Orchid Classification and Nomenclature

Written and edited by Ken Jones
First published November 2022

THE SPECIES ORCHID SOCIETY OF WA

Why do we need to know about orchid classification and nomenclature rules?

Over the last few years, and more recently while talking to people at the AOCC orchid show in Brisbane, it became clear that most of the public, and many long-time orchid growers have little understanding of the classification process used to classify/identify all living organisms, and where orchids as a flowering herb fit into that structure.

All living organisms (including orchids) are identified through a classification process designed to create order and avoid chaos and confusion. However, I suspect that many orchid growers will disagree particularly when orchids are renamed or reclassified. By way of example, the recent re-classification of the genus *Dendrochilum* to *Coelogyne* has led to vigorous debate between taxonomists, and frustration for species orchid growers. There were many *Dendrochilum* species in the show and displays in Brisbane, but I did not see any plants on display where the genus had been changed to *Coelogyne*. Less recently, the *Cattleya* species *bowringiana*, *skinneri* and *aurantiaca* were reclassified to the genus *Guarianthe*.

At the highest level, the classification system for all living organisms consists of five kingdoms:

1. Monera - *prokaryotes* are unicellular organisms that lack membrane-bound structures, the most noteworthy of which is the nucleus.
2. Protista single-celled *eukaryotes* - *eukaryotes* are organisms whose cells have a nucleus and other organelles enclosed by a plasma membrane.
3. Fungi - fungus and related organisms
4. Animalia – the animals
5. Plantae – the plants

As orchid growers, we are most interested in the fifth of these kingdoms, Plantae.

Each of the five kingdoms have a further set of rule-based hierarchical systems to enable the accurate and objective identification of all the individual species.

As orchid growers, our interest is in plants and the International Code of Botanical Nomenclature (ICBN) that sets out the rules for classification and naming of plants is the system we need to work with: The following table sets out this framework showing higher (bold) and subordinate (not bold) relationships. However, it needs to be said that there is not universal agreement between taxonomists about all the elements of this framework, and its hierarchical relationships and structure.

Rank	*ending*	*example*
Kingdom		
Division	-phyta	Spermatophyta
Subdivision	-phytina	Magnoliophytina
Class	-opsida	Liliopsida
Subclass	-idae	Lillidae
Order	-ales	Orchidales
Suborder	-ineae	
Family	-aceae	Orchidaceae
Subfamily	-oideae	Orchidoideae
Tribe	-eae	Orchideae
Subtribe	-inae	Orchidinae
Genus		
Subgenus		
Section		
Series		
Species		
Subspecies (subsp or ssp		

Variety (var.)		
Subvariety (subvar.)		
Form (f.)		

G.C Morrison (1991) refers to four divisions in the kingdom Plantae, Thallophyta, Bryophyta, Pteridophyta and Spermatophyta. As orchid growers, we are most interested in plants in the Division *Spermatophyta* which includes all the seed-bearing plants. In the rank Class, there are two groups, Dicotyledon and Monocotyledon and we are interested in the Monocotyledon group that includes the flowering plants such as grasses, lilies, orchids and similar flowering plants that have floral parts in multiples of three, and do not have stem thickening by the presence of cambium tissue (bark).

In modern terminology, the Dicotyledons are known as Magnoliopsida and the Monocotyledons are known as Liliopsida that includes four Subclasses, one of which is Orchidales.

The Family Orchidaceae is considered to encompass all the orchids, although once again this view is not universally accepted by all taxonomists, some who argue that there are additional Families that should be included. However, the most widely accepted view is that there are six Subfamilies:

1. Apostasiodeae – includes the primitive extant orchids *Apostasia* and *Neuwiedia*
2. Cypripedioidiae – a primitive group of orchids with two anthers (diandrous)and sticky pollinia. Includes *Paphiopedilum, Cypripedium, Phragmipedium*, and *Selenipedium*.
3. Neottioideae – members are like Cypripedoidiae but are monandrous, and some are saprophytic.
4. Spiranthoideae – monandrous orchids with woody to herbaceous stems, without swollen rootstocks. Widely variable plants that are geophytic. This Subfamily Includes the 'Jewel Orchids'.
5. Orchidiodiae – monandrous orchids with swollen rootstocks found in southern Australia, South Africa and South America, and include the genera *Ophrys* and *Orchis* in Europe.
6. Epidendroidiae – the largest Subfamily and the one of most interest to orchid growers. This is a remarkably diverse group with differing growth habits and general morphology.

They are further divided into many Tribes and Subtribes. The table hereunder includes the most commonly grown Tribes, Subtribes and Genera but is not comprehensive as new genera are described and classified.

Tribe	**Subtribe**	**Genera**
Arethuseae	Bletiinae	*Arundina, Bletilla, Calanthe, Chysis, Phaius, Spathoglottis*
Epidendreae	Eriinae	*Ceratosylis, Erina*
	Laeliinae	*Brassavola, Cattleya, Encyclia, Epidendrum, Laelia, Nagliella*
	Pleurothallidinae	*Dracula, Masdevallia, Pleurothallis,*
Dendrobieae	Coelogyninae	*Coelogyne, Pholidota*
	Dendrobiinae	*Cadetia, Dendrobium, Diplocaulobium*
	Bulbophyllinae	*Bulbophyllum*
Cymbideae	Cyrtpodiinae	*Ansellia, Chrysoglossum, Cymbidium, Cyrtopodium, Grammangis, Grammatophyllum*
	Catasetinae	*Catasetum, Cynoches, Mormodes*
	Stanhopeinae	*Coryanthes, Gongora, Stanhopea*
Vandeae	Sarcanthinae	*Aerides. Amesiella, Arachnis, Ascocentrum, Cleisostoma, Doritis, Gastrochilus, Kingidium, Phalaenopsis, Renanthera,*

		Rhynchostylis, Robiquetia, Sarcochilus, Trichoglottis, Vanda
	Angraecinae	*Aeranthes, Angraecum, Jumellea, Sobenikioffia*
	Aerangidinae	*Aerangis, Diaphenanthe, Rangaeris*
Maxillarieae	Zygopetalinae	*Zygopetalum*
	Biffrenariinae	*Bifrenaria*
	Lycastinae	*Anguloa, Lycaste*
	Maxillariinae	*Maxillaria, Scuticara, Trigonidium*
Ondcidieae	Oncidiniinae	*Brassia, Miltonia, Odontoglossum, Oncidium, Rossioglossum, Trichopilia*

So, you might well ask why do I need to know all this? If all we want to do is grow and flower our orchids, it is overkill and is Mind-numbing. However, if we are interested in why our species orchids appear and come from, and to what other orchids they are related, then this knowledge is helpful.