

NOMENCLATURE/TAXONOMY CONVENTIONS

It is all very well to say that plants are classified or arranged into logical groups so we can identify them – but what particular characteristics are they grouped by?

Think back down the evolutionary timescale – from the present day to the beginning of plant life on Earth

Flowering plants (Angiosperms)

The 'flowering plants' is the main group of plants that we think of, more often than not, when we think of plants. Economically, they are the most important group in the world. They are the **most recently evolved** and most successful plant group on the evolutionary scale. Angiosperms are characterised **by their reproductive parts**; they have a flower especially designed to promote fertilisation, leading ultimately to fruit and seed production. It should be noted that the fruit is often dry and hard – such as clematis seed or any of the grains, like wheat, barley and rice.

Cone-bearing plants (Gymnosperms)

As the name suggests, this group of plants use **cones** as their reproductive receptacle, not flowers. They have a more **simplified vascular system** (system for carrying food and water around the plant). The **seed** of gymnosperms are **naked**, meaning that a fleshy fruit does not surround it. Gymnosperms wood is also characterised by the presence of resins, like the gooey sap that comes out when a pine is injured, pruned or cut down. Gymnosperms are the oldest seed-bearing plant group.

Ferns (Pteridophytes)

These are the **most primitive** group of plants, with a specialised food and water-carrying system. They reproduce by **spores**, not seeds. Australia has approximately 400 endemic fern species.

Mosses (Bryophytes)

Mosses are the **simplest** of plants and also reproduce by spores. They have **no specialised water** and **food-carrying system** and **no roots**. Their leaves are also not capable of controlling water loss, which is why they wither up when conditions are dry.

WHAT'S IN A NAME?

It's obvious there's a lot of Latin used in naming plants – which may seem overly complicated, especially to the novice. So why not just use common names? In reality there are many problems with using common names.

Disadvantages of common names

Common names are **confusing**. Using common plant names may lead to misunderstanding. Why?

- **Plants may have more than one common name**
 - For instance *Acacia auriculiformis* can be commonly black wattle, northern black wattle and Darwin black wattle. This common name varies, depending where you are in Australia.
 - Some common European plants can have multiple common names. Take, for example, the broad-leaved plantain *Plantago major*. This widespread small weedy plant has 45 English common names, plus 11 French, 75 Dutch and 106 German.
- **A single common name may cover more than one true species**
 - For instance, several native *Acacia* species – *Acacia aulacocarpa*, *A. auriculiformis*, *A. concurrens*, *A. crassicarpa*, *A. decurrens*, *A. hakeoides*, *A. implexa*, *A. leiocalyx*, *A. mabellae*, *A. mangium*, *A. mearnsii*, *A. melanoxylon*, *A. neriifolia*, *A. plectocarpa*, *A. salicina* and *A. stenophylla* plus (just to just to make the point) *Callicoma serratifolia* – are known by the common name black wattle, depending on which part of Australia you come from.

Advantages of botanical names

Botanical names are **accurate**. A correct botanical (scientific) name refers to **one individual plant type (species)**. This removes any doubt.

- **Botanical names are universal**
 - They are **the same the world over** – that is one name, one species – the same in, say, China as in the USA, the UK or Australia.
- **Not all plants are common**
 - Using Latin botanical terms means each plant has an **identifiable label**, a specific name.

Botanical names only seem complicated because we don't know them. With continual use they become normal. Practice makes perfect.

Use botanical names and (sooner or later) other plant-orientated people will know exactly what you mean.

Botanical words/names are descriptive – in that the Latin word often tells you something about the plant.

Take the name word/name *macrocarpa – where 'macro' means big and 'carpa' means fruit – so that *macrocarpa* is, literally, a plant that has big fruit.**

* Remember – the way in which a word/name is written is exact and specific. In this example of a Latin word/name – it may refer to either the genus *Macrocarpa* (denoted by a capitalised 'M' – or the specific epithet *macrocarpa* (denoted by lower case (small) letters) ... it's the letter case that distinguishes which is which ... so be careful and accurate.

WHAT ARE SPECIES - HOW ARE THEY NAMED?

What is a 'species'? The term species translates simply as 'kind' – and so species are simply different kinds of organisms.

Generally, species are defined as a natural population that can inter-breed and produce viable offspring, which in turn can produce offspring similar to their parents.

As with most things in nature, this is not always true and we can end up with hybrids, as we will see later.

As we have already found out, a species name has two components as in, say, radiata pine *Pinus radiata*:

The **genus** is ... *Pinus*

The **specific epithet** is ... *radiata*

Therefore, the **species** is ... *Pinus radiata*.

We do not need any other name to define a particular species. It does not matter what family a species belongs to. **No two species can have the same name** – even if they come from different families, or even different kingdoms: they are uniquely identified in their own right.

Species can also be further divided into subspecies, varieties and forms. All three of these finer divisions are naturally occurring and come true from seed – that is they are identical to the parent plant. If different subspecies, varieties or forms are planted close to one another they will, more commonly than not, cross. In the wild such groups are normally separated by a natural boundary such as seas, mountains, river valleys or large-scale natural barriers.

The five most important rules to remember when writing species names

As with most of life, there are rules (conventions) about writing species names – meaning there is only one correct way. Here are five rules to be adopted when writing plant names correctly.

- **Rule 1**
 - The **genus** must **start** with a capital letter – as in, say, *Pinus*.
- **Rule 2**
 - The **specific epithet** part of the **species** name must **start** with a **small** letter – as in, say, *radiata*.
- **Rule 3**
 - The **species name** must be **written in** either:
 - **italics** – as in *Pinus radiata*, if using a word processor or
 - **under-lined** (each name part separately) – as in Pinus radiata if handwriting.
- **Rule 4**
 - All **varieties, subspecies, species (multiple, in genus) and forms** must also be written in *italics* or underlined. The **abbreviations** 'var.', 'subsp.', 'ssp.' or 'f.' must not be written in italics or underlined – they are written in **normal font** with a **full stop** immediately following.
- **Rule 5**
 - The **genus** component **can never be omitted** (but may be abbreviated to the first letter (capitalised) if species within the genus immediately follow).

By writing plant species names like this **we know** immediately that what we are seeing or writing is a true species – and not a cultivar, a hybrid or a cross.

When can you abbreviate the genus?

Think carefully before abbreviating the genus.

Let's say that you were writing about trees on a property for a client – and you were telling the owner about the radiata pine (*Pinus radiata*) you were proposing to fell – you **could** write:

“The large *Pinus radiata* next to the *Pinus nigra* should be cut down because its root ball is very unstable. The *P. nigra* is fine and could just do with a bit of tidying. The timber of the *P. radiata* would be good for milling and I could look after that if you like”.

You **could not** abbreviate the genus if you were talking about two *different* species with genera beginning with the same letter – as in, for instance:

“The *Pinus radiata* next to the *Pittosporum eugenioides* should be cut down because its root ball is very unstable. The timber of the *P. radiata* would be good for milling and I could look after that if you like”.

In this case the reader would assume you were talking about *Pittosporum radiata* – as that was the last genus name starting with ‘P.’ (and written in full) that you referred to in the paragraph.

Writing a plant name when the genus is known but the species is not

Let us say that you know that a group of plants are all one species of *Pinus* but you are unsure which one, you would say:

“The ***Pinus sp.*** to the left of the building all need to be removed.”

Note the use of ‘**sp.**’ (no underlining and in small letters). The use of ‘sp.’ like this indicates that all the pines are of **one** species.

If there were a group of trees that needed to be removed but it included a number of different species of *Pinus*, you would say:

“The ***Pinus spp.*** to the left of the building all need to be removed.”

The use of ‘**spp.**’ (no underlining and in small letters) indicates that they are all pines but there is **more than one** species.

SUBSPECIES, FORMS AND VARIETIES

As much as we would like to think that all the plants within a species are identical, they are not.

Consider human beings, where every person is a type of *Homo sapiens* – and yet there is huge variation within our species. The same goes with plants. The variation in plants arises because, over the millennia, they have evolved on different continents or have been separated from one another for thousands of years by mountain ranges, lakes or seas.

The plants are still similar enough to be considered to be of the same species, but they are different enough to be given the title of ‘subspecies’, ‘variety’ or ‘form’.

The important thing to remember is that all of these species subsets are still scientific names and should be treated as such.

Think of them as being similar to the specific epithet; that is, they are important enough to be emphasised – by either italics or underlining – but not important enough to start with a capital letter.

To prevent plant names becoming too long each term is abbreviated when writing the species names, as in:

- **Subspecies** – is correctly abbreviated as **subsp.**
 - Example: *Hydrangea anomala* subsp. *petiolaris* – the climbing hydrangea.
- **Variety** – is correctly written as **var.**
 - Example: *Juniperus communis* var. *depressa* – a natural dwarf form of the common juniper.
- **Form** – is correctly written as **f.**
 - Example: *Cercis canadensis* f. *alba* – the naturally occurring white flowered variation of the eastern redbud. This plant is often incorrectly listed as *Cercis canadensis* 'Alba' – and writing the 'Alba' in this manner, strictly speaking, denotes it is a cultivar – which is a form that can generally only be reproduced by vegetative means (that is, by taking cuttings).

HYBRIDS

The term 'hybrid' basically means inter-breeding between two plants – and is the term given to the progeny that arises, which has characteristics of the parents.

A hybrid is often referred to as a 'cross. Typically, there are **two forms of hybrid**:

- Frequently, a cross between two different species of the same genera, referred to as a **specific hybrid** – or
- Occasionally, a cross between two different genera, referred to as a **generic hybrid**.

Specific hybrids in plants are not uncommon and, as indicated, the offspring tend to display characteristics of both parents. In many cases the resulting hybrid is sterile – incapable of producing viable pollen and/or viable eggs.

Specific hybrids

A **specific hybrid** is a cross between **two different species of the same genus**

For a trans-Tasman example – in New Zealand two species of corokia readily cross with one another ... in their natural environment each species occurs in quite different regional areas; one *Corokia cotoneaster* (wire netting bush) in more open, drier sites and the other *Corokia buddleioides* (korokio) on forest margins where conditions are more moist ... the (specific) hybrid – *Corokia x virgata* – is still relatively commonly occurring and, because of this, has been given its own scientific name.

Specific hybrids that are given their own scientific name are usually **capable of producing viable seed**, although often the progeny are as varied as the two parents.

Writing specific hybrids correctly

Writing **specific hybrids** correctly means same rules as for writing a species name generally apply:

- *Platanus x acerifolia* (London plane).
- *Aesculus x carnea* (red horse chestnut).
- *Tilia x europaea* (common lime).

A specific hybrid plant name has an extra component – the ‘x’ – the ‘cross’ symbol used to denote a hybrid plant.

To use the ‘x’ correctly. For a specific hybrid plant name:

- Place it after the genus (as in the previous examples).
- Do not write the ‘x’ in italics.
- Sometimes, in writing the specific hybrid name, the names of the two (parent) species will be written in full, with an ‘x’ between them.
 - This method is correct too.
 - In this method the second genus can be abbreviated – as in, say, *Corokia cotoneaster* x *C. buddleioides*.

Generic hybrids

A **generic hybrid** is a cross between **two species of different genera**

They are very rare, but can happen. Possibly the most well-known generic cross is Leyland cypress, that is – x *Cupressocyparis leylandii* – a chance cross found in 1888 within the grounds of Leighton Hall, Powys, Wales – the former home of Christopher Leyland.

This species is a cross between Monterey cypress (or macrocarpa) *Cupressus macrocarpa* and Nootka cypress (or Alaska cedar) *Chamaecyparis nootkatensis*.

Note the genera are different and that the new genus – x *Cupressocyparis* – is a combination of the two.

Writing generic hybrids correctly

The rules for writing generic hybrid names are similar to those for writing specific hybrid names, the exception being the **position of the ‘x’** (the cross symbol) – which is **placed in front of the genus** ...

... as in, to take another New Zealand example, the plant x *Carmispartium huchinsii* – a hybrid between two New Zealand native genera, *Carmichaelia* and *Notospartium*.

Remember, the ‘x’ is just descriptive, so is not italicised or underlined.

How to write hybrid names correctly

Just as pure species are represented in a scientific manner, so are hybrids.

The extra component in writing hybrids, to properly identify them as such, is the cross symbol – the ‘x’.

The position of the ‘x’ tells us what sort of hybrid it is:

- An ‘x’ **after the genus** tells us both plants were of the same genus but different species – a **specific hybrid**.
- An ‘x’ **before the genus** tells us that both plants were of different genera – a **generic hybrid**.

The ‘x’ is not underlined because it is just a descriptive symbol, one that lets the reader know they are reading about a hybrid and not a pure species.

WHAT ARE CULTIVARS?

The term **cultivar** comes from the combination of two words: **culti**(vated) **var**(iety).

Cultivars are either **selected forms of species** that are different from the norm, **oddballs** or **desirable hybrids that are infertile** and can only be **reproduced via vegetative reproduction**. In fact most cultivars can only be reproduced by vegetative reproduction, whether or not they are capable of reproducing by seed.

“Why?” You may well ask.

Sexual reproduction requires two parents, which in turn means two sets of chromosomes getting together, in a slightly haphazard manner, resulting in a range of progeny (offspring).

Think of your own family – where only two sets of genes are involved and, yet, no two children look the same. It is no different in plants – and so to ensure that all the plants produced from a cultivar are identical we need to ensure that no new genes are added to it – hence vegetative reproduction.

Therefore, plant propagators utilise **cuttings, divisions, tissue culture, layering** ... any appropriate method to reproduce multiple offspring from the parent plant.

Such plants are **given cultivar names to differentiate them** from the true species of origin and, unfortunately, they are often written incorrectly.

Writing cultivar names correctly

Cultivar names before 1st January 1959 were often given in a Latin form and were readily confused with scientific names, or pure species names.

To alleviate this problem cultivars registered after the January 1959 date have been and are now written in modern vernacular language (that is, as we normally speak) – ensuring they are easily distinguishable from scientific botanical names.

To distinguish them even further **cultivar names**, unlike genus and/or species names, **are not italicised or underlined** and are **placed within single quotation marks** (inverted commas).

Simply, the rules for writing cultivar names say:

- Genus and specific epithet are as for a true scientific name. That is:
 - Genus starts with a capital letter.
 - Specific epithet starts with a small letter.
 - Both are written in *italics* or underlined.
 - Cultivar name follows specific epithet, written in normal font – each word capitalised and within inverted commas.

Important note: until quite recently it was also acceptable to denote a cultivar by writing its cultivar name only – as in, for example *Meryta* cv. Moonlight.

Notice there are no single quotation marks – but there is an added symbol – ‘cv.’ – indicating to the reader the plant is a cultivar. This method is no longer acceptable.

The **presence of the single quotation marks** is all the reader needs to recognise the plant is a cultivar - and so, there is now only one universal means of indicating it.

Naming single species cultivars and hybrid cultivars

Single species cultivars

When writing these correctly both the genus and the specific epithet must be included, followed by the capitalised cultivar name within inverted commas. By doing this the purchaser knows what the original plant was, so has some idea of its growing requirements ... example: *Carex comans* ‘Frosted Curls’.

Unfortunately, many growers these days neglect to do this and, instead, just write *Carex* ‘Frosted Curls’. In effect, this could be any species of *Carex* – and so, from this description, we have no idea which one. In fact, to make matters more confusing, it appears to be a hybrid cultivar by the way it is written – see hybrid cultivars next.

Hybrid cultivars

More often than not these days, only the genus name is used – followed by the cultivar name – and this is perfectly acceptable ... example: *Pseudopanax* 'Trident' (this is a selected form of a hybrid of *Pseudopanax lessonii* and *Pseudopanax crassifolius*).

Can you see – if a species cultivar is incorrectly written – it looks very much (in fact, identically but incorrectly) like a hybrid cultivar?

Writing the correctly composed cultivar name version distinguishes between the single species and hybrid cultivars – ensuring both you and everyone else knows specifically what you are looking at.

Remembering how to write cultivar names

The genus and specific epithet are scientific names – they are vitally important – and their importance never changes, no matter what cultivar name they have written after them.

Recap:

- Genus starts with a capital.
- Specific epithet starts with a small letter.
- Both are written italics or underlined.

Cultivar names are for growers – not botanists. **They are not scientific** – they are just money-making!

Hence:

- Cultivar names have no underlining or italics.

The reader still needs to know though, that the plant is a selected form, different from the true species – and so the cultivar name must be written in a way the reader can immediately see there is something different.

Therefore:

- **Start each word with a capital** (unless filler words ... 'a', 'in', 'of').
- Enclose in **single quotation marks**.

FAMILIES

Botanical nomenclature is a language – one that differentiates each part of the Kingdom Plantae’s taxonomic hierarchy.

Family names are scientific, so need to be designated in a way that everyone knows that a family name is being talked about.

How are family names written?

Family names end in the suffix ‘aceae’ (pronounced ‘a-sea’ or ‘a-sea-a’). You may use whichever pronunciation you prefer.

There are rules for family names, just as there are for species and cultivars.

As with all rules there are some exceptions. Eight families have been ‘allowed’ to have two names. They are:

Compositae	or	Asteraceae
Cruciferae	or	Brassicaceae
Gramineae	or	Poaceae
Guttiferae	or	Clusiaceae
Labiatae	or	Lamiaceae
Leguminosae	or	Fabaceae
Palmae	or	Arecaceae
Umbelliferae	or	Apiaceae

Notice... ‘old’ family names end in ‘ae’ – ‘new’ family names end in ‘aceae’. Either version of the family name is acceptable.

Important note ... **family names are written in normal font** (not italicised).

COMMON NAMES

The thing to remember here is that common names are just ordinary English – and should be treated as such.

Common plant names are just ordinary words – like table or chair or apple. None of these words start with a capital letter – and so, by the same logic, why should the common name of a plant?

And so, following the rules of the English language ... just as the name of a country, place or person starts with a capital letter ... so do common plant names:

Examples:

- south Australian paperbark (*Melaleuca halmaturorum*)
- Antarctic beech (*Lophozonia cunninghamii*)
- Tasmanian blue gum (*Eucalyptus globulus*)
- smooth Tasmanian cedar (*Athrotaxis cupressoides*)
- north Queensland white beech (*Gmelina fasciculiflora*)
- Hungarian oak (*Querus frainetto*)
- English oak (*Querus robur*)
- English yew (*Taxus baccata*)
- Spanish heather (*Erica lusitanica*)
- Norfolk Island pine (*Araucaria heterophylla*)
- Norfolk Island hibiscus (*Lagunaria patersonii*)
- Cook's scurvy grass (*Lepidium oleraceum*)
- Hall's totara (*Podocarpus laetus*)
- Lobel's maple (*Acer lobelii*)
- Douglas fir (*Pseudotsuga menziesii*)
- Sargent's rowan (*Sorbus sargentiana*)
- east Siberian fir (*Abies nephrolepis*)

Of course – with regard to the capitalisation of the first letter of any plant name, as above (other than one relating to a country, place or person) – the exception for all common names made up with ordinary words (say, black oak or swamp cypress) is when they are the beginning of a sentence as in, say:

“Black oak is a common name for several American oak species ...” or “Swamp cypress is found along river margins in ...”. In such circumstances the first letter of the word – any word – is capitalised.

Why are species renamed?

The renaming of plants happens fairly frequently. Renaming may be mildly annoying and, in some instances, it can be downright difficult to keep up with. It is a fact of life though and, usually, it occurs for good reasons.

As science progresses, at its present exponential rate, more and more ways to analyse plants are used – like DNA and chromosome research (previously impossible until the recent late-20th century advent of microscopy and new technology and techniques). Modern science has changed our views on taxonomy and nomenclature (and will, incidentally, continue to do so *ad infinitum*).

The reasons for renaming plants are:

- The plant has been named more than once. This occasionally happens between different countries, but is becoming much less common, especially since the world’s communication systems have become faster, global and less cumbersome.
- An older name has been found through research – one that is recorded in the correct binomial fashion – and, thereby, the oldest name stands.
- And the main way – through new analytical procedures – from the use of chromosome counts, genetic analysis and electron microscopy. In such situations a species may be moved to another existing genus or a single genus may be split into a number of new genera – for example, the genus *Chrysanthemum* has been split into eight new genera.

Plus, there is, of course, the other situation – when, occasionally, two individual species may be combined into one – where it can be shown that there is insufficient difference between them. In such cases the two plants are considered to be a different form (f.) or a different variety (var.) of the same species.

Also, very occasionally a species is incorrectly named – wherein a genuine mistake was made in the original identification. This can make life very complicated – and sometimes it can take years for nurseries to catch up. The way this is dealt with is by using the term ‘**syn.**’ – meaning ‘**synonymous with**’, or ‘**the same as**’. For example, Antarctic beech would be *Lophozonia cunninghamii* **syn.** *Nothofagus cunninghamii*. The first species name given is the correct ‘new’ one and the second the correct ‘old’ one.

SOME DESCRIPTIVE EXAMPLES OF PLANT NAMES

Note:

- Whole or part plant names or words in italics are correct full or part botanical species, genus or specific epithet names and/or terms – for example '*Blechnum discolor*' and '*compactus*'.
- Names or words in regular font are part-words or terms that are usually co-joined with a suffix – for example purp(-ureum) or purp(-urea).

The species name is normally descriptive of the plant, as in:

<i>Pittosporum</i>	- <i>Pitto</i> , to tar – and <i>sporos</i> , a seed – meaning 'tar seed'
<i>Brachyglottis greyi</i>	- <i>Brach</i> = short
	- <i>glottis</i> = tongue – refers to the short ray florets
	- <i>greyi</i> = George Grey (early NZ Prime Minister)
<i>B. repanda</i>	- <i>repanda</i> = wavy margined
<i>Cyclamen</i>	- circled, referring to the twisting flower stalk

Some colours and patterns are described, as in:

alb-	- white
<i>carminea</i>	- carmine red
<i>discolor</i>	- of different colours (for example <i>Blechnum discolor</i> (crown fern) – a New Zealand fern having fronds with different colours on each side of the frond)
<i>lutea</i>	- yellow
purp-	- purple

The appearance of leaves, as in:

folia-, phyll-, phyla-	- leaves (for example <i>Phyllocladus</i> – the genus of tanekaha has cladode leaves.
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The appearance of flowers and flowering, as in:

flora	- flowers
anthus	- flower
stemon	- stamen
stylosa	- styles

The size of plants or plant parts, as in:

macro	- large
micro	- small
parvi	- small

General descriptive words, as in:

<i>acaena</i>	- prickly (for example <i>Acaena</i> , biddibid)
<i>acerosus</i>	- pointed, needle-like
<i>bullatus</i>	- bumpy surface (for example <i>Lophomyrtus bullata</i> , ramarama)
<i>calluna</i>	- brush-like (for example <i>Calluna</i> , heather)
<i>chiono</i>	- snow (for example <i>Chionochloa</i> , snow tussock)
<i>chordo</i>	- string, slender
<i>compactus</i>	- close-growing
<i>conspicua</i>	- easily seen (for example <i>Chionochloa conspicua</i>)
<i>coriaceous</i>	- tough, leathery
<i>cortaderia</i>	- cutter (for example <i>Cortaderia</i> , toe toe)
<i>denta</i>	- teeth
<i>draco</i>	- dragon (for example <i>Dracophyllum draco</i> , grass tree)
<i>inermis</i>	- without spines (for example <i>Acaena inermis</i> , a biddibid without hooks)
<i>phyton</i>	- plant
<i>pumila</i>	- small, dwarf
<i>robustus</i>	- strong growing (for example <i>Coprosma robusta</i> , karamu)
<i>serrata</i>	- serrated edges (for example <i>Aristotelia serrata</i> , wineberry)

The number of components in a plant part, as in:

bi	- two
tri	- three
quadri	- four
pent, penta, quin	- five
hex	- six
hepta	- seven
poly	- many

Geographical regions or countries, as in:

<i>australis</i>	- the southern hemisphere (applies to both New Zealand and Australia)
<i>borealis</i>	- the northern hemisphere
<i>novae-zealandiae</i>	- New Zealand

<i>japonica</i>	- Japan
<i>sinensis</i>	- China
<i>chinensis</i>	- China
<i>europaea</i>	- Europe

HINTS FOR THE PRONUNCIATION OF BOTANICAL NAMES

Some examples of letters, or pairs of letters, used in botanical names and their pronunciation.

Latin letters – and their classical pronunciation:

<i>a</i>	Short <i>a</i> is variously given as either in cat or in above Long <i>a</i> as in rather, never as in gate
<i>Ae</i>	As <i>i</i> in mite
<i>au</i>	As in out
<i>c</i>	Always hard as in cat
<i>e</i>	Short <i>e</i> as in let Long <i>e</i> as a in gate
<i>ei</i>	As <i>a</i> in gate
<i>eu</i>	As <i>oy</i> in boy
<i>g</i>	Always hard as in gate
<i>i</i>	Short <i>i</i> as in tin Long <i>i</i> as in keen
<i>j</i>	As <i>y</i> in yes
<i>s</i>	As in this, not as in those
<i>u</i>	Short <i>u</i> as in full Long <i>u</i> as in shoot, never as in tub
<i>v</i>	Classically pronounced as for a <i>w</i>
<i>y</i>	Occurs in words of Greek origin and was pronounced as the French <i>u</i>

ABBREVIATIONS USED IN WRITING BOTANICAL NAMES

Abbreviations and their meaning:

cv.	- cultivar
f.	- form
sp.	- species, singular
spp.	- species, plural
ssp.	- subspecies
subsp.	- subspecies
syn.	- meaning synonymous with (the same as)
var .	- variety

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- | | |
|-----------------|---|
| x | - hybrid ... if placed after the genus denotes a cross within one genus
whereas if placed before the genus implies a cross between two
different genera |
| 'Beauty' | - correctly written name for a cultivar |
| <i>P. nigra</i> | - where the <i>P.</i> implies it is the same genus as the previously
mentioned species |

Reference:

The Collingridge Book of Plant Names, 1990. Allen J. Coombes, Collingridge Books.