PLANT IDENTIFICATION – WHERE TO START

The notes following each entry in this bibliography are intended to give guidance as to how comprehensive, current and authoritative each one is. In general, more recent resources are more reliable. Most reliable and comprehensive of all are the national, State and regional works called *Floras*. If recently published, these will be the most scientifically up to date, and other types of handbooks tend to draw their information from these Floras (or from the research publications on which the Flora treatments are based). Floras do have technical terms in their text, especially for tricky groups like orchids, grasses, daisies, fungi, etc. These terms are usually well-explained, and often illustrated, in a glossary or in the text. Floras always contain *keys* to species (a key is a series of yes/no questions about the features of a plant or plant specimen, that helps you to identify the species you have by progressively eliminating others). Keys, if up to date, are a very reliable way to identify plants, but the technical language can put people off.

An alternative approach is offered by many *field handbooks*, which emphasise illustrations of plants, often grouped by flower-colour, life form, or habitat type, and with only supplementary text. The user can browse the photographs and compare them with the specimen to be identified. These handbooks tend to be less than comprehensive, and less reliable as a definitive resource for identification, although some are very good.

If you are uncertain where to start, or how to use an identification key, an excellent introduction to identification techniques is:

•**Clarke I & Lee H (2003) Name that flower: the identification of flowering plants. 2nd ed. Melbourne University Press, Carlton, Vic. 299 pp. ISBN 052285060X.**
This provides an easy introduction to understanding the parts of the plant and the necessary terminology. It is not for identification to species, but is an excellent "how to" book, and for many Australian native plants may allow identification to family or genus level.

•**Clarke I (2015) Name those Grasses. Identifying Grasses, sedges and Rushes. Royal Botanic Gardens, Melbourne, Vic. 536 pp. ISBN 9780980407648.**
A how to identify' guide for these groups, rather than a comprehensive species guide, although 206 species are covered as examples, many of them common. As with Clark & Lee's (2003) general Name that Flower, this is a fabulous primer for improving your identification skills – in this case in three large groups that are often found intimidating. Illustrated throughout with excellent and well-labelled line drawings that help to decrypt the most difficult characters.

For field use in understanding plant parts (morphology) for beginners, a handy resource is:
•**Mager S & Burrows G [undated, c. 2010?] Botanical Field Guide (5th edition). Aracariaguides Publications (http://www.aracariaguides.com is non-operational at April 2019) ; postal: Aracaria Biodynamic Farm, PO Box 480 Mullumbimby NSW 2482; $15.00 rrp in 2015). ISBN lacking.**
This A4 8-leaf laminated foldout guide is tough enough for field use, and very clearly explains some 400 terms of plant morphology via about 280 colour images.
Also handy for learning about plant morphology are the following resources:
Charles Sturt University Virtual Herbarium http://www.csu.edu.au/herbarium/
(ELECTRONIC RESOURCES: ON-LINE – some interactivity):

- ***The Virtual Floral Formula*: a 'floral formula' is a concise, coded way of characterising the arrangement of flower parts. It is occasionally provided in identification literature and in more detailed texts on genera and families; perhaps its main use for plant-spotters is to enable rapid recording of the floral arrangement in the field or during the ID process when cross-**

checking literature. This website provides definitions, examples and an on-line tutorial in how to determine and use floral formulae.

- ***Australian Plant Family recognition*: this provides a summary of useful diagnostic characters for a dozen or so of the main Australian plant families, plus tutorials and interactive tests.**
- ***Gynoecium – a guide to flora structure*: "Aspects of the sepals, petals and androecium (stamens) are usually relatively straightforward but interpreting the structure of the gynoecium often causes problems. This guide aims to reduce these problems by illustrating various aspects of the gynoecium", such as ovary position and carpel structure, via definitions and a pictorial glossary.**
- ***Floral symmetry*: an illustrated glossary of terms to help you identify presence and type of symmetry (a common character in family keys).**
- ***Leaves – a guide to leaf structure*: an illustrated glossary covering leaf arrangement, insertion, and (in overly simplified form) leaf division.**

For more advanced use, an excellent and extensively illustrated glossary of key characters for all plant families occurring in Australia can be found on the interactive resource:

- **Thiele KR & Adams LG (2014) Families of flowering plants of Australia – an interactive identification guide. Second revised edition. ABRS Identification Series, CSIRO Publishing, Collingwood, Vic./Australian Biological Resources Study, Canberra. FLASH DRIVE, ISBNs: 9781486301997.**

ELECTRONIC RESOURCE: INTERACTIVE

The first (2002) edition CD-ROM (ISBN 0643067213) is equally useful for this glossary aspect.

For very difficult identifications to family and genus level, especially where cultivated or newly naturalised plants are concerned, the following specialist work may be useful (ask your herbarium or university library if they have it):

- **Kubitzki K (general editor) (various dates from 1990) The families and genera of flowering plants. Springer, Heidelberg.**

This encyclopaedic work, global in scope and still in progress, includes a vast amount of information, including morphological descriptive data and identification keys to subfamilies and genera, along with phylogenetic, biological, and ecological information. While the older volumes are naturally dating, this remains the most comprehensive family-level survey of the plant Kingdom.

- 1 (eds KU Kramer & PS Green) (1990) Pteridophytes and Gymnosperms.
- II (eds K Kubitzki, JG Rohwer & V Bittrich) (1993) Flowering plants: Dicotyledons: Magnoliid, Hamamelid and Caryophyllid familes.
- III (ed K Kubitzki) (1998) Flowering plants: Monocotyledons: Lilianae (except Orchidaceae).
- Vol IV (ed K Kubitzki) (1998) Flowering plants: Monocotyledons: Alismatanae and Commelinanae (except Gramineae).
- Vol V (ed K Kubitzki & C Bayer) (2003) Flowering plants: Dicotyledons: Malvales, Capparales and Non-betalain Caryophyllales.
- Vol VI (ed K Kubitzki) (2004) Flowering plants: Dicotyledons: Celastrales, Oxalidales, Rosales, Cornales, Ericales.
- Vol VII (ed. JW Kadereit) (2004) Flowering plants: Dicotyledons: Lamiales (except Acanthaceae including Avicenniaceae).
- Vol VIII (ed. JW Kadereit & C Jeffery) (2007) Flowering plants: Eudicots: Asterales.
- Vol IX (ed K Kubitzki) (2007) Flowering plants: Eudicots: Berberidopsidales, Buxales, Crossomatales, Fabales p.p., Geraniales, Gunnerales, Myrtales p.p., Proteales, Saxifragales, Vitales, Zygophyllales, Clusiaceae Alliance, Passifloraceae Alliance, Dilleniaceae, Huaceae, Picramniaceae, Sabiaceae.

•Vol X (ed K Kubitzki) (2011) Flowering plants: Eudicots: Sapindales, Cucurbitales, Myrtaceae.
•Vol XI (ed. K. Kubitzki) (2014) Flowering plants: Eudocots: Malphigiales. ALSO AVAILABLE AS E-BOOK: ISBN 9783642394171 eBook).
•XII (authors J. Kuijt & B Hansen) (2015) Flowering plants: Eudocots: Santalales, Balanophorales. ALSO AVAILABLE AS E-BOOK: ISBN 9783319092966 eBook).

Scientific names can be confusing at first sight, but their principles are easy to master. 'Plant nomenclature' – how the scientific naming system operates – is dealt with in very readable fashion in:

•Spencer R, Cross R, Lumley P (2007) Plant Names – A Guide to Botanical Nomenclature. 3rd edition. CSIRO Publishing. 176 pp. ISBN-10: 0643094407, ISBN-13: 9780643094406. ELECTRONIC RESOURCE: e-book version: Also available as an e-book (ISBN-10: 9780643097162, ISBN-13:0643097163) — see http://www.publish.csiro.au/pid/5707.htm for details.
This excellent book covers the naming of wild and domesticated plants, why plant names change, their pronunciation, and hints to help remember them. The final section provides a detailed guide to web sites and published resources useful to people using plant names. (This edition supersedes earlier ones of the same title by Lumley & Spencer, which remain useful).