Conservation Matters: Contributions from the Conservation Committee

The beauty of butterfly nets

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(**Author's Note**: this piece is adapted from an essay of the same name originally published in *Wings*, the magazine of the Xerces Society, in 2006, and subsequently in *G'num*, the newsletter of the Washington Butterfly Association, in 2015.)

Epigraph: "Sometimes I feel guilty about capturing butterflies and other insects, but it is giving me so much insight into the web of life at Panakanic [Ranch]. What used to be just a sandy road into the place is now known to be a marvelous habitat for sweat bees, parasitic wasps, tiger beetles and dung beetles. And the shores of a dried up vernal pool a source of food and minerals for skippers, butterflies, moths and many beetles. Everything is so alive and I would have never known this without my butterfly net!" -- Joy Markgraf, White Salmon, Washington

It is in many ways apt that this piece should be penned on a Friday the thirteenth, the day between Charles Darwin's two hundredth birthday and St. Valentine's Day. The thirteenth, because an unlucky day to me is one when I don't get outdoors in direct contact with nature. Valentine's, because this essay is really a love letter to one of my favorite tools and field companions. And Darwin Day, on account of the simple and certain fact that our all-time greatest naturalist might have merely toiled in quiet obscurity as a country vicar, had it not been for his butterfly net.

When Darwin cut theology classes at Cambridge, he did so to collect beetles and chase swallowtails at Wicken Fen. That's what led him astray, ultimately to his voyage on the *Beagle*, to the Galapagos, and to his residence at Down House where *On the Origin of Species* was written. Things are not too different in our time: E. O. Wilson didn't need a net to study ants, but he made clear in his memoir, *Naturalist*, that his carefree days afield with his insect net were the hours that made him who he is. The godfather of the Karner blue butterfly (*Lycaeides samuelis*) and a great literary recorder of the "individuating detail," Vladimir Nabokov, put it this way: "The ordinary stroller might feel on sauntering out a twinge of pleasure . . . but the cold of the metal netstick in my right hand magnifies the pleasure to almost intolerable bliss."

Some readers perhaps find it odd to read an encomium to the classic collecting implement in a journal devoted to insect conservation. But this is no contradiction, as was recognized in the earliest days of the Xerces Society, when its collecting policy was carefully crafted. When collecting presents an actual conservation risk with overzealous pursuit of rare or highly restricted species, we of course oppose it. But this is an uncommon event. For the most part, aerial insect populations in particular are reproductively adept, elusive, and highly resistant to overcollecting. Besides, as anyone who has actually tried to catch butterflies knows, a human being wielding a net is one of the most inefficient predators you could design. On the other hand, in order to conserve something, you have to know exactly where it occurs. The great contribution of the net-wielders is in building and updating the database of invertebrate distribution. This is why, as counterintuitive as it may seem to some, butterfly nets have been among our most important instruments for insect conservation.

In fact, in recent years, species entirely new to science have been detected among existing specimens in museums, thanks to the sharp eyes of systematists and improved techniques and tools for measuring genetic distance. These *taxa novae* are cryptic species, heretofore hidden in the thick shrubbery of similarity, and only discerned when enough material was assembled and examined to demonstrate their very real evolutionary differences. They include a new wood nymph in northern California; a second and third *Hermeuptychia* on the southern coastal plain and in south Texas; and a hairstreak in the Big Bend country of Texas. In addition to these, careful workers are teasing out new hostplant-adapted species of dotted blues in the West. Some of these may be rare in nature, highly deserving of habitat protection measures. But none of them would even be known to exist, were it not for generations of net-wielders who have deposited specimens in our great public institutions. And as the motto of The International Lepidoptera Survey (TILS) says, "*We can not protect that which we do not know*." So it is not only in the tropic wilds where novelty awaits discovery; even in the good ol' USA, there are new butterflies to be found that photos alone are not enough to document.

But that is just one reason we should appreciate these simple and centuries-old implements. True, our field guides, state butterfly atlases, and rare-species surveys have commonly depended upon specimens in hand. More and more these days these functions are being conducted with binoculars and digital cameras instead, and that's all to the good when it serves the purpose just as well. But it doesn't always. The fact is, many butterflies—especially certain blues, skippers, and rare varieties only subtly differentiated from more-common types—require close examination for positive identification. For these it doesn't help to have an approximate ID; positive recognition is essential.

For example, during my 2008 Butterfly Big Year, I was looking (among other things) at the responses of butterfly ranges to changing climate, and I certainly saw some dramatic examples. But, at one spot in arid north Texas, I thought I had found a species abundant more than a hundred miles north of any previous records. Surrounded by my field guides, I still couldn't determine the species for sure from my notes, or from photographs. Even the national authority on the group had to dissect a specimen to be certain which of two species it represented—and in the end, he was able to determine that it was the one that belonged there after all.

So the reliability of occurrence data is essential—and often it is still the net that sifts good data from bad. Nets are seldom weapons of mass destruction and need not even be lethal. I do a great deal of my field survey and teaching with harmless catch-and-release. I find that people make a deeper connection when they can examine a creature up close, from every angle, and then carefully release it to a flower, or a child's nose. This practice, employing net, tweezers, and a light and practiced touch, gives a far more satisfactory encounter for a group than a fleeting glimpse from yards away.

And that brings us to my favorite reason for loving butterfly nets: they are the cheapest, simplest, and most effective environmental education tools ever invented. Give a child a pair of binoculars or a camera, and he will be occupied for a moment or two, before setting it aside. But give her a net, and watch her go! Besides, the argument that all interaction with butterflies should be conducted solely through optics is an elitist one; most kids can't afford close-focusing binoculars or a good camera, but they can often pull together twelve or fourteen bucks for a basic net from BioQuip—or make one themselves, as my friends and I always did. To this day I chiefly use a net fashioned from a Colorado cottonwood branch—an artifact from my youth—that I named Marsha. I made Marsha more than forty years ago, and she has had a hard life (described in detail in my book *Walking the High Ridge: Life as Field Trip,* Milkweed Editions, 2000). Yet she is still with me, a beloved friend who has helped me introduce butterflies to thousands of children and their parents.

Kids love nets because chasing insects is *fun*. It also brings the chaser face-to-face with exciting, novel, always-surprising *life*. Talk to any number of biologists, doctors, wildlife managers, and other life-science professionals, and the preponderance of them will tell you that catching bugs was a vital early stimulus for their engagement with nature. And consider the current crisis of children's disconnection from the living world, articulated in Richard Louv's book *Last Child in the Woods: Saving Our Children from Nature Deficit Disorder*. Most kids used to wander freely and catch fireflies in a jar—or crawdads, or polliwogs—and, through those encounters, learned to connect with the land on which we all depend. These days, their attachment to electronica almost from birth, their parents' fears for their safety, and the loss of accessible habitats close to home, means that this fundamental experience of roaming freely is now rare. Where will our future conservationists and biologists come from, when children no longer chase grasshoppers in real life? Well, there is no more effective defense against nature deficit disorder than the butterfly net! That's why the Lepidopterists' Society has initiated the Outernet Project, to get free nets into the hands of curious kids, and to get them outdoors with knowledgeable mentors.

Now, some people oppose the use of nets outright. With the exciting rise of butterfly watching and photography in the outdoor-recreation repertoire, an either/or mentality has too often crept into people's attitudes. Since my *Watching Washington Butterflies* (1974) and *Handbook for Butterfly Watchers* (1984) were among the first books to push these activities, I accept some responsibility for this trend. However, I have always promoted watching and photography *alongside*—not *instead of*—responsible netting. I continue to preach mutual tolerance in this regard and an ecumenical approach among watchers and catchers, as parallel and compatible parts of the community of butterfly lovers.

Rhiannon James, Young Lepidopterist, in Idaho. (photo by Jenny Taylor)

For my own part, I have carried both my binoculars and my netstick (when appropriate) for several decades, and I feel naked without either one. They can be wonderfully complementary means for exploring the living world. During the Butterfly Big Year, I used Marsha a great deal—as net, yes, but also as companion, and walking staff. But I also employed Akito, a beautifully engineered, extendible and collapsible Japanese net, given me by a fine lepidopterist of the same name; a basic BioQuip wooden-handled net, easy to jump out of the car with; and a little foldable job known as Mini-Marsha that fits into a pocket for times when I need both hands. I used them all—or none. When investigating endangered species, such as the Uncompahgre fritillary above thirteen thousand feet in Colorado's San Juan Mountains with Xerces director Scott Black; in parks and preserves, where nets were not welcome; or when in company with watchers uncomfortable with nets, I relied solely on my binoculars. The point is, all of our appliances for apprehending nature, taken together, are like a good tool box: more than the sum of their parts. When a butterfly in the bush just won't do, a net in the hand, deftly and gently wielded, may be just the right tool for the job.

Watching and photographing butterflies as a recreational pastime now draws increasing numbers of enthusiasts. But to me, doing away with butterfly nets, as some advocates of butterfly watching would like to do, would be a great mistake and a tragic loss. Many butterfly watchers, like most biologists, began with a butterfly net, and learned much of what they know on the end of it. If they then go on to enjoy butterflies through ground glass instead of gossamer mesh, more power to them. My wish for all children is that they may know the delight of a sunny day afield in company with the bright wings of summer. And if that should involve a net, well then more power to them, too.

Young naturalist in the making in the Loess Hills, Iowa. (photo by Melissa Sevigny)

John Shuey talking about Indiana habitats and conservation at the 64th Annual Meeting of the Lep Soc at Purdue University July 31, 2015. Note that there are no people in the "spit zone" in the front row. (photo by Christi Jaeger)