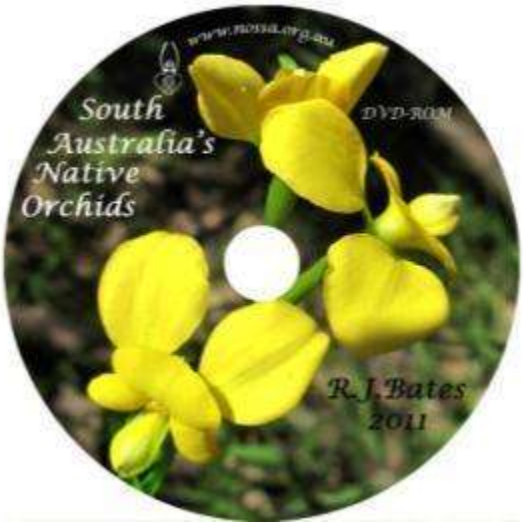
SOUTH AUSTRALIA'S NATIVE ORCHIDS



Published: Native Orchid Society of South Australia Incorporated

This definitive work is a 1,276 page. It is a bookmarked single PDF file which makes it user friendly and easy to search.

Features of the DVD ROM include

Part One:

- extensive explanatory introduction
- synonyms for all the species
- pollination chapter
- habitat
- photographic Genus guide
- labelled parts of the flowers

Part Two:

- all South Australian genera and species
- two pages per species
- published and undescribed species differentiated by colour coded headings
- conservations status showing legislated status and the author's suggested status

With the allocation of an ISBN, this is now a reference work which can be confidently cited.

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Available:

Native Orchid Society of South Australia

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SAMPLE DVD PAGES

Part One Contents

How to use this Disk

The disk is written for orchidologists whose interest and knowledge range over many levels. You will be able to choose those areas of the disk most appropriate to your needs.

Part One consists of the following chapters.

Chapter 1 contains a brief history of interest in South Australia's native orchids.

Chapter 2, contains a listing of the various abbreviations used throughout the disk, description of the regions including a map, explanation of the conservation codes used, photographers names and relevant organisations.

Chapter 3 gives background information on orchids – taxonomy or naming history with an explanation of name choices in this disk, habitats and an overview of orchid distribution in south Australia.

Chapter 4 has information needed to recognise an orchid including labelled photographs. This is a helpful reference for developing familiarity with the individual parts of the orchid discussed in the species pages.

Chapter 5 uses typical photographs instead of a key to begin the identification process.

This will give guidance as to which would be the appropriate genus to consult for further identification. In this edition, the two weed orchids are dealt with only in this chapter.

Chapter 6 highlights the variations, irregularities and abnormalities that can occur within a species.

Chapter 7, after a general section on pollination, goes into detail concerning the known information about the individual pollinators for each of the genera. This is followed by other forms of reproduction, as well as a brief section on hybrids.

Chapter 8 has, for the history buffs, a brief summary of people and publications linked with south australian orchids.

Section 9 examines threats to our orchids and current efforts to conserve what we have.

Chapter 10 introduces growing and propagation of terrestrial orchids as well as techniques to reintroduce orchids to an appropriate area e.g. a flower park or a section of your own rural property.

Part One concludes with the names of the segregate genera & their synonyms making it possible to relate to other publications. Glossary and further reading.

Part Two contains the chapters for each genus.

The species are listed in alphabetical order under the relevant genus.

Each species has a complete description with at least one accompanying photograph.

Common names are also given.

BLUE headings indicate that the species has been described in other publications.

ORANGE headings are for the undescribed species.

If you have used the Genus Photographic Guide to narrow your search to an individual genus, the detailed list in Part Two will allow you to focus on the species of your find. Sometimes species can be quite similar to each other, and identity can be uncertain. Maybe that is the time to open NOSSA's web site www.nossa.org.au and ask your question of a NOSSA expert.

4. Orchid Descriptions

Orchid Structure or What Makes an Orchid?

When one looks at the diversity of form in orchids it appears surprising that they all belong to the same family.

Orchids are monocotyledons (i.e. have a single seed leaf produced by the embryo as with grasses) with three petals and three sepals. In orchids, the sepals, which usually enclose the flower bud before it opens, are often of similar shape and colour to the petals. Orchids are most closely related to the equally large super-family Asparagoid and indeed the South Australian Lomandra orchids with all petals and sepals similar can easily be confused with true lilies.

However orchids all have one important feature in common – that is unlike many other flowers with separate male and female organs (stamens and pistil), orchids have these combined in a single column-like structure known as just that 'the column'.

Most orchids also have one petal highly modified into often bizarre shapes, bearded, insect-form (i.e. shaped like an insect) or a different colour from the other petals. This third petal is generally termed the 'lip' or its Latin equivalent labellum.

The labellum is often 'mobile' – in other words it is easily moved. Sometimes the mobile labellum is suspended on a sensitive hinge and when touched, it moves very rapidly to a new position in a similar manner to the movement of the stamen of a stinger plant (Urticaceae). The pollination mechanism is discussed later in more detail in the section on pollination.

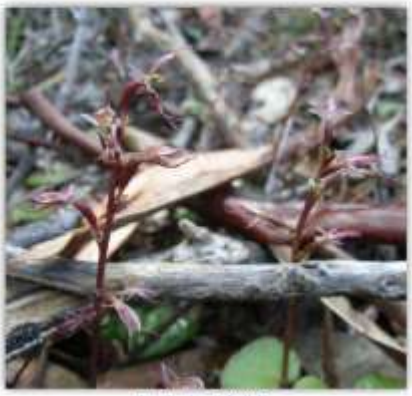
Labella of flowers from Start with the Leaves used with permission

Diuris

5. Genus Photographic Guide

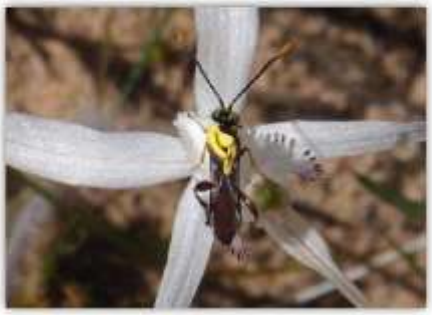
Acianthus R.Br.

Mosquito Orchids



RL. A. pusillus, Rule CP, SL

7. Orchid Reproduction



RB, wasp on *Arachnorchis tentata*, Hardwicke Bay

Pollination & Pollinators

The diversity of pollination strategies used by South Australian wild orchids is phenomenal. Some South Australian orchids use sexual attraction, producing insect pheromone copies known as "attractants". They use these to attract male wasps, ants, bees, sawflies and diptera, adding visual cues to the flowers so that the male insects see flowers but 'message' female insects! Indeed even to the human eye some have flowers with insect like features including eyes. No less than ten South Australian orchid genera and as many as a hundred species may use this false sexual advertising strategy.

Others mimic other non-orchid wild flowers which are the main food source of native bees. These are the pretty orchid flowers, widely opening, in gorgeous colours, with subtle fragrances, nectar guidelines, false pollen, massed blooming and often larger flowers than the wild flowers they copy.

The wonderful double-tail orchids, the donkey orchids or *Diuris*, mimic both pea and native bees frequently congregate in or on the orchid flowers, suggesting that some other instinctive attraction is involved.

The sun orchids with their 'regular' segments mimic vernal lilies and like the lilies come in a wonderful array of colours. As with the sexual attractors and other floral mimics they use false advertising as they provide little or no food for the insects they attract.

Other flower mimic orchids include the hyacinth orchids *Dipodium*, which do at least provide a little pseudopollen, and members of the *Caladenia* alliance like *Pheladenia*, *Petalochilus* and *Leptoceras*. There are over a hundred of these floral mimics species which often have odd structures representing false stamens, pseudo-nectaries, loose pollen etc.

11. Species Names & Their Synonyms

This is an alphabetical listing of South Australia's native orchids as they appear in this disk.

Names in brown are the names used in this book. The names indented under them are equivalent names that have been used in other publications. The names in **bold** are those used by the State Herbarium of South Australia. Undescribed species that are not included in the Census of South Australian plants are in red. This census can be checked online at: www.flora.sa.gov.au/census.shtml. The last posted revision was published on 18 March 2003.

This list is a comprehensive list of the alternative names or synonyms that have been or are being used for each of the species dealt with in this book. It enables the species names used in this book to be related to names used in other publications.

The Find function on Adobe Reader will allow a reader to look up any name used in another publication and determine the name or names used herein.

Acianthus pusillus D.L.Jones
- *Acianthus exsertus* auct non R.Br.: J.Z.Weber & B.J.Bates(1986)

Amphar fordhamii (Rupp) D.L.Jones
- ***Corybas fordhamii*** (Rupp)Rupp
- *Corysanthes fordhamii* Rupp

Amphar unguiculatus (R.Br.) D.L.Jones & M.A.Clem.
- ***Corybas unguiculatus*** (R.Br.)Rchb.f.
- *Corysanthes unguiculata* R.Br.

Arachnorchis argocalla (D.L.Jones) D.L.Jones & M.A.Clem.
- ***Caladenia argocalla*** D.L.Jones
- *Caladenia patersonii* auct non R.Br.: J.Z.Weber & B.J.Bates(1986), partly
- *Calonemorchis argocalla* (D.L.Jones)Szlach.
- *Calonemorchis argocalla* (D.L.Jones)Szlach.
- *Caladenia sp.* B.J.Bates & J.Z.Weber(1990, pl. 59, 1.ff)

Arachnorchis audax (R.S.Rogers) D.L.Jones & M.A.Clem.
- ***Caladenia audax*** R.S.Rogers
- *Calonemorchis audax* (R.S.Rogers)Szlach.
- *Calonemorchis audax* (R.S.Rogers)Szlach.

Arachnorchis aurulenta D.L.Jones
- ***Caladenia aurulenta*** (D.L.Jones) B.J.Bates

Arachnorchis behrii (Schltdl.) D.L.Jones & M.A.Clem.
- ***Caladenia behrii*** Schltdl.
- *Caladenia patersonii* auct non R.Br.: J.Z.Weber & B.J.Bates(1986), partly
- *Caladenia aff. patersonii* R.Br.: B.J.Bates & J.Z.Weber(1990, pl. 60)

Arachnorchis sp. Darma bayonet (R.Bates 19743) (Not on the Census)

Arachnorchis brumalis (D.L.Jones) D.L.Jones & M.A.Clem.
- ***Caladenia brumalis*** D.L.Jones
- *Caladenia patersonii* auct non R.Br.: J.Z.Weber & B.J.Bates(1998, pl. 57), partly
- *Calonemorchis brumalis* (D.L.Jones)Szlach.
- *Calonemorchis brumalis* (D.L.Jones)Szlach.

Arachnorchis callicrada (G.W.Carr) D.L.Jones & M.A.Clem.
- ***Caladenia callicrada*** G.W.Carr
- *Calonemorchis callicrada* (G.W.Carr)Szlach.
- *Calonemorchis callicrada* (G.W.Carr)Szlach.

Arachnorchis gladiolata
(R.S.Rogers) D.L.Jones & M.A.Clem.
Bayonet Spider Orchid

Etymology: From Latin gladiolus, a bayonet or sword, in reference to the bayonet-shaped clubs on the sepals.

Synonyms: *Caladenia gladiolata*

Description: Leaf broad lanceolate, mid-ground hugging then most upright, 10-15 cm long and 1 cm wide, shortly hairy, green. Flower stem to 20 cm tall, hairy, green with reddish markings. Flower usually single, to 3 cm wide, in tones of green and red, with brown bayonet-shaped clubs on the sepals and petals, segments 2-4 cm long, green with a red longitudinal stripe, laterally spreading, or drooping in larger flowers, often more than half their length made up of large, flattened, brown, glandular clubs, which emit a powerful, musky fragrance; labellum yellowish-green and red, small, margins minutely denticulate with four crowded rows of dark reddish clubbed cells.

Flowering: Late Aug—Sept – Oct

Similar Species: None.

Distribution: FR, NL, SL.
Once common throughout the Mount Lofty and Southern Flinders Ranges, as far north as Arden Vale, via Quorn.

FR, *A. gladiolata*, FR, Sept

Habitat: Woodland, grassland and grassy open forest on fertile loams i.e. in the drier parts of the Mount Lofty Ranges and wetter parts of the Southern Flinders.

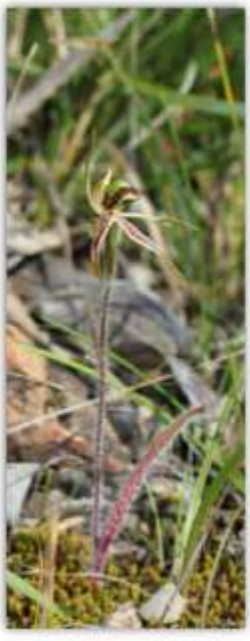
Distinguishing Features: Flowers with large brown bayonet clubs to the segments and the mainly colour make this species distinctive. Plants in the Adelaide Hills tend to have shorter segments, but this feature is variable in any population.

Notes: A gladiolate is now rare, due to a combination of its habitat in farmland. The only large populations remaining are in the Mount Remarkable National Park, near Alligator Gorge. It is even thought to be extinct throughout most of its former range, surviving only in the northern and southern limits of its distribution. The southern population has crashed since fire swept through its habitat. It struggles now to maintain the handful of plants remaining.

At Alligator Gorge there was a population explosion of this species following disturbance during road building, in the 1960s. Following the disturbance there was extensive hybridising with *A. acuminata*, *A. flindersiae*, *A. sensa* and *A. woolnoughiana*.

Pollination is effected by sexually attracted male thynnid wasps of *Zaspilothynnus* sp. The scent of *A. gladiolata* can be recognised by humans from up to 100 metres away but it is likely that the wasps can recognise it from even greater distances.

Conservation Status:
Status in Legislation: Nationally endangered, endangered in South Australia
Suggested Status: Rbi, nationally endangered



RB, *A. gladiolata*, Scott Creek CP, SL

RB, Alligator Gorge, FR
*Note the difference between the plant from the north & the plant from the south.

RB, *A. gladiolata*, Scott Creek CP, SL

Corysanthes sp. Silky Tea-tree Swamps

Late Helmet Orchid or Silky Tea-tree Helmet

Etymology: The phrase name given indicates that the species is found only under Silky tea-tree *Leptospermum longipetalum*

Synonyms: *Corysanthes* sp. aff. *dilatata* Late Helmet Orchid in Orchids of Victoria 2005, pg.343

Description: Leaf solitary to slightly caudate, flaccid to 7 cm across but usually rather smaller, green above, paler below. The flowers are inflexuent, usually very dark maroon and white, to 25 mm across, held well above and leaning away from the leaf and somewhat similar in appearance to *C. dilatata* except that *C.* sp. Silky Tea-tree Swamps has a deep red boss on the labellum while the *C. dilatata* has a pale boss in the centre of the labellum.

Flowering: Sept – Oct.

Similar Species: The South Australian plants are similar to those from south western Victoria (*Corysanthes* aff. *dilatata*) and may represent a separate subspecies from those at Wilsons Promontory.

Distribution: SE Vic, Tas.
Occurs in coastal far south-east South Australia, as a Victoria and northern Tasmania.

Habitat: One of several orchid species restricted to alkaline soils associated with limestone swamps dominated by *Melaleuca*, *Leptospermum lanigerum*. It often grows with *Diplodium bicalcarinatum* and *Pterostylis halmaturorum*, endangered in South Australia. The author has seen a colony of this species growing on a floating mat of moss-covered debris in Piccaninnie Ponds, where it also grows up the moss covered lower trunks of the tea-tree.

Distinguishing Features: The flower of this uncollected species leans away from the leaf, has a deep red boss and has a dark hood to match the backs in which it grows.

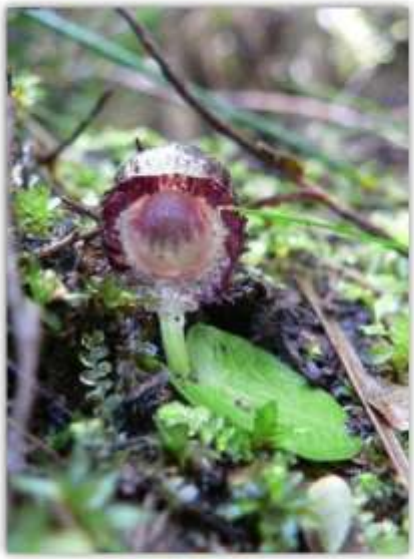
- Somewhat similar in appearance to *C. dilatata* but that species has a pale boss in the centre of the labellum.

Notes: In South Australia it rarely flowers and large colonies are observed most years without a single flower indicating that its habitat is poorly managed, perhaps through loss of small mammals which used to burrow through the swamps.

First collections were made in 1803, by South Australian ecologist, Cath Dickson. It is very likely that before massive land clearance, and construction of drainage channels over most of the South East, there were several other un-described species of helmet orchid in the South East. The same is true of parts of Kangaroo Island which have now been totally modified for agriculture.

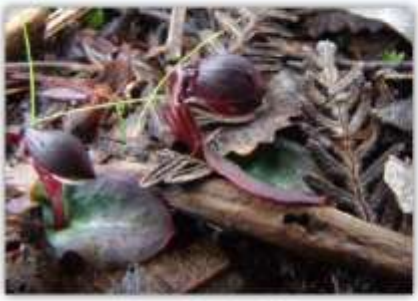
The author has seen isolated colonies of helmet orchid leaves in restricted habitat such as sphagnum bogs, peaty mounds and the like, none of which have ever shown sign of flowers.

Conservation Status:
Status in Legislation: Not Listed
Suggested Status: 2 Ec in South Australia, nationally threatened.



Ch. *C.* sp. Silky Tea-tree Swamps, Sept

Gallery



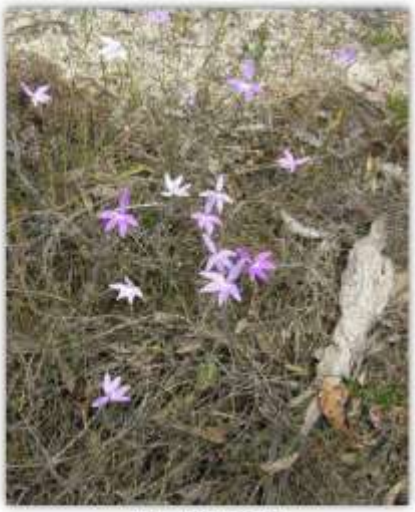
RB, *A. angustisulcus*, Joanna CP, SE

RE, *A. angustisulcus*, Mt Burr, SE
*Note how it blends in with the surrounding rim and colour make them difficult to spot. Note underside of leaf is a reddish colour.

RB, *A. angustisulcus*, Nixon Skinner CP, June
*Note the window in the labellum tube

Glossodia R.Br.

Waxlip Orchids



RL, G.reuper, Inman Valley, SL
*Note the typical variation in colouring.

Glossodia R.Br.

Waxlip Orchids

Etymology: The generic name is derived from the Greek glossa, a tongue, and eidos, similar to, referring to the tongue-shaped appendage at the labellum base.

Taxonomy: There have been no changes to the taxonomy of the genus since it was named by Robert Brown. There are, however, recognizable subspecies of the two species involved. The genus is closely related to its sister genus *Elythranthera* from Western Australia which was once included in *Glossodia*. Both genera are in turn allied to *Caladenia* through the intermediate genus *Drakaea*. The genus is likely to be revised in the future.

RR, Rykyshlde, SE, Oct

Description: A single leaf arises each year in late autumn, from a distinctive sheath-like tuber enclosed in a fibrous sheath. Plants may be solitary, in small clumps or extensive colonies, formed not by vegetative increase but from seed recruitment. The leaf may be erect or procumbent, broad lanceolate and with various hairs which are tipped with black, somewhat deciduous glands. The large, colourful, sometimes glossy, flowers are long lasting if not pollinated, but very quickly wilt in dry weather and plants can go from early flower to total deterioration after just three or four hot days.

Pollination: Flowers are pollinated by small native bees of two subgenera. The orchid exhibits floral mimicry; the bright flowers, light perfume, nectar guide lines and the false anthers, (the yellow forked callus at the base of the labellum), are all bee attractants but the flowers provide no obvious reward for the bee. The bees land on the flower segments and crawl to the centre, grasping the yellow labellum appendages, push forward to glancingly on the pubescence of the labellum base and are lifted up by the forked appendage to contact the stigma and anther. The pollinia are powdery and cream coloured or white.

Distribution and Habitat: *Glossodia* is a genus of two species, both confined to Eastern Australia. Only one species of *Glossodia* occurs in South Australia where two races can be recognised, one on sand plains and the other a mountain form. Both occur in overall range of wet sclerophyll in higher rainfall areas.

Notes: Plants seem to be short lived but each spring large numbers of tiny seedlings can usually be seen near parent plants. Unlike many of our native orchids in which the flower bud appears early in the season, buds of *Glossodia* begin to show only a few weeks before flowering. The scape elongates rapidly with warm weather.