



Geeky nature

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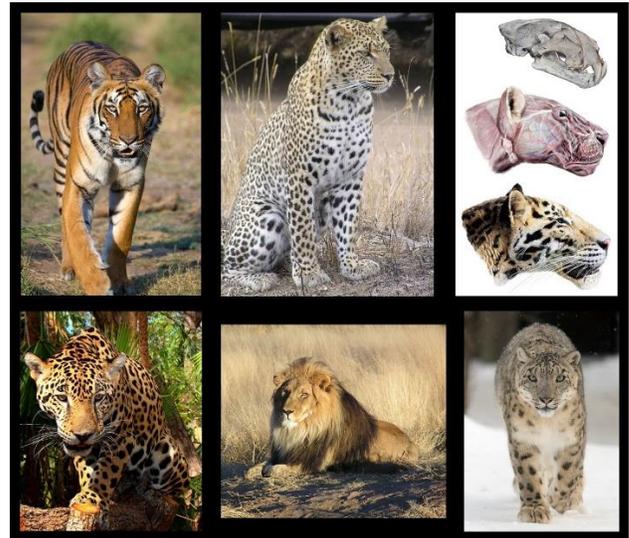
Everybody knows that each species on the planet eventually receives a so-called “scientific name”, a two-piece Latin-like name that serves the purpose of scaring people away from science – even more than they already naturally are. So what good do scientific names do?



Cyanocitta cristata, the blue jay. Image taken from: Wikimedia Commons.

Well, for starters, having an official name assures that every single scientist in the world will refer to a species by its scientific name. This makes it a lot easier to find information about a given species in the vast scientific literature. Just imagine how easier it is to simply search the literature for information on *Cyanocitta cristata* instead of looking for citations of its popular names: blue jay (in English), arrendajo azul or urraca azul (in Spanish), Blauhäher (in German),

geai bleu (in French), ghiandaia azzurra americana (in Italian), gaio azul (in Portuguese) etc.



Species in the genus *Panthera* are all closely related to each other and, thus, all have similar characteristics. Top row, from left to right: tiger (*P. tigris*), leopard (*P. pardus*) and a reconstruction of the fossil Longdan tiger (*P. zdanskyi*). Bottom row, from left to right: jaguar (*P. onca*), lion (*P. leo*) and snow leopard (*P. uncia*). Image taken from: Wikimedia Commons.

Moreover, by stating that a tiger (*Panthera tigris*) belongs in the genus *Panthera*, we are saying that it is more closely related to the other species in the same genus (such as the lion, *Panthera leo*, and the jaguar, *Panthera onca*)

than to any other member of the cat family (called Felidae), such as the Canadian lynx (*Lynx canadensis*) or the saber-toothed cat (*Smilodon fatalis*). These statements are the basis for organizing the tree of life.

Now, let us take a moment to review how scientific names work. They have two parts. The first one is the name of the genus, like *Panthera* in the example above. The second part is called the “specific epithet”, like *tigris* for the tiger. Now mind you that the species name is not simply *tigris*. The word *tigris* means nothing by itself, unless accompanied by the genus name. As such, the complete name of the tiger species is *Panthera tigris*.

The specific epithet (the *cristata* of the blue jay example) is usually not a random word. It may help describing a species, giving an idea of what it is like or where it comes from. Let’s take a look now at some useful specific epithets:

- Take the snail species called *Eoborus rotundus*, for instance. The specific epithet implies that this particular snail is rotund or round and this is something that makes it different from other species in the same genus. For instance, the species *Eoborus fusiformis* is, like the name implies, spindle-shaped. As such, the specific epithet serves to point out a feature that makes the species easy to distinguish (diagnose, in the jargon) from other closely related species.

- The specific epithet can also reflect the place where the species lives or, at least, where it was first found. For instance, we expect to find a bird named *Tangara brasiliensis* in Brazil and a slug called *Arion lusitanicus* in Portugal. Sometimes this fails though: the bird *Tangara mexicana* is not found in Mexico – perhaps a lack of geographical knowledge of the person who named it.

- An epithet may also reflect the kind of habitat where the species lives in or its mode of life. The snail *Cepaea hortensis* received this epithet because it is commonly found in groves and orchards.

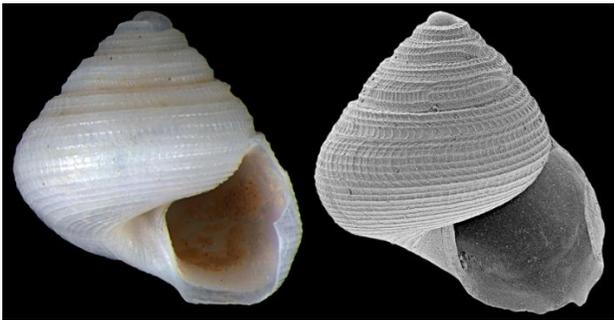


The round *Eoborus rotundus* (left) and the spindle-shaped *Eoborus fusiformis* (right) are fossil land snails species from the Paleocene/Eocene of Brazil.

Also, there are the not-so-useful names, the ones that are given in honor of someone, commonly a great scientist who usually worked with that group of animals before. For instance, there are loads of species, such as the snail *Bulimulus darwini*, named after Charles Darwin. Of course, Darwin deserves all the honors possible, but sometimes this habit of naming can become more a matter of ass-kissing than anything else. It is thus common (and useless) to name species after the person who funded the research or even after people who are completely irrelevant to science, such as the zoologist’s wife or children. Therefore, we have lots of women’s proper names, especially in the butterflies. Even worse, almost all birds of paradise are named after European nobility or royalty. It might be cute, be it is useless.

Sometimes, a species is named after a mythological being. This is often also useless,

despite being way more awesome, like the owl genus named *Athene*. Yet, it might also be useful sometimes. For instance, the snail *Brasilennea arethusae* was named after the nymph Arethusia. This snail was the first fossil land snail found in Brazil and naming it after a forest-dwelling nymph made this very clear (at least to people who know their mythology), in a manner similar to the example of *Cepaea hortensis* above. Another example is *Pseudotorinia phorcysi*, a snail that lives in the deep sea, named (by myself and two colleagues) after the Greek deity *Phorcys*, the god of the hidden dangers of the deep sea.



Halystina umberlee. The photo on the left was taken on a light stereomicroscope. The one on the right was taken using a scanning electron microscope, which reveals much more details about the structures of tiny creatures.

And now, finally, I arrived where I wanted: the geek names. Some species have received names coming from geek culture. As the first example, there is *Halystina umberlee*. This is also a deep-sea snail named by myself and the same two colleagues, but this time, instead of the Greek god *Phorcys* of the example above, we used the goddess *Umberlee*. She is also a goddess of the dangers of the deep sea, but she is a fictitious deity, coming from the so-called Faerûnian pantheon of the *Dungeons & Dragons* RPG. To my knowledge, I was the first geek to name a species after something D&D-ish. But

I'm far from being the first geek in the history of zoological nomenclature.



The goddess *Umberlee* rising from the waves (taken from the book *Faiths & Pantheons* by Eric L. Boyd & Erik Mona, 2002, published by *Wizards of the Coast*).

Back in the 19th century, geek zoologists did not have Tolkien or *Star Trek* yet, so they named their species after the geeky literature of their time. For instance, the jumping spider *Bagheera kiplingi* – the genus named after the character and the specific epithet after the writer.

From the middle of the 20th century onwards, geekness became much more pervasive. Just to exemplify, we have the spiders *Pimosa cthulhu* and *Aname aragog*, the fossil plant *Phoenicopsis rincwindii*, the mussel *Ladella spocki*, the fish *Bidenichthys beeblebroxi*, the dinosaur *Dracorex hogwartsia* and a whole lot from the Tolkienverse: the weevil *Macrostyphlus gandalf*, the fossil mammals

Protoselene bombadili and *Mimatuta morgoth*, the leafhopper *Macropsis sauroni* etc.



The dinosaur *Dracorex hogwartsia*, from the late Cretaceous of North America. Its skull really looks like that of a "typical" dragon, but the animal was disappointingly an herbivore. Image taken from: Wikimedia Commons.

Genera (this is the plural of genus!) have also been named after geek culture: the worm *Yoda*, the slug *Smeagol* (which has its own precious family, *Smeagolidae*), the crustacean *Godzillius*, the snail *Cortana* (this one is also my fault), the lizard *Smaug*, the fish *Batman* (why not an outright bat is something that also baffles me) and the tardigrade (microscopic creatures also known as sea-bears) *Beorn*, among many others.

One species that deserves a full paragraph here is *Han solo*. Yes, exactly, I'm talking about the Chinese trilobite. In the official description (from 2005), the author Samuel T. Turvey says that the name comes from to the Han Chinese (by far the most numerous ethnic group in China today) and that the specific epithet solo is because the species is the youngest fossil in the family (meaning the last or sole survivor). Still, Turvey later said that it was all a bet; some friends dared him to name a species after a Star Wars character. But Turvey was rather cowardly in this. He could have stated up front (and

proudly) where the name came from. There is no rule in the International Code of Zoological Nomenclature (the code that regulates the names) against this. I have done it myself and lots of geeks before me have been doing it for a long time. The official description of the fossil turtle genus *Ninjemys* reads: "Ninja, in allusion to that totally rad, fearsome foursome epitomizing shelled success; emys, turtle." And no editor or reviewer can prevent the name being given. Well, perhaps they could back in 1900-something, where everybody was worried with proper-this and proper-that, but, come on, not in 2005! Dr. Turvey, you have made geekdom both proud and disappointed at the same time. Please get things right from the start next time.



Skull of the fossil teenager ninja turtle *Ninjemys oweni*, from the Pleistocene of Australia. Those are some pretty badass spikes and it actually looks a little bit like Slasher. Image taken from: Wikimedia Commons.

OK, I grant you that geek names are not very useful, but they sure give a little color to zoological (and sometimes also botanical) nomenclature. Taxonomy (the science of naming and classifying living creatures) is very nice and all, but the scientific papers in the area can be very arid and lifeless. Therefore, I think

that it is a very valid endeavor to try to have some fun while doing taxonomy, especially if you are a geek and have a whole pantheon of heroes, gods and monsters to get your inspiration from.

ACKNOWLEDGEMENTS

I am very grateful to Ed Greenwood, creator of the Forgotten Realms (and, thus, of Umberlee) for his very kind comments on the new species named in honor of the goddess. Also, many thanks to my co-authors of scientific papers for allowing my geekness to run free when naming species.

REFERENCES & FUTURE READING

If you want to know exactly how species are formally described and get their official names, this is the best guide out there: **Winston, J.E.** (1999) *Describing Species: Practical Taxonomic Procedure for Biologists*. Columbia University Press, New York.

A less academic approach to the whole naming process can be found in: **Wright, J.** (2014) *The Naming of the Shrew: A Curious History of Latin Names*. Bloomsbury Publishing, London.

For a more philosophical view and musings about the importance of naming species for scientists and non-scientists alike, try this one (you might want to skip chapter 9 though, which is far too exaggerated on its glorification of molecular taxonomy): **Yoon, C.K.** (2010) *Naming Nature: The Clash Between Instinct and Science*. W.W. Norton & Company, New York.

If you want a taste of what a real taxonomic paper looks like, try this one (where *Halystina umberlee* came from): **Salvador, R.B.; Cavallari, D.C.; Simone, L.R.L.** (2014) Seguenziidae (Gastropoda: Vetigastropoda) from SE Brazil collected by the Marion Dufresne (MD55) expedition. *Zootaxa* 3878(6): 536–550.

For the ones who like rules and want to take a look at the “laws” presiding over animal names, the **International Code of Zoological Nomenclature** (ICZN, for the intimate) is the one and only guide: <http://iczn.org/iczn/index.jsp>.

Last but not least, Mark Isaak has compiled a lot of geeky scientific names on his website: www.curiooustaxonomy.net/etym/fiction.html. I must confess that I did not know most of them, since they are insect names (rather removed from my area of study). In any case, it is always good to know that I am not alone – there are many other geek zoologists and paleontologists out there. Just take a look at the sheer amount of Lord of the Rings and Silmarillion names; it’s amazing!