

Butterfly Conservation in 2010: How We Got Here

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No one who has followed the two best-known strands of Paul R. Ehrlich's multifaceted life should be surprised by the condition we find ourselves in with respect to butterflies and their conservation today. Stanford professor and Xerces counselor Ehrlich's first book was the brilliant and pioneering field guide and key, *How to Know the Butterflies*, published in 1961 with Anne H. Ehrlich; and his laboratory has made Edith's checkerspot (*Euphydryas editha*) one of the most well-studied organisms in the scientific world. The second strand appeared in 1968 with publication of his landmark volume *The Population Bomb*, in which he forecast disastrous ecological effects from the rapidly growing human pop-

ulace. Since he wrote the book, world population has doubled, from about three and a half billion people to nearly seven billion. Put the two together, and what do you get? A perfect example of Ehrlich's impact formula, or IPAT: $I = P \times A \times T$ (where I is Environmental Impact; P is Population; A is Affluence; and T is Technology). In other words, butterflies in a world of hurt.

Yet, as painful as it is to recognize the many ways in which butterflies (and other invertebrates) have come into grave jeopardy through the demands made by our own abundant kind upon the land, it is also exhilarating to see the many responses—energetic, sophisticated, often effective—from those who



Edith's checkerspot is one of the best-studied butterflies. This subspecies, Taylor's checkerspot (*Euphydryas editha taylori*), is found only to the west of the Cascade Range in Oregon, Washington, and British Columbia. Photograph by Dana Ross.



The loss of the large copper from Britain in the middle of the nineteenth century sparked early conservation efforts for butterflies. In 1927, a reintroduction was attempted at Woodwalton Fen with individuals of the Dutch subspecies (*Lycaena dispar batavus*, shown here). Photograph by Adrian Hoskins.

care. Of course we also fumble and stumble in territory and among organisms we barely know, let alone comprehend. But the vigor and results of butterfly conservation today are far greater than we might have imagined in the 1960s.

In fact, the modern movement to protect our butterflies got going just about the same time that *The Population Bomb* appeared. But first, let's go back farther, to the draining of the English Fens, the great marshes of East Anglia. Begun by the Romans nearly two millennia ago and perfected by the Dutch in the eighteenth century, the drainage was largely complete by the middle of the nineteenth. Soon, entomologists began to notice the absence of wetland insects they had come to know and love. One in particular, the large copper (*Lycaena dispar dispar*), a brilliant and beloved butterfly, became extinct in Britain around 1848. Its loss, and that of several other species over the next de-

acades, inspired much comment. In 1925 the first group dedicated to the cause arose: the Committee for the Protection of British Lepidoptera, organized under the Royal Entomological Society of London (and chaired by Lord Walter Rothschild, uncle of the late Xerces counselor Dr. Miriam Rothschild).

Parallel events occurred in the United States during the same era. In 1875, San Francisco lepidopterist Herman Behr wrote to his friend Herman Strecker in Pennsylvania: "*Glaucopsyche xerces* [the Xerces blue] is now extinct as regards the neighborhood of San Francisco. The locality where it used to be found is converted into building lots, and between German chickens and Irish hogs no insect can exist besides louse and flea." On the opposite coast in 1876, A. R. Grote expressed concern for the famous White Mountain butterfly (*Oeneis melissa semidea*) on New Hampshire's Mt. Washington. "What

time, on Bigelow's Lawn," he wrote, "I see the ill-advised collector, net in hand, swooping down on this devoted colony, of ancient lineage and more than Puritan affiliation, I wonder if, before it is too late, there will not be a law passed to protect the butterflies from the cupidity of their pursuers. I commend this colony to the protection of all good citizens of the state of New Hampshire." It is doubtful that collectors could threaten this elusive butterfly of difficult terrain. Nevertheless, Grote's plaint must be considered—along with Behr's nearly simultaneous lamentation for the Xerces blue—as the beginning of butterfly conservation awareness in North America.

Although butterflies benefited incidentally from the creation of America's first national parks, it was the middle of the twentieth century before active steps were taken to protect them. The ordinance passed by the City of Pacific Grove, California in 1952 to protect monarchs (later joined by an ordinance protecting overwintering sites) represented a growing appreciation of butterflies. But the earliest concrete efforts to conserve them may have been two actions in the 1960s. The first was George Rawson's attempt to reintroduce the atala (*Eumaeus atala*), then exceedingly rare (and, later, the namesake of the Xerces Society's erstwhile journal), into Everglades National Park in Florida. Soon after came the creation of what may well have been the first habitat reserve set aside for an American butterfly, the Moxee Bog preserve in Yakima County, Washington, established on behalf of a relict population of the silver-bordered fritillary (*Boloria selene atrocotalis*) by the Nature Conservancy, thanks to the work of Dr. David McCorkle. It was also

McCorkle who proposed the original conservation committee of the Lepidopterists' Society at its 1967 annual meeting in Corvallis, Oregon, at which I presented a paper on "Conservation and the Lepidopterist." In that same year, William Sieker published a paper entitled "The Importance of Protecting Natural Habitats—NOW!" It was clear that something was brewing.

Desiring to pursue the science of butterfly conservation, I found the only place to go was England, where it all began. Under a Fulbright-Hays Scholarship, I studied under John Heath and a half-dozen other British scientists at the Monks Wood Experimental Station. John was developing the British Butterfly Recording Scheme, which led to conservation mapping for butterflies. Eric Duffey was investigating the ecology of reintroducing continental large coppers to Woodwalton Fen. Jack Dempster was doing the same with British swallowtails at Wicken Fen (Darwin's favorite beetle-collecting grounds), and Jeremy Thomas was working with him as a graduate student studying the autecology of black and brown hairstreaks. Ernie Pollard was launching his now-famous "Pollard Walk" butterfly transect method. The place was a hotbed of cutting-edge science in service of rare insect conservation and restoration; it was exciting to be there! But when I left I had no notion what to do with it all.

It was a lecture on the conservation of the British large blue (*Maculinea arion eutyphron*) by Grahame Howarth at the Linnaean Society that gave me the idea. Howarth said, "If we lose the large blue, let's let it be a symbol that we should never lose another British butterfly." On the way north on the train that night,

December 9, 1971, I realized that we had already lost a blue in the United States—the Xerces blue, which had passed from Earth in about 1943. “X” also stood for extinction. “Let’s have the Xerces Society,” I thought, and began sending out postcards. About that time the beloved lepidopterist Jo Brewer published an article on butterfly conservation in *Audubon*. I wrote to her, and she joined me as co-director. Xerces was underway.

One of the postcards went to Yale University professor Charles Remington, co-founder of the Lepidopterists’ Society in 1947. He staged a symposium on “Endangered and Extinct Lepidoptera” at the group’s meeting in San Antonio in 1972, and asked me to present the Xerces idea there. This resulted in my undertaking doctoral studies with him at Yale, which became Xerces’ incu-

bator. The first Xerces meeting, at Yale in 1974, featured Miriam Rothschild and Alexander B. Klots; the second, at Cornell, included Roger Tory Peterson as a great supporter. It was again back at Yale in 1985 when the board hired Xerces’ first executive director, Melody Mackey Allen, and American butterfly conservation entered the professional arena. Allen recruited an extraordinary succession of presidents, including Drs. E. O. Wilson and Thomas Eisner, who vastly enhanced Xerces’ credibility. That tradition continues today with our distinguished president, Dr. May Berenbaum.

Meanwhile, on the world stage, the International Union for Conservation of Nature extended its remit to invertebrates. I became the first chair of the IUCN Lepidoptera Specialist Group. The Group (including several of my



Wicken Fen in eastern England may be considered a crucible of butterfly conservation. Much visited by Charles Darwin, it was home to early conservation attempts and is now protected as a Site of Special Scientific Interest. Photograph by Tim Laughton.

Monks Wood mentors) met at the International Congress of Entomology in Washington, D.C., in 1976, and declared the migratory monarch winter roosts in Mexico—then only recently located!—and California to be the top priority in world butterfly conservation. The next year I studied conservation needs of the giant birdwing butterflies in Papua New Guinea, and, at the 1978 IUCN General Assembly in Ashkhabad, Turkmenistan, Queen Alexandra's birdwing (*Ornithoptera alexandrae*) and its rainforest habitat joined monarchs as a top priority. Thanks to the vision of Sir Peter Scott, the first Invertebrate Red Data Book was compiled and published by the IUCN and the World Wildlife Federation, and butterfly conservation came of age.

The subjects of many of Xerces' earliest campaigns, such as the Oregon silverspot (*Speyeria zerene hippolyta*) and the Karner blue (*Lycaeides melissa samuelis*, recently revised to *Plebejus samu-*

elis), have since become federally listed. Whereas the articles published in the sixties were lonely exceptions, you can no longer open an issue of the *News* or *Journal* of the Lepidopterists' Society (or any like publication) without finding much of the content relating to conservation ecology. The same is true of the agendas of all of the major meetings of the learned biological societies, and many labs besides Ehrlich's are working on questions of butterfly and moth ecology and management.

The British Butterfly Conservation Society has grown into Butterfly Conservation, a powerhouse of conservation in the United Kingdom and Europe, with Sir David Attenborough as its president. Most European countries and others across the globe have equivalent organizations, but few are as influential. Many American states have agency officials detailed to monitor and protect small-scale animals and their habitats, though



Not all species that are federally listed as endangered are limited to a single area. Small populations of the Karner blue are scattered across a thousand miles from Minnesota to New York. Photograph by Bill Bouton.



The Oregon silverspot (*Speyeria zerene hippolyta*), now listed as threatened under the U.S. Endangered Species Act, was the subject of an early Xerces campaign. Photograph by Dana Ross.

a number of states lack legislation that protects insects. A recent meeting of the Imperiled Butterfly Conservation and Management program in Oregon brought together dozens of butterfly conservation professionals from all over the country. I'm not sure whether I was more dumbfounded by that or by a visit with entomology graduate students at a western university, who all wanted to know how they could get jobs with Xerces or in butterfly conservation. We've come a long way from the early days when grad students in certain entomology departments called us "the Jerkses Society."

And now Xerces executive director Scott Hoffman Black is taking on the duties of chairing the IUCN Butterfly Specialist Group. This can only serve to strengthen the Xerces Society's international ties and the sharing of information, knowledge, and expertise for the conservation not only of North

America's, but of the entire world's rich heritage of butterflies and moths. There is no escaping that Paul Ehrlich's predictions have largely come to pass, and that butterflies, like ourselves, stand at great risk from the baleful effects of human excess. In the fifty years since his book by that name, we still desperately need to learn "how to know the butterflies." But the history of our efforts in that direction is also rich, with many dedicated scientists and others taking part along the way. We may take courage in the progress we've made together, all of us who care about these bright wings of summer, and the world they so enliven.

A student of Lepidoptera for fifty years and their conservation for more than forty, Bob Pyle writes and studies nature in tidal southwest Washington. His most recent book is Mariposa Road: The First Butterfly Big Year.