

Quenda, Zanda, Jacaranda! What's in a name?

Description

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Brazilian Rosewood Minstrel by Gerald Sheppard 2006

Correctly identifying and putting a name to species is important for both conservation and trade. Many species are at increasing risk of extinction, including some of the trees that produce the most prized guitar woods. Here I look at the ins and outs of biological names.

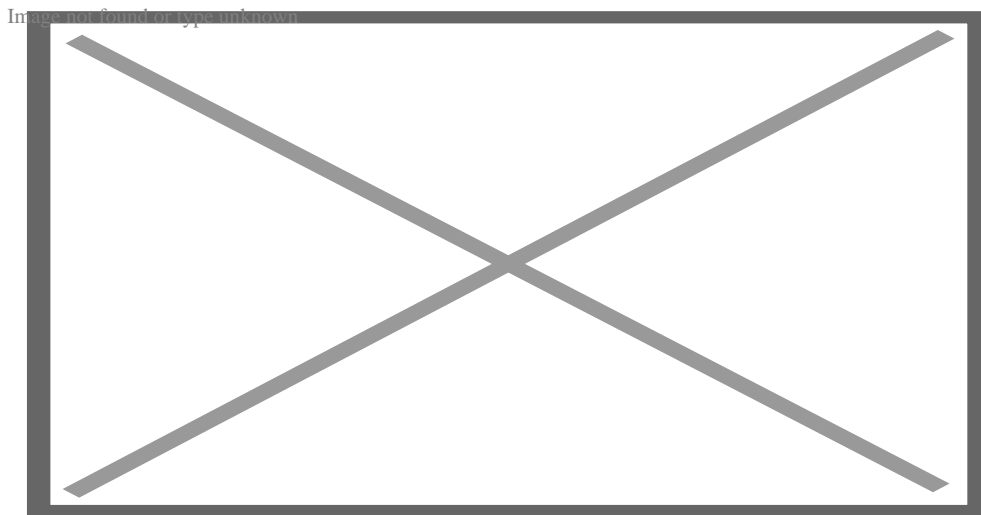
I've been writing a piece on Brazilian Rosewood (*Dalbergia nigra*) – or Braz, as it's sometimes referred

to. While I'm interested in all the various alternative woods and materials used to build guitars, I also need to spend some time focusing on some of the traditional mainstays. Brazilian Rosewood has an almost legendary reputation among guitar cognoscenti as being "the" wood. For many people – builders and players alike – the epitome of what makes a good guitar is a combination of Brazilian Rosewood for the back and sides and some sort of spruce (such as European, Adirondack, Sitka) for the top.

That article will focus on what's so special about it, and how it came to have this revered position in the guitar world: where the wood comes from, how it got to be a top pick for guitar tonewood, and the current situation in which it is highly prized but hard to come by because of its increasing scarcity and the trade restrictions it is subjected to.

However, when I started writing about Brazilian Rosewood, I realised that I needed to spend a bit of time discussing what it actually is, and that led to a bigger discussion than I had anticipated – so here it is as a separate item.

Unsurprisingly, Brazilian Rosewood comes from Brazil. It's one of over a hundred species of *Dalbergia*, a genus of trees that also occurs in many other parts of the world, particularly Africa, India and Asia. There is another Rosewood from Brazil which is not a *Dalbergia* – *Aniba rosaeodora* is called rosewood, but is also known as pau-rosa. Pau-rosa also grows in numerous other South American countries, including the Brazilian Amazon. The Brazilian Rosewood used in guitars is also confusingly called Jacaranda (*Jacarandá da bahia*) in Portuguese and Spanish – and this is not to be mistaken for the genus *Jacaranda*, which has 49 species of trees including *Jacaranda mimosifolia*, a popular street tree with profuse blue/purple flowers that is also a problem weed species in some areas such as eastern Australia (we will hear about this species more in another post).



Jacarandas in bloom in Perth, Western Australia

“That which we call a rose By any other name would smell as sweet” William Shakespeare: Romeo and Juliet, Act 2 Scene 2

Confused? Welcome to the world of biological nomenclature. People who work in biology quickly get used to dealing with the Latin names for organisms, rather than their common names. The [Latin name](#) has two parts – genus + species. A [species](#) is the basic unit of classification for organisms – it is

generally taken to include any individuals that can reproduce together. Related species and species with broadly similar characteristics are grouped into genera: hence the Latin name gives you the broad group name (such as *Quercus* for oak trees) followed by the specific type of organism within that group.

The idea behind all this is to provide a unique name for each type of organism that remains the same wherever it is found. In contrast, the common names given to plants and animals can often vary widely from place to place, and even within the same region. This is OK when everyone using the name attaches it to the same plant or animal, and worked well while human populations stayed within the same general region – for instance, Indigenous cultures have a rich history of interaction with the natural world they encounter on their home turf. This local connection has been diluted as humans have travelled widely, and especially during and following colonization of new worlds, particularly by Europeans.

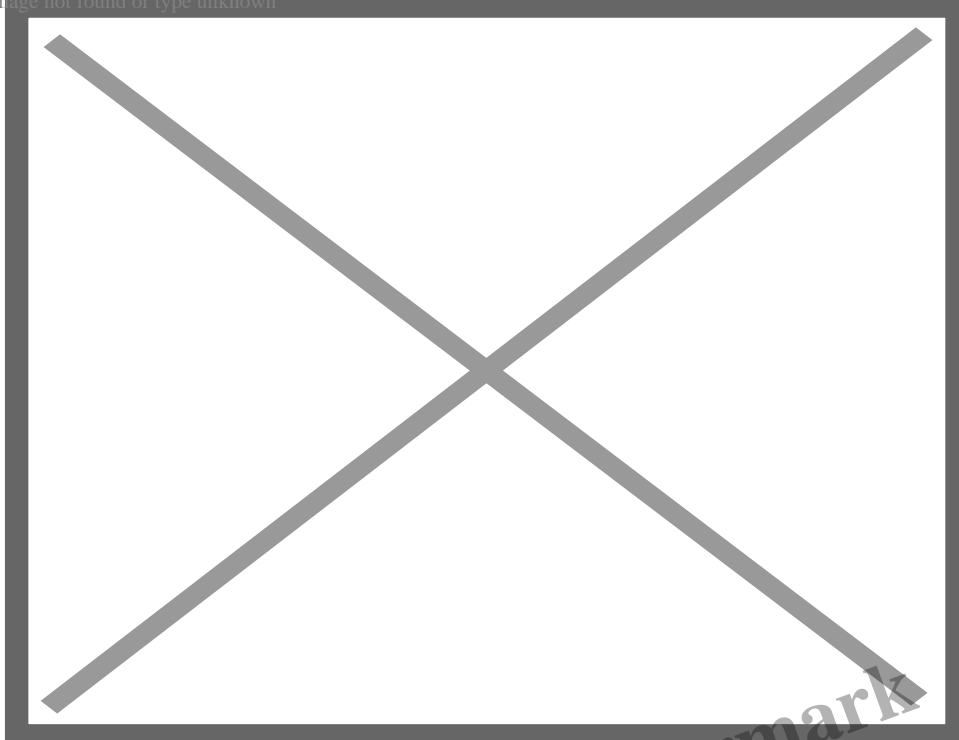
Common names can be confusing too, as, for instance, in the case of [Douglas Fir](#). The same name can be given to different species (as in the rosewood example), or alternatively the same species can be given different names. And that's before different languages are included in the discussion.

The Latin binomial system has been in place for hundreds of years now and certainly makes things clearer. However, even this system is not foolproof – especially since [taxonomy](#) itself continues to evolve and change as more organisms are studied and new techniques, such as molecular genetics, are employed. Taxonomists patiently and painstakingly look at the relationships between different groups of organisms – and have a habit of changing things around quite a lot. Taxonomy has to adapt to new information, but also has a subjective tinge to it – taxonomists have been broadly placed in two groups, “lumpers” and “splitters”, or those who like to put broadly similar things in the same group versus those who like to divide things out on every small detail.

Ongoing taxonomic research means a certain fluidity in how things are grouped and what they are called. What was previously considered a single group could be split into several or many different groups, or alternatively different groups could be merged. So, here in Australia, all gum trees used to be called *Eucalyptus*, but this genus was split in three with some being renamed *Corymbia* or *Angophora*. In Western Australia, we had a genus of plant that was found nowhere else on earth – [Dryandra](#) – but that suddenly disappeared when the taxonomists decided to group all 94 members of that genus into the genus *Banksia*.

And recently, [Carnaby's black cockatoo](#), a beautiful cockatoo found only in Western Australia, known as Ngoolark in the local Noongar language, used to be called *Calyptorhynchus latirostrus* suddenly just recently became *Zanda latirostrus*. *Zanda*?! Where did that come from? When I first heard it, I thought it referred to a fictitious woman warrior, but why our native black cockatoo should be called that is a mystery to me.

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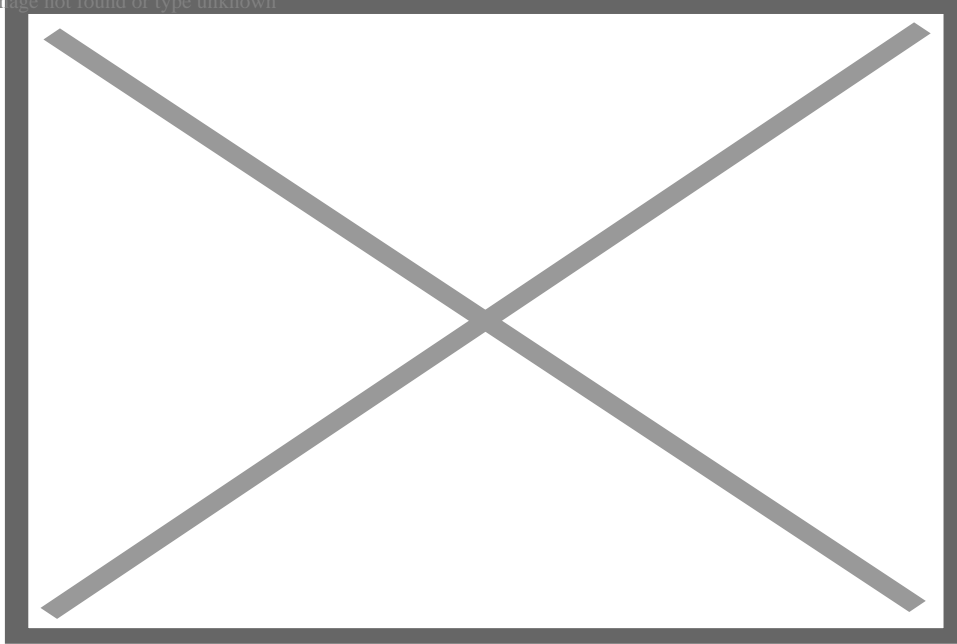
Carnaby's black cockatoos in Kings Park, Perth

To a certain extent, taxonomic decisions involve creating discrete categories from a continuum of variation. Life continues to evolve, and species change and adapt to changing conditions – sometimes surprisingly quickly. Although species are considered as the basic building blocks for organising biology, even the species concept has wobbly edges because some species can reproduce with others, forming hybrids. Some species hybridize quite readily – for instance the two species of oaks found in Britain, *Quercus robur* and *Q. petraea* [hybridize](#), producing individuals intermediate between the two species.

Humans are also constantly hybridizing species or varieties to create horticultural varieties or improve yields and quality of fruits, cereals and vegetables. Things we take for granted like oranges are actually the result of human-driven hybridization – the orange is a hybrid between pomelo (*Citrus maxima*) and mandarin (*Citrus reticulata*).

In addition, although the species is the main taxonomic entity, many species are further split into sub-species. Where I live in Australia, there are lots of subspecies – sometimes these are similar plants or organisms living in different places, or sometimes they are thought to be the same species but distinct enough to form a sub-category. Again, this is constantly changing as new information becomes assimilated into the body of taxonomic knowledge. For instance, here in Western Australia we have small digging mammals called [quenda](#) (the name given to it in the local Noongar language). Until recently, quendas were thought to be a subspecies of the southern brown bandicoot (*Isodon obesulus*), which is found across southern Australia. Recent genetic studies have found the quenda to be a species in its own right, and it is now known as *Isodon fusciventer*. This change comes with important policy and legislation implications.

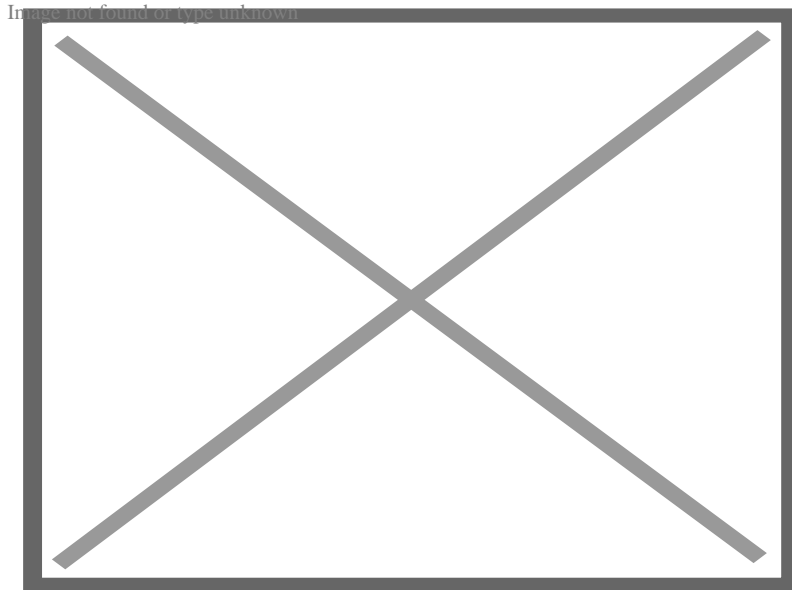
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A quenda (Photo: Leonie Valentine)

Telling things apart

How different does something have to be to be classified differently from something else? Which criteria are best to use? These and other questions often have no clear or correct answer – hence there is the potential for continual change as groups are studied more or are looked at by different people. As a simple field biologist, this can get frustrating at times. For instance, if something you've been calling a single species suddenly becomes several, what does that mean for the data you've been collecting? Or if something changes its name, that can lead to confusion for studies conducted over time – the old name will appear in some reports and papers and the new one in others. I've been studying the grassland plants at [Jasper Ridge Biological Preserve](#) for 37 years, and over that time quite a few species have changed names – in a couple of cases, the name changed more than once, and one even changed genus and later changed back to the original name!



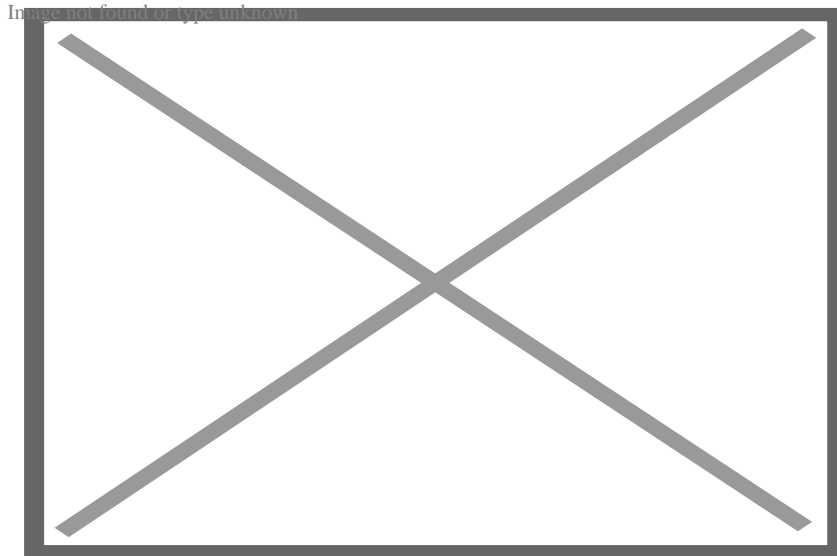
Purple Needle Grass in California – *Stipa*. No, *Nasella*! No, *Stipa*!!

Another important feature of all this is how easy it is to tell one species from another. Some differences are easy to spot – for instance, most people could tell an eagle from a pigeon. But how many could tell the difference between two species of eagles? Within groups, some differences are striking while others are very subtle and liable to be only picked up (or even of interest) to a small subset of people who are interested in such things.

Some differences can only be picked up by close observation, sometimes with a microscope or magnifying lens for plants or with binoculars for animals (in the old days, the only sure way to be certain was to shoot the animal for closer inspection). Some differences only manifest themselves at particular stages of the organism's life cycle or at certain times of year. The more diverse a group is, the harder it is likely to be to get all the names sorted out.

Correctly identifying plants can involve working one's way through complex taxonomic keys that involve a lot of decisions between different choices, often involving the use of quite obscure terminology. Identifying insects can be even harder, especially when there is still a lot to learn about what's around. Larger animals are a bit easier, but even then involve careful observation.

Some groups of people become almost fanatical in this quest – for instance, serious bird watchers are renowned for expending large amounts of time and effort to spot and identify different species. Differentiating between multiple species of “little brown jobs” can be a source of endless debate. I tend to adopt the pragmatic approach learned from my father-in-law, Lindsay Henderson. While out walking in the hills of Scotland one day, several of us trained our binoculars on a rather cryptic little bird that lacked many distinguishing features. When I asked Lindsay what he thought it was, he replied: “Well, it'll know”.



“It’ll know”.

(Image courtesy of [Patrick Kavanagh](#) via [Creative Commons](#))

Back to Rosewood

Phew. That was a bit of a windy road through the ins and outs of naming and identifying things in biology. What on earth do quendas and the like have to do with Brazilian Rosewood and guitars?

Although not perfect, the Linnean binomial system (Genus+species) is a useful and important tool in biology. Naming things is an essential part of understanding the rich biological diversity that we inhabit the Earth alongside. It is also a key element of framing conservation policy, legislation and management. Clearly identifying species that are of conservation concern because of declining populations, loss of habitat or other factors is essential for setting conservation goals and priorities – and for developing policy and management responses.

As we’ll see in the next article, Brazilian Rosewood was identified as a species of conservation concern in the second half of the 20th century and it was listed by [CITES](#) as needing the highest level of protection in 1992, which essentially banned all trade in the species in an attempt to protect remaining stands.

We’ve discussed the confusion that can arise when different names are applied to the same species or different species are called by the same name. In order for trade restrictions to be effective, regulators and enforcing agencies have to be able to reliably spot Brazilian Rosewood as distinct from all the other types of wood that are being traded.

As we’ve seen, identifying particular species can be tricky and may rely on access to particular parts such as flowers or fruits. Regulating trade in timber relies on the correct identification of just one component of the species – the wood. While wood from different species can vary widely, often the differences are subtle and inconsistent. Wood from the same species of tree can also vary greatly. Customs and quarantine agents are faced with the task of correctly identifying timber from many species – either through visual cues or using chemical or other techniques. The more difficult it is to identify the wood, the more expensive and time consuming the process becomes.

One of the key enforcement issues identified in a [2012 report](#) on trade in Brazilian Rosewood was the difficulty associated with visually identifying *D. nigra* timber with the naked eye or a hand lens (which may in part be due to a lack of training on identification tools). This latter issue facilitates concealment of illegal imports/exports of *D. nigra* amongst similar woods and mis-labelling of *D. nigra* material as species not subject to regulation. This in turn creates further challenges for those involved in monitoring and controlling trade in this species.

Partially because of difficulties in differentiating among different species of rosewood, CITES took the step of restricting trade in *all* rosewood species in 2017. This sent shockwaves through the musical instrument community – builders, players and traders alike. That is another story for another post.

Another story also has to focus on whether all this matters from the perspective of what makes a good guitar. Is Brazilian Rosewood really significantly “better” than other rosewoods, or indeed other woods entirely? In a similar vein to the question of how to tell different species apart, how do you differentiate the sounds made by different woods?

The same EU report that mentioned the difficulties in detecting Brazilian rosewood above also commented: “There is much debate, however, surrounding the need to use *D. nigra* for the making of musical instruments, given that there are other woods with a similar efficacy that are not restricted for international trade. Some guitarists and luthiers consider *D. nigra* necessary for the overall tone of the instrument; others say it is more a mark of status rather than standard of sound, especially as there are similar ‘sounding’ woods.”

That statement should set the stage for a lot of discussion amongst builders and players alike! To be continued....

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