.)



Towns and Cities

Towns and cities have the potential to provide excellent habitat for many invertebrate species including native pollinators. Creating native plant habitats in yards, gardens, and greenspaces such as parks, golf courses, and campuses provides food and shelter for pollinators like bees and butterflies as well as other wildlife, while creating opportunities for residents to connect with nature.

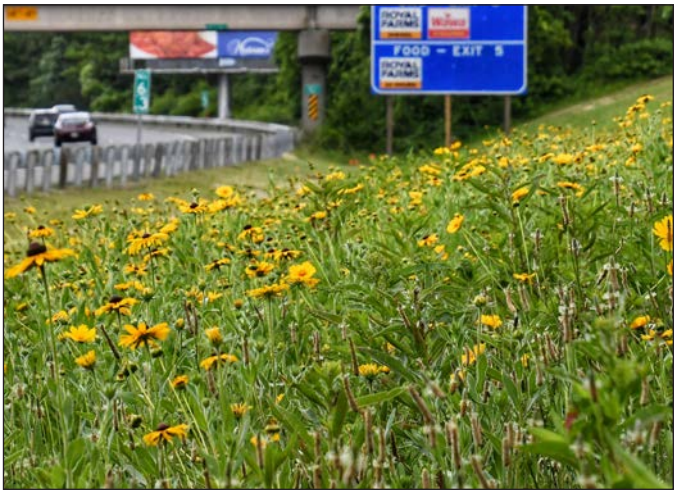


This winter, Xerces staff conducted site visits to three of Harlem Grown's urban farms in New York City to discuss ways to incorporate pollinator conservation into their farm operations and educational programs. (Photos: Xerces Society / Kelly Gill.)

With most of the U.S. population living in towns and cities, there is an opportunity for large numbers of people to participate in creating, maintaining, and advocating for healthy, pesticide-free habitat. To support these efforts, the Xerces Society has developed a suite of resources for urban and suburban residents and is working with parks, urban farms, community gardens, and individuals to plan and implement pollinator habitat projects.

Roadsides and Rights-of-Way

With more than 10 million acres of land along roadsides in the United States alone, transportation rights-of-way are a significant, yet often overlooked, resource for pollinator conservation. In landscapes denuded of natural areas by large-scale agriculture or urbanization, roadsides are an increasingly important component of regional habitat networks. They can support native vegetation, provide refuge for wildlife, and connect fragmented habitat. The wildlife living on roadsides touches communities in every state, province, and county of North America. The Xerces Society works with departments of transportation across the country to help them adjust their practices to benefit pollinators.



Following the Xerces Society's guidance, wildflowers were planted along this roadside as part of the Roadway Environmental Advancement Initiative in New Jersey. (Photo: Darleen Adamo.)

Similarly, the areas along transmission lines can also provide important habitat for pollinators. With this in mind, the Xerces Society has created resources for electric utilities and other land managers to assess and protect pollinator habitat in these rights-of-way. Most recently, we provided recommendations for conservation actions that power line companies can take to protect, manage, and restore habitat for monarch butterflies

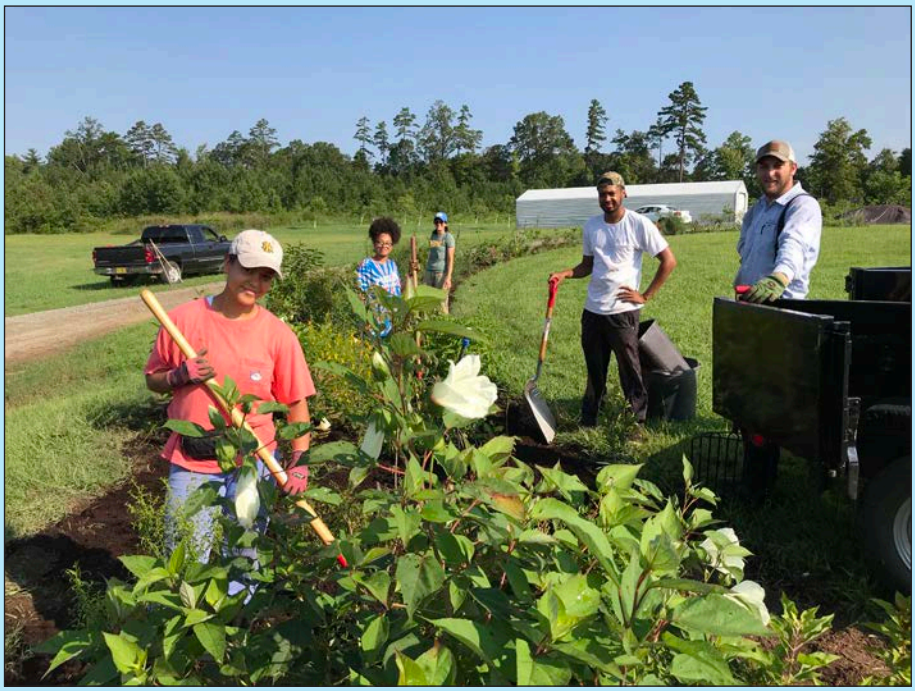
Supporting Pollinators, Beneficial Insects, and Education with a Native Hedgerow

Planting a diverse native hedgerow is a beautiful way to support pollinators and other wildlife and to help keep our air and water clean. Hedgerows can also be easier to establish and maintain over time than a meadow planted by seed.

Beginning in the summer of 2017, the Xerces Society partnered with North Carolina Agricultural and Technical State University's organic research farm to plan and install a native hedgerow. Xerces Society Pollinator Conservation Specialist, Nancy Lee Adamson, worked with Dr. Sanjun Gu, Extension Specialist at the university, to design a hedgerow that would serve multiple functions: reducing wind along the shore of a pond, supporting pollinators and natural enemies of crop pests, providing refuge for a variety of species, hosting alternative prey for predators and parasitoids, and serving as a demonstration habitat to promote learning among students and farmers.

About 45 species of common native shrubs, small trees, wildflowers, and grasses were selected to showcase a variety of native species. Providing pollen and nectar sources throughout the year is key for attracting and supporting pollinators, so the plants in the hedgerow run the gamut in terms of bloom time. The shrubs and trees mainly bloom in the spring, and the wildflowers bloom in summer and fall. In the middle of the growing season, buttonbush, which blooms in mid-summer, is a magnet for butterflies, bees, beetles, wasps, and moths.

By early spring 2018, everything came alive. Early spring blooms included viburnum, blueberry, and snowbell. By late summer 2018, many shrubs had filled out nicely and we found diverse bees, wasps, flies, and other interesting wildlife in the plantings. We found some delightful visitors during a field day we delivered at the university farm in August 2018: a bunch of red-spotted purple caterpillars on the silky willows and a gigantic rustic sphinx moth caterpillar on the beautyberry.



Our partners working on the hedgerow in the summer of 2018, which, at that point, was already a welcoming place for many invertebrates. (Photo: Xerces Society / Nancy Lee Adamson.)

Now that the hedgerow is established, the Xerces Society is partnering with the university to spread the word about native pollinator habitat during field tours and helped design an educational kiosk which will be installed alongside the hedgerow habitat this fall.

Bee Better Certified Farms

In 2017, Xerces Society partnered with a national nonprofit organic certifier, Oregon Tilth, to create Bee Better Certified, a first-of-its-kind program that recognizes and celebrates farms working to protect bees. Following a comprehensive design phase with the world's leading pollinator scientists, we launched a program with an achievable, yet rigorous and science-based set of standards. After two years, nine farms and over 12,500 acres of farmland are now certified, and we are working with farmers to help certify more than 14,000 additional acres.

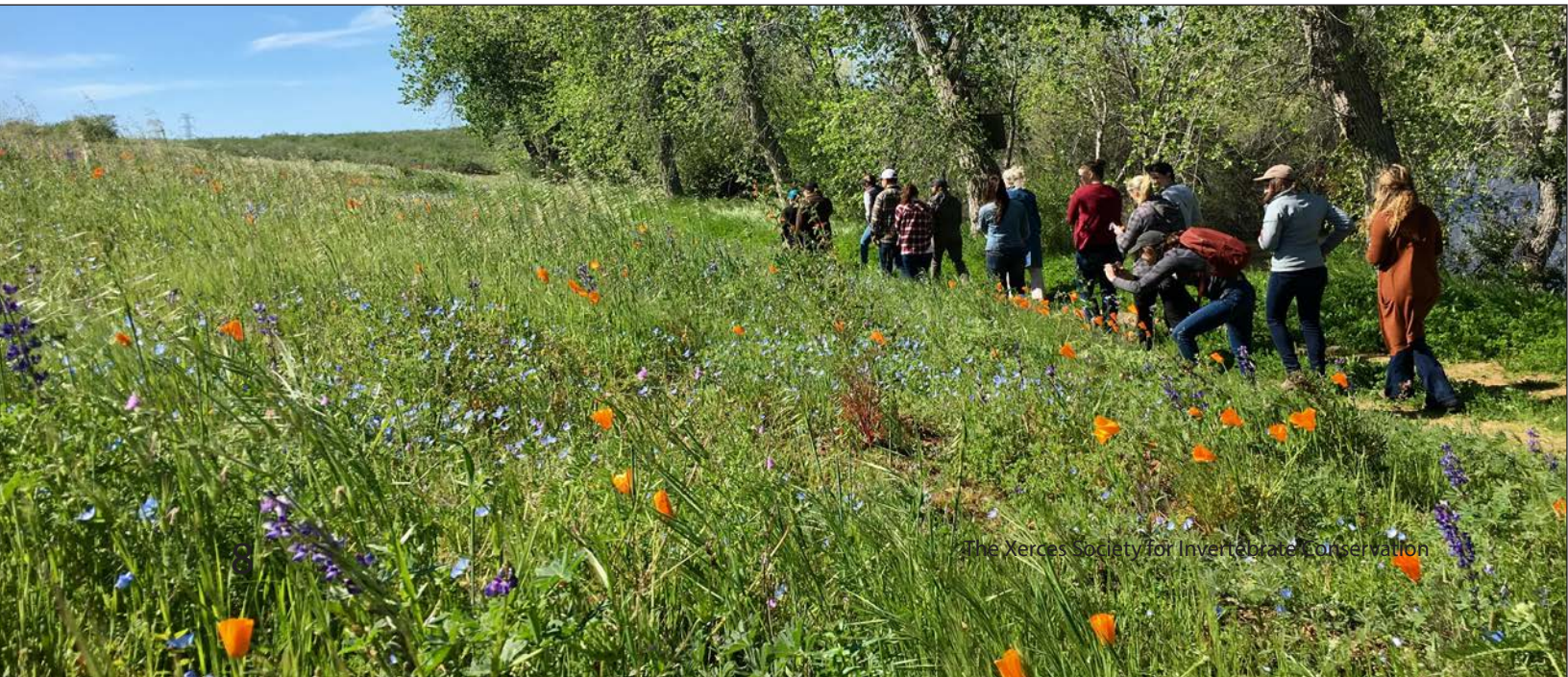
In the pilot phase of Bee Better Certified, our aim was to test the model in as many regions of the country and as many cropping systems as possible. As a result, we are working with a winegrower in the Northwest, almond growers in California, an almond and row crop operation in California, a couple of grain growers in Montana, a berry and legume grower in North Dakota, three fruit and vegetable growers in the Midwest, a blueberry grower in the Northeast, and cranberry growers in both the Northwest and the Northeast. Our pilot farms range from 12-acre fruit orchards to 8,000+-acre dry land farms.

Products made with ingredients from certified farms can carry the Bee Better Certified seal in the marketplace, providing consumers the opportunity to directly support farming that protects bees and other pollinators. In July 2019, blueberries from California Giant became the first product to hit the shelves carrying the Bee Better seal thanks to the dedication and recent certification of their source farm, which is a part of AC Foods.

On more than 1,000 acres in Oregon's Willamette Valley, AC Foods is providing habitat by protecting and managing existing natural areas to provide season-long bloom for native pollinators such as bumble bees and mason bees, which are both excellent blueberry pollinators. Providing adequate resources for these wild bees helps ensure their year-to-year survival and their contribution as crop pollinators.

In order to encourage others to consider certification and introduce people to the Bee Better program, we held two field days in 2019, one at a certified farm in California and the other at a farm working towards certification in Iowa. The Xerces Society presented on the unique role Bee Better Certified plays in the food industry, and reviewed the production standards for certification and how they were developed. Participants toured the farm habitat and identified native plants and insects in the field.

Farmers tour permanent habitat for pollinators at a Bee Better Certified almond orchard and learn about how they can meet Bee Better standards. (Photo: Xerces Society / Liz Robertson.)



Building Climate Resilience

The scientific evidence is clear that our global climate is shifting: temperatures are going up, spring is coming earlier, and we are seeing more droughts, torrential rainstorms, and other severe weather events. All of these conditions put additional stress on animals that already have lost habitat to development and invasive species and that are threatened by diseases and pesticides.

Good quality interconnected habitat helps pollinators adapt and move as the shifting climate affects both the quality and quantity of their native habitat, and it is increasingly important that we work on behalf of such connections. To demonstrate how this could be done on a large scale, the Xerces Society embarked on a project to build climate resilience for the pollinators of California's Central Valley.

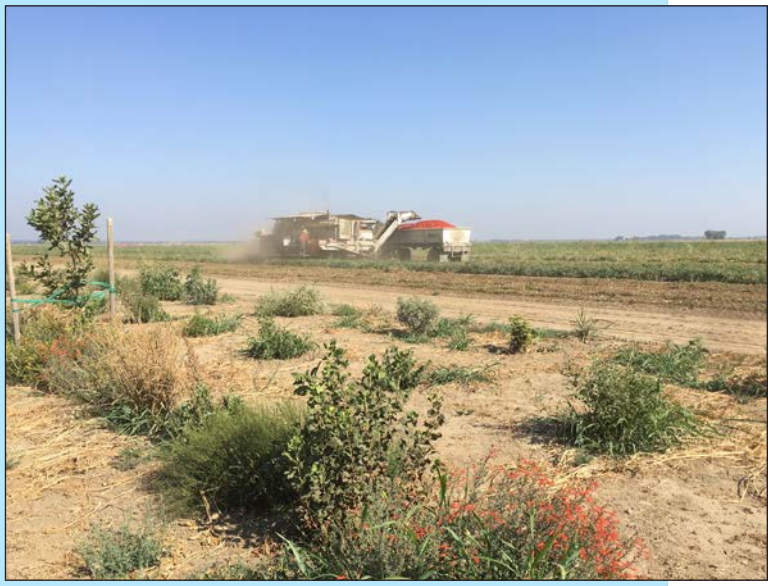
We designed our climate resilience project at a scale large enough both to make a real difference for bee populations in a pollinator dependent agricultural region, and to demonstrate practices that could be adopted elsewhere. We created pollinator seed mixes adapted to future climate scenarios and worked with farmers and land managers to implement large-scale, climate-change-ready habitat projects. Over the last two years, we partnered with almond growers and vegetable farmers to plant over 25 miles of drought-tolerant, flowering hedgerows, and other linear areas on thousands of farm acres. We are helping natural resource agencies and transportation departments add pollinator habitat to restoration projects on public lands and increase pollinator habitat along roadsides and rights-of-way. The resulting linear corridors and stepping stones of high-quality, climate-resilient habitat will serve pollinators now and in the future.

To support this effort, we developed tools to help identify potential movement corridors for pollinators through agricultural landscapes that traverse the northern Central Valley. This model helps inform and prioritize critical areas for restoration so that we can build connected pollinator corridors that will help bees and butterflies survive under future climate scenarios. These tools were developed through a partnership between the Xerces Society and the University of Nevada, Reno, with input from the California Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, and pollinator experts at Rutgers University.

Xerces installed 6.7 miles of hedgerow and 26 acres of cover crops at this almond orchard in Kern County, California. Linear plantings such as these provide habitat for pollinators and may allow them to move across the landscape when needed to find mates, new resources, or as climate changes. (Photos: Woolf Farming / Peter Allbright.)

Hedgerow Habitat Creates Pollinator Pathways

The Wallace brothers are fifth-generation farmers in the Central Valley. They are enthusiastic about sustainable farming practices and loved the idea of connecting pollinator and bird habitat across their large farm operations. The Wallace brothers partnered with the Xerces Society to install two 2,000 foot long hedgerows on their farms and are planning to establish additional hedgerow habitat. In addition to providing pollinator habitat, the hedgerows will also restore and extend the riparian corridor on their property. These hedgerows will provide habitat connectivity and help mitigate climate change effects on pollinators by enhancing pollinator populations, allowing for increased movement, and enabling range shifts. The Wallace brothers' hedgerows are especially valuable because they provide habitat connectivity between the Colusa National Wildlife Refuge and hedgerows that we have installed on other nearby farms.



This drought-resistant hedgerow on a farm in Colusa County, California is providing climate-resilient pollinator habitat in an area already experiencing a drier climate. The left image shows the hedgerow soon after it was planted and the right image shows the hedgerow 10 months later. (Photos: Xerces Society / Kitty Bolte.)

Integrating Pollinator Conservation into Supply Chains

Through formal partnerships with General Mills, Danone, and other food companies, we expanded our work to improve farm conditions for bees and other pollinators. These partnerships have opened the door to work on farms that supply these companies with grains, oilseed crops, nuts, fruits, and vegetables and which represent some of the largest agricultural operations in North America.

Applying our high standards for habitat restoration and for reducing the impact of pesticides, we are working collaboratively with dozens of individual supplier farms to plant miles of flowering drought-resistant hedgerows, improve pesticide management practices to minimize impacts to pollinators, and plant flowering cover crops, wildflower field borders, and insectary strips that provide habitat for pollinators. Collectively, these food industry supplier farms operate across more than 40,000 acres in the U.S. and Canada, and have provided opportunities for us to work in landscapes such as the Imperial Valley of California, the northern Great Plains, and the inland Pacific Northwest.

Conservation Programs and Policies for our Most At-Risk Species

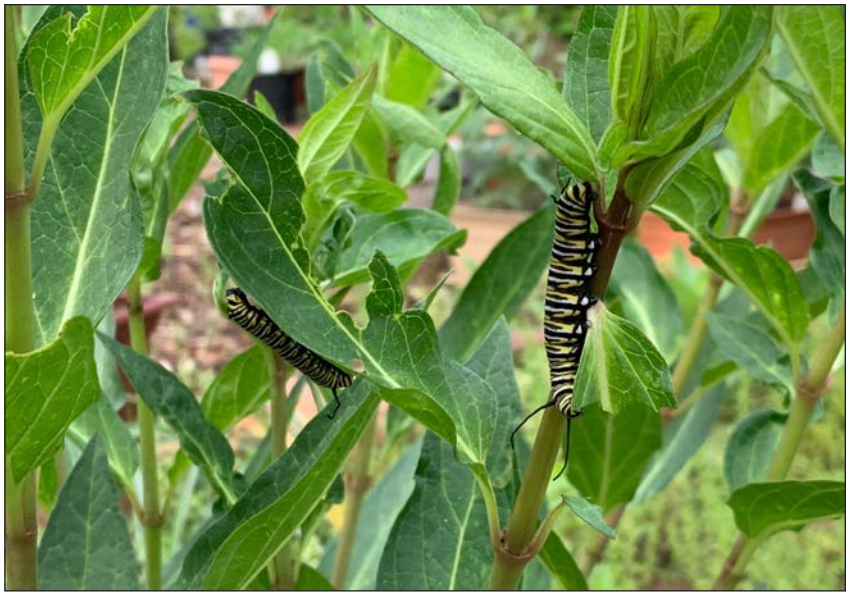
Up to 40 percent of all species of insect pollinators are declining and may be at risk of extinction, according to an assessment conducted by the United Nations. Pollinator species that were once common, like the monarch butterfly, now have declined to alarmingly low population levels. The Xerces Society works on behalf of threatened, endangered, and at-risk pollinators. Working in collaboration with scientists, land managers, conservationists, and community scientists, we use a science-based approach to protect the most vulnerable species and implement conservation strategies for their recovery.

Working to Conserve Monarchs from Coast to Coast

Monarch butterflies are perhaps the most well-known and beloved butterfly species in North America. Their renowned long-distance, seasonal migration and spectacular winter gatherings in Mexico and California have heralded the transition from fall to winter for thousands of years. A once-ubiquitous sight in gardens, prairies, and natural areas from coast to coast, the monarch butterfly population has recently declined to dangerously low levels on both coasts—but particularly in the West.

The good news is that the eastern population of monarch butterflies that overwinters in Mexico had a higher population count for the second year in a row. Monarchs have a fighting chance at recovery; however, we cannot yet declare that monarchs are safe. The area monarchs occupy in Mexico is still 66% lower than it was twenty years ago—and the population of monarchs in the western states is in dire condition.

The western monarch migration, which had an estimated overwintering population of 4.5 million in the 1980s, has experienced a dizzying 99.4% decline and is at risk of disappearing altogether. Thanks to the efforts of community scientists involved with our long-running Western Monarch Thanksgiving and New Year's Counts, the Xerces Society was able to sound the alarm this winter when the population dipped below the projected threshold for collapse of the western monarch migration, releasing the Western Monarch Call to Action in January 2019.



Because monarch caterpillars like these need milkweed to feed, planting native species is one of the best ways to help conserve monarchs. (Photos: Xerces Society / Ray Moranz.)

The Xerces Society is taking action for monarchs across the United States with a special focus on restoring breeding and overwintering habitat for the western population in California. Specifically, we are:

- Pushing for protection of monarch overwintering sites and working with partners to restore habitat at multiple overwintering sites.

- Planting and restoring habitat across the California Central Valley—a key breeding and migration area for monarchs—in partnership with farmers, natural area managers, food companies, California cities, and others. In the last 18 months, we have restored 20 miles of hedgerows on farms and in the coming year, we will be adding another 10 miles to further reconnect habitats. These hedgerows provide essential nectar sources, milkweed for breeding, and an unsprayed refuge in a largely inhospitable landscape.

- Producing monarch habitat "kits" with important nectar plants and milkweeds for specific regions in California. These kits were developed in partnership with one of the state's largest native plant nurseries in order to meet the demands of large-scale monarch habitat restoration in California. This fall, we will be distributing these kits to land managers, farmers, and conservation partners to plant in high priority regions.

- Working with the USDA Natural Resources Conservation Service Plant Materials Center in California to conduct planting trials of milkweed and monarch nectar plants to develop best practices for establishing these plants in the state. Based on this work and our experience in the field so far, we published a set of guidelines on how to successfully establish milkweed in California and the dry west.

- Supporting the development of state-level, regional, and continental strategies for monarch recovery, including monarch protection plans and other state monarch planning processes in Iowa, Michigan, Minnesota, Nebraska, Oklahoma, Wisconsin, and New England. We helped develop the Mid-America Monarch Conservation Strategy, which brought together representatives from 16 states to form a unified approach to monarch conservation activities on farms and ranches in the mid-America region, and the Western Association of Fish and Wildlife Agencies' Western Monarch Butterfly Conservation Plan, which includes important conservation actions for the western monarch's recovery and goals for habitat establishment and population size.

- Helping farmers increase monarch habitat in agricultural areas within the monarch's migration corridor in collaboration with the Natural Resources Conservation Service (NRCS) on their Monarch Butterfly Habitat Development Project. The Xerces Society played a key role in the development of this incentive program and is providing ongoing support by developing guidance and training for NRCS staff on evaluating habitat for monarchs, creating state-specific information on nectar plants for monarchs, and providing technical review of conservation program policies to incentivize landowner adoption of monarch conservation practices. Building off this work, Xerces is helping to develop similar programs in New England, Idaho, and California that provide funding for farmers to plant monarch habitat.

Western Monarch Call to Action

Western monarchs are in crisis. Our latest population counts showed an 86% decline over just the last year, indicating that this population has decreased by a staggering 99.4% since the 1980s. In response, we developed a set of rapid-response conservation actions to help the western monarch population bounce back from its extremely low 2018–19 overwintering size, and distributed a call to action to our partners working in critical habitat areas and to the general public. The Western Monarch Call to Action (http://savewesternmonarchs.org) identified steps that can be done in the short-term to avoid a total collapse of the western monarch migration and to set the stage for longer-term efforts to have time to start making a difference. The five key steps of our call to action for recovering the western monarch population are:

1. Protect and manage California overwintering sites
2. Restore breeding and migratory habitat in California
3. Protect monarchs and their habitat from pesticides
4. Protect, manage, and restore summer breeding and fall migration monarch habitat outside of California
5. Answer key research questions about how to best aid western monarch recovery

The response has been encouraging, with community members, government agencies, nonprofits, universities, and other entities joining with Xerces to restore and protect monarch overwintering and breeding habitat, conduct research to better understand the obstacles facing western monarchs, contribute data to community science efforts, and more.

A monarch flying over showy milkweed in Oregon. Habitat containing milkweed and nectar plants is essential for monarchs throughout their migration path. (Photo: Xerces Society / Stephanie McKnight.)

Helping Recover the Rusty Patched Bumble Bee

The rusty patched bumble bee became the first bee to be listed under the Endangered Species Act (ESA) in 2017, a culmination of a nearly ten-year conservation effort led by Xerces Society scientists and our partners. Though the ESA listing was a historic landmark for pollinator protection, it was only the first step towards this species' recovery. Over the last two years, we have been working with the USFWS and other agencies to plan and implement strategies to protect this species and conserve its habitat in the Midwest and Northeast. This effort has led to the protection of over 570,000 acres and may lead to improved management on another 2.5 million acres for the benefit of this bumble bee.

After the listing, the Xerces Society was invited to be a part of the USFWS preventing extinction working group for the rusty patched bumble bee and we were able to contribute our species-specific expertise to ensure the process reflected the best available science. This spring, the Xerces Society was asked to be part of the USFWS Recovery Plan team with state and federal natural resource agencies and bumble bee scientists. This team is developing recovery criteria for the rusty patched bumble bee including benchmarks for a healthy population size that will allow the bumble bee to persist into the future. We will continue to be involved as the recovery plan is finalized and implemented to ensure that the plan leads to on-the-ground habitat for the rusty patched bumble bee and meaningful protection from harmful pesticides.

The rusty patched bumble bee was listed as an endangered species in 2017, which has led to the protection of over 570,000 acres for the benefit of this bumble bee so far. (Photo: Xerces Society / Sarah Foltz Jordan.)

At Long Last: Proposed Federal Protection for Franklin's Bumble Bee

Responding to a petition from the Xerces Society and the late Dr. Robbin Thorp, University of California–Davis entomologist, in August 2019, the USFWS proposed to list Franklin's bumble bee (*Bombus franklini*) as an endangered species under the ESA.

Franklin's bumble bee has the most restricted range of any bumble bee in the world; it is known only in southern Oregon and northern California between the Coast and Sierra-Cascade Ranges. Its entire distribution can be covered by an oval of about 190 miles north to

The Franklin's bumble bee, pictured here, hasn't been seen since 2006. Historically, it occurred in an area that is only about 60 miles wide, located in the Siskiyou mountains of northern California and southern Oregon. (Photo: USFWS / Brendan White.)

south and 70 miles east to west. A precipitous decline began in 1999, and despite an extensive amount of searching, Franklin's bumble bee has not been seen since 2006. The primary threats to this species include: 1) diseases from managed bees, 2) pesticides, and 3) a small population size.

The Xerces Society and Dr. Thorp formally petitioned the USFWS to protect Franklin's bumblebee in 2010. Dr. Thorp conducted surveys for Franklin's bumble bee for more than two decades and was the first person to call attention to the decline in Franklin's bumble bee and other formerly common bumble bees. He passed away in June 2019.

While many native pollinators have suffered declines related to loss of habitat and pesticides, the sudden decline of Franklin's bumble bee and some of its closest relatives—including the rusty patched bumble bee—was likely initiated by a fungus that spread from managed bees. This hypothesis was first introduced by Dr. Thorp and has been extensively tested by a team led by Dr. Sydney Cameron of the University of Illinois, who determined that commercial bumble bees were likely responsible for spreading and amplifying this pathogen across North America. For Franklin's bumble bee, the effects of this fungus may have been compounded by insecticide use, loss of habitat, and, given its restricted historic range, a small population size.

Now that this species is listed, our hope is that there will be resources to provide for a comprehensive search effort. To date, surveys have mostly been carried out close to town and cities. With luck we will find a remaining bumble bee population that can be protected and restored.

Groundbreaking Endangered Species Protection for California Bumble Bees

Four native bumble bees—the western bumble bee, Franklin's bumble bee, Crotch's bumble bee, and the Suckley cuckoo bumble bee—are the first pollinators to receive protection under the California Endangered Species Act (CESA). Aiming to secure protections for these imperiled pollinators, the Xerces Society submitted a petition for the listing of the four bumble bee species under the California Endangered Species Act in 2018, in collaboration with Defenders of Wildlife and the Center for Food Safety. In June 2019, the California Fish and Game Commission voted to place these four native bee species as "candidates" on the state endangered species list, triggering a 12-month scientific process to determine if the species qualify for final endangered species listing under CESA. Candidate status will protect these four species from activities that could cause them to go extinct during the 12-month review period and will allow for additional conservation measures to be implemented.

The Commission's vote to protect these bumble bees under the state endangered species act came at a critical time with recent studies revealing that several bumble bee species in California are imperiled and in need of immediate conservation attention. By acting on this petition, California demonstrated how an individual state can lead the nation in protecting pollinators.

Reduced Use of Pesticides

Over a billion pounds of pesticides are applied each year in the United States across diverse landscapes including home gardens, city parks, farms, and even in natural areas. These uses have led to widespread contamination. Pesticides are routinely found at harmful levels in rivers and streams as well as in pollinator habitat.

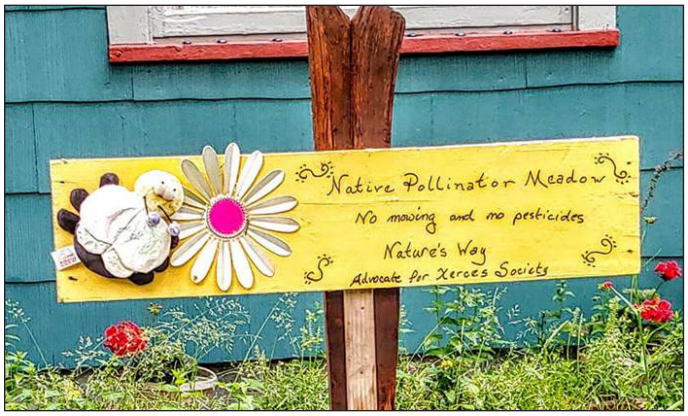
We envision a future where all landscapes—towns, cities, farms, and natural areas—have thriving, diverse, and abundant native pollinator populations protected from harmful pesticides. Therefore, all of our conservation efforts address the risks of pesticides whether we are working with a home gardener, a state wildlife agency, or a farmer. Whether advocating for policy change or promoting voluntary change, our efforts are focused on concrete steps to increase the adoption of ecologically sound pest management practices that support diverse natural systems, reduce reliance on pesticides, and mitigate pesticide risks.

Community Initiatives for Pesticide Reform

Decision-makers and community members alike seek ways to protect pollinators but often lack the knowledge to implement conservation-minded pest management practices. The Xerces Society inspires and supports people to become community leaders who expand pesticide-free habitat and shift local pest management practices, providing science-based resources, training, and individualized support. One of these community leaders, Gina Feletar, has been working to advance better pesticide policies in San Diego and had this to say about her work with the Xerces Society:

> *"I wanted to give you an update and let you know that my presentation with Non Toxic San Diego on pesticides (and pollinators) was very well received by the SD City Council. I believe it was in large part due to the letter you sent in support…. I am so grateful to all of you for all you have taught me. If it was not for this organization I would not have had the confidence to approach my city council in the first place."*

Already this year, the Xerces Society has worked with eleven communities in nine states to reduce pesticide use and better protect pollinators. Each community has its own unique issues and our support is responsive to those issues. Beyond these local efforts, we have provided support to individuals and organizations working at the state level to strengthen pesticide regulation. In 2019, we provided support to legislative efforts in six states. Most of the bills we worked on pertained to restricting the use of neonicotinoids, widely used insecticides that are toxic to bees and other beneficial insects. Please note that no lobbying is funded by our foundation and corporate supporters.



This handmade pollinator habitat sign was made by one of our Pacific Northwest Bumble Bee Atlas volunteers and is helping to spread the word about best practices people can implement in their yards to support pollinator populations. (Photo: Elizabeth Henkel.)

Developing Pollinator Conservation Policies in Minnesota

Over the past few years, Xerces Society Senior Pollinator Conservation Specialist Sarah Foltz Jordan has served on the Governor's Committee on Pollinator Protection in Minnesota, a community stakeholder task force established by former Governor Dayton in 2016. As the first of its kind in the country, this governor-appointed committee helped advise the governor and state agencies on statewide pollinator protection efforts, and identify and prioritize opportunities for pollinator conservation improvements in the state.

In Minnesota, at least six species of native bumble bees face serious declines—most notably the endangered rusty-patched bumble bee. The health and diversity of other pollinators are declining as well; 33 species of butterflies and moths in Minnesota are classified as species of greatest conservation need, a designation that is reserved for species that are rare, declining, and/or facing serious threats.

In the fall of 2018, the Governor's committee released a report summarizing recommendations for pollinator protection in Minnesota, which resulted in a dozen pro-pollinator bills during the 2019 legislative session. Many of the recommendations focused on neonicotinoid insecticides, due to their high toxicity to pollinators, unique exposure routes, and increasing prevalence in agricultural, urban, and suburban landscapes. Priority recommendations focused on the need for habitat improvements in both urban and rural areas, and on reducing the use of neonicotinoid insecticides, including restricting sales of garden products and providing financial assistance to farmers who choose to move away from treated seed.

While bills to reduce the use of pesticides and shift pest management practices received strong support among legislators, they, unfortunately, did not pass this year. We were successful, however, in helping to move forward a new bee-friendly program which provides funding for homeowners to convert their lawns to pollinator habitat. The Xerces Society is working closely with our partners to develop the framework for this new program to ensure that it results in high-quality native habitat for pollinators.

Protecting Pollinators from Pesticide Exposure on Farms

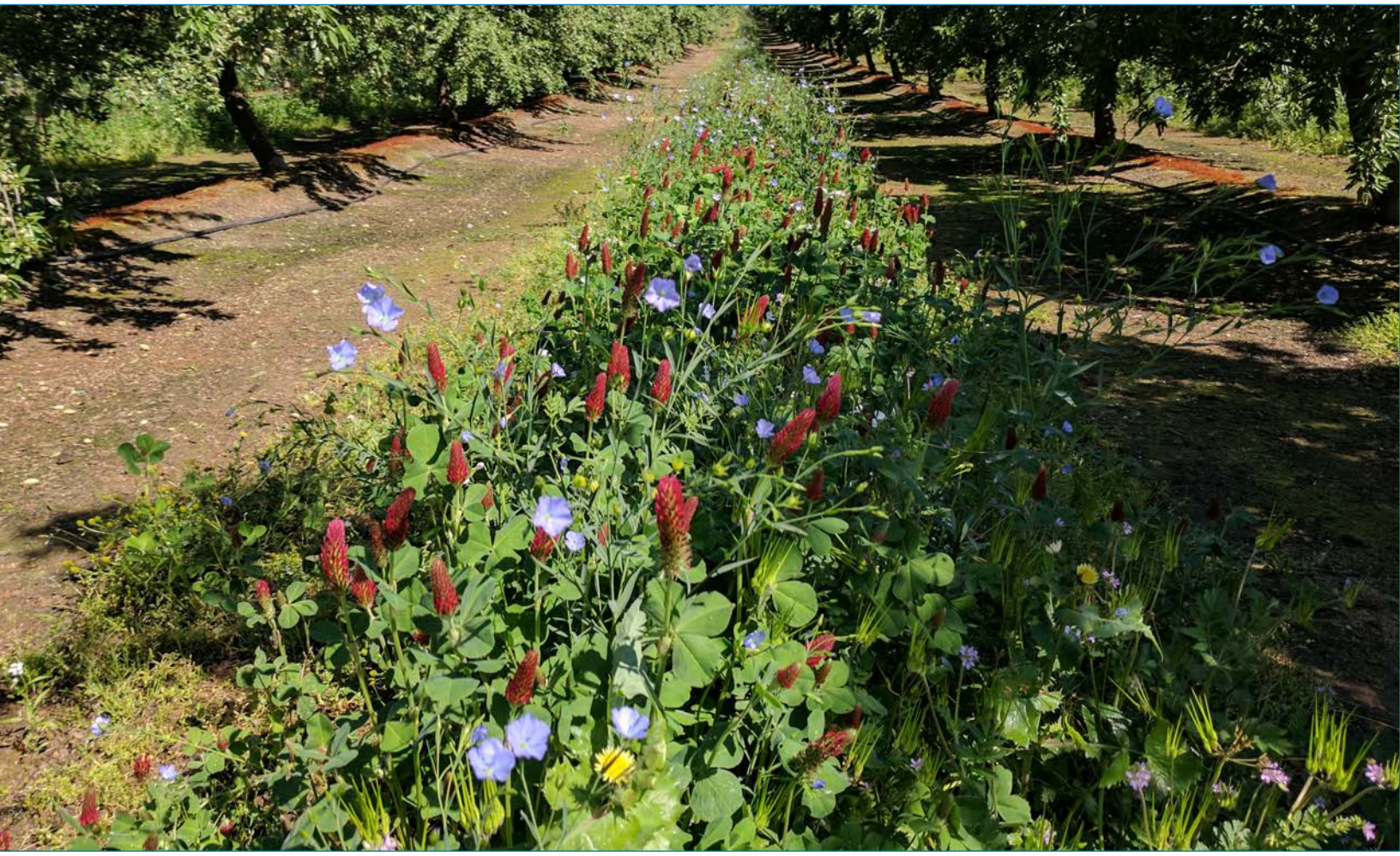
In order to protect pollinators and other beneficial insects in agricultural landscapes, we work closely with farmers to restore and maintain lands that provide healthy habitat protected from harmful pesticides. In our work with farmers this year, we have provided pest management advice on numerous cropping systems including almonds, alfalfa, apples, blueberries, grapes, and soybeans, as well as for milkweed seed and plant production. In all these systems, we helped farmers identify actions for reducing pesticide use and supporting resilient biodiverse farmscapes.

For example, a farmer in Manitoba, Canada, recently started working with the Xerces Society to create pollinator habitat along a creek bed that bisects her farm. The 960-acre farm produces wheat, soybeans, rye, and canola. Through her work with Xerces, the farmer decided to increase cover crops, reduce tillage, and stop planting pesticide-treated seed in the fields adjacent to habitat. She is also converting some of her acres to organic production. This summer, university students are monitoring the farm's new pollinator habitat to gather information on the abundance and diversity of pollinators.

Our ongoing work with the Olam Corporation, a Singapore-based food company that produces almonds in California, is a longer-term demonstration of how our partnerships can lead to significant changes in on-the-ground conditions for pollinators. Since 2014, we have worked with Olam to plant habitat for pollinators and beneficial insects, including hedgerows, cover crops, and wildflower strips in a thousand-acre conventional almond orchard. During this same timeframe, the orchard's pest managers have taken

steps to reduce their reliance on insecticides by incorporating sanitation practices to prevent establishment of navel orangeworm (a significant economic pest in almond orchards). In addition, the almond orchard stopped using neonicotinoid insecticides—chemicals that they previously relied upon—and implemented no-spray zones around habitat to limit contamination. Now, after gaining confidence in reduced pesticide use systems, they are evaluating the potential to convert some of their operations to fully organic production. Students from the University of California, Davis, are monitoring the orchards for pollinators and have recorded a dramatic increase in native bee abundance and diversity since the habitat was created. Olam is now working towards Bee Better Certification for its almonds and is expanding pollinator habitat at another large-scale orchard.

In addition to working with directly with farmers and food companies on pest management, we work with farm agencies like the NRCS to create financial incentives that encourage growers to adopt practices that reduce risks for pollinators and other beneficial insects. For example, in Maine, we created a new incentive program for wild blueberry farms that reduce pesticide exposure to native pollinators. We expect these practices will be enacted across hundreds of acres of wild blueberry lands in the coming years.



Flowering cover crops provide habitat for pollinators at one of Olam's almond orchards in California. Through a series of farm field days, the site has also helped inspire many other farmers to adopt similar practices. (Photo: Xerces Society / Cameron Newell.)

Conservation Science to Guide Solutions

Everything we do begins with science. We build off existing research and we work in tandem with leading researchers to address unanswered questions. We translate scientific knowledge into practical, actionable steps—whether that's in a demonstration project, a community workshop, or a policy briefing—and we learn from the people who are implementing the conservation recommendations we make. Through our community science programs, the Thanksgiving and New Year's Western Monarch Counts, Bumble Bee Watch, the Monarch Milkweed Mapper, and our most recent Bumble Bee Atlas projects, we involve thousands of people in pollinator conservation and crowdsource valuable conservation data.

On-Farm Research

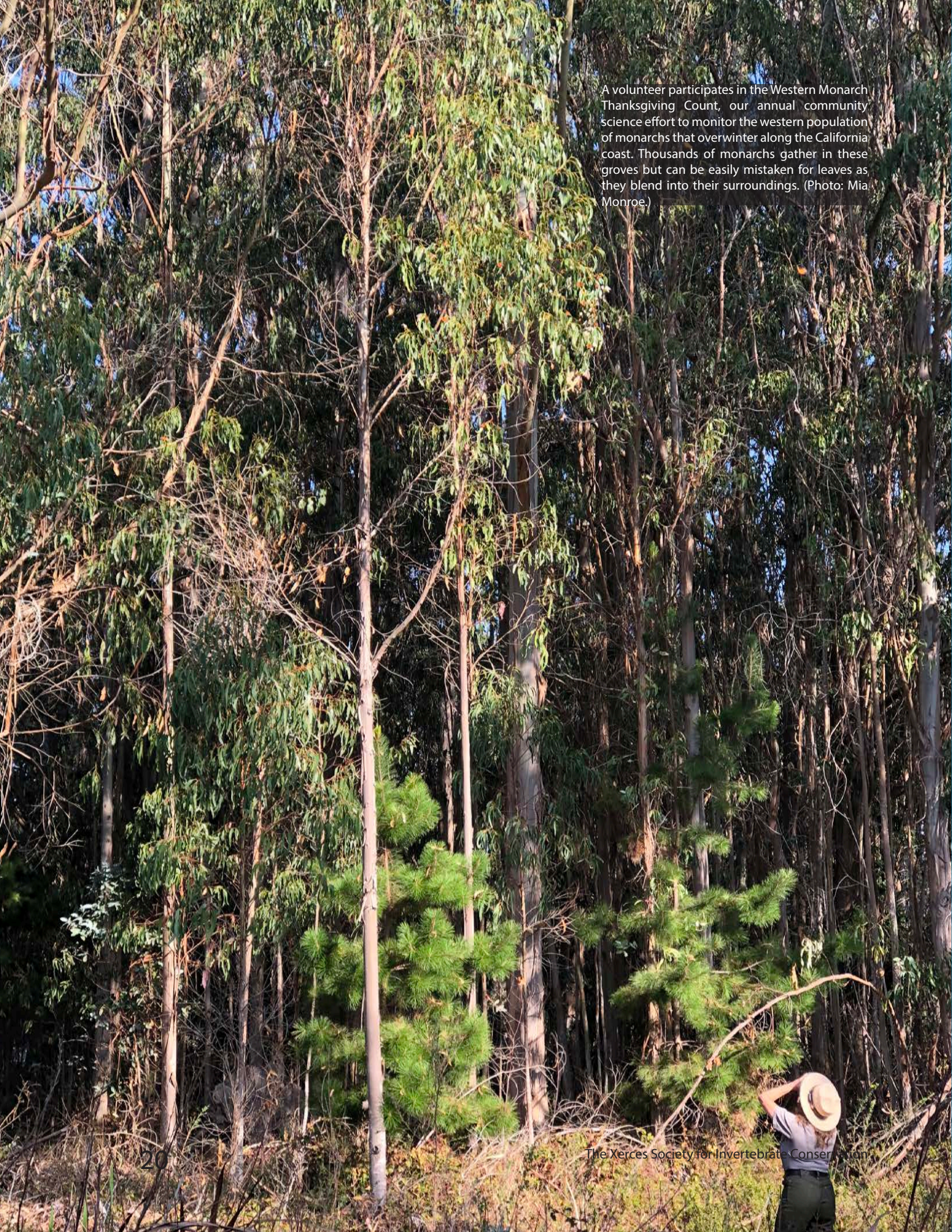
We use applied research to assess the effectiveness of our conservation activities and adapt our methods for maximum impact on target pollinator species and their habitats. Through farm field trials, we research and develop habitat restoration methods that increase establishment success and the longevity of pollinator plantings, while also lowering installation costs.

We are conducting several multi-year field trials in different regions of the U.S. to integrate different types of flowering cover crops into vegetable or grain production rotations and test organic site preparation methods prior to installing native flowering habitat. These trials have resulted in new regionally adapted, crop-specific pollinator seed mixes that are designed to improve soil health and control erosion and weeds.

By investing in research and development in important but scarce species of pollinator plants, our goal is to create pollinator habitats that are high quality and able to stand the test of time. One recent example of our on-farm research and development work is a new collaboration with a native plant nursery in Manitoba, Canada, to increase the production of native wildflower seed for our large-scale pollinator habitat restoration work with oat growers in the province. Because very little prairie restoration has occurred in this region, there is a clear need to identify which wildflower species are optimal for habitat restoration. We are trialing three different pollinator seed mix types on nearly a dozen farms, evaluating which species have rapid germination and growth, which are most competitive against weed encroachment, and which can withstand pressures such as animal browsing or climate variability. These observations inform our nursery partner's decisions on which species to prioritize for increased production. Already, we have identified several plants with high success rates for local prairie restoration, such as Maximillian sunflower and purple prairie clover.

Community Science

Community science is a critical component of our pollinator conservation work. Through community science networks, volunteers across the continent collect far more data on pollinators than we would ever be



A volunteer participates in the Western Monarch Thanksgiving Count, our annual community science effort to monitor the western population of monarchs that overwinter along the California coast. Thousands of monarchs gather in these groves but can be easily mistaken for leaves as they blend into their surroundings. (Photo: Mia Monroe.)

able to on our own. This valuable information helps us understand the distributions, life history, population status, ecology, and habitat needs of bumble bees and monarch butterflies and the threats they face. Our community science programs are an important avenue for involving large numbers of people in pollinator conservation, thereby increasing their knowledge and appreciation of pollinators.

Monarch Counts Sound the Alarm

The Western Monarch Thanksgiving Count, a long-running community science project that documents monarch populations at California overwintering sites, revealed the critically low numbers of monarchs this year. In the 1980s, there were an estimated 4.5 million monarchs overwintering in California. Over Thanksgiving 2018, the population was counted at 28,429 monarchs—just 0.6% of the historic population.

This massive volunteer effort plays a vital role in tracking the size of the California overwintering population, which allows us to assess the health of the monarch population in western North America. In an effort to better understand how monarchs use overwintering sites during the season, the Xerces Society initiated the Western Monarch New Year's Count as an addition to the Thanksgiving Count. Now in its third year, the New Year's Count provides an opportunity to monitor the size of the monarch population later in the winter. By comparing results from the Thanksgiving and New Year's counts, we can better understand how the monarch population changes throughout the overwintering season. The data collected from the two counts this season are being used to help pinpoint which overwintering sites experience declines over the winter and provide insights into whether sites are transitional and temporary, or serve as refuge for monarchs throughout the season.

Western Monarch Milkweed Mapper Supports New Research on Monarch Declines

Thanks to community scientists that have submitted their monarch and milkweed sightings to the Western Monarch Milkweed Mapper, this spring we were able to monitor where monarchs were showing up across the western United States. The Western Monarch Milkweed Mapper is an online community science project that allows anyone to sign up and submit data about when and where monarchs and milkweeds occur in the West. To date, people have submitted over 50,000 monarch and milkweed sightings to this project.

Collecting this data is crucial for understanding when and where monarchs breed in the West, providing more focus for conservation efforts. Data from the Mapper is currently being used for a research project studying the western monarch population at its critically low population level. This study will allow researchers to better understand underlying mechanisms of the decline, how the population fluctuates, and how to respond to this situation effectively.

Statewide Bumble Bee Atlases

In 2014, the Xerces Society and our partners launched Bumble Bee Watch, a community science project to track and conserve North America's bumble bees. Thousands of volunteers have contributed bumble bee sightings and with this information we are gaining a better understanding of how bumble bee species are faring and where they occur.

To build and expand upon Bumble Bee Watch, we launched new community science projects to create Bumble Bee Atlases in four states. We are recruiting and training volunteers to conduct bumble bee surveys in every corner of Idaho, Nebraska, Oregon, and Washington and record the information they gather via Bumble Bee Watch. To date, over 900 dedicated volunteers have conducted surveys and submitted more than 9,000 observations which will be used to map bumble bees' distribution, abundance, and habitat use.

Pollinator Champions Everywhere

Recovering our native pollinators requires the participation of farmers, gardeners, government agencies, policy makers, land managers, food companies, teachers, and more. Though our individual contributions may seem small, when we come together, we can affect substantial change in our neighborhoods, in parks and natural areas, in our food systems, and in our local, state, and federal policies.

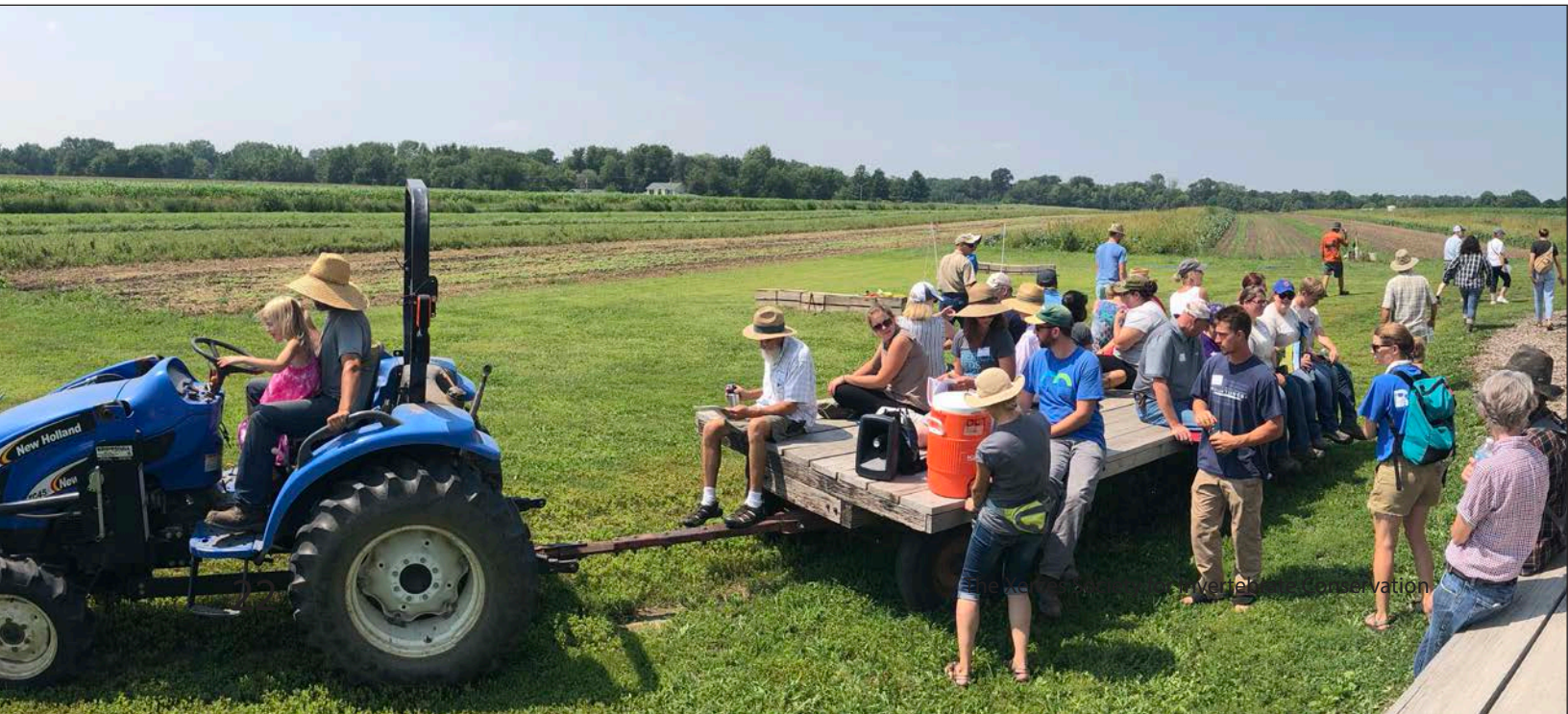
Through public talks, events, collaborative workshops, and conference presentations, we give people from all walks of life the knowledge they need to take actions that benefit pollinators. Over the last year, we reached over 23,000 people through these types of events. The trainings we deliver are tailored to the needs of specific audiences and reflect the latest science on pollinator and beneficial insect conservation.

In addition to these education programs, we develop how-to publications that provide detailed and practical conservation advice and provide direct assistance to individuals and organizations to increase their capacity to effectively protect and provide habitat for pollinators in the landscapes where they live and work. We utilize traditional media, social media, and other channels to reach hundreds of millions of people each year with our pollinator conservation message.

Farm Field Days

Field days provide an excellent opportunity for people to see pollinator habitat in all stages of development, learn from their peers, and gain hands-on experience with habitat evaluation, site preparation, planting, and/or monitoring. Farms that have established pollinator habitat features like wildflower meadows, cover

Xerces reached 46,000 people in the last two years at events like this farm field day in Iowa in August 2018. This event covered planning and installing hedgerows, beetle banks, cover crops, and other beneficial insect habitat. (Photo: Xerces Society / Sarah Foltz Jordan.)



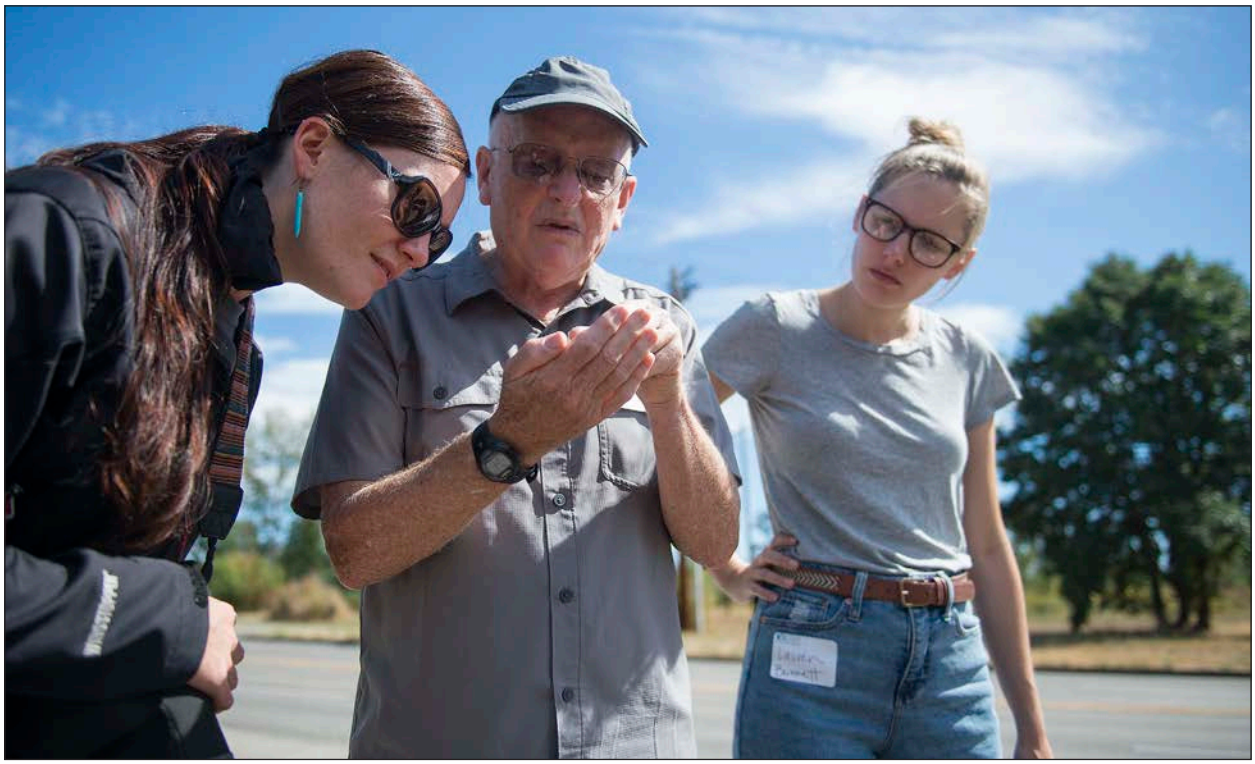
crops, and hedgerows often serve as demonstration sites for field days and other outreach events, where farmers can showcase their successes and share lessons learned. This past year, the Xerces Society organized and presented at a wide variety of farm field days on topics such as monarch conservation, cool season cover crops, surveying and monitoring techniques, pollinator biology and habitat, beneficial insects, and women's farm conservation.

Conserving Native Pollinators in Towns and Cities

This year, we embarked on a new adventure: building a volunteer program to inspire communities across America to conserve pollinators and other invertebrates. The volunteers, called Xerces Ambassadors, will be the face of the organization at a range of public events, multiplying our capacity to interact with communities. These Ambassadors connect people to nature through activities that explore the diversity of pollinators and the value of invertebrates and encourage them to make a difference in their own yards or neighborhoods. The program was launched in the spring of 2019 in Portland, Oregon, with a group of fifteen outstanding volunteers. Our Portland Ambassadors have already engaged in events in several cities in Oregon and Washington and we hope to establish groups in cities from coast to coast.

To further support our new initiative to engage urban and suburban residents in pollinator conservation, we developed curriculum for a new day-long workshop that offers gardeners, educators, and others a way to learn about pollinator conservation in yards, neighborhoods, parks, and other urban and suburban spaces.

We have delivered the workshop in nine cities to date, reaching nearly 400 people.



Our Community Engagement Coordinator Rachel Dunham (left) helps workshop participants gain confidence identifying bees during a workshop in Portland, Oregon. (Photo: Amanda Lucier.)

Pollinator Conservation Hits the Road

This summer, Senior Pollinator Conservation Specialist Jennifer Hopwood traveled to five Colorado cities to deliver workshops on roadside landscape design for pollinator conservation. Workers involved in all aspects of roadside design and management attended the workshops and learned about the critical importance of roadside vegetation for the establishment of viable pollinator habitat and connectivity of native plant communities.

Combining the expertise of department of transportation staff responsible for roadside maintenance, engineering, planning, and landscape design led to an important exchange of ideas on topics ranging from local seed sourcing for pollinator plants to weed management that minimizes impacts to pollinators and a greater understanding of the role everyone plays to conserve pollinators. In addition, participants came away with practical application methods to create, maintain, and sustain the best practices for integrated roadside vegetation design and management. As one participant stated, "this workshop has given me the tools to evaluate [Colorado Department of Transportation] projects that will be conducive to pollinator habitat and which will utilize resources better."

At the Roadside Landscape Design and Pollinator Conservation workshops, participants had the opportunity to discuss current pollinator conservation initiatives like Colorado's Interstate-76 Pollinator Highway as well as ideas for future initiatives. (Photo: Xerces Society/ Jennifer Hopwood.)

Farming with Beneficial Insects

To conserve pollinators, it is critical that we address the widespread use of pesticides. By promoting pest management methods that reduce pesticide use and increase the abundance and diversity of native insects on the farm, we can transform pest management from reactive efforts reliant on pesticides to thoughtful techniques that support thriving farms buzzing with life. In agricultural lands and gardens, wild beneficial insects like predatory beetles and parasitoid wasps can provide a form of natural pest control called conservation biological control. Over the past four years, the Xerces Society conducted a nationwide educational project to promote these beneficial insects in our agricultural landscapes.

From 2015–2019, we presented a series of 61 day-long courses in 49 states on how to integrate beneficial insects back onto farms for natural pest control. The courses were jam-packed with relevant topics ranging from farmland management practices and pesticide risk mitigation to habitat creation and plant selection. Many courses also included field activities where course participants were able to experience insect scouting first-hand and learn how to conduct a farm habitat assessment for beneficial insect conservation.

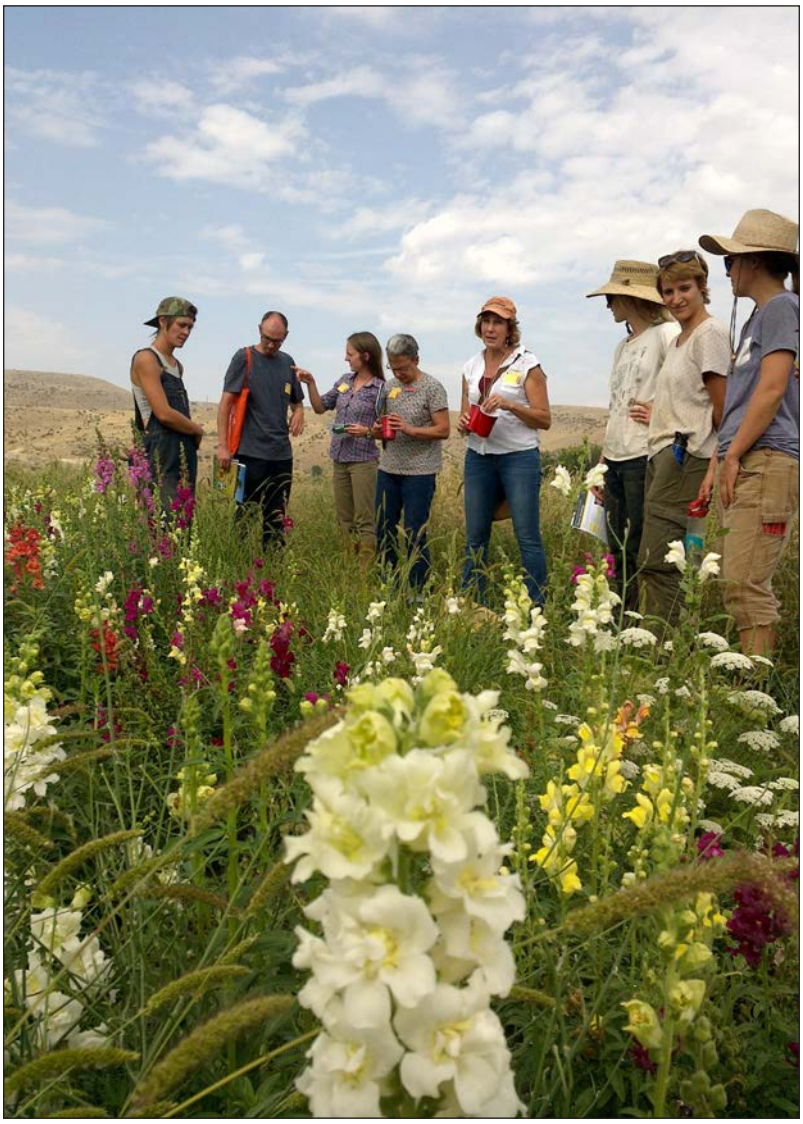
Two thousand farmers and farm agency staff were directly trained at the conservation biological control courses and from our post-course reporting, we know that agency staff have carried the message forward to an additional 1,700 farmers—a ripple effect that we hope continues to grow. To date, course participants and the farmers they assisted have created over 3,900 acres of habitat. Many farmers have changed management practices—for example, by incorporating flowering cover crops and reducing tillage—on 12,733 acres of farmland specifically to support beneficial insects. The conservation biological control courses have also resulted in 58 farms enrolling in federal conservation programs to protect beneficial insects.

Direct Support for On-Farm Pollinator Conservation

Through one-on-one conservation support to farmers, NRCS conservation planners, and other agricultural professionals, we help address the unique opportunities and challenges associated with individual farms. We work with farms of all sizes at all stages of habitat creation.

To support the increasing numbers of farmers installing pollinator habitat, over the last two years we have added seven new conservation biologists based in NRCS field offices in California, Iowa, Maine, Minnesota, Nebraska, North Dakota, and Oregon. This team of biologists is supporting farmers with one-on-one pollinator conservation consulting and is providing technical assistance to regional NRCS staff. With the expansion of our pollinator conservation team, over the last year, we were able to provide direct assistance to nearly 300 farmers across the country, and help improve national and state-level policies for pollinator conservation.

In addition to working with individual farmers, we provided farm conservation agencies like the NRCS and soil and water conservation districts with resources to empower their personnel to independently spearhead pollinator conservation projects. These resources include habitat establishment guides, pollinator plant lists, pollinator and beneficial insect monitoring and habitat assessment tools, and more.



Participants in a conservation biological control course in Caldwell, Idaho. Over the four years of the program, 2,000 people enrolled in the Conservation Biological Control courses. (Photo: NRCS / Justin Ross.)

We also partner closely with the NRCS to develop programs locally, regionally, and nationally that help farmers create habitat for pollinators on their land. For example, we collaborated with the USFWS and the New England NRCS state offices to develop a regional initiative to conserve habitat for monarch butterflies and yellow-banded and rusty patched bumble bees, and we helped the NRCS develop a new program in Oregon that will provide fruit growers with funding and technical support for pollinator habitat projects. We will be working with the NRCS to implement both of these efforts in the coming years.

Helping Iowa Farmers Create Habitat for Pollinators

A recent survey showed that the majority of Iowa's farmers are concerned about declines in the monarch population and more than 40 percent wanted to learn how to improve habitat. Clearly, farmers are interested in making a difference, and since last July, the Xerces Society's Sarah Nizzi has been working to meet this desire. Sarah works jointly with the USDA NRCS as a farm conservation planner, advising farmers and landowners on how to create pollinator habitat, including guiding them toward technical and financial assistance available through federal, state, and local programs. A large part of this work is building relationships between the agricultural and conservation communities, which helps bridge the gap between two seemingly divergent groups.

Rick and Beth McGeough are two of the Iowa farmers with whom Sarah has been working. At Edge of the Woods Raspberry Farm, Beth grows red and black raspberries, blackberries, currants, blueberries, pie tart cherries, gooseberries, and rhubarb—all on two acres. Providing both an inspiring experience and quality local food is very important to Beth and Rick. Although Edge of the Woods Raspberry Farm is not certified organic—because of the expense involved—Beth goes to great lengths to avoid the use of chemicals, including a lot of hand pulling of weeds.

Providing a safe refuge for pollinators, like the monarch butterfly, is also important to the McGeoughs. This spring, the McGeoughs contacted their local USDA Service Center and worked with Sarah to apply for financial assistance to help convert seven acres of former hay ground into monarch habitat.

When asked what made them interested in monarch habitat specifically, Rick explained that he and Beth have witnessed lots of species rebound in Iowa over the years. They would like to see the same happen with the monarch butterfly, so they want to do their part to help. In fact, this new diverse habitat will not only help monarch butterflies, but it will also give refuge to other pollinators and bird species. The land being converted is adjacent to Beth's crops, which will benefit from insect pollination. The McGeoughs hope to be planting their new habitat in the fall of 2019 or spring of 2020.

When asked about her work at Xerces, Sarah Nizzi says, "I feel fortunate to have the opportunity to meet many folks—including Rick and Beth—who have a passion for healthy local food, sustainability, community, and conservation, and to help these individuals and their families make their conservation goals a reality."

Bee City USA Galvanizes Communities to Take Action for Pollinators

To stem further pollinator declines, it is imperative that we work in urban and suburban areas as well as on farms and in natural areas. Many scientific studies show that restoring areas of habitat in towns and cities and protecting these areas from pesticides leads to greater diversity and abundance of pollinators. Over 80 percent of Americans live in cities and towns, which cover about 69 million acres. Engaging this large constituency to protect and restore habitat for pollinators is an important priority for Xerces.

To help us align with this priority, in June of 2018, the Xerces Society joined forces with Bee City USA and its companion program Bee Campus USA. Bee City has been harnessing the enthusiasm of communities to protect pollinators by providing them with healthy habitat, rich in a variety of native plants, and free to nearly free of pesticides since 2011. Since the Xerces Society and Bee City joined forces, 22 cities and 49 campuses have become affiliates of this program—for a total of 91 cities and 78 campuses in 39 states, plus Washington, D.C. Our current affiliates represent communities of all sizes, from San Francisco, California to Boone, North Carolina.

Through the Bee City program, city governments, universities, towns, schools, libraries, neighborhood associations, garden clubs, businesses, and other local stakeholders are invited to design their own programs to protect and restore pollinator habitat. Bee Cities and Bee Campuses commit to providing habitat for pollinators using locally native plants that bloom in succession throughout the growing season, limiting the use of pesticides, and implementing community outreach programs to raise awareness of the vital ecosystem services pollinators provide. We help communities determine how they can effectively use the resources they have to achieve these goals.

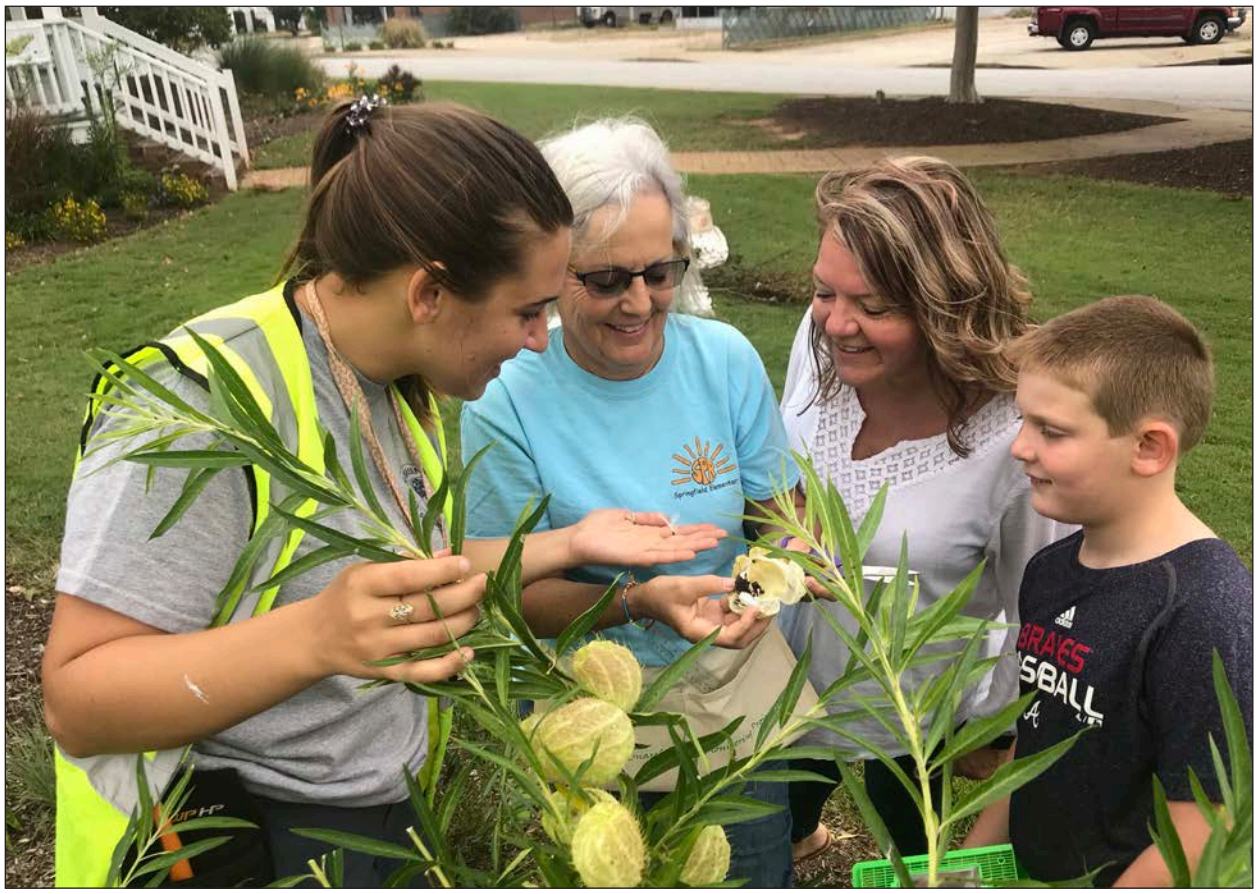
These communities are protecting and restoring habitat patches that, together, create bridges between islands of habitat, connecting corridors for pollinators to reproduce and move across the landscape. In Durham,

Over 200 people came to the first Bee City USA event, held in Eugene, Oregon, in the spring of 2019. The Mayor of Eugene, Lucy Vini seen above in the yellow shirt, held a ribbon cutting ceremony for the city's new Bee City USA sign, which commemorates their certification in 2018. (Photo: Xerces Society / Aimee Code.)

NC, affiliates are planting pollinator gardens at 18 schools, developing propagation programs at four schools by producing 3,400 native plants to sell, and starting a seed donation program at three libraries. Bee City Raleigh, NC, converted over 339 acres of lawn into habitat, planted eight acres of pollinator plants, removed 13 acres of invasive plants without using herbicides, and preserved 158 acres for foraging. In Puyallup, WA, a natural area was enhanced with tree snags and bare area for nesting bees and a large area of invasive species was removed.

Bee Cities and Bee Campuses have also been effective in reducing pesticides. For example, in 2018, Lane Community College, a Bee Campus in Oregon, banned neonicotinoids; Bee Cities Greenwood, SC, and Decatur, GA, instituted responsible mosquito management programs to eliminate insecticide spraying which can harm bees and other wildlife; and the Talent, OR, Bee City established a city-wide plan on Integrated Pest Management.

Additionally, affiliates are engaging the public in pollinator conservation by writing regular newspaper columns, hosting pollinator presentations and outreach events, creating murals to promote pollinator conservation, and offering continuing education courses on pollinator friendly gardening.



Participants learn from local Bee City USA committee members about Monarchs and Milkweed at a Pollinator Garden in Greenwood, South Carolina. (Photo: Ann Barklow.)

The Emerald City: Leading the Way for Pollinators

In 2015, Seattle, WA, became the eighth Bee City USA affiliate. The city is an amazing example of how Bee City brings together a community through a united passion to conserve bees and other pollinators. In addition to conducting programming that meets the three pillars of the Bee City program—protecting and restoring habitat, reducing pesticides, and engaging the community through outreach—Bee City Seattle also holds multi-year pollinator population assessments and hands-on activities for the community.

Bee City Seattle has embarked on major pollinator habitat projects such as the "Green Line," which will consist of habitat on 64 acres along the Seattle City Light transmission corridor right-of-way and include a native plant nursery, edible native education trail, and pollinator meadow. Partners collected three years of baseline pollinator population data prior to starting to plant habitat in the fall of 2018 so that changes in pollinator populations can be measured once habitat is established. So far, two acres have been planted and nearly 500 people have been engaged through this project.

Bee City Seattle is also engaging their local community in pollinator conservation in creative ways. To celebrate Pollinator Week, the Bee City coalition held a Bee Photo Exhibit, educational grocery store installations, a Save the Pollinators Symposium, and they released the first ever field guide to bees of the Puget Sound. They provided opportunities for people to get involved in field days and work parties at local parks, farms, and community gardens and held workshops in partnership with Washington State University where community members learned how to make insect hotels, plant with natives, and identify and conserve native pollinators.

Partnerships

There are many organizations and scientists with whom we partner on a regular basis. These include scientists from Rutgers University, Oregon State University, Pennsylvania State University, University of California (at Berkeley, Davis, and Riverside), University of Maine, University of Massachusetts, University of Minnesota, Michigan State University, University of Nebraska, University of New Hampshire, Iowa State University, University of Florida, Simon Fraser University, University of Nevada, University of Vermont, Washington State University, and Cornell University. These partners also include staff from the USDA Natural Resources Conservation Service, USDA Farm Service Agency, Soil and Water Conservation Districts, the U.S. Fish and Wildlife Service, U.S. Forest Service, California Department of Fish and Wildlife, California State Parks, Oregon Department of Fish and Wildlife, Washington Department of Fish and Wildlife, Colorado Department of Transportation, CalTrans, the Monarch Joint Venture, World Wildlife Fund Mexico, United Nations Food and Agriculture Organization, International Union for Conservation of Nature, ICF International, County of Boulder, Colorado, City of Boulder, Colorado, Portland Parks and Recreation, Metro (the metropolitan planning organization for the Portland region), native seed companies in multiple regions, the Midwest Organic and Sustainable Education Service, Practical Farmers of Iowa, Kansas Rural Center, Women, Food and Agriculture Network, Tallgrass Prairie Center, Cape Cod Cranberry Growers Association, Great River Greening, Groundswell Coastal Ecology, Oregon Tilth, Wild Farm Alliance, and the National Sustainable Agriculture Coalition, among many others.

We also work with a broad coalition of more than 40 businesses and brands to make pollinator conservation an increasingly mainstream practice. These businesses encompass a diverse set of organic, natural, and sustainability leaders, including General Mills, Danone, Haägen-Dazs USA, Endangered Species Chocolate, and many more.

Bring Back the Pollinators Supporters

Our accomplishments are only possible because of generous financial supporters like you. In addition to the thousands of Xerces Society members and donors, we would also like to thank the following organizations, as well as to those who choose to remain anonymous, for their commitments to pollinator conservation during the past year.

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Protecting the life that sustains us

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