

Jim Chatfield  
Ohio State University Extension

## For: January 27, 2018

So much arts & sciences, so little time. For my past two Almanacs I have promised a story of Karner blue butterflies, *Lycaeides melissa samuelis*. Well, Nature ain't simple, and as I started this week's column the story I realized that I incompletely understand this story. It is most complicated and I need more discussion with Karner blue acolytes and others, and there are more books to read and so on. As John Muir said: "*When we try to pick out anything by itself, we find it hitched to everything else in the Universe.*"

So, lets bequeath to the future a fuller tale of the Karner blue, but for now, a brief introduction to this tiny blue butterfly amid an even broader consideration of how science and nature is indeed, far from simple. Starting with Karner blue, consider this:

**Karner Blue Butterfly.** What does the Karner blue have to do with Vladimir Nabokov, Charles Mann, Vladimir Nabokov, my brother David Chatfield and the Endangered Species Act?

Vladimir Nabokov, a Russian novelist turned American émigré, was one of the most celebrated literary figures of the 20<sup>th</sup> century, being nominated for the National Book Award seven times and with two of his works listed by the Modern Library among the 100 best novels of all time (*Pale Fire* and *Lolita*). He was also an "amateur" entomologist, and his taxonomic studies, some of which enshrined at the Peabody Museum of Natural History at Harvard, led to the classification of the Karner blue as a subspecies. A subspecies that made its way onto the U.S. Fish and Wildlife Services list of Endangered Animals.

Charles C. Mann is a science journalist, who wrote, for example the book "1491: New Revelations of the Americas Before Columbus", the National Academies Communication best book of the year award in 2006. To sort of prove Muir right, when I first googled Charles Mann I came across the fact that he also was a four-time Pro Bowl tight end. But, oh, that was a Charles A. Mann. Charles C. Mann is our author of interest, also mist pointedly for his book "Noah's Choice: The Future of Endangered Species".

David A. Chatfield, is a PhD metallurgical engineer who after years of research at National Steel, went into management and became the manager of the Midwest Steel plant near the Indiana Dunes National Seashore between Gary Indiana and Chicago. Born in West Virginia and living there until engineering schools at the University of Cincinnati and Ohio State University (in the glory years of both UC and OSU basketball national championships), David is an avid hiker and nature lover.

The Endangered Species Act was signed into law in 1973 and "*provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend.*"

So, the connections? In 1992 (hmm, five hundred years after Columbus "sailed the ocean blue"), Midwest Steel, as accounted in Charles Mann's "Noah's Choice", wanted to avoid shipping problematical waste from steel production across the country to east coast landfills. How about an on-site landfill on National Steel land. It would save money and avoid environmental transportation hazards at the same time. As required and with the full detail-oriented focus of a large company with plenty of engineering skills, they planned and planned for innumerable eventualities.

There were necessary inspections relative to the suitability of the proposed landfill site. These of course involved a number of environmental assessments. What would happen to the waste over the years, would there be impacts on groundwater, and what about impacts to surrounding plant and animal life. This kind of attention to details and regulations takes months and years of planning. As I say with food preservation: those who plan, can.

As my brother recounts it, the last inspection of all finally arrived: by The Indiana Department of Natural Resources. My brother and many others walked the property, and contemplated the coming landfill, and the elimination of the costly, wasteful, and potentially hazardous transport of waste off to New Jersey from Indiana. A series of elegant solutions to a necessary waste management challenge.

And as they neared completion of the walk-through, a flash of...blue. Blue? A single Karner blue butterfly (eggs were also found on a dead lupine stem), flitted about the proposed landfill home-to-be. Or not to be. Full stop. Uh, er, Dr. Chatfield, this is going to complicate matters. Thus engendered, a series of endangered species events transpired over the next several years.

First, as noted in "Noah's Choice", "*Workers dug up more than 1600 of the deeply-rooted lupine plants with a stump-puller [lupines are needed for Karner blue reproduction] and transplanted them to a new site, where a special lupine irrigation system had been installed. The company also planted more than 3,200 lupine plants and sowed more than 8,000 lupine seeds*". As David Chatfield relates it, once the new lupine luxury suites were established, there was also a realized need to cut down a woodland that was providing too much shade, sort of a cut down a forest to not shade the lupines thread of the story.

At any rate, as Charles Mann relates in the book: "*Overall, the move cost about \$1.5 million – money Midwest Steel was glad to spend, given the alternatives.*" Brother David adds a bit of spice to that narrative, however. After all was said and done, he asked the IDNR specialist, if, as a person dedicated to the conservationist ethic, and provided \$1.5 million to do whatever might be best for the dunes area, is this how he would spend it. According to David's telling, the answer was something along the lines of "*Of course not.*"

Which brings up the dilemma of all issues relative to the complications of good intentions, economy and ecology (both words have the same Greek root "oikos", meaning family, family's property and house), John Muir's true sentiment of all things being connected, and the rollicking course of us ever trying to align economy and ecology, nature and nurture. As Charles Mann relates in the book, the goal of the Endangered Species Act as it "*provides for the conservation of species that are endangered or threatened throughout all or a significant portion of their range, and the conservation of the ecosystems on which they depend.*" is easier said than done.

The Karner blue's range is wide across the mid-northern area of the Eastern U.S. In our immediate vicinity, northwest Ohio from the old prairie lands near the Oak Openings, through those dune areas in Indiana. As Charles Mann notes there are hundreds of thousands of acres of prime Karner blue land, thirteen hundred miles apart, from New Hampshire to Minnesota, and broadly including the area currently known as Chicago, Toledo, and Albany, New York. Billions upon billions of dollars would be needed to truly return the Karner blue lands, trillions really.

The questions of what compromise is reasonable are never-ending, as are all issues of the sciences and arts of Nature. As for the Endangered Species Act: Fresh from the newspapers this week: in *Weyerhaeuser Co. v. United States Fish and Wildlife Service*, No. 17-71, comes a 2012 an issue relative to the dusky gopher frog (*Lithobates sevotus*) now making it to the Supreme Court:

From the landowners: "*The frog does not live there [a site in Louisiana], cannot live there, and will not live there in the future...the land is not suited in all respects for immediate occupation by the frog*". The government's response: "*[this] overlooks the substantial practical challenges inherent in the identification of critical habitat for endangered species. Many species are endangered precisely because their ideal habitat has been severely diminished or eliminated altogether...Where optimal habitat is unavailable the service acts appropriately in*

*prioritizing areas with those features that are rarest or most difficult to reproduce through human intervention – here, the unique ephemeral ponds necessary for the frog’s breeding...”*

By the way, I was talking with a conservation biologist in Michigan City, Indiana a few months ago. He worked on the National Steel site two decades ago, and he anecdotally noted that, no Karner blues have been detected there for many years. That will lead to future articles, rebuttals and perspectives. It shall be grand.

So, complete conservation is not realistically possible. in fact if we even had the resources and interest to do so, what about the other current ecologies and economies that would stand in the way, not to mention the other species, that would be, in fact, endangered? It is never as simple as we would like to think, though, it is also important to try to figure out to what extent we should try. As Joni Mitchell wrote: “*Don’t it always seem to go, that we don’t know what we got till its gone. We paved Paradise, put up a parking lot.*”

**End Note:** Well, since I thought I needed a more thorough take on the Karner blue, at the beginning of this article I thought I would postpone writing the whole column on *Lycaeides melissa samuelis* and just do a few short notes on it and other items. I was going to add comments about how ‘Prairifire’ crabapple went from highly resistant to moderately susceptible to apple scab disease. And how did the *Bacillus thuringiensis* bacterium go from the darling of the organic gardening movement to a dreaded soldier in the Frankenfoods trope. Or does the Armillaria fungus infect the entoloma species of mushroom resulting in the aborted entoloma mushroom, in the process making it more edible or is it the other way around? Does the entoloma fungus actually infect the armillaria fungus? Not to mention what happened with ash trees in North America and what does it tell us about birches in Europe. Or...

**Second End Note:** Well, even more on the Karner blue butterfly and the above topics in future Almanacs. As for my next entry, though, arborist Chad Clink contacted me recently and said, hey, why don’t we do the trees of Moses Cleveland. Done. I wonder, though, if he means burning bushes and trees-of-heaven, Or...

**Final End Note:** I promised that picture of broccoli casserole from the holidays. Here it is, I hope.