Xerces Society Annual Report 2023

Protecting the Life that Sustains Us

XERCES SOCIETY
for Invertebrate Conservation

Thousands of Actions, One Shared Mission

Invertebrates pollinate most flowering plants and are a crucial food source for the vast majority of birds, bats, and freshwater fish. In addition, they purify our streams and rivers, offer free pest management, and recycle animal, plant, and human waste. Unfortunately, they are in trouble.

If we hope to stem the losses of invertebrates and the services they provide, we must ensure there is habitat across all landscapes that offers a diversity of climate-resilient native plants and other features and is protected from pesticides. Invertebrates are resilient and such nature-based climate solutions will help both them and us. But there is much to do and an urgency to work quickly.

This annual report is more than a snapshot of Xerces' achievements in 2023. It represents the work of tens of thousands of people working in partnership. Everything here—and more—was accomplished through effective relationships.

Xerces staff work together on innovative projects that lead to meaningful impact. Our staff also collaborate with researchers to understand the best way to protect and manage habitat for species and coordinate over 26,000 volunteers to gather data through community science programs. We help agency staff, farmers, land managers, gardeners, and policy makers create lasting change.

Of course, we could not do any of this without our members and donors. Thank you all for your efforts and support. Together we can make a big difference for life on this planet.

Sincerely,
Scott Black, Executive Director

Main: Xerces Society/Jessa Kay Cruz
Right top: Sue Watts
Right middle: Xerces Society/Jessa Kay Cruz
Right bottom: Xerces Society/Isis Howard

Studying the Health of Native Pollinators in Colorado

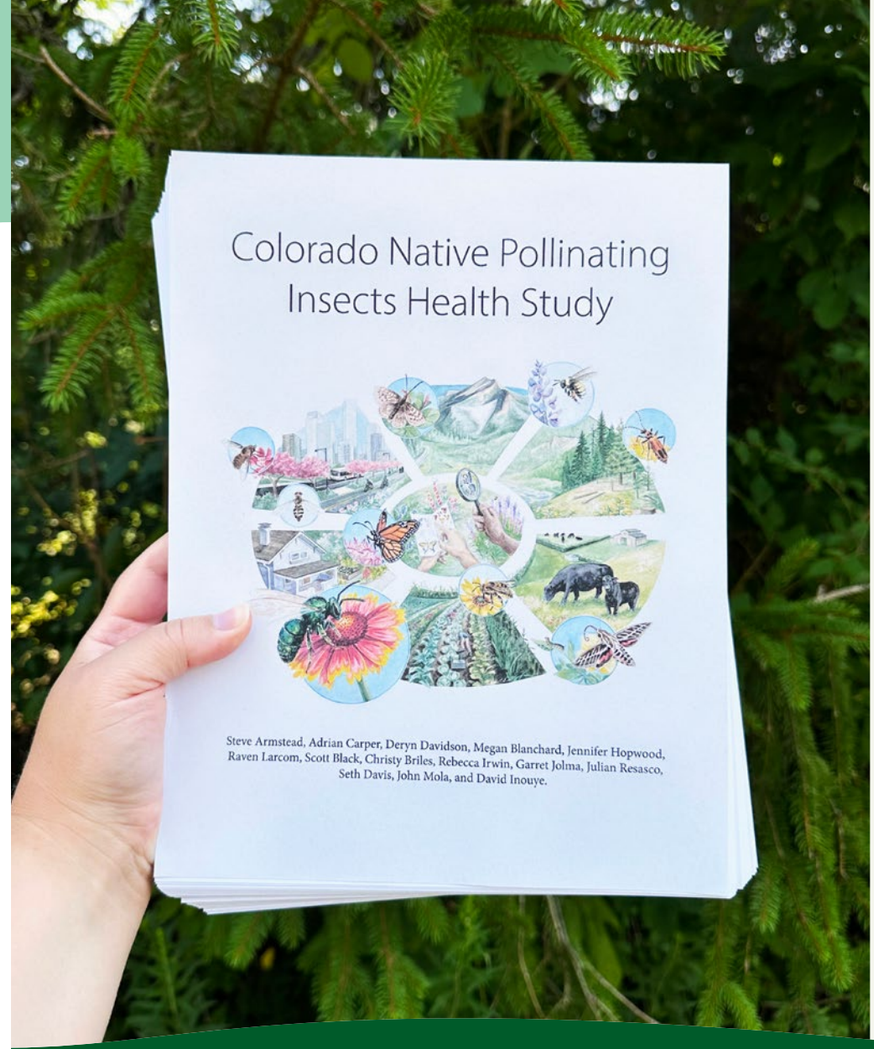
1,300+
species gained conservation attention

86
agency staff and scientists consulted

60
program & policy recommendations

A first-of-its-kind study is paving the way for how Colorado cares for some of its tiniest residents: pollinators. The *Colorado Native Pollinating Insects Health Study* was commissioned by the Colorado Department of Natural Resources at the behest of the state legislature, with the final report finished at the end of 2023. This report is the most robust review of pollinator health ever undertaken in the state, providing a detailed account of the science demonstrating pollinator declines. The report also lays out conservation strategies and policy changes that state agencies can adopt to safeguard the pollinating insects that are so important for Colorado's environment and economy.

A collaborative effort between Colorado State University Extension, the Xerces Society, and the University of Colorado Museum of Natural History, in consultation with state and federal agencies, researchers, scientists, and land managers across the state, the study identified the primary drivers of pollinator declines in Colorado as habitat loss, land-management practices, the widespread use of pesticides, the presence of non-native species of plants and insects, and climate change. In addition to providing guidelines on how to manage habitats for pollinators, the report's authors also reviewed the work currently being done by state agencies and made recommendations on how their efforts can create greater benefit to pollinators, as well as recommendations for new programs and policies to further advance pollinator health.



This report on Colorado pollinator health focuses on education and protection, and ranges in discussion from parks and residential areas to forests, farmland and rangeland. The American bumble bee (*Bombus pensylvanicus*), monarch butterfly (*Danaus plexippus*), and Pawnee montane skipper (*Hesperia leonardus montana*) are among Colorado's native pollinator species of concern that will benefit from increased conservation attention.

Main: Xerces Society/Kailee Slusser
Right top: Xerces Society/Katie Lamke
Right middle: Xerces Society/Stephanie McKnight
Right bottom: Craig Hansen/USFWS (CC BY 2.0)

Advancing On-Farm Conservation

19,760
acres of farmland certified

25
farms enrolled

Bee Better Certified®, the first third-party verified eco-label for pollinator and biodiversity conservation on farms, has enrolled 25 farms that jointly manage 19,760 acres of cropland across six states. Collectively, the farms grow fifteen crops, including almonds, apples, avocados, blueberries, grapes, hazelnuts, peaches, and strawberries.

Bee Better certification ensures that food companies are truly living up to a commitment to protect pollinators. It rewards those companies by communicating their commitments to consumers through a product label seal. The seal means that the farms achieving this standard have eliminated many harmful pesticide uses and incorporated ecologically sound practices in order to support pollinators.

Recognition of the value of Bee Better Certified within the grocery industry is growing. Kroger, the largest grocery chain in the United States, announced that it will require all of its fresh produce suppliers to use integrated pest management (IPM) practices by 2030. This follows similar commitments made by Walmart, Giant Eagle, and Whole Foods Market to advance sustainability and biodiversity conservation in their produce supply chains. To comply with Kroger's sourcing requirement, suppliers must achieve a third-party IPM and biodiversity-focused certification—with Bee Better Certified at the top of the list. To meet the anticipated demand for certification, we also added two new certification providers, SCS Global Services and Primus Global Food Safety, to join with us and our longtime partners at Oregon Tilth.

Bee Better Certified farms provide safe habitat for pollinators and beneficial insects. The invertebrates provide pollination and pest control services for crops in return. For example, when a field of certified blueberries is in bloom, pollination by native bees is key to a bountiful crop of tasty fruits. The Bee Better Certified seal on the final package signals that the bees on the farm were supported beyond the blueberry bloom period, too.

Main: Xerces Society/Anna Murray
Right top: Xerces Society/Nancy Lee Adamson
Right middle: Emily May
Right bottom: Homegrown Organic Farms
Left: Xerces Society/Cameron Newell

Supporting Regenerative Agriculture and Biodiversity on Farms and Ranches

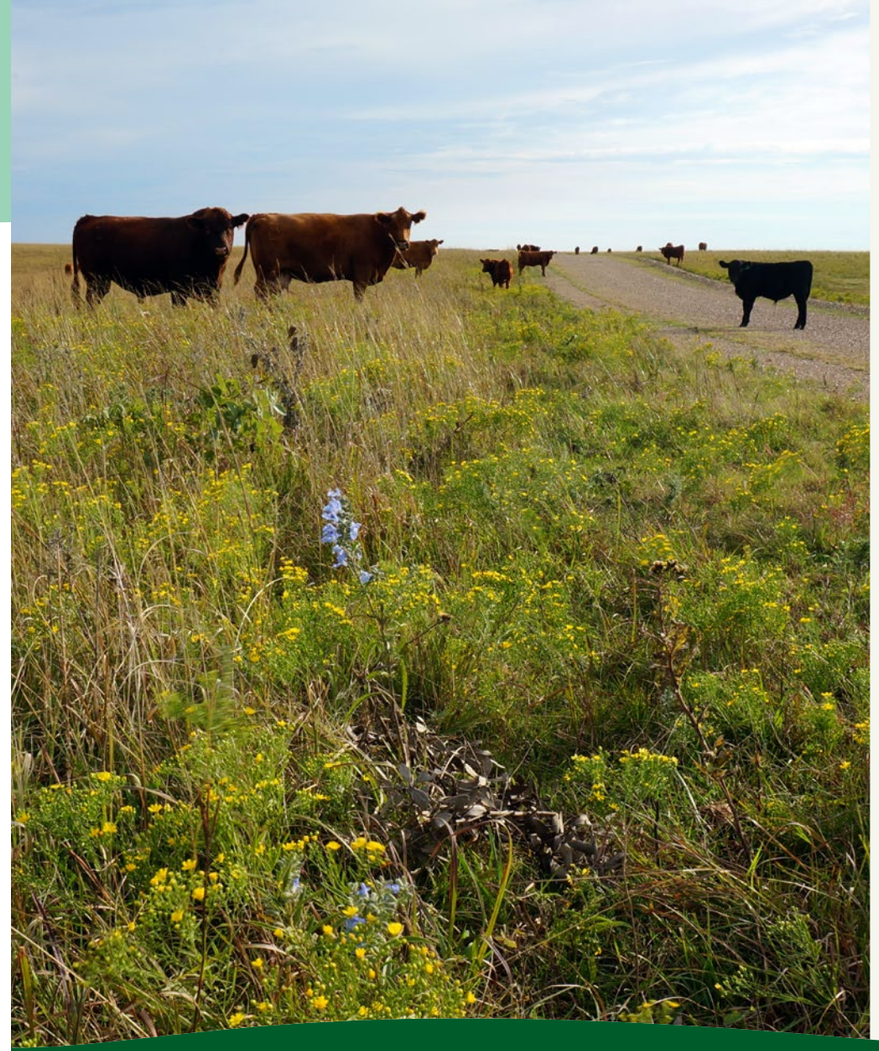
100K+
acres of habitat restored

440
farmers supported

17
miles of hedgerows planted

Thanks to an enduring partnership with the USDA Natural Resources Conservation Service (NRCS), the Xerces Society has been able to provide support to land stewards seeking to restore or enhance habitat for pollinators and other beneficial insects on private farmlands, ranches, and forests since 2016. This collaborative work has gone beyond planting flowers for bees and other pollinators: by creating a framework for incorporating biodiversity into regenerative farming and Great Plains grazing at scale, it has empowered thousands of farmers and ranchers to act on insect declines. Along with measurable increases in pollinators and other beneficial insects, our work also accrues soil carbon, improves the water holding capacity of soils so they can better withstand drought, and bolsters the resilience of our food webs. Cumulatively, this work has shaped 1.7 million acres of climate-resilient, biodiverse regenerative agriculture practices, with more than 100,000 acres added because of our collaborative efforts in 2023 alone.

Last year, Xerces staff worked with over 440 farmers, conservation partners, and other land managers in 36 states. From planting cover crops to installing permanent pollinator habitat features such as hedgerows and riparian buffers, to creating incentives to maintain wildflowers on Great Plains rangelands, our staff create lasting changes on agricultural lands. We provide outreach, training, and site-specific technical guidance to NRCS staff, farmers, ranchers, and other land stewards. In addition, we offer ongoing support for habitat projects, including management recommendations to maintain long-term plant diversity and habitat resilience.



Farmers and ranchers who incorporate native habitat and regenerative practices attract a diversity of beneficial species to their land. For example, both soldier beetle larvae and wasps are predators of common crop pests, and pollinators of crops and other flowers as adults. Dung beetles speed up the process of nutrients returning to the soil as they bury livestock dung to feed their young, and clean up rangelands in the process.

Main: Xerces Society/Anne Stine
Right top: Xerces Society/Kailee Slusser
Right middle: Xerces Society/Sarah Foltz Jordan
Right bottom: Xerces Society/Anne Stine

Understanding the State of the Bees

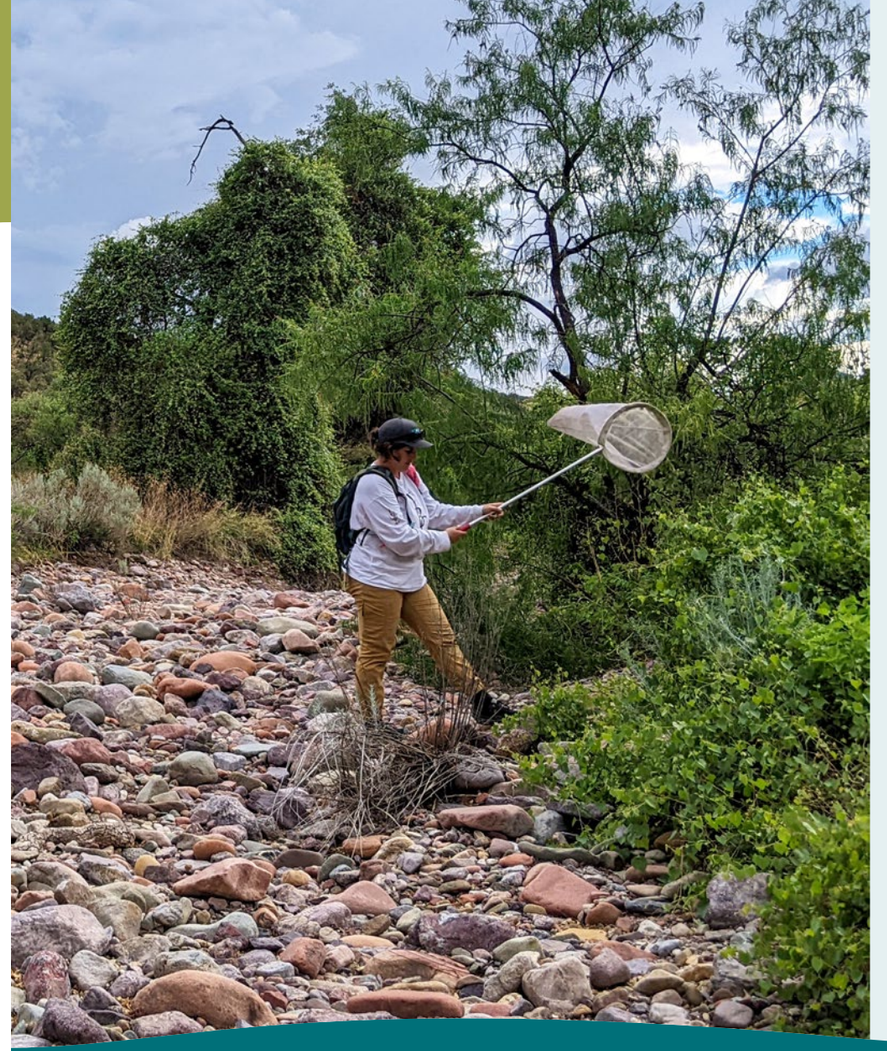
75
assessments for mining bees

1
ESA petition submitted

11
states received recommendations for state wildlife plans

Understanding the conservation status of wild bee species and the threats they face is fundamental to successful conservation efforts. Evidence points to the fact that wild, native bees—essential for a healthy environment—are declining globally at unprecedented rates. And yet, the conservation status of the vast majority of the approximately 3,600 native bees in the United States has not yet been determined. Our limited understanding of the conservation status of bees, along with a lack of information about individual bee distributions, life histories, and habitat needs, greatly hinders bee conservation.

The Xerces Society is working to fill this information gap. Over the last year, we've launched a State of the Bees Initiative with university research, state wildlife agency, and nonprofit partners. To this end, we have conducted extinction risk assessments of 75 species of native *Andrena* mining bees. Each assessment compiled data on the species' distribution, habitat requirements, life history, host plants, and threats, information used to assign an extinction risk category to each bee. We provided information to wildlife agencies in 11 states for including imperiled bees in their updated State Wildlife Action Plans. We also developed detailed species reports for four bumble bee species—American, Crotch's, Morrison, and western—and distributed these to land managers, including the Bureau of Land Management and state wildlife agencies. Additionally, an Endangered Species Act listing petition for the Morrison bumble bee was written and filed in fall 2023.



With data lacking on so many bee species, partners of the State of the Bees initiative are working together to search high and low. Bees like Morrison bumble bee (*Bombus morrisoni*), Mojave gypsum bee (*Andrena balsamorhizae*), and various other mining bees (genus *Andrena*) have already been identified as species of conservation concern.

Main: Xerces Society/Candace Fallon
Right top: Xerces Society/ Leif Richardson
Right middle: lonnyholmes (CC BY-NC 4.0)
Right bottom: Emily May

Preserving the Magic of Fireflies

4
ESA petitions submitted

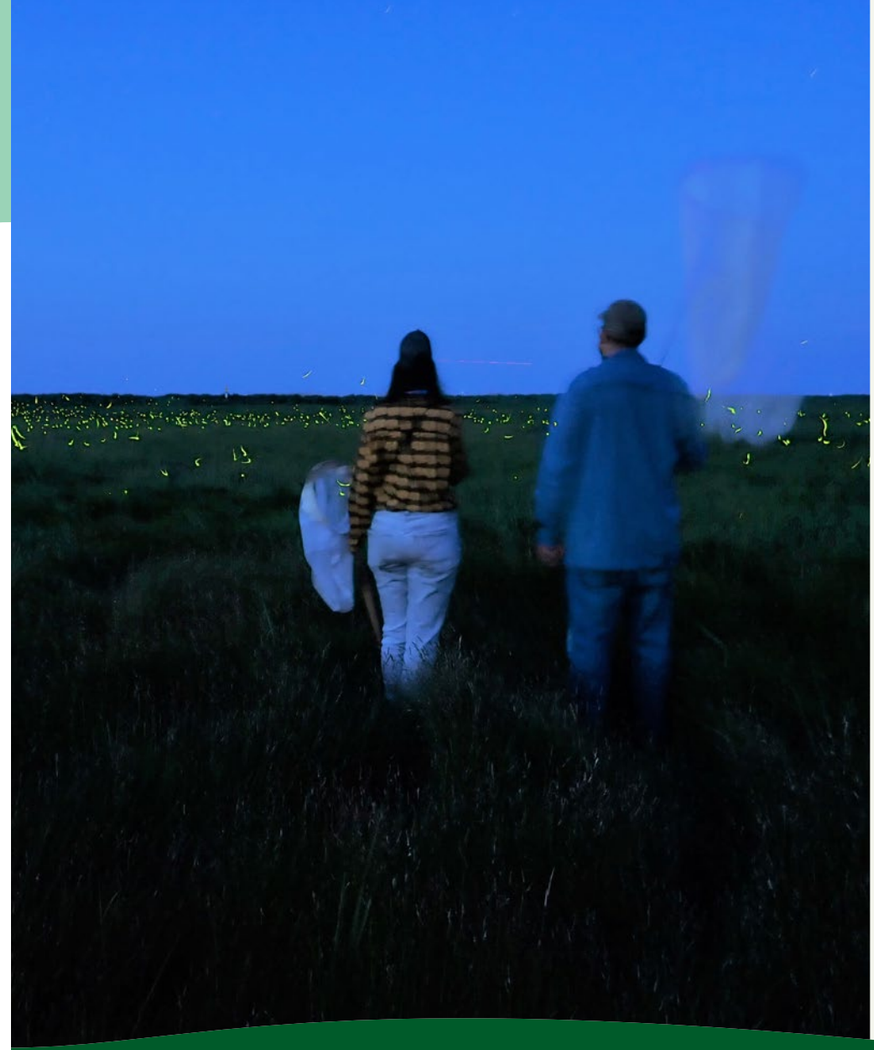
67
people trained to survey for fireflies

100+
land managers engaged

The living light shows of fireflies, aka lightning bugs, are a beloved spectacle. Their flashing displays illuminate warm summer nights from Arizona to Michigan to Tennessee, inspiring awe. Fireflies also play a critical role in scientific research and medicine, and they're an integral part of healthy, thriving ecosystems. Unfortunately these charismatic beetles have received little conservation attention and most research has focused on how they flash, not on how to protect them or their habitats.

The Xerces Society is working to change this. In addition to conducting surveys for a dozen species of conservation concern, Xerces staff launched the Firefly Atlas, a community science project that engages diverse communities in gathering valuable information about fireflies. After a short training course and using provided identification guides, anyone can visit a local site and submit firefly sightings, contributing to the conservation of these luminous creatures. The data gathered builds a picture of firefly abundance, species' distributions, life histories, extinction risk, and threats, information that is crucial for developing effective strategies to protect these animals and the habitats on which they depend.

We also have been working to advance the protection of some of the most imperiled firefly species. We provided guidance to land managers on habitat protection, reached more than a thousand people through talks, webinars, and events, and developed and submitted Endangered Species Act petitions seeking protection for four highly imperiled species.



Firefly Atlas participants are advancing conservation for rare and vulnerable fireflies. The Florida intertidal firefly (*Micronaspis floridana*) is one of the program's focal species. It's habitat is limited to intertidal zones in coastal Florida and the Bahamas. This firefly is magical at every life stage, from lustrous eggs, to glowing larvae, to flashing adults.

Main: Xerces Society/Richard Joyce
Right top: Xerces Society/Richard Joyce
Right middle: Xerces Society/Richard Joyce
Right bottom: Xerces Society/Richard Joyce

Protecting Public Grasslands from Large-Scale Insecticide Applications

8.3M
acres of habitat with increased protection

5,000
people mobilized to halt sprays

Public lands cover extensive natural and semi-natural areas and are vital if we hope to protect biodiversity. Unfortunately, our public lands are often managed in ways that can harm pollinators and invertebrates that are essential food for birds and fish. Such is the case with insecticide applications targeting native grasshopper and Mormon cricket species.

As little as three years ago, it was common for some Bureau of Land Management offices to accept that insecticide sprays were needed across public lands. Our outreach outlining the risk of these insecticides to at-risk species like greater sage-grouse and monarch butterflies has started to promote more thoughtful land management decisions. Because of our work, agencies are now establishing stronger protections to limit both the type and scale of insecticides used across millions of acres. The BLM placed restrictions on insecticide use for grasshopper suppression around sage-grouse nesting areas in Oregon and Washington and denied a request to approve the long-lived, highly toxic, systemic insecticide chlorantraniliprole for use in grasshopper suppression in Idaho.

In New Mexico, vigilance by Xerces staff prevented aerial insecticide spraying over twenty-five thousand acres of the Rio Chama watershed. After the imminent spraying was revealed, we unified a group of partners that included tribal members, organic farmers, and conservationists; within two weeks the spray had been halted.

Grasshoppers, crickets, katydids, and other insects are part of our planet's ecosystems. The American kestrel is just one instance of a predator that relies on these herbivores in our food webs. Broad, large-scale, toxic, and routine insecticide applications meant to manage insects like grasshoppers often affect other important invertebrates, likes bees and butterflies.

Main: Robert N. Clinton (BY-NC-ND 2.0)
Right top: Alan Schmierer
Right middle: Rich Hatfield
Right bottom: Tony Iwane (CC BY-NC 2.0)
Left: Judy Gallagher (CC BY 2.0)

Turning Communities into Pollinator Havens

51
new Bee City and Campus affiliates

160
affiliates reduced pesticide use

1,900
acres of habitat created

Diverse communities across the country are bringing enormous benefit to pollinators and other wildlife. Recognizing this potential, Xerces staff apply their conservation knowledge to make neighborhoods more wildlife friendly. That includes helping public decision-makers and community members to transition away from the pesticides they commonly employ for aesthetic and nuisance pests.

Bee City USA® and Bee Campus USA™ work to galvanize communities to conserve pollinators—in particular the more than 3,600 species of native bees in this country. With guidance from Xerces staff, affiliate cities and colleges work to provide bees and other pollinators with habitat, protect them from pesticides, and spread awareness throughout their community. In 2023, our Bee City and Bee Campus programs added 51 new affiliates. At the end of the year, the network included 379 communities in 46 states, plus the District of Columbia and Puerto Rico.

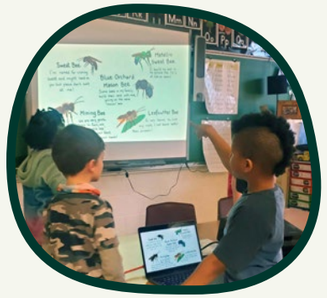
Our affiliates have collectively created thousands of safe acres for pollinators across the country and made strides to reduce pesticide use. Actions have included using steam weeders or weed flamers, even a herd of goats, instead of spraying; shifting mosquito management away from widespread spraying and toward more targeted treatments based on thresholds, source reduction, and education; campaigns to deter homeowners from mosquito spraying; distribution of Spanish and English bilingual “Spray Free Zone” signs at farmers markets; halting use of pesticides for aesthetic or cosmetic reasons, and eliminating them altogether on city properties.

Bee City USA and Bee Campus USA are initiatives that drive pollinator conservation on a systemic level. Safe, native, and abundant habitat attracts and sustains bees, as well as other pollinators such as monarch butterflies, in these cities, towns, and campuses. Common pollinators observed by affiliates across the country include sweat bees, syrphid flies, and hummingbird moths.

Main: Xerces Society/Katie Lamke
Right top: Xerces Society/Kailee Slusser
Right middle: Xerces Society/Kailee Slusser
Right bottom: Julie Michaelson

Nurturing the Next Generation of Conservationists

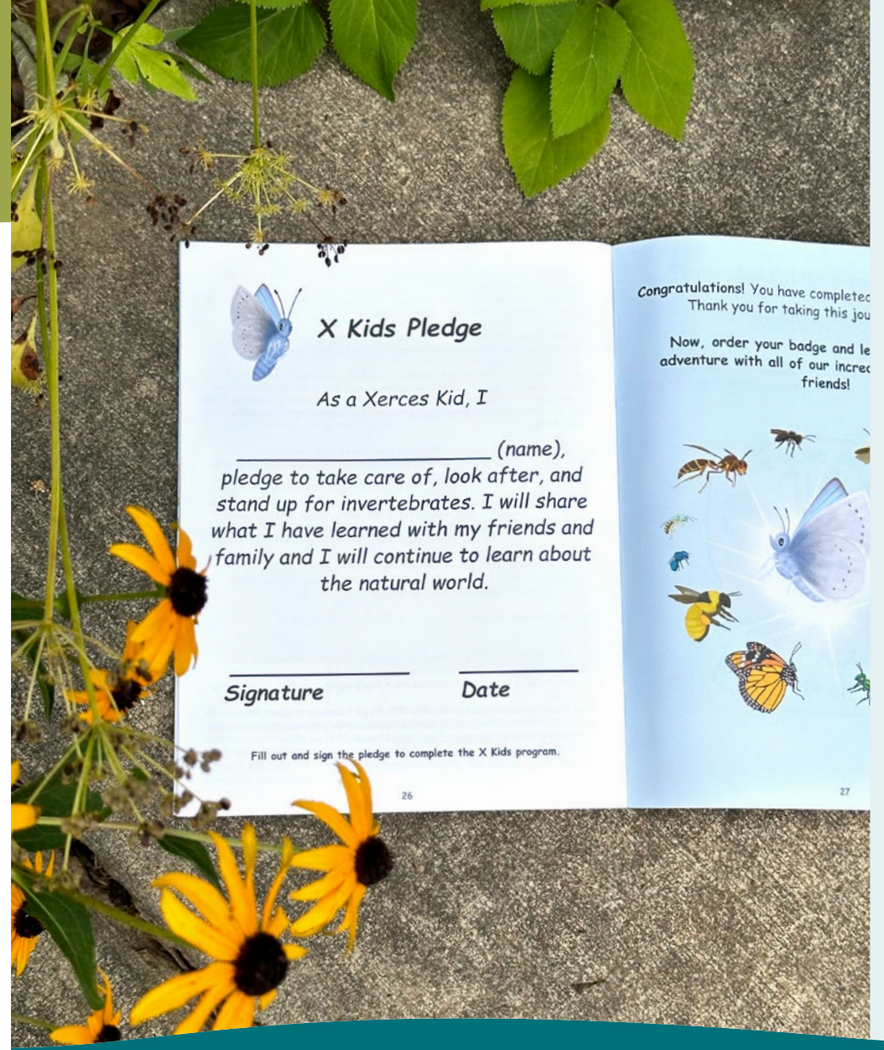
30,000
X Kids books distributed



244
kids received official X Kids Badges

Our X Kids program, now in its third year, continues to grow. Through storytelling and science, X Kids inspires youth to become lifelong invertebrate advocates. Consisting of a series of engaging and educational activities that children complete in order to receive an *Invertebrate Protector* badge, this free activity book is available in both English and Spanish. Blue, a lovable butterfly, takes children on a journey to meet Blue's invertebrate friends and learn about their "superpowers," such as buzz pollination, water filtration, predation, and communication. Along the way, children also learn about their *own* superpowers and how they can use them to help protect nature. The final activities ask children to look for habitat in the landscape and take an action such as community science, volunteer at a habitat project, or give a class presentation.

X Kids has been used by parents, grandparents, teachers, and camp instructors to help children understand the value of bumble bees, fireflies, moths, monarch butterflies, mussels, and more. Over 30,000 children across the United States and Canada have now received our educational books through our Ambassadors' outreach efforts and we continue to network with scout groups, summer camps, and schools to expand the reach of X Kids to tens of thousands of additional children. This program is helping to build the next generation of conservationists—the young people whose actions will be pivotal for protecting our ecosystem in the decades ahead.



Before an X Kid pledges to protect invertebrates, they learn about all kinds of wildlife from illustrated characters like Shimmer the dragonfly, Bubbles the freshwater mussel, and Dots the lady beetle. After an X Kid signs the pledge, they will have the foundation to advocate for these animals throughout their lives.

Main: Xerces Society/Kailee Slusser
Right top: Xerces Society/Kelly Gill
Right middle: Roger Tabor
Right bottom: Thelma Heidel-Baker
Left: Leah Zerbe

Thank You

Protecting invertebrates is essential. These cleaning, filtering, burrowing, pollinating creatures are the tiny engineers that keep Earth as we know it humming along. It's also a big job, and we couldn't do it without all of you. We would like to thank:

- Xerces Society members and donors around the globe.
- Thousands of farmers, ranchers, landscapers, gardeners, land managers, tribes, and nurseries who partner with us to create and maintain habitat.
- Thousands of community and professional scientists around the world who help inform our conservation strategies.
- Hundreds of Bee City USA and Bee Campus USA affiliates that are improving habitat for pollinators and increasing awareness.
- 150 Xerces Ambassadors who help people learn about invertebrates and how they can make a difference in their own communities.
- Over 50 companies working with us to make our world a better place.
- Dozens of organizations and agencies partnering with us to advance wildlife conservation and sustainable agriculture.
- Our board of directors.
- Everyone who goes out of their way to help invertebrates!

Board of Directors

- Beth Robertson-Martin, president
- Casey Sclar, vice-president
- Jay Withgott, secretary
- Linda Craig, treasurer
- Betsy López-Wagner
- Flora Lu
- Sacha H. Spector
- Rachael Winfree, Ph.D.

Main: Xerces Society/Isis Howard
Left top: Xerces Society/Rachel Dunham
Left middle: Xerces Society/Angela Laws
Left bottom: Xerces Society/Giovanni Di Franco

Financial Report

Revenue

Individual donations	$3,800,480	37.6%
Government contracts	$3,099,668	30.7%
Foundation and corporate giving	$1,758,622	17.4%
Program revenue	$992,941	9.8%
Net other revenue & unrealized gain	$458,786	4.5%
Total revenue	**$10,110,497**	**100.0%**

Expenses

Programs	$7,710,775	81.3%
Development & membership	$1,061,888	11.2%
Management & general administration	$716,130	7.5%
Total expenses	**$9,488,793**	**100.0%**

Program Expense Breakdown

- Pollinator conservation | $3,111,125 | 40.3%
- Endangered species | $2,514,625 | 32.6%
- Pesticide reduction | $794,950 | 10.3%
- Community engagement | $585,453 | 7.6%
- Other conservation | $704,622 | 9.1%

$621,704
net operating results

$13,564,356
end of year net assets

Main: Xerces Society/Candace Fallon
Right top: Xerces Society/Rich Hatfield
Right middle: Xerces Society/Cameron Newell
Right bottom: Julie Michaelson

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Cover photo: Emily May

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