



# NATURALIST'S CORNER

## SCIENTIFIC NAMES AND COMMON NAMES

*Apatosarus ajax*, a.k.a. “Brontosaurus”

Naturalists certainly know the concept of scientific names, also known as Latin names, technical names, or binomials. Some of these names can be difficult to pronounce and spell and may look quite complicated. Scientific names for some plants, like *Rosa rugosa*, are used by many of us as frequently as common names (e.g., beach rose). Scientific names for some lineages of organisms are infrequently used, such as in ornithology, where common names such as scrub jay, Steller's jay, and blue jay are clear to all birders. By contrast, I suspect that few of us know and use *Aphelocoma coerulescens*, the scientific name for Steller's jay.

Elsewhere, one hears the argument that scientific names are preferred because the common name of a species varies considerably across the species' range or even within the same region. As an example, the species known as Puma concolor may be referred to as puma, mountain lion, cougar, or painter, among other names. Additional arguments for using scientific names include that they can be quite descriptive of the species to which they refer, that they do not change over time or vary regionally, and that they are the same in all languages. Regarding this last point, years ago I was on a natural history walk in the mountains of Austria. German was the primary language used by most of the participants. Someone pointed out a plant and called it “Erica”, which I knew was the genus name for the shrub called “heather” in English (although I had never seen the plant growing anywhere). I'm sure I do not know the German word for heather and had the scientific name not been used might not have known that's what the plant was.

Before considering other advantages of using scientific names, let's look at their origin, which many people know dates to the eighteenth century and is the work of the Swedish biologist Linnaeus. He was the first to use a two-name system for naming organisms (the binomial), as in the example *Populus grandidentata*, the name for the big-tooth aspen. Students are generally taught that the first name, the genus, should be capitalized and that the second name is the “species name” and is not capitalized. Although this capital/lower case rule is correct, it is not correct to refer to “grandidentata” as the species name. Recalling that scientific names are binomials, the correct scientific name of the species is the two names written together. (If someone asks what is the species to which humans belong, the correct answer is *Homo sapiens*, not just sapiens.)

Returning to the descriptive value of scientific names, *grandidentata* is a good example as it refers to the large teeth on the leaves of this aspen. Many additional examples could be provided, and it must be admitted that familiarity with Latin or Greek (more common in the days of Linnaeus) is helpful here. Many of us recognize alba in the name of the white oak (*Quercus alba*) but may not know that *botuliformis* means sausage-shaped! However, such descriptions can be misleading; there is a lichen whose full name I can't remember, but the second part is *aromatica*, which suggests that it is fragrant. It is not. The species was named by a lichen expert who had received the specimen in a scented envelope sent by a collector on another continent. Why not correct this mistake?

The reason errors like this persist is that botanists and zoologists have established detailed rules for how organisms can be named, and the names cannot be changed if the rules were followed when the new species was first named. So the non-aromatic lichen retains its misleading name. In other cases, it becomes quite necessary to change scientific names, not only for binomials, but also to move species from one family to another based on new understandings of relationships among species. Recent examples exist largely because modern technologies using DNA are showing relationships among organisms that were poorly understood previously. Contemporary classification systems group species together based on inferred ancestry. In the time of Linnaeus, the groupings were based on appearance since ancestry, i.e., “evolutionary relationships”, was not yet a known concept. As a result, the large plant genus *Aster*, formerly thought to be represented by about 30 species in Massachusetts, now has just one species, *Aster tataricus*. The others are spread over six different genera with names seemingly designed primarily to distress botanists, especially those long familiar with the former names and reluctant to learn the new ones.

An additional example of confusion regarding scientific names is seen in the well-known Brontosaurus dinosaur. Here's the situation: In 1879, the American paleontologist Othniel Marsh named a species found in Wyoming *Brontosaurus excelsus*. Two years earlier, he had named another large species from Colorado, *Apatosaurus ajax*. Around 1900, it was determined that these

two discoveries were merely two specimens of the same species. Therefore, paleontologists used the name *Apatosaurus* for the species because it had priority (had been named first), but somehow the name “Brontosaurus” became the name used by the public for more than 100 years, appearing in films, on logos, and on postage stamps.

Theoretically, the story could end with an “enlightened” public adopting the proper name, but in 2015 further research showed there are indeed two different species of this huge, long-necked dinosaur. So now, both names are correct, but it would seem that most of us need not be concerned with the technical differences between them.

Additional aspects of the topic of the naming of organisms, including some amusing anecdotes, could be included here. Perhaps another time.

*~Dave Lovejoy*