

# The Mysteries of Taxonomy

One of the first official actions taken by the newly formed North American Butterfly Association, in 1993, was the adoption of an official Checklist and English Names of the butterflies of the United States and Canada.

Just as society needs a stable list of elements in chemistry and a list of human genes for all sorts of purposes, it needs a stable list of species. But while chemists agree on what is an element and geneticists (mainly) agree on what is a gene, there has never been, and is not now, general agreement on what is a species; species concepts vary greatly from one “expert” to another.

Imagine that fifty people are trying to devise a naming system for the spaces within houses (or for cloud systems, or ecosystems). While most would probably have little trouble agreeing on the names for many spaces, there might be other spaces where they would differ. Is a certain space a living room, a den, a great room or a family room. Is a room where guests spend the night a guest room or, because it’s mainly used as a work area, is it an office? What if it’s used half the time as a work area? What if it’s used once a year as a work area? Even if each of the fifty people had absolutely complete information about how each space was used, they would differ in their use of names.

The classification and naming of living organisms is called taxonomy. The biological world is much more complex than the spaces in houses and so it is impossible for all taxonomists to agree on what names should best be used for various populations of living organisms. Even if different taxonomists agreed on the concept of a species (and, as I have said, they do not), because of the overwhelming complexity of the biological world, they do not always agree on species

“names” because the application of these names inevitably relies on subjective and arbitrary criteria. Species level nomenclature is simple and rigid, as opposed to the science (information about population structures, gene flows, degrees of evolutionary relatedness, etc.) on which nomenclature is based. Taxonomic nomenclature is great for representing clear-cut cases of distinct species, but is inadequate for representing those complex and fascinating “intermediate” cases. Natural complexity cannot be represented accurately by simple nomenclature; there is no right or wrong nomenclature in many instances even when we have a good understanding of the biology.

Many people mistakenly think that species names are “facts” and assume that when someone suggests changing a name it is largely because of new information, rather than a different viewpoint. However, most suggested changes to the NABA Checklist and English Names are based not on new information that would lead to the conclusion that the name used on the NABA list was used incorrectly, but rather derive from the different viewpoint of the person suggesting the change.

As James Mallet and Keith Willmott, two notable scientists working on butterfly evolution and taxonomy (one at University College London, the other at the University of Florida, Gainesville) have recently stated “Taxonomists differ in how they circumscribe species, largely because of conflicting opinions rather than because of new information.” and “...differences of opinion [among taxonomists] are extremely common today, leading to great potential instability.” (Mallet, J. and Willmott, K. 2003. Taxonomy: Renaissance of Tower of Babel? Trends in Ecology and Evolution: 18: 57-59.)

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## Readers Write

### Taxonomists

Just a short note to let you know that I am a fan of Harry Zirlin’s and his “Taxonomists Just Wanna Have Fun.” The articles are well written and researched and bring me information I want.

Karen Nickey, Tucson, AZ

### Hogs and Beans

Thank you for your research. I know plants better than I do butterflies, so *American Butterflies* is much appreciated. In the Definitive Destination article about Phipps Park, Leon County, Florida by David Harder, Dean Jue and Sally Jue (*American Butterflies* 15: 3/4) the flower shown on page 8 is not a hog peanut. Rather, it is the flower of wild bean (*Phaseolus polystachios*). Both of these vines are trifoliolate legumes, and distinguishing the leaves is not easy. But the pink flower with the split lower petal is clearly a wild bean.

Jim Sullivan, Chesterfield, MO

*There were several species of flowering legumes in the area where and when I took this picture and, upon more careful scrutiny of the photograph, I concur with your identification. Thank you for your correction.*

Dean Jue.

## Errata

The caption to the photo on page 9 of *American Butterflies* 15: 3/4 was corrected in the last issue, but the correction (on the inside back cover) was incomplete. It neglected to correct the erroneous statement that the skipper caterpillars were all on hog peanut. Actually, only the Golden-banded Skipper caterpillar was on hog peanut. The identity of the leaves on which the Silver-spotted Skipper and the Long-tailed Skipper caterpillars rest is uncertain.

The photo of a White-striped Longtail on page 32 of *American Butterflies* 16:1 should have been attributed to James Q. Foster. We apologize for the oversight.

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Of course, biologists researching a given problem need a way to “name” the populations on which they are working. At the other extreme, society needs a relatively stable nomenclature. In this issue of *American Butterflies* is the first of a two part article, by Gordon Pratt, about the very complex populations of buckwheat blues. Reading this informative article you will learn where and when to find many of these populations. In the article, Gordon Pratt treats as species many populations that are treated as subspecies on the NABA Checklist (in the article, we try to make clear how the species is treated both by the author and on the NABA Checklist).

We do not think that this is unreasonable. Looking at it in a different way, our own inclination is that biologists “up to their elbows” working on a fascinating species level project might use nomenclature below the species level for partially isolated seasonal, geographical, and foodplant differentiated populations, so that species level nomenclature is more stable. However, each researcher has his/her own inclinations; thank goodness for a society in which one can express views freely.

Jeffrey Glassberg  
Robert Robbins