

# Getting Binomial Names Right (Yes, It Matters)

In the binomial naming system, every organism is identified by two names, a genus and a species. (There are some exceptions—see below.) That two-term name, sometimes known as the Latin name, scientific name, binomen, and a few other terms, is how scientists refer to living things—and is the way they should be referred to by people who work with scientific information, whether or not they are professionals.

As with most systems, there are rules, but they're not difficult.

The genus name is always capitalized, and the species name or "specific epithet" is never capitalized. Both are always italicized. For example, *Tyrannosaurus rex*. That means that T-rex, T-Rex, Trex, Tyrannosaurus Rex, and all other variations, with or without italics, are wrong. *T. rex*, however, is just fine, and it's common to abbreviate the genus name after an initial use and as long as everyone in the conversation knows what the abbreviation refers to.

In some cases, abbreviating the genus name is serendipitously convenient. *C. megalodon* could be *Carcharodon megalodon* or *Carcharocles megalodon*, which neatly skips over the fact that debate regarding whether *C. megalodon* belongs to the Family Lamnidae or the Family Otodontidae has gone unresolved for about a century.

The genus and species are followed by the last name of the person who first described the species in a formal, published scientific paper. Next comes the date of that description. The author's name and date are never italicized.

Take, for example, *Bulla striata* Bruguière, 1792, a member of the genus *Bulla*, a marine gastropod that has been around since at least the Cretaceous and still exists today. *Bulla* includes hundreds of species and is one good argument for binomial naming: Trying to refer to all 600 species by their common name alone—"bubble shells"—would be chaos.

The designation above tells us that Bruguière (Jean Guillaume Bruguière, to be exact, a French zoologist and physician) first described *Bulla striata* in 1792.

If the author's name appears in parenthesis, the species was first described under a different name and revised or renamed by a later worker. *Elanoides forficatus* (Linnæus, 1758)—the swallow-tailed kite—is an example. Linnæus's name is in parenthesis because he originally named this species of kite *Falco forficatus*; about sixty years later, another

worker erected the genus *Elanoides* and put Linnæus's kite into it, but Linnæus's role as the first to describe the species is remembered in the way the name is written.

Not every scientific name follows these rules exactly. Some species have three names: *Homo sapiens sapiens*, for one: a genus, a species, and a subspecies. There are also varieties. A French worker studying Syrian *Bulla*, for example, concluded that a variety—different enough to warrant separation from all other *Bulla striata*, but not different enough to serve as the basis for an entirely new species—existed, *Bulla striata* var. *minor* Pallary, 1938.

Here are some additional common terms and abbreviations (many others exist):

- **Conus**sp. means that the specimen belongs to the genus *Conus* but that a species identification is doubtful or impossible. The plural is "**spp.**"; neither is italicized.
- When a new species is formally described or introduced for the first time, it is usually followed by the abbreviation "**sp. nov.**" or "new species." For example, *Pyrococcus furiosus* sp. nov. is a new genus of marine bacteria that crave heat—water of at least 100°C (212°F); "**sp. nov.**" is not italicized.
- **incertae sedis** or "placement uncertain" indicates that the relationship of the organism to higher taxa is in doubt.
- **cf.** is used to indicate "with affinities to." *Anadara cf. lienosa* (Say, 1832) means that the specimen so identified is considered to belong to the genus *Anadara* (a marine bivalve) and shows at least some characteristics that would place it in species *lienosa* (known from Florida's Early Pleistocene Caloosahatchee/Bermont Formations); the identification, however isn't definite.

Be aware that Wikipedia and many other online sources follow these conventions carelessly or not at all, creating confusion about authorship and the official status of scientific names. Take what you find on blogs and in social media *cum grano salis*, as they might say in Latin. A useful guide is the International Commission on Zoological Nomenclature's "Best Practice in the Use of the Scientific Names of Animals" manual, available in .pdf format from <http://tinyurl.com/icznbest> (or search the ICZN's site itself). There's also an International Code of Nomenclature for algae, fungi, and plants (ICN).

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