

WINGS

ESSAYS ON INVERTEBRATE CONSERVATION



XERCES
AT
40



THE XERCES SOCIETY

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In this issue of *Wings* we celebrate forty years of invertebrate conservation by the Xerces Society. Instead of the usual selection of articles, we present an overview of Xerces' history in three parts; each section has an introduction by an individual who had significant responsibility for the Society's work in that era, followed by descriptions of various initiatives of each period prepared by Xerces staff members. We're pleased, also, on this occasion, to acknowledge all those who have participated in building the Xerces Society into the successful organization it is today.

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Introduction

Scott Hoffman Black

Forty years is a long time for an organization, and particularly for one that was founded to protect insects, animals that are typically overlooked, generally undervalued, and too often reviled. To have an invertebrate-conservation organization last forty years and grow to the size that the Xerces Society is now seems to me to be pretty impressive.

For the Society to have prospered as it has is due in no small part to the dedication of an extraordinary group of people. For more than a decade, the Society was run by volunteers. In the mid-1980s, the first professional staff was hired, taking the organization into a new era. Throughout its history, Xerces has been honored with the time and contributions of a succession of world-

class scientists as board members and counselors. Their wisdom and sage advice helped build the Society into the widely respected and successful organization that it is today.

The pioneering work of Xerces' early members brought insect conservation into public view for the first time. Although our scope has broadened from a focus on butterflies to include everything from bees to snails, our task is the same: providing relevant information to help people protect these vital animals.

This issue of *Wings* presents highlights from Xerces' first four decades. We dedicate this issue to the many species we work to protect, as well as to all of the people who have joined with us on this journey over the past forty years.



A spotted blister beetle (*Epicauta pardalis*), photographed in Arizona by Alex Wild.

The Early Years

Robert Michael Pyle

There it is! Backlit gold, silver slab shining, in the glade where we find it every year: silver-spotted skipper. As I watch this beauty on a bramble blossom, I think back to the first butterfly counts, and to the origin of the Xerces Society, all those years ago.

I began writing on butterfly conservation in 1967, but needed to learn much more. The only place to do so was Monks Wood Experimental Station in Abbots Ripton, England. So, in 1971, I went there to study with John Heath, founder of the British Butterfly Recording Scheme. On December 9, I heard the British Museum's Grahame Howarth speak on the large blue. If this species drops out, he said, it should become a symbol for the protection of British butterflies. That made me think: we'd already lost the Xerces blue. It too could make an apt symbol, "X" standing for extinction, its fate for our resolve to prevent more losses. Thus was Xerces born.

Jo Brewer's article "How to Save a Butterfly" had just appeared in *Audubon*. Little knowing what she was getting into, Jo agreed to be associate director of the fledgling society. Bill Sieker and Dave McCorkle, pioneer butterfly advocates, became counselors. Members from the get-go included Ivy LeMon, Sid Hessel, and secretary Joan DeWind, whose husband, Bill, served our legal needs. Jerry Powell, Paul Opler, Paul Ehrlich, Charlie Covell, Francie Chew, Lincoln Brower, E. O. Wilson, Tom Emmel, and others signed on as academic boosters.

Yale University professor Charles L. Remington staged a symposium, "Endangered and Extinct Lepidoptera," at the 1972 Lepidopterists' Society meeting in San Antonio; there I was asked to report on the Brits' doings and to introduce our new organization. I went on to doctoral studies with Remington and he became godfather to the Xerces Society, as Heath had been its midwife.

Yale saw us launch the journal *Atala*, the newsletter *Wings*, and the Fourth of July Butterfly Counts. Xerces' first meeting, in 1974, brought Miriam Rothschild and Alexander B. Klots to New Haven. Roger Tory Peterson attended the second, at Cornell. When I returned to England in 1976, Bob Dirig and Dave Winter took the reins, followed by Larry Orsak and Karolis Bagdonas.

As our remit expanded from Lepidoptera to all invertebrates, we needed professional direction. Xerces left the all-volunteer realm behind in 1983 as Melody Mackey Allen came on to run the Monarch Project—and then, in 1985, the whole show. The rest is history!

Now, as I consider the sturdy skipper before me, I think how far we've come in forty years. Amazed, I can only wonder where Xerces will go from here. From strength to strength, to be sure; though unlike a butterfly, anything but ephemeral. It seems Xerces is here to stay.

Dr. Robert Michael Pyle is founder of the Xerces Society.



Some of the publications from the early years of the Xerces Society, photographed by Carly Voight.

Early Publications

In an era in which bees and butterflies regularly appear in the news and the internet gives access to a mass of information at the click of a mouse, it might be hard to imagine a time when invertebrates were seldom a topic of conversation, even in conservation circles. Filling this silence was one of the most important things that Xerces members did four decades ago.

From 1973 to 1987 *Atala* provided an outlet for news and research relating to insect conservation. Like everything else the Society undertook, this journal was a labor of love that swallowed uncounted volunteer hours. Its publication was only possible thanks to the hard work of those who served as editors:

Robert Michael Pyle, Robert Dirig, Larry Orsak, John Cryan, Lorraine Rothman, Larry Gall, and Paul Opler.

From its beginnings the Society also produced a range of educational leaflets and fact sheets. Some of these focused on particular species of threatened butterflies; others carried titles such as “Why Save an Insect?” or “Creating a Community Butterfly Reserve.”

In 1974 *Wings* was born, conceived and initially edited by Xerces associate director Jo Brewer. In that first decade-long run, *Wings* was a black-and-white newsletter, bringing members updates on various Society activities, pleas for dues (some things don’t change!), and news items.



The painted lady (*Vanessa cardui*) was seen at 139 of the 186 locations surveyed in the 1992 butterfly count. Photographed in Oklahoma by Bryan E. Reynolds.

The Annual Fourth of July Butterfly Count

Xerces established the Fourth of July Butterfly Count in an effort to create, over time, a long-term picture of the health of butterfly populations across the country. Participants would spend the day visiting sites within a fifteen-mile radius, identifying the species they saw, and counting the number of individual butterflies of each species.

Proposed and organized by Sally Ann Hughes, and based upon long-standing ideas of Charles Remington, Jerry Powell, Paul Opler, and Ray Stanford, the first count took place in 1975, with butterfly populations counted in twenty-nine locations. In 1992, in the

last Fourth of July Butterfly Count organized by the Xerces Society, there were 186 counts in an event that reached thirty-nine U.S. states, four Canadian provinces, and one Mexican state. Over those eighteen years, the counts were coordinated (and the reports edited) by Mary Hathaway, Jerry Powell, J. T. Sorenson, Ira Heller, Lorraine Rothman, Paul Opler, John Brown, and Ann Swengel.

In 1993 the then newly formed North American Butterfly Association—a scion, as it were, from Xerces—took over organization of the annual event, which remains one of the enduring legacies of the Society's formative years.

Endangered Butterflies

Named for a North American butterfly that went extinct because of human activity, the Xerces Society made speaking out on behalf of endangered butterflies a central focus of its mission from the beginning.

Although this effort absorbed a great deal of the volunteer group's time and energy, such vocal advocacy not only helped conserve butterflies and their habitats, it also enabled the Society to build a visible presence as a conservation organization. Xerces initiatives included testifying against housing developments that would damage Karner blue habitat in pine bush areas

of New York state, mounting letter-writing campaigns to prevent a golf course from being built on the habitat of the El Segundo blue at the end of a runway at Los Angeles International Airport, and pushing for federal purchase of the Antioch dunes (now a national wildlife refuge) along the southern shore of California's San Joaquin River.

The Society also engaged directly in the political process, including, in the late 1970s, sending every member of the U.S. House of Representatives a telegram opposing an ill-conceived effort to remove invertebrates from the Endangered Species Act.



The Karner blue (*Lycaeides melissa samuelis*, recently revised to *Plebejus samuelis*) was one focus of early protection efforts by the Xerces Society. Photograph by Bill Bouton.

Entering the Professional Era

Melody Mackey Allen

Bringing the public's attention to endangered invertebrates is much easier with a beautiful insect. The Monarch Project, with the goal of protecting the monarch butterflies' annual migration and their overwintering sites in Mexico and California, focused on one of the most familiar (and least threatening) of invertebrates. As a volunteer, I took on the assignment of raising the money. The Packard Foundation in California provided the initial grant, and in 1983 I became the Xerces Society's first paid employee and then, as more staff members were added, executive director.

With the advent of paid staff, the Society had greatly increased capacity, but faced the quandary of what would be the best way to bring international visi-

bility to invertebrate conservation. How would we focus this organization? What projects would best serve invertebrates? It was a team effort of board members, advisors, and a small but hugely talented staff. We leapt to the challenge. Although our budget was lean, the energy and level of commitment were off the charts. We tackled a broad range of projects and strategies, sometimes trying the seemingly impossible. Those years of exploration laid the foundation for today's robust organization.

We all knew that we needed to make the Society itself more visible. Dr. E. O. Wilson of Harvard University, a world-renowned conservationist and scientist as well as a prolific author, generously agreed to become president of



The Society's aquatic program pioneered the study of invertebrates as a way to assess the health of streams and other waterways. *Isoperla* stonefly larva, photographed in Pennsylvania by David H. Funk.



During the 1990s, the Xerces Society initiated its first project aimed at creating habitat for native bees. Polyester bee (*Colletes hyalinus gaudialis*), photographed in California by Rollin Coville.

the board, which had the immediate effect of elevating the Xerces Society into the international conservation arena. Wilson coined the now widely known tagline: “The little things that run the world.” About the same time, the board was strengthened by two new members. Ed Grosswiler brought a focus on business matters, and Katherine Janeway, a Seattle lawyer and conservationist, became the treasurer.

Under this leadership, Xerces grew its membership and expanded its horizons. The Monarch Project captured the attention of both adults and school children. Collaborations with scientists and other conservation organizations resulted in protected bee habitat in Costa Rica, aided the development of a national park in Madagascar, and helped to bring attention to the disappearing old-growth forests in the Pacific Northwest. This period also saw the origins of two programs that are central to

the Society’s current work—conservation of pollinators and of aquatic insects—and the reincarnation of *Wings* as a full-color magazine.

These years of achievement and strategic development could only have been accomplished with our dedicated staff. Those working on projects in the field and the small handful of Xerces staff members in the office shared a powerful determination to launch the organization into the larger conservation world. They doubled our membership numbers again and again, and, of equal importance, kept our finances sturdy and transparent. I am personally deeply thankful for the continual flow of talented individuals who propelled the Xerces Society’s innovative work on invertebrate protection.

Melody Allen was executive director of the Xerces Society from 1985 to 2000.



Many of the sites along the California coast where monarch butterflies (*Danaus plexippus*) spend the winter are threatened. Photograph © iStockphoto.com/webmink.

The Monarch Project

Into the early 1980s, only a handful of scientists and butterfly aficionados were aware that monarch butterflies (*Danaus plexippus*) migrate thousands of miles annually. In 1983 Lincoln Brower, the world's foremost monarch researcher, and Xerces founder Robert Michael Pyle together envisioned an international program—the Monarch Project—to protect the butterflies' winter habitats in Mexico and California.

Melody Allen took on this project as a volunteer, eventually becoming Xerces' first employee. In time, Dr. Brower urged the Society to focus its efforts on California's highly endangered overwintering sites. Katherine Janeway, a lawyer

skilled at land-use protection, developed parameters for conservation easements, and Xerces hired Katrin Snow to bring attention to the California habitat and help negotiate the easements.

The biggest payoff came in educating the public about the science of monarch habitat preservation. Snow worked with the leading California monarch researchers to create a document describing the scientific protocols necessary to define the microclimate that characterizes a monarch grove, and the legal tools available to protect it. These guidelines went out to state and local officials across California for use in land-use planning and creating conservation easements.

Bees and Butterflies in Costa Rica

During the 1980s and '90s Xerces did two projects in Costa Rica.

The first was in the northwestern part of the country, where six thousand acres of the dry forest land of Lomas de Barbudal, a rare survivor of a once extensive ecosystem, were set aside as a Biological Reserve in 1986. Research by Dr. Gordon Frankie of the University of California at Berkeley, though, found that critical nesting habitat for ground-nesting *Centris* bees—among the most abundant and important pollinators of the forest's trees—was actually just outside the protected area, on a mesa owned by a cattle-ranching corporation. The best way to secure the forest's ecological integrity was to buy the land and extend protection to the bees' habitat.

Xerces worked with Dr. Frankie in 1987 to raise more than \$40,000 to purchase a 210-acre parcel, which is now part of the protected forest reserve. This

project led the way in focusing attention on the diversity of bees and their importance to the health of ecosystems.

In 1994 the San Diego Zoo provided initial funding for a joint project between the Xerces Society and the San Diego Wild Animal Park, establishing a butterfly farming enterprise in Barra del Colorado, near the Nicaraguan border. Staff member Brent Davies trained local women to rear tropical butterflies; within a year they were raising and shipping butterfly pupae to glass-house exotic butterfly exhibits in North America.

The butterfly farming project, an experiment in bringing a village-based "industry" to an impoverished population, provided a sustainable economic alternative to cutting and burning the local rain forest. Sadly, in 1998, after several years of successful operation, the farm—along with most of the village—was destroyed by Hurricane Mitch.



A female *Centris trigonoides* preparing to enter her nest, photographed in Costa Rica by Rollin Coville.

Gardening for Butterflies

Butterfly Gardening: Creating Summer Magic in Your Garden was created in 1990 in a collaborative effort with the Smithsonian Institution and published by Sierra Club Books, in association with the National Wildlife Federation. This ground-breaking volume introduced a wide audience to the then largely unknown world of gardening to attract insects.

The first edition was a compilation of information that gave readers an understanding of the resources that butterflies require and led them through planning a garden and selecting plants.

It also included a section on studying and photographing butterflies. Chapters were individually authored by different naturalists, including Jo Brewer, Robert Michael Pyle, Miriam Rothschild, and Dave Winter, and the book was illustrated by stunning photographs, in particular those of Edward Ross.

We produced a second edition in 1998. Greatly revised, it provided additional information on supporting beneficial insects in the garden.

Together the two editions of *Butterfly Gardening* sold more than thirty-five thousand copies.



This photograph of a male eastern tailed-blue (*Cupido comyntas*), taken in North Carolina by Edward S. Ross, appeared in both editions of *Butterfly Gardening*.



Satyrid butterflies, including species in the genus *Heteropsis*, were the principal group that Claire Kremen studied in Madagascar. Photographed in Masoala National Park by David Lees.

Ecological Diversity in Madagascar

With support from Stanford University's Center for Conservation Biology (run by Dr. Paul Ehrlich) and the Wildlife Conservation Society, Xerces launched a project in Madagascar in the early 1990s to use the geographic distribution of butterfly species as a means of understanding overall ecological diversity. Dr. Claire Kremen (who received a MacArthur award in 2007, in part because of her work in Madagascar) managed the project for the Xerces Society as a staff ecologist.

Working in exceptionally difficult field conditions, Dr. Kremen laid out distribution data for satyrid butterflies (particularly in the genera *Heteropsis* and *Strabena*). She then compared these data

with those of collaborators on other insects, mammals, birds, plants, amphibians, and reptiles to provide a comprehensive ecological rationale for protecting Madagascar's rich and unique flora and fauna. The project demonstrated how butterflies can contribute to conservation planning by serving as indicators of habitat quality.

The Society's work fed into the Malagasy government's planning for integrated conservation and development programs intended to halt deforestation and support local communities. The data collected by this project helped define the boundaries of Masoala National Park, Madagascar's largest protected area, and guide its management.



The Society's pollinator conservation program grew out of a project focused on managing habitat in out-of-play areas of golf courses. Photograph by Matthew Shepherd.

Pollinator Conservation

Xerces projects have often come about serendipitously. In the 1990s scientists on the board of directors began stressing the importance of pollinator insects, and in 1995 Melody Allen joined the board of advisors of the Forgotten Pollinators Campaign. Soon after, Xerces' pollinator program was born, through an unlikely collaboration between USDA scientist Dr. Vince Tepedino in Utah and the U.S. Golf Association.

The golf association provided a grant (via the National Fish and Wildlife Foundation) for assessing native bee populations on selected golf courses in eastern Oregon and Washington, and Tepedino developed the protocols for this effort. The three-year initiative also provided advice on improving habitat in out-of-play areas, and produced the first set of conservation guidelines for native bees.

Aquatic Biomonitoring

Invertebrates tell us volumes about ecosystems. Aquatic insects had mostly been the province of countless fly fishers and relatively few entomologists before Xerces launched its project for aquatic monitoring in Northwest forests in the mid-1990s.

In the first years of this effort, Sue Mauger worked alongside staff members from government agencies and local conservation groups to evaluate the way in which surveys of invertebrates in streams can be used as a tool for understanding watershed health. The result of her work was *Streamkeepers: Aquatic Insects as Biomonitors*, published by the Xerces Society in 1997.

Building on Mauger's work, Jeff Adams—with guidance from Dr. James Karr at the University of Washington—

expanded the project and trained hundreds of watershed volunteers throughout the Pacific Northwest in collecting and analyzing invertebrate data. Adams also organized workshops for taxonomists to coordinate effort across the region. A major product of this work was *Stream Bugs as Biomonitors: A Guide to Pacific Northwest Macroinvertebrate Monitoring and Identification*, published by Xerces as a CD-ROM in 2004.

The CD was accompanied by a pocket-size identification guide, printed on water-resistant paper, that can be used in the field. Notwithstanding its Northwest focus, the *Stream Bugs* CD and its companion guide have been an international hit, bought and used in every part of the United States as well as in more than a dozen other countries.



A blue-winged olive mayfly (*Baetis tricaudatus*), photographed in Pennsylvania by David H. Funk.

Into the New Millenium

Scott Hoffman Black

Three months ago, Xerces relocated its Portland office to accommodate our expanded staff. Sorting through decades of material in our filing cabinets in preparation for this move gave insight into how an organization that began in 1971 as a group of volunteers has grown to a professional staff of nineteen. Much of our current work has roots that reach back to the early years of the Society, and the rapid growth of the past decade is founded upon the achievements of previous staff and volunteers.

Endangered species protection has been a core value of the Society from its inception. Butterflies remain integral to our efforts, but our endangered species program, ably led by Sarina Jepsen, now also works to protect freshwater mussels in western North America, bumble bee diversity across North America and abroad, and a wide range of invertebrates negatively impacted by climate change.

Our pollinator conservation work began in the mid-1990s with a project on three golf courses in eastern Oregon and Washington (although it could be argued that this effort goes back to the first days of Xerces as a butterfly conservation group). Matthew Shepherd took this work to a national presence, but it was the arrival of Mace Vaughan—subsequently joined by Eric Mader—that made our pollinator program the powerhouse it has become. We now work in all fifty U.S. states as well as internationally, and this program has been the catalyst that enabled us to establish regional

offices in California, the Midwest, the Mid-Atlantic, and the Southeast.

Our third major area of work is with aquatic invertebrates. Under Celeste Mazzacano's leadership, this program has grown into an international partnership to understand migratory dragonflies and protect their habitat throughout North America, while also maintaining an engagement with the local watershed groups that gave it its initial footing in Oregon's streams.

Overlaying these strands are our publications. *Wings* has continued to build its reputation for excellent writing and top-notch photography, and we have produced books, fact sheets, conservation guidelines, identification guides, e-newsletters, and website content to support each of our programs.

The Xerces Society was born out of the vision of a small group of volunteers who were determined to protect the small creatures that, although vital to the health of our planet, are all too often disregarded, and this ethos lives on in our staff today. We have been very fortunate to have world-class scientists join this effort as directors and counselors. Bringing together a range of complementary expertise and decades of experience, our advisors and staff share a passion and determination that drive Xerces forward to fulfill its mission.

Scott Hoffman Black has been executive director of the Xerces Society since 2000.



A monarch butterfly (*Danaus plexippus*) drinking nectar from butterfly milkweed (*Asclepias tuberosa*), one of its caterpillar host plants. Photograph by Bryan E. Reynolds.

Butterfly Conservation

Concern for the health of butterfly populations sparked the creation of Xerces, and butterflies have remained a central focus of the organization.

In the mid-1970s, Robert Michael Pyle was the first chair of the International Union for Conservation of Nature's Lepidoptera Specialist Group. In 2010, after a several-year hiatus, this group was re-formed as the Butterfly Specialist Group. Xerces Society execu-

tive director Scott Hoffman Black was appointed chair.

Over the past two years we have recommitted ourselves to protecting monarch overwintering sites in California; in addition we have initiated a new project to expand the planting of milkweed in spring and summer breeding areas across the United States, and to increase the availability of regionally appropriate milkweed seed.



Sweat bees (genus *Halictus*) are one of the more abundant groups of native bees that visit—and pollinate—a wide variety of crops. Photograph by Rollin Coville.

Pollinator Habitat in Agricultural Landscapes

As the new century began, the health of pollinator populations became a major conservation issue across North America, and, thanks to its prior work, the Xerces Society was well positioned to grapple with this issue. Dr. Claire Kremen, then a professor at Princeton, asked Xerces to partner on an effort to work with farmers in California's Central Valley to create hedgerows and other patches of pollinator habitat on their farms. This partnership has also implemented research projects to document the use of such pollinator-friendly hedgerows by native bees.

Our pollinator conservation efforts have expanded to become a nationwide

program with staff based in four regional offices in addition to our home office in Portland, Oregon. Thousands of agency staff and farmers have attended short courses presented across the country, and the program has produced a wealth of information materials, including fact sheets, detailed guidelines for habitat creation on farmland, and a comprehensive online resource center.

All of this was made possible in large part by a vital ongoing partnership with the USDA Natural Resources Conservation Service. Three members of the Xerces Society staff have joint positions at the NRCS, serving the agency as a technical resource.

Pollinators in Wildlands and Urban Landscapes

Pollinators are all around us, as are opportunities to create habitat for them. Beginning with our first native bee workshop for park managers a decade ago, members of the Society's pollinator conservation staff have worked with wildland managers, golf course superintendents, urban park managers, and roadside managers—even green-roof designers—to improve habitat for bees and butterflies in all manner of locations.

The dissemination of information is a major component of this work. We offer detailed guidelines for caring for pollinators in a diversity of landscapes,

as well as single-page fact sheets that give thoughtful guidance on such subjects as choosing plants and providing nest sites. Our pollinator staff members have given dozens of presentations and have written articles for many magazines; we've also worked with journalists on news items published in hundreds of media outlets.

Our book-publication efforts include the award-winning *Pollinator Conservation Handbook*, published by Xerces in 2003, and *Attracting Native Pollinators*, published to enthusiastic reviews in 2011 by Storey Publishing.



Many insects other than bees are also valuable pollinators, including beetles and flies. Syrphid fly (genus *Eupeodes*), photographed by Rollin Coville.

Insects on Public Lands

Insect management, particularly of grasshoppers on rangelands and bark beetles in forests, is a significant issue for public lands in western North America. Traditional approaches to insect management, though, often have devastating consequences for a wide range of invertebrates and their habitat, and the Xerces Society works to change these approaches where that is possible and to mitigate them where it is not.

In 2003, for instance, Xerces joined with the Idaho Conservation League to protest pesticide spraying on twenty

million acres of southern Idaho rangelands. The spray program was reduced to less than seventy thousand acres.

Scott Hoffman Black, Xerces' executive director, has written two major reports about bark beetles. He authored *Logging to Control Insects: The Science and Myths Behind Managing Forest Insect "Pests"* in 2005, and was the lead author of *Insects and Roadless Forests: A Scientific Review of Causes, Consequences, and Management Alternatives*, published by the National Center for Conservation Science and Policy in 2010.



The impact of bark beetles on coniferous forest in western North America has been the subject of two significant reports by Xerces' executive director Scott Hoffman Black. Photograph © iStockphoto.com/browndogstudios.



Western bumble bee (*Bombus occidentalis*), photographed in British Columbia by Alistair Fraser.

Protecting Bumble Bees

Over the past five years, the Society has established itself as an international leader in the protection of bumble bees.

Our efforts in North America have focused on four declining species: the rusty-patched (*Bombus affinis*), yellow-banded (*B. terricola*), western (*B. occidentalis*), and Franklin's (*B. franklini*) bumble bees. The first three of these species were formerly common and widespread, while the last was always restricted to a small area on the West Coast.

We petitioned the federal government for regulations to protect wild bumble bees from diseases carried by commercial bumble bees, and mounted a publicity campaign—including widely distributed “wanted” posters and pock-

et-size identification guides—that resulted in more than a thousand citizens looking for these species. Their sightings contributed to a status review published in 2008 and lent impetus to current conservation planning efforts.

In November 2010, Xerces helped to convene an international meeting at the Saint Louis Zoo for the purpose of developing a conservation strategy for North America's bumble bees. We also helped initiate the Bumblebee Specialist Group of the International Union for Conservation of Nature. Paul Williams of London's Natural History Museum chairs the group, with Sarina Jepsen, director of our endangered species program, as deputy chair.



For two years Xerces staff members conducted field surveys aimed at understanding the life history and conservation status of the Siuslaw hairy-necked tiger beetle (*Cicindela hirticollis siuslawensis*). Photograph by Ron Lyons.

Protecting Endangered Species

The conservation of endangered species is at the heart of the Xerces Society's mission. We have worked on behalf of invertebrates large and small, including the Salt Creek tiger beetle (*Cicindela nevadica lincolniiana*), the Siuslaw hairy-necked tiger beetle (*C. hirticollis siuslawensis*), the western glacier stonefly (*Zapada glacier*), the Arapahoe snowfly (*Capnia arapahoe*), and the Black Hills mountainsnail (*Oreohelix cooperi*). Many of these species are found in rare habitats (such as the inland saline marshes inhabited by the aptly named Salt Creek tiger beetle) or live in habitats now greatly reduced by development or recreation activities (such as the coastal beaches occupied by

the Siuslaw hairy-necked tiger beetle).

We collaborate with land managers, conservation groups, and others to do surveys and advocate for conservation action for threatened species. With funding from the U.S. Forest Service and the Bureau of Land Management, Xerces staff members have completed assessments of dozens of rare invertebrates in the Pacific Northwest. This information will guide agency protection of these species.

Invertebrates may be smaller and less charismatic than eagles, bears, and wolves, but they are no less deserving of protection. We work to give a voice to these otherwise overlooked animals.

Endangered Northwest Butterflies

The Society's approach to endangered species protection is exemplified by our work on butterflies in the Pacific Northwest, such as Taylor's checkerspot (*Euphydryas editha taylori*) and the mardon skipper (*Polites mardon*).

We have created long-term relationships with private landowners, public land managers, agency staff, and researchers to undertake studies to better understand these species and the sizes of their populations. For example, over several years, Xerces staff coordinated extensive searches through Washington, Oregon, and northern California for the two butterflies, discovering new populations of both—but also confirming the alarming decline of both species. Subsequently, Xerces partnered with

scientists at Washington State University in Vancouver to study the mardon skipper's life history. The Society's staff also did research into the impact of prescribed fire on the mardon skipper.

We have developed training workshops, conservation guidelines, and management plans to share this knowledge with land managers, and worked with public and private landowners to care for and improve habitat. The combined efforts of Xerces and our partners have resulted in greater knowledge of the butterflies and led to improved management of the grasslands on which both species rely, providing them with a more secure future without the contentious debates that often accompany the protection of threatened species.



Knowledge of the mardon skipper's (*Polites mardon*) life history—and management of its habitat—has improved thanks to Xerces Society efforts. Photograph by Rod Gilbert.

Freshwater Mussels

Freshwater mussels in western North America receive very little attention from policy makers, land managers, and watershed agencies. Because they constantly filter water as they feed, mussels have great value for both clean water and the health of native fish populations.

The Xerces Society is an active participant in the Pacific Northwest Freshwater Mussel Workgroup and is working with individual scientists and regional watershed organizations to better understand the status and distribution of

West Coast species and increase conservation efforts.

In collaboration with mussel researchers and museums, we have collected thousands of mussel records and compared each species' historical distribution with its current one. So far this work has resulted in comprehensive status reviews for western freshwater mussel fauna, volunteer-based surveys in Oregon streams, and the publication of a field guide, *Freshwater Mussels of the Pacific Northwest*.



Western pearlshell (*Margaritifera falcata*), photographed in Washington state by Marie Fernandez.



The black saddlebags (*Tramea lacerata*) is one of the species being studied by the Migratory Dragonfly Partnership. Photograph by Dennis Paulson.

Wetland Invertebrates

Wetlands are vital yet vulnerable habitats, but tools to assess their biological condition have been lacking. Xerces staff members have made extensive surveys of invertebrates in wetlands and have developed invertebrate-based indicators of wetland health that may provide a measure of human impact levels. We've published a CD-ROM field guide, *Aquatic Invertebrates in Pacific Northwest Freshwater Wetlands*.

In particular, wetlands provide key habitat for dragonflies, the focus of the

new Migratory Dragonfly Partnership. This initiative, chaired by Xerces executive director Scott Hoffman Black, brings together scientists, agency staff, and conservation organizations from Canada, the United States, and Mexico to study and protect the species that migrate within North and Central America. As part of this effort, Celeste Mazzacano, director of Xerces' aquatic program, is building a network of citizen-scientist monitors to track the spring and fall movements of dragonflies.

WINGS



The first three issues of *Wings* after it began publication as a full-color magazine in 1987, photographed by Carly Voight.

Wings has been published by the Xerces Society since 1974; this issue concludes Volume 34.

For the first eleven years, *Wings* was a black-and-white newsletter that carried notes on Society activities and updates on insect news from across the country. Like all early efforts of the Society, that first version of *Wings* was a volunteer effort; it was produced under the watchful eye of a series of editors: Jo Brewer, John Cryan, Mary Hathaway, Larry Orsak, and Kate Wilkinson.

In 1987, after a two-year hiatus, the publication was reborn as *Wings: Essays on Invertebrate Conservation*, the small-format, full-color magazine that is produced today. Development of *Wings* was directed by Melody Mackey Allen with then Xerces president Jeff Glassberg. A small private grant enabled the Soci-

ety to employ Mary Troychak as editor and engage John Laursen of Press-22, an award-winning book designer, as designer and production manager. Together they created a magazine of such distinction and beauty that Xerces immediately gained significant visibility and a host of new members. Troychak's editorial skill and vision were instrumental in persuading exceptional writers and photographers to contribute to a brand-new magazine, which she went on to serve as editor for thirteen years. Laursen's influence on the quality of *Wings* has been profound both visually and editorially, and for a quarter of a century he has been an essential part of the production team. For the past decade, *Wings* has been edited by Matthew Shepherd, under the guidance of Scott Hoffman Black.

The magazine would not exist, of course, without those who write for it. We have been fortunate indeed to have well-known writers and scientists willing to offer their talents; Natalie Angier, May Berenbaum, Thomas Eisner, Gary Nabhan, Miriam Rothschild, Doug Tallamy, E. O. Wilson, and Ann Haymond Zwinger are examples.

The old adage says that a picture is worth a thousand words. In the case of insects, a good photograph can open the eyes of thousands of people to previously unrecognized beauty. In relaunching *Wings* as a color magazine, the Society quickly recognized the power of good photographic images and since then we have sought to use high-quality photographs in all of our publications.

This has been possible only because of the generosity of the photographers who

contribute their images; for *Wings* alone, more than two hundred people have donated photographs since 1987. Rollin Coville, Thomas Eisner, David Funk, Rod Gilbert, David Liittschwager and Susan Middleton, Piotr Nasrecki, Dennis Paulson, Gary Retherford, Bryan Reynolds, and Edward Ross have been among our most regular contributors.

Any discussion of *Wings* would not be complete without mention of the unseen heroes, our volunteer reviewers. Over the years, Bruce Barbarasch, Michael Bean, May Berenbaum, Thomas Eisner, Robert Michael Pyle, and Sacha Spector have each spent innumerable hours reading and critiquing articles.

Our heartfelt appreciation goes to everyone who has helped to support invertebrate conservation by contributing their creative work to our publications.



Workers of the stingless bee *Nannotrigona testaceicornis* guard the entrance to their nest. Photographed in Costa Rica by Rollin Coville.

XERCES SOCIETY GRANTS

Although it is not widely known, since the 1970s the Xerces Society has given small grants to support research related to the conservation of rare invertebrates. These grants have never been generous—funding has always been a constraint—but they have contributed to dozens of research projects. For many years our grant giving was dependent on often irregular fundraising, and both the number of grants and the amounts awarded varied from year to year. For example, eight grants were given in 1979 (for a total of \$2,800), then in 1980 only four, while in 1981 there were fourteen.

Since 1999, though, we have been able to offer our Joan Mosenthal DeWind Awards on an annual basis. Joan was a pioneering member of the Society and

a longtime member and secretary of the board. In her memory, Joan's husband, Bill DeWind, established an endowment fund. Each year two awards, currently \$3,750 each, are given to students who are engaged in research leading to a university degree related to Lepidoptera conservation, and who intend to continue to work in this field. The recipients are selected by a volunteer committee

DeWind awards have supported research on a diverse range of topics, including the impacts of herbicide use on rare butterflies, the effects of climate change on host-plant availability, the conservation status of a rare Hawaiian moth, and the threat to North American lycaenid butterflies by invasive Argentine ants.



Butterflies in the mountains near San Francisco were the subjects of early grants given by the Xerces Society. Mission blue (*Plebejus icarioides missionensis*), photographed by Larry Orsak.

THANK YOU!

The success of the Xerces Society over the past forty years could not have been achieved without a broad network of support, and we wish to take this opportunity to express our gratitude.

For the Society to be marking its fortieth birthday is, first of all, testament to the loyalty and generosity of our members. Thank you.

We are grateful to the many foundations across the country, and to the government agencies, federal and state, that provide funding. So much less would have been achieved without their help.

Underpinning these four decades of conservation effort has been the support and guidance provided by our board of directors, our counselors, and our scientific advisors. We have been deeply

honored by the service of the individuals who are listed below and on the following pages.

The staff members here at Xerces strive to be worthy of the support we receive. We work diligently to broaden the scope and relevance of our programs, and to carry the message of invertebrate conservation to new audiences.

We believe that the growth of the Xerces Society from a small volunteer organization to one with a dedicated professional staff of nineteen demonstrates the value of our mission. As we look ahead, we will continue to build on the work that has been done over these forty years to ensure that the conservation of invertebrates and their habitat gains the attention and care that it deserves.

The Xerces Society Board of Directors, 1975–2011

The Society's bylaws were adopted—and the founding board of directors elected—in 1975.

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WINGS, Fall 2011

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Wings is published twice a year by the Xerces Society, an international, non-profit organization dedicated to protecting the diversity of life through the conservation of invertebrates and their habitat. A Xerces Society membership costs \$30 per year (tax-deductible) and includes a subscription to *Wings*.

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For information about membership and our conservation programs for native pollinators, endangered species, and aquatic invertebrates, contact us:

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A lynx spider (*Peuceetia viridians*) eating a dolichopodid fly, photographed in El Zapotal, Yucatan, Mexico by Piotr Naskrecki.

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E. O. Wilson

A \$30 per year Xerces Society membership includes a subscription to *Wings*.

Our cover photographs show a leafcutter bee (genus *Megachile*), photographed by Rollin Coville; a Taylor's checkerspot (*Euphydryas editha taylori*) photographed by Rod Gilbert; the larva of a brown dun mayfly (*Ameletus ludens*) photographed by David H. Funk; and a carpenter ant (*Camponotus sericiventris*) tending treehoppers (genus *Guayaquila*) photographed by Piotr Naskrecki.