A Bugster's Big Year

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In 2009, my friend Bob Pyle did a remarkable thing: he roamed the United States, beginning on New Year's Day and finishing New Year's Eve, trying to see every possible species of butterfly. The end result of this butterfly "Big Year" was a book, *Mariposa Road*, a remarkable read that is filled, for me at least, with familiar species, places, and people, stitched together in one big state-of-the-nation assessment that goes well beyond the realm of butterflies and well beyond a mere naturalists' road trip. Bob slept most nights in "Powdermilk," his aging Honda Civic, and had any number of bizarre adventures along the way, ranging from tense encounters with local authorities to a dumpster dive in search of lost voucher specimens.

The whole idea of taking stock of nature through a combination of road trip and resulting book originated with birders, and in particular the book *Wild America*, which chronicles the hundred-day bird quest of Roger Tory Peterson and James Fisher, in 1953. More recently, Kenn Kaufman wrote *Kingbird Highway*, which for me was a story of a coming-of-age transcendence, in which Kenn realized that there is more to life than bird listing, even though bird listing is still a fun thing to do. And then there was *Return to Wild America*, by Scott Weidensaul, a retracing of Peterson and Fisher's route on its 50th anniversary, the punchline of which surprised Weidensaul most of all: conservation actually works, and the bird life of North America is in many respects better off now than it was in the 1950s.

My question, then, is simple: what will be next? It is probably not coincidental that the number of bird species recorded from North America is about equal to the number of butterflies (around seven to eight hundred, depending on how many rare wanderers you include), a number just large enough that no one ever quite manages to see them all in one year. But surely other groups of organisms also warrant a big year, don't you think?

What about insects in general? Will someone attempt a Bugster's Big Year? Well, I think most of us know what would happen: I imagine myself beginning this quest on New Year's Day, with a flight to southern Florida, Hawai'i, or somewhere along the Mexican Border, where I would set up some blacklights, malaise traps, Berlese funnels, and pitfalls, and then collect sweep samples and aquatics, and snag a few out-in-the-open specimens just for good measure. After a few days, I would have more than enough material to keep myself busy identifying the catch for the rest of the year, and I would probably have no trouble exceeding 800 species.

This sounds a lot like the way many undergraduates collect specimens for entomology courses, doesn't it? How odd that no one has yet written a bestseller based on their insect taxonomy course, perhaps featuring a particularly tense rivalry, or a science geek romance (correct me if I am wrong—I don't think such a book exists—and feel free to steal the idea if you like). Some might object, however, that collecting specimens might be considered cheating in Big Year terms. Birders and butterfly folk like to identify things at the moment they encounter them, not from specimens after the fact. It feels more like a chase that way.

Bob Pyle did collect vouchers for the difficult cases, by the way, and to me one of the most interesting subthemes of his book involves his careful avoidance of parks and protected areas where nets are not allowed. That the founder of the Xerces Society For Invertebrate Conservation, on a mission to increase appreciation of butterflies, finds it difficult to get permission to catch and

(continued on preceding page)

Wingless snow scorpionfly, *Boreus* sp.

Terminal Segment, from page 256

release butterflies, and to collect a few vouchers, tells us something about how odd some of our conservation regulations really are. I suppose he could have taken photographs, but that's not Bob's style, nor would it suffice for the difficult identifications that were required.

Perhaps instead of insect species, one could focus on insect orders, making it an Ordinal Bug Big Year. Ignoring the exotic Mantophasmatodea and the non-insect hexapods, there are something like 25 orders of insects living in the U.S. and Canada (for personal reasons, I prefer Big Years where people come to Canada, even if it is just a matter of driving through on their way to Alaska), depending on whose classification you follow when you count them. Where I live, in Alberta, it would be possible to find most of the orders over the course of a year (even if you started in July), with the exception of zorapterans, webspinners, and stick insects. To find those, I would have to venture to the American southeast for the first two, and perhaps the tropics of southern Manitoba, where the closest stick insects are found.

Of course, I would take great pride in tracking down the rock crawlers, since the Grylloblattaria were originally named (as the Notoptera) from Banff, Alberta, in 1914 by Edmund M. Walker. Besides, the only wild grylloblattid I have seen was recently deceased and hanging from the chelicerae of a huge, dark, alpine wolf spider. It would be nice to see a living individual. And speaking of the cold, snowy Rockies, this is certainly the best place for Albertan entomologists to find the order Mecoptera, in the form of wingless snow scorpionflies in the genus *Boreus*. It strikes me as epistemologically odd, though, to think that one has "seen" the order Mecoptera at the point when one has seen a single *Boreus*, but I suppose that is the sort of thing that would occupy my thoughts should I ever do the Big Year myself. But orders are not the way to go: I suspect I could find all of them with two- or three-week trips, possibly longer if things like the twisted-winged parasites (Strepsiptera) didn't show up incidentally on the abdomen of a leafhopper, wasp, or bee.

Why not a Family-level Bug Big Year instead? Families might be a better idea, and like orders, the number of families is at least partly arbitrary, differing from classification to classification. An additional bit of good news is that the number of families in the U.S. and Canada is somewhere around 600, bringing it close to the number of birds or butterflies, and right in the just-out-of-reach range where things seem to work best. Of course, when you identify things to species, you get families and orders with no additional effort. Again, though, I wonder if the book would sell. Tracking down a species differs from tracking down a family, and the whole point of the quest is to find the units of nature, right?

There are other options to the Big Year, and other variations on the listing quest theme. The bird folks have also invented the Big Sit, where you place yourself in a circle 17 feet in diameter and count all the species you see in a 24-hour period, and the Big Day, in which you are free to drive, walk, or cycle around during the one-day period. Come to think of it, I'm a bit sorry I didn't think of this earlier. The forecast tonight calls for colder than 20° below, and wouldn't it have been fun to try a Bugster's Big Sit sometime back in July or August?

How long can the naturalist crowd go without an Odonate Big Year book? Dragonflies and damselflies are clearly next in line after birds and butterflies as far as the charismatic microfauna goes, and there are almost 500 species of these creatures in the U.S. and Canada, which is again somewhere in the right order of magnitude. Tiger beetles are also relatively popular with naturalists, and although there are only 150 or so species in our area, there are enough subspecies and color morphs to make that group work as well.

Perhaps, though, the Big Year doesn't have to be a celebration, or a work of conservation and nature writing. What if someone were to do a Mosquito Big Year, and thereby produce a first-hand expert account on the state of the North American mosquito fauna? Or perhaps a forest entomologist could take a year off and do a Forest Pests Big Year. How about a Soybean-Associated Insect Big Year? The potential variations are endless. Even ultra-specialists could get into the act. I'd gladly buy a Bibionid Big Year book if I saw it on Amazon (about 700 species worldwide), or a Bethylid Big Year book (200 species in our area, but hey, Mexico is right next door). A Bombyliid Big Year? *Bembidion* Big Year? I'm not just alliterating for the fun of it, since both birds and butterflies are b-words too.

You think I'm kidding? Well, I predict that the Big Year phenomenon is about to become even better known, and the fad may be just beginning. Reliable sources report that a Hollywood film is on the way for 2011, based on the book *The Big Year: A Tale of Man, Nature and Fowl Obsession*, and starring Jack Black and Steve Martin. You can bet that it will do a fine job of making fun of birders, but you can also bet that it would be a different movie if it had the chance to be inspired by entomologists. There might be big money to be made here, folks—so what are we waiting for?

What is it? answer.

The photograph is of the apical tip of the monarch butterfly (*Danaus plexippus* L.) proboscis. The proboscis is composed of two galeae, but this image only portrays a single galea with its dorsal and ventral legulae that are used for linking the two galeae together.

The photograph was taken by Matthew S. Lehnert, Department of Entomology, Soils, and Plant Sciences, 114 Long Hall, Clemson University, Clemson, SC 29634-0315, mlehner@clemson.edu. Funding from NSF EPRI project 0937985; image taken at the Electron Microscope Facility, Clemson University.

If you have a color photograph of an insect, insect part, or entomological apparatus that you would like to submit for the "What is it?" feature, please e-mail a 300-dpi TIFF and a description of the image to the editor at cdarwin@aol.com.

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