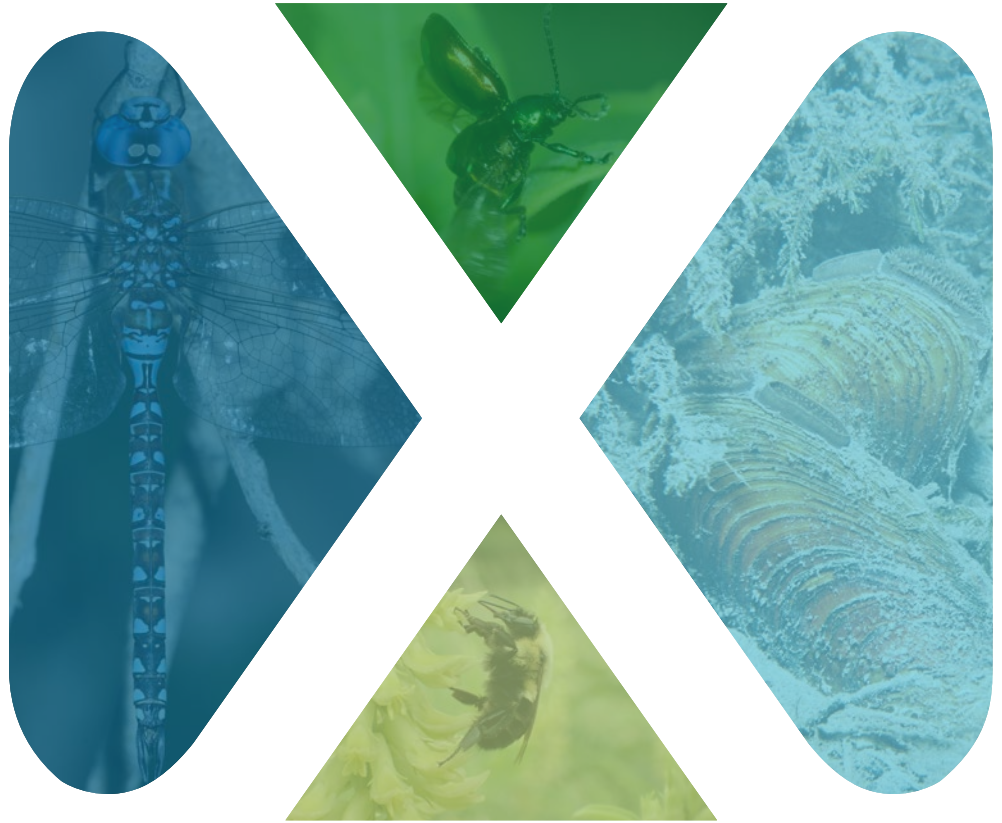


2022



XERCES SOCIETY
ANNUAL REPORT

PROTECTING THE LIFE THAT SUSTAINS US



The Biggest Job in the World

Say “bee” and you may be referring to a group of more than 20,000 known species, each with a unique and indispensable role in keeping our planet green. Insects and other invertebrates are a stunning 96 percent of known animal species, and just one phylogenetic order, beetles, make up a whopping quarter of known animals. This staggering abundance is precisely why our founder, Robert Michael Pyle, called the work of the Xerces Society “the biggest job in the world.”

To help this many invertebrates, we need many advocates. Xerces has grown over 50 years to be the largest invertebrate conservation organization in the world, reaching 70 staff in 2022 (up to 82 and counting at time of publication), yet that still leaves us working at a ratio of one staff member per 20,000 known invertebrate species. This is why we depend on partnerships with people and organizations to progress invertebrate conservation. All people have a role to play in this critical work. Academic and community scientists can help us better understand how and where to focus our efforts; farmers, gardeners, and others can plant habitat; agency staff can help implement policies that benefit biodiversity; and all of us can eliminate or minimize pesticide use.

If we work together, the load becomes manageable and we can make real gains to maintain biodiversity for future generations. This annual report highlights just a few of the partnerships that help Xerces accomplish “the biggest job in the world.” I hope you will join us in creating a better world for invertebrates—which is a better world for all of us.

— Scott Black, Director

Left: Our conservation efforts often begin with searching for tiny invertebrates in a very big world. (Photo: Candace Fallon / Xerces Society.) Right: Xerces Society Director Scott Black searches for insects. (Photo: Theo Black.)



Research Pinpoints a Critical Link in Monarch Recovery



There's no other organization like Xerces for advancing invertebrate conservation.

— Matt Forister, University of Nevada, Reno

Monarch caterpillars are vulnerable to pesticides in and on milkweed leaves. (Photo: Kailee Slusser / Xerces Society.)

To solve a problem like biodiversity loss, it takes a lot of work to identify the threats and determine the right solutions. That's why science is at the core of everything we do at Xerces.

Professor Matt Forister's Great Basin Bug Lab at the University of Nevada, Reno has been an instrumental partner in many of those discoveries. Most recently, the Forister lab and Xerces teamed up to publish a study*, led by doctoral student Chris Halsch, with major implications for monarch recovery. Testing samples from 235 milkweed plants gathered from retail nursery stores across the US, the team found that every single one contained pesticides, raising alarms for monarch conservation efforts that rely on planting milkweed sourced from commercial nurseries.

"We knew milkweed plants were likely contaminated with pesticides, but it wasn't until we started sampling that we realized the scope of the problem," says Aimée Code, Xerces' pesticide program director. "Matt and the rest of the team brought critical skills to the project. Among other things, their deep understanding of data analysis ensures the integrity of our findings. We couldn't do it without them."

Forister says the cross-pollination is mutual. "Working with Xerces over the years has had a huge influence on what we do in my lab. We probably wouldn't have gotten into pesticide questions without Xerces. The fact that Xerces staff are cheerleaders for the science-to-conservation connection makes it rewarding to work on insect science with real-world implications because we know that Xerces can take results we generate and translate them into action."

The team's dramatic findings have already inspired the creation of the Pollinator-Friendly Plant Labeling Act, introduced by Senator Jeff Merkley in June 2023. The legislation would require the Department of Agriculture to create a certification program for plant producers to verify their plants are not treated with pesticides harmful to monarchs and other pollinators.

*Halsch, C. A., S. M. Hoyle, A. Code, J. A. Fordyce, and M. L. Forister. 2022. Milkweed plants bought at nurseries may expose monarch caterpillars to harmful pesticide residues. *Biological Conservation* 273:109699.

235

retail milkweed plants sampled

100%

of samples contained pesticide



Aimée Code



Matt Forister

How to Find a Needle in a Haystack (or a Mussel in a Rock Pile)



I think my favorite thing about partnering with Xerces staff is their willingness to share their expertise, having them look out for and bring my attention to things that would benefit from ODFW involvement, and their ability to continue to partner on projects to help make sure they are successful.

— Michele Weaver, Oregon Department of Fish and Wildlife

Searching for mussels requires much different field gear than terrestrial insect surveys. (Photo: Michele Weaver.)

Xerces' freshwater mussel lead, Emilie Blevins, will be the first to tell you that "freshwater mussels are among the most imperiled animals on earth, yet we know so little about them." These animals clean our freshwater ecosystems, filtering water and cycling nutrients, but protecting them usually means starting at step one: find the mussels.

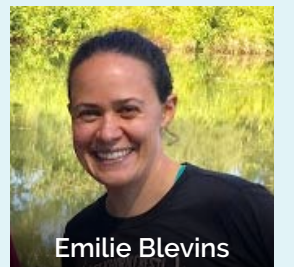
In 2022, our partnership with the Oregon and Washington Departments of Fish and Wildlife (ODFW and WDFW) scored a major step forward to do just that, securing a three-year Competitive State Wildlife Grant from the US Fish and Wildlife Service. Together, Xerces, ODFW, and WDFW are preparing to put hundreds of hours towards the task of surveying to find freshwater mussel populations in Oregon and Washington that can benefit most from conservation attention.

"Resources are tight all around, but by partnering we can accomplish much more together than each of us can alone," says Michele Weaver, a fish conservation and permitting specialist at ODFW. She says the latest project is the result of a collaboration that has grown over time. "At first, I would tag along with Emilie to try and learn from her and support her efforts. Then, over time, I have been able to commit a little more of my time to freshwater mussels and we have been able to take on some larger projects together."

Emilie says that the reach and expertise of the state agencies will make much faster work of a big task over a huge area, while also training new staff and partners to understand and advocate for these important animals. "Invertebrate conservation is not a one-person job. We need all hands on deck—which is why we're fortunate to work with great partners like Michele and ODFW."

300
freshwater
mussel species
native to North
America

35+
North American
species already
extinct



Emilie Blevins



Michele Weaver

A Husband-and-Wife Duo Maps Bumble Bees in Nebraska



There are so many ways to make a difference and get involved. There is absolutely a place for everyone in this work.

— Denise Pecha, Nebraska Bumble Bee Atlas Volunteer

Bumble Bee Atlas volunteers track many species, like this American bumble bee. (Photo: Katie Lamke / Xerces Society.)

“To be frank, I used to be one of those guys who prided himself on having a very well manicured lawn,” says Ted Kyster. That was before his wife, Denise Pecha, started advocating for pollinator-safe gardening and prompted the duo to volunteer as community scientists with the Nebraska Bumble Bee Atlas.

Atlas volunteers work alongside Xerces staff to help gather information about bumble bees, collecting vital data to improve our methods for protecting them. Since joining, Ted and Denise have surveyed their way through fourteen counties and documented 216 bumble bees in Nebraska. Denise captures the bees, while Ted takes the photographs for identification.

“We have seen dung beetles in action, cool assassin bugs, rare butterflies, and so many kinds of beautiful bumble bees!” says Denise. “We are more observant, curious, and find joy in so much of what we do, and we continue to learn.”

“Local residents like Ted and Denise are the foundation of these projects,” says Xerces Society’s Katie Lamke, who coordinates the bumble bee atlases in the Midwest. “It is only with the help of trained and dedicated participants that the atlas project is successful. Not only are they expanding the reach of our survey effort, but they’re also helping to grow a community of pollinator advocates by sharing their knowledge with others along the way.”

Nearly 200 trained participants in Nebraska have recorded more than 6,800 bumble bee observations, enabling the publication of *A Guide to the Bumble Bees of Nebraska* and *Habitat Management for Bumble Bees in Nebraska* by the University of Nebraska–Lincoln and the Xerces Society.

As the programs grow, so does the need for community scientists, and Ted has advice for anyone up for the challenge. “Do it. Just do it. You will learn more about the world we live in and how to be a contributor to a healthier world. You will also learn more about yourself and your partner and share the joy of learning something new and maybe meeting a new bumble.”

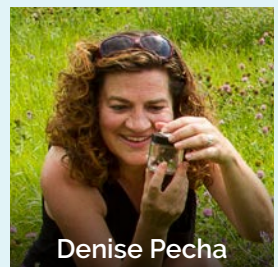
10
states with
Bumble Bee
Atlas programs
in 2022



Katie Lamke



Ted Kyster



Denise Pecha

Xerces Ambassadors Inspire Others, One Community at a Time



We are incredibly fortunate to have Chris and such an outstanding group of people willing to give their time, share their hearts, and represent us with pride.

— Rachel Dunham, Xerces Society

Moth costumes aren't required, but Xerces Ambassadors are some of the most passionate invertebrate protectors out there. (Photo: Chris Robie.)

While we often talk about the importance of science, teaching others about invertebrate conservation is just as critical. That's what the Xerces Ambassadors do. They are a cadre of long-term volunteers who engage with communities across the continent. Ambassadors host educational workshops, table at events, and inspire others to care about invertebrates.

Chris Robie is one of them. After retiring and moving to Arizona, Chris wondered what her new home had to offer. "We were in the thick of COVID, feeling isolated and distant from everyone," Chris recalls. "Rachel Dunham and Matthew Shepherd and the Xerces staff were so encouraging and supportive. Not only through classes and one-on-one online training, but also their caring and compassion for Xerces and the Ambassador program was very evident."

Xerces began the program in 2019 with a group of 13 volunteers, which by 2022 had expanded to 73 across the United States and Canada. "We wanted to empower and equip passionate and experienced volunteers to make a difference in their communities," says Rachel Dunham, who coordinates the Xerces volunteer program. "Chris' passion shines through everything she does."

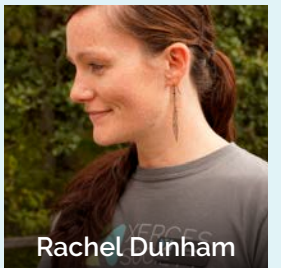
Chris believes her role inspiring others to protect invertebrates works both ways. "I love to hear stories from my adult audience on how they have changed their gardening practices because of their better understanding of the interdependent relationships of nature and human actions," says Chris. "And I love teaching children and sharing puppets and the X Kids booklets. Children teach and inspire me as well!"

52

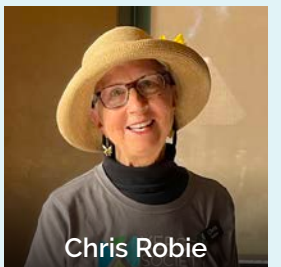
new Ambassadors recruited in 2022

1.6K

people reached by Ambassador engagements in 2022



Rachel Dunham



Chris Robie

Building a Legacy of Corporate Sustainability



As “the little things that run the world,” invertebrates form the foundation of many of our terrestrial and aquatic ecosystems, and yet they are greatly underappreciated in mainstream conservation. It is this unique focus on these species that attracted us to the Xerces Society initially and makes us proud to continue that support.

— Rebecca Blank, Church & Dwight Philanthropic Foundation

Employees of Xerces and Church & Dwight visit new pollinator habitat at the company’s headquarters. (Photo: Church & Dwight.)

The Church & Dwight Philanthropic Foundation has been a corporate sponsor and partner with the Xerces Society since 2021, supporting our efforts to restore thriving, diverse, and abundant native pollinator populations. As a company with a legacy of environmental action that goes back more than 100 years to its first use of recycled packaging, they saw the Xerces Society as a unique addition to achieving their sustainability goals.

“Invertebrates form the foundation of many of our terrestrial and aquatic ecosystems, and yet they are greatly underappreciated in mainstream conservation,” says Rebecca Blank, the vice president of the foundation and marketing director. “It is this unique focus on these species that attracted us to the Xerces Society initially and makes us proud to continue that support.”

Not content to stop there, the company has also worked to give their employees firsthand experience with pollinator conservation. With help from Xerces’ senior pollinator conservation specialist Kelly Gill, Church & Dwight established a pollinator habitat in Ewing, New Jersey, outside of its corporate headquarters for employees to enjoy and learn from. “Invertebrate conservation is a really great way to get people involved in things they can see, right when they step out of their own backyards,” explains Rebecca.

Xerces Director Scott Black says their contribution has a far-reaching impact across the landscape. “Church & Dwight’s support to Xerces makes it possible for us to reach additional farmers, land managers, and gardeners with training on pollinator habitat protection and sound land management practices. The fact that they are also restoring habitat at their corporate campuses and stepping up to educate their employees is fantastic and just goes to show that pollinator conservation is for everyone, everywhere—work, home, or school!”

3

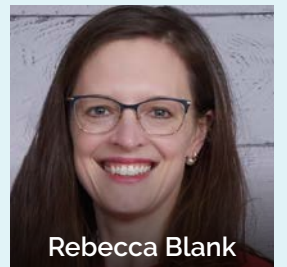
years of partnership with Church & Dwight

50+

corporate sponsors and supporters in 2022



Scott Black



Rebecca Blank

Sharing a Love for Insects, Even the Annoying Ones



The Bee City USA program provides the opportunity to begin a dialogue with the community about the important role that insects play in our larger ecosystem.

— Peter Helfrich, Bee City USA Decatur

“Beecatur” hopes to replace harmful mosquito sprays in their community with pollinator-safe alternatives. (Photo: Laura Rost / Xerces Society.)

The Bee City USA affiliate in Decatur, Georgia, is affectionately known as “Beecatur,” and much like bees, they stay busy. Chairperson Peter Helfrich can rattle off a long list of achievements: an annual downtown pollinator festival, maintaining the city’s pollinator gardens, education at city schools and community events, and even a citywide campaign to promote pollinator-safe alternatives to mosquito spraying. The group’s tireless efforts are motivated by a passion for changing the way people view insects.

“Unfortunately, whether it’s carpenter bees, ground-nesting mining bees, mosquitoes or yellow jackets, most of the questions I field from the public start off with the words, ‘How do I get rid of,’” says Peter. “Some people simply won’t be receptive to our message on pesticide use or native plants or regarding the backyard as habitat. But change is incremental. Not everybody’s going to jump right on board, and that’s okay. We’re trying to find those who are curious and willing to take the next step.”

Laura Rost, Bee City USA national coordinator for the Xerces Society, says the affiliate’s efforts are having an impact far beyond just Decatur. “Decatur is a model Bee City in many ways. In addition to the great work in their hometown, they are generous with their time and help many other Bee Cities with efforts to reduce pesticide use in their own communities. Decatur’s thoughtful conservation work and willingness to support others strengthens the Bee City and Bee Campus community.” In 2022, the Bee City and Campus surpassed 325 affiliate groups around the country.

Peter says that being part of the Bee City network makes a hard job easier for pollinator advocates. “Being part of a program that is backed by the Xerces Society and the City of Decatur is incredibly important for the credibility it lends. As a result, people tend to be more open to the information we share regarding bees and insects, thankfully. The Bee City USA program provides the opportunity to begin a dialogue with the community about the important role that insects, even the annoying ones, play in our larger ecosystem.”

12.9K

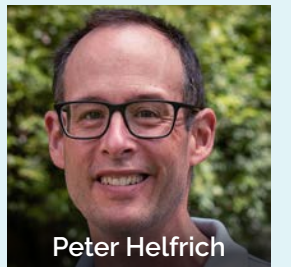
acres of pollinator habitat created or enhanced by Bee City USA affiliates in 2022

316K

people engaged in pollinator conservation through Bee City USA in 2022



Laura Rost



Peter Helfrich

Habitat Kits Build Connectivity for Pollinators and Neighborhoods



In areas that appear devoid of pollinators, if you plant proper native plants, the pollinators will come and each year their numbers will increase. It's easy to do and beneficial, so every plot of land should be doing this!

— Mike Haberland, Rutgers Cooperative Extension of Camden County

Even in just the first year, Mike's habitat kits were in bloom and supporting countless invertebrates. (Photo: Mike Haberland.)

New Jersey resident Mike Haberland has installed not one but two Xerces Habitat Kits for simple reasons: "I enjoy promoting the ecological benefits of native pollinator plants, and they look nice, too!" As a Cooperative Extension employee with Rutgers University, Mike's habitat kits have the added benefit of being a learning opportunity for his apiculture students, with guest lessons from Xerces. After receiving the kits from Xerces pollinator specialist Kass Urban-Mead, Mike has installed habitat at two places, a detention basin and rain garden in Blackwood and the Isabel Miller Community Center in Camden.

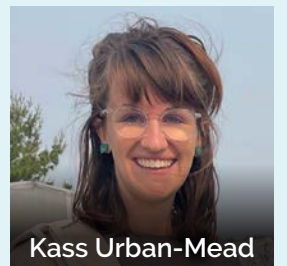
The Xerces Habitat Kit program was started in 2019 to provide a simple solution to a surprisingly complex problem: sourcing pollinator-safe native plants and getting them to community groups and individuals willing to put the time and labor into establishing beneficial insect habitat. In most locations, the habitat kits are installed on community gardens, farms, schools, and other shared spaces where pollinators can go to work supporting locally grown food and the projects can help connect neighbors. In 2022, kits were available in California, New Mexico, and several northeastern states, with plans for additional regions in 2023.

"The native pollinator plants provide food and habitat in areas where this is lacking, like urban and suburban areas, corporate centers, and agricultural plantings," says Mike. "It's impressive how quickly pollinators take advantage of their new habitat, and each year the number and diversity increases."

Kass noted that habitat kit recipients like Mike aren't just providing more space for pollinator plants, they're building community for people and wildlife. "As more and more sites install kits each year, and teach each other about pollinators, they develop a strong network of community partners," says Kass. "As the numbers grow, it creates corridors and connectivity between neighborhoods: way stations for migrating butterflies, diverse forage areas for native bees."

257
projects
supported by
habitat kits in
2022

6K
milkweed plants
distributed
through habitat
kits in 2022



Kass Urban-Mead



Mike Haberland

Zirkle Fruit Company Leads by Example with Biodiverse Orchards



There's not a doubt in my mind this is a good idea for farms. For example, by having plantings that attract native pollinators, it reduces the pressure placed on our honey bee hives in spring. It's a win-win for the environment and for our production.

— Harold Austin, Zirkle Orchards

This newly installed hedgerow (to the right of the road) will grow to provide a permanent home for pollinators and beneficial insects at Zirkle orchards. (Photo: Angie Orpet / Xerces Society.)

Nestled in the semi-arid plains and valleys of eastern Washington, Zirkle Fruit Company, with its marketing partner Rainier Fruit, is one of the largest growers and packers of organic fruit in the United States. This family-owned company believes in sustainable operations to maintain beneficial relationships with the soil, pollinators, and crops, and has been a Xerces Society partner since 2017.

Zirkle initially installed habitat next to organic fruit acreage, and the staff were so satisfied with the outcome they wanted to expand to conventional acreage. Xerces conservation specialists worked with Zirkle's regional managers and consultants to create hedgerows and meadows, including Harold Austin, Zirkle's director of orchard administration. The partnership works, he says, because "Xerces has knowledgeable people that understand what we are trying to accomplish on our farm."

Zirkle Fruit took their commitment to pollinators a step further when they became Bee Better Certified on 150 acres of tree fruit. In total, they manage 5.6 miles of hedgerow and 24 acres of seeded habitat, and add additional habitat every year". Anna Murray, who leads Xerces' Living Farms project, knows just how important that is. "In some intensively farmed regions of the US, agriculture is the only land use for hundreds of miles," says Anna. "Without habitat in these areas, wildlife would have nowhere to forage for food and no place to shelter. In turn, farms become more vulnerable to pests and diseases and more dependent on pesticides and commercial honey bees."

Anna says Harold and the Zirkle community have been highly engaged with the habitat restoration process. "They've taught us a lot about making habitat work in intensively farmed areas," says Anna. "When we connect with new growers, we can point to the habitat on Zirkle properties as stellar examples."

Harold says Zirkle's commitment to pollinator habitat has also drawn attention from buyers. "The response from our buyers has been completely positive, and it leads to a lot of questions. We're able to explain the benefits to the plants, to the pollinators, and the rest of our farm."

500+
farmland acres
and 6 new farms
became Bee
Better Certified
in 2022

822
total acres of
permanent Bee
Better habitat on
farms by the end
of 2022

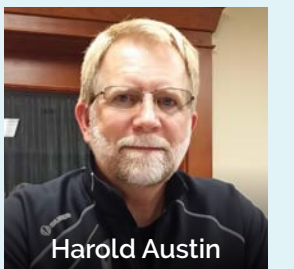
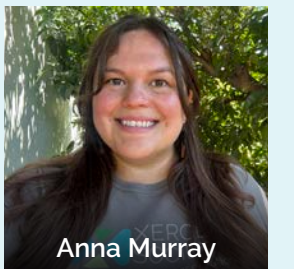




Photo: Sara Morris

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:

- Our Xerces Society members and donors around the globe.
- Hundreds of farmers who partner with us to create and maintain habitat.
- The thousands of community and professional scientists around the world who help inform our conservation strategy.
- Over 325 Bee City USA and Bee Campus USA affiliates that are improving habitat for pollinators and increasing awareness.
- Volunteers who help with webinars, publications, program development, and other essential projects.
- 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
- Lisa Bertelson, Secretary
- Linda Craig, Treasurer
- Betsy López-Wagner
- Sacha H. Spector
- Rachael Winfree, Ph.D.
- Jay Withgott



Photo: Katie Lamke / Xerces Society



Photo: Matthew Shepherd

Financial Report 2022

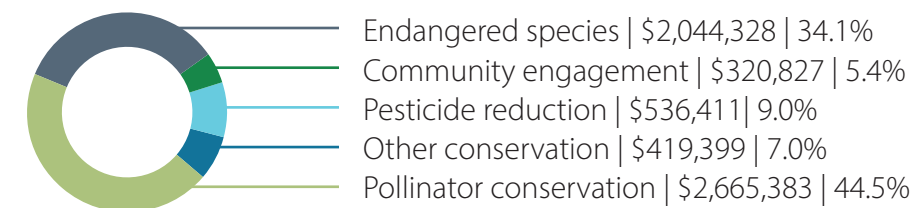
Revenue

Individual donations	\$3,674,334	42.4%
Foundation and corporate giving	\$1,766,268	20.4%
Government contracts	\$2,147,245	24.8%
Program revenue	\$1,122,377	12.9%
Net other revenue & unrealized gain (loss)	(\$47,521)	(0.5%)
Total revenue	\$8,662,703	100.0%

Expenses

Programs	\$5,986,348	78.6%
Development & membership	\$972,591	12.8%
Management & general administration	\$654,926	8.6%
Total expenses	\$7,613,865	100.0%

Program Expense Breakdown



\$1,048,838
net operating results

\$12,942,652
end of year net assets



Photo: Deedee Soto



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Cover photos

Left and top: Bryan E. Reynolds. Right: Roger Tabor. Bottom: Katie Lamke.