

**RON HEBERLE
ORCHID PHOTOS
Western Australia**

**By
Ron Heberle
Greg Heberle
Graham Bowden
Tony Watkinson**

“Ron Heberle orchid photos Western Australia” by Ron Heberle, Greg Heberle, Graham Bowden, Tony Watkinson. Submitted to publisher May 2006.

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INTRODUCTION

Ron Heberle photographed orchids from about 1975 until shortly before his death in 2004. After he died, his collection of photographic slides passed into my care. About 95% of his slides were of native orchids from Western Australia. The orchid slide collection contains over 1870 slides, including over 50 by others, mainly H Foote and D Voigt. Some 95% of the slides have details such as his interpretation of the name of the orchid, place of collection and date. Slides with no details have been left out of this book. Generally only scientific names appear on the slides and a similar approach has been followed in this book. Unfortunately some of the details on the slides are abbreviated, incomplete, or illegible. The available details are listed for each photograph included in this book. The collection probably includes slides of over 90% of the State's native orchids. Generally the names on the slides are as at time of photography, so that few have names revised in the past 10 years or so. This book generally has the orchid names as shown on the slides and on the Species Orchid Society Internet site, even though many are superseded and some could be wrong. A quick check of the names on the slides compared to Hopper and Brown 1984 and 1998, suggests that the former is often followed. For a few orchids, older names have been used, including some from Erickson 1951. Obvious spelling errors have been corrected. Many of the slides depict possible hybrids, often with the likely parent species. Generally the possible hybrid is in the middle, with the likely parent species on either side.

Most of Ron Heberle's slides are available on the Species Orchid Society website:
<http://members.iinet.net.au/%7Emntee/page18.html>

Some of his slides are available via Greg Heberle's website:
<http://freepages.genealogy.rootsweb.com/~gregheberle/>

This book includes over 250 of Ron Heberle's orchid photos, some introductory notes for each genus and 3 articles covering Ron Heberle, from the Species Orchid Society website.

Further details of Ron Heberle's life are presented in 2 books: "Heberle family 1500-2005" and "Heberle fishing Western Australia 1929-2004", see References.
Greg Heberle.

RON HEBERLE

Ron was born on Christmas Eve 1913 in Perth WA. He grew up in the city being educated at the Victoria Park Primary School and the Thomas Street Secondary School. At the age of 17 he went, with his brother, to Kalgoorlie to work on a diamond drilling crew. It was during holidays in Esperance that they befriended a fisherman and found catching and selling fish door to door quite lucrative. So much so that his father left his Perth job and joined the boys. They spent a couple of days fishing and then sold their catches through Ravensthorpe, Lake King and as far away as Wagin. Good advice finally saw them settle their business in Katanning (1936). Ron joined the RAAF in WW2 and was sent to England as a pilot. He returned and in 1946 married Pauline.



The Heberles fished the fairly remote areas along the South coast from Esperance to the west of Albany and travelled through long stretches of undisturbed bush. Ron's love and knowledge of native flora was nurtured by his mother (she had a wonderful collection of pressed flowers) and his travels had him in contact with such beautiful plants as the Royal Hakea. When his father retired Ron and his family moved to Albany and it was the flower shows for his children's school (Spencer Park Primary) which had them all searching and collecting orchids. With the headmaster, Ron Oliver, Ron, Pauline and their children increased their interest in the terrestrial orchids around the Albany area. Ron learnt photography with the help of friends and family. He preferred colour slides as he found they gave him truer colours and it was easy for him to share his joy and photos with other orchid lovers. Ron has published regularly in The Orchadian, has orchids named after him, is a member of the AOF and is a valued confidant and supplier of materials to orchid people in Australia, Europe and the USA. He has an extensive knowledge of the geography of the south west of WA and the precise location of many orchid species. His interest in natural hybrids and variations within species has been beautifully recorded in his 1500 plus slides. These slides are to be donated to the National Herbarium in Canberra. Ron likes to point out that these slides only represent a fraction of his experiences with the wonderful WA terrestrial orchids. Ron and Pauline recently moved to Perth and joined our Orchid Species Society of WA. He wishes to make his records available to as many people as possible and this is why he has invited our society to put samples of his photography on our Internet site. ENJOY!
Graham Bowden 2002.

AN AFTERNOON WITH RON HEBERLE

The Species Orchid Society of Western Australia (Inc)
Ron Heberles Thelymitras

(An interview by Tony Watkinson)

(RH) When you see Thelymitra flowering it's often after a fire the previous summer. The fire must do something to the soil, or maybe it regenerates dormant mycorrhizal fungi, I don't know. A lot of people have got theories, but as far as I know the mechanism is not yet known.

This theory business dominates everything to do with nature, and what people try to do is bend nature to suit their theories. You can't do this. You can publish papers and if people swallow it, fair enough, but nature has a habit of making a fool of you.

As a guest speaker at the 1991 AOC conference I covered Thelymitra the full story as I saw it from my experience, plus bits and snips from other people.

Thelymitras are fantastic orchids and they are so aesthetically attractive. People are absolutely staggered when they see them. Not many people know much about these orchids.

(TW) I am still getting some great comments from people who have seen the web site.

(RH) Yes. I'm delighted about that. In regard to future directions, I would like to see as many of my slides put on the web site as can be done. I realize that this is a lot of work for you.

(TW) Well, yes, but it's just a matter of putting your head down and doing it.

(RH) If they want slides, I can supply them, but they cost to get copied, and you have to pay postage and that sort of thing. But my main interest is to see that people get to see them. I don't want to make any profit out of it at all.

When they had the World Orchid Conservation Conference here in Perth in 2001, they approached me about ideas for putting the terrestrials in the exhibition hall. I said yes, I had about 100 prints and I could get some more made to exhibit. There were about 400 of them and they were an absolute sensation. Most of the locals had never seen some of them, never mind the visitors.

(TW) Unless you are wandering about the bush, you wouldn't see them.

(RH) No. And you've really got to know your way around in the bush, they are not very co-operative, they are cunning little devils, they don't make things easy for we humans, all they are interested in is perpetuating the species. When it comes to Caladenias, you need to be more selective because there are a lot of Caladenias that are not aesthetically attractive. They are uniquely different, but they are not any where near as colorful as the Thelymitras. Some are very attractive but others are not, so you have to say, well, all right, what am I going to do, just entertain people or am I going to produce something that's got a bit of meat to it. From my point of view, that's my approach. If people just want to look at them, then that's OK, but I want to produce something that makes people think, makes them get off their tails and do something.

(TW) When did you first become interested in orchids?

(RH) Well, my mother was mad about general flora when we were kids in Perth, and the whole area where we lived was bush and covered in wildflowers. You could walk from Claremont up to North Beach and there wasn't a house or anything. At North Beach there was a pub, a couple of stores and two or three houses. There wasn't anything in between at all. And it was a tremendous patch of bush and orchids too. Kids are fascinated by orchids. I mean wildflowers don't bother them much, they are pretty naff, but orchids, they've got something that's entirely different, and kids get fascinated as my sisters and I were. And when we grew up and went to school, if you mentioned that you were interested in all that, they gave you the treatment so we sort of, dropped out of it. But when Pauline and I got married. She was a country girl, lived on a farm at Geeralying and there were orchids everywhere. We were living in Katanning and I, along with five other people, started a naturalists club. The bulk of the members were farming people and in those days, every farm had a patch of bush on it. So we used to have a couple of wildflower shows, and natural history shows every year. The farmers would bring in buckets of Donkey Orchids and White Spider Orchids. I volunteered, with Pauline's help with our kids, to be responsible for the orchids. We just picked what we needed for the shows; about three specimens of every one. From that time on we sort of concentrated on orchids. When we went to live in Albany, we were fortunate that the headmaster of our kid's school was also wrapped in orchids. Albany is a marvelous area for orchids. There are more orchids within 200 km of Albany than anywhere else in the state. We got involved with the wildflower society and we did the same thing there as in Katanning. We took over responsibility for collecting and displaying the orchid section, and as such, we were invited to do something similar in other country towns. So we built up an interest on the basis of learning something about them, not just finding them. That's been very difficult but after 40 years, I've got a few clues. The problem with orchids, as I've mentioned, is that they are cunning little devils, diabolically cunning. You think you know something about them and then you are confronted with irrevocable evidence that you were wrong. This goes on all the time, so you keep having to change your ideas, but eventually, you come to the inescapable conclusion that you've got to accept that the varieties are infinite. There's neither a beginning nor an end to them. Some professionals like to put them into tidy little boxes called genera and species. They won't stop in those boxes; many jump straight out of them. Once a professional publishes something and has it validated, under the international code, we are all expected to follow it. Well, I do a bit of that, but I query them. I write and publish papers representing different points of view. Well, I'm sometimes not very popular for that. Some don't like amateurs they consider are encroaching on their preserves. Some taxonomists change the genera and species and are going overboard by splitting up genera, and this has made it very difficult. These revisions, if anything, are supposed to make things clearer, instead of that, they make a highly complex business more complicated. Anyway, that's another story.

(TW) When did you start taking Photographs of orchids?

(RH) In the mid seventies. I was invited to become a collector for the State Herbarium. It was pretty difficult to get specimens to Perth, and I didn't know what

they wanted, so I thought that if I photograph them, they could have a look at the slides, and if they want them, I can go and get the specimens for them. Well, I started off with an old second hand Praktica SLR with a standard lens and distance rings, and using natural light. Albany's not a particularly good place for natural light, and with that equipment which is very basic; there were endless problems with focusing and depth of field. The depth of field is essential when photographing orchids. Anyway, after about two and a half years of this, and making a mess of a lot of film, I met Herb Foote who came down from Perth to photograph the wildflowers. He looked at my camera equipment and said "Oh Ron, you'll have to get something better than this. You're never going to do any good with these. You need much superior equipment. Anyway, in 1981 I bought a Pentax K1000 with a zoom, flash and a "one to one" screw on lens for macro shots. I didn't know how to use the zoom lens and I couldn't find anybody in Albany who could either. Herb Foote showed me how to use the zoom. It has an automatic stop down so that when you focus, you've got the aperture wide open and you can get it exactly as you want it. Then when you select the "f" reading you want, it stops down to that reading automatically. That solved the problem of focusing and the depth of field was solved with the one to one adaptor and the zoom lens, which has a lot of magnification; I could get in real close. And later, I bought a set of diopters so I could take super close ups. Eventually I got to the stage where I could take a decent photo, but I still messed up a bit of film here and there. It's not hard to do. I also use a flash. The flash meant that I could take photos regardless of the weather, no matter how poor the light was. For super close-ups I had to pick the flower and take it into my studio where I could put the camera on a tripod along with the flash to juggle the two to get what I wanted. I found, by trial and error, that colour is something that governs the aperture setting to get a sharp photo. I found that I had to have the flash 12 inches (30cm) away from the camera, 12 inches away from the screen, (backing board) for light coloured orchids, and 8 to 9 inches (20 to 30cm) for dark coloured orchids, and in between, for all different colours. I had a book in which all these results were written down. Eventually, I memorized it and didn't need the book any more. This meant that I was then taking quality photos. Another thing I did was to have the flash on one side slightly above the lens and angled down so that it hit the middle of the screen. I got a bit of cooking foil and crumpled it up and held that on the opposite side so when the flash bounced, it hit the foil and bounced back so that it lit up all round.

(TW) A deflector?

(RH) Yes. Some people use two flashes but the flash has got to be very low powered. If it's a high-powered flash, it just washes the colour out. Automatic setting only gives you an average shot. But it's not good enough. The flash must be the correct distance from the orchid and you must use manual settings.

(TW) So how many cameras have you had altogether?

(RH) Oh, that's all, only those two. The K1000 was only an update of the old Praktica, but a much better camera.

(TW) So when did you get the K1000?

(RH) I bought it in one of those arcades in Perth, where they sell photographic equipment. That would have been '81 or '82. The K1000 has been superceded by something now that will do everything. I tried borrowing other people's cameras but I made a bigger mess than I did with my own. Every type of equipment gives you a different result so you've got to learn to handle the equipment that you've got. There's always an average you can use, but with orchids, the detail has got to be shown and the average is just not good enough. It's got to be precise.

(TW) Do you prefer to take them indoors or out side in natural light?

(RH) Well, I do both. It depends on the weather. When it's windy, it's a waste of time taking them, they jump around and you can't get them. You can stop some of the movement, as long as it's not too much, with the flash, but if the wind is very bad, you are wasting your time. If it's inclement weather, drizzling and raining and so on, the orchids don't look too good with water droplets all over them. So I've taken about half of my photos in the bush. I take different coloured sheets of card. If the orchid has a bush behind it as background, then that's beautiful, but if the bush is further back, as often as not, the camera will focus on the bush. I used different coloured card; white, gray, pale green, pale blue and black which I carried in the car. I had two bits of wire, bent up like a staple, and I would just bend them round the orchid and put them down just to hold each end attaching the card so that it went out of focus. Another thing that I found, with super close-ups, was that when I photographed the whole orchid, the front part of it was out of focus. By pure accident, I took a photo one day and had focused on the tip of the orchid that was closest to the lens. It looked all blurred in the background, but when I got the slides back, it was in perfect focus. I took a photography course at TAFE for a while, but their equipment was different to mine, and if I did what they did, with my equipment, it didn't work. These are pitfalls that occur. You really need to study photography if you take on this business, because orchid photography is the most difficult. I'd never owned a camera till I tried to break into macro-photography, and of course, I was naturally behind the eight ball.

(TW) So you had to learn from scratch?

(RH) That's right.

(TW) What sort of film do you use?

(RH) Well, originally it was Kodak 64, but eventually I switched over to Fuji 100's, and the bulk, the best of my photography was done with Fuji 100's. These days people are using 400 film with natural light, and getting beautiful results. I never tried that, I was on a good thing and I stuck to it. Well, I reckoned I was.

(TW) You knew and understood what you were doing and what you were working with.

(RH) That's right. Also, I learned, like everybody else, by my mistakes. The essential thing is to write down everything you do. Write down the distance the flash is away. Write down whether its full size orchid or half size or whatever. When I took my orchids inside, I used f22, which gave beautiful depth of field. But if I tried to use F22 out in the bush, they were all underexposed because the opening was too small so I used F16 with the flash and got very good results. But I had to write all this down.

(TW) So you used the flash outside too.

(RH) Yes. All I did with the flash outside. You can have the flash attached to the camera but its pretty cumbersome to cart them around. A lot of people have one flash angled up from below the lens, and one angled down from the other side of the lens, and they get excellent results, but all I do, using the zoom lens and the adaptor, is hold the flash alongside the lens. There's a tolerance of a half inch (12mm) in the flash distance and anywhere in that half inch, you get fairly good results, but if its over half an inch, well, it shows, either over exposed or under exposed.

We concentrated on 200kms from Albany, and we've possibly looked at 1% of what's there.

(TW) You've got some orchids named after you. What are they?

(RH) Yes, ones a Donkey (*Diuris heberlei*) orchid and the other's a Spider (*Caladenia heberleana*) orchid. The Donkey orchids are something that we should be put on the net. They are beautiful.

(TW) You have slides of them too do you?

(RH) I have all the named WA species and a few that haven't been named. For some obscure reason, they don't appear to hybridize over here. I've only seen one Donkey orchid that, I think, is a hybrid. In the Eastern States they hybridize like mad. It's all a question of pollinators. The Donkey orchid has probably got a specific pollinator and there aren't many of them around. Whereas Caladenias, most of them have non-specific pollinators, any sort of insect will do. It's a possibility and it could be a probability, but you're going to be hard pressed to bring it up to a probability. I've got a lot of correspondence from a chap who lives in the U.S.A. He had a theory that some orchids have a specific pollinator, and if that pollinator is not present, it never got fertilized. He published a series of very plausible papers built around this theory, but the more I got into hybrids, the more I was quite certain that he was going up the garden path. So he came over, he had four trips to Australia, and he came down to Albany. I invited him to stay with us, and every night I'd take him into the lounge room where we had the projectors set up, and I'd show him all these hybrids. I said that they couldn't have a specific pollinator because of all these hybrids. He said 'Ron, I'm convinced that what I wrote was wrong in some cases. No one challenged me'. He was one of the first in that field of study you see. When anyone publishes anything, it's up to be debated. You get a personal point of view, and a single personal point of view isn't worth that much. If a personal point of

view is backed up by a great many others contributing, well then, maybe you are on the right track.

I published my first paper on *Caladenia* hybrids about 1991 in the *Orchadian*. A chap had written to me suggesting that I should publish a paper about *Caladenia* hybrids. I agreed and roughed out some notes (I'd never written one before) and I sent it to a friend of mine who was a big noise in the orchid world in Sydney, for his advice. He wrote back and he suggested certain amendments and so on, and he said, "Look, if you are going to publish in the *Orchadian*, you should get in touch with the *Orchadian* editor and get his assistance". This was a chap named Joe Betts. We swapped letters back and forth, and eventually the paper was drafted as a professional paper, though even with his assistance it was written by an amateur. He published it, and, I didn't know it, but at that time it was the first paper that had ever been written about *Caladenia* hybrids in Australia. So it was a benchmark. I made some predictions. Only one of them has survived because they were wrong. For instance, I said that apart from the early flowering and late flowering *Caladenias*, all the rest are free to hybridize. Well I've never seen an early flowering hybrid but we found late flowering hybrids, so maybe I was half right. I got interested in hybrids and as far as I know, few others have. In the first paper, I suggested that other people should do the same work in other locations and then the full story might be known some day, but as far as I know that hasn't happened.

(TW) I guess most people would want a fair bit of money to do the sort of work that you have done, but you have done it as a hobby.

(RH) Yes. We spent a lot of money. Neither of us drink nor smoke and we haven't got any expensive habits, so we always had a few bob to fill up the car and go somewhere. We were very lucky in that we had friends and relations spread all through the country and could nick up on a Friday night, stay the night with them and go out looking at orchids the next day. They knew the bush and where the orchids were. Then we could set off back to Albany by another route and get back about 6 o'clock Sunday. In that way we could really cover the countryside. We would never have been able to do it without them.

(TW) You told me once that you tried to grow some *Thelymitras* and you hadn't been 100% successful.

(RH) No. The *Thelymitras* were easier to grow than *Caladenias* in general, but some of them were impossible. The easy ones are a lot of those blue ones. But they survive in the pot from three to five years because they use up the mycorrhizal fungi and it isn't replaced so they die.

(TW) I see. So if you could find some way of replacing the fungi.

(RH) Yes. That's what they are doing today. That's what Heinrich Beyrle does. The most beautiful *Thelymitra* *vareigata* I've ever seen, used to grow on Mt. Wylieyung, which is behind the airport at Albany. It was a big granite rock. The farmer sold the rock to Australian Blue Metal and they started blasting it out for road making. They dumped the metal dust on top of the *Thelymitras*. You are lucky to

find one or two there now. It's a great heap of metal dust now. About 200 square metres. It was the only place I've ever seen these. They were the most beautiful colour forms we had ever seen. There are some *T. vareigatas* growing north of Perth that I have never seen, and they are beautiful. They used to grow all around the Swan River when I was a kid. They grew from Belmont, down through Burswood, Victoria Park, South Perth, Mt. Pleasant, down through Jandacot to Woodman's point, Twelve Mile Well and right around where Kwinana is now, down to Rockingham, Point Peron, and then all the way down to Bunbury. Of course, many of them are gone.

(TW) Thanks for talking with me today Ron. I'm sure many people will be interested in your comments.

THE PASSING OF LEGENDS

Special Newsletter of the
The Species Orchid Society of Western Australia (Inc)

The Passing of Legends

By Graham Bowden and Tony Watkinson

February 2004 was a sad time for our members as we lost two of our great friend within a day of each other. Both Ron Heberle and our President, Reg Allison passed away, leaving the membership in mourning at their sad loss.

The death of Ron Heberle marked the end of an era. Ron was a noted orchid identity, not just in his home State of Western Australia, but throughout Australia and the world. Ron had just celebrated his 90th birthday the previous December. His birthday party being marred by the death a few days earlier, of his wife Pauline who had been his lifelong partner.

Ron was one of those giants in the field of orchid identification and a true self taught naturalist. He was a genuine character, the like of which very rarely comes our way. He had the kind of booming voice that has filled many a hall of orchid lovers, in delivering his slant on WA's terrestrial orchids, their habitats, varieties and hybrids.

Since his childhood, Ron had a growing interest in WA's wildflowers, and it was the flower shows for his children's school (Spencer Park Primary) which had him and his family all searching and collecting the native terrestrial orchids. With the headmaster, Ron Oliver, Ron, Pauline and their children increased their interest in the terrestrial orchids around the Albany area, and eventually, Ron became an orchid collector for Kings Park. Ron found some difficulty in sending orchids to Kings Park for identification, as they did not last long enough in reasonable condition. In his typical style, he bought a camera and taught himself how to use it so as to take slides of the orchids in situ. He later updated this first camera to an SLR to enable him to get better close ups and truer colours. Over the next 30 odd years, Ron was to take thousands of slides of the native WA terrestrial orchids in the wild which he was happy to share with other orchid lovers. Ron was published regularly in *The Orchadian* and other orchid publications. He has had orchids named after him and was a foundation member of the AOF and a valued confidant and supplier of materials to orchid people in Australia, Europe and the USA. He had an extensive knowledge of the geography of the south west of WA and the precise location of many orchid species.



Ron Heberle in hospital shortly before his death. Still loving his WA native terrestrials.

His interest in natural hybrids and variations within species has been beautifully recorded in his slides. Ron liked to point out that these slides only represent a fraction of his experiences with the wonderful WA terrestrial orchids. Ron and Pauline had recently moved to Perth and joined the Species Orchid Society of WA. His wish was to make his records available to as many people as possible and to this end, had invited the society to put samples of his photography on the Societies Internet site.

Ron's orchid experience came from field work rather than from any formal education, and as such he had very little patience with some trained botanists whom he saw as hypothesizing from ivory towers, and had no compunction in telling them so.

He was very interested in the natural hybridization of native WA terrestrial orchids and would make them a focus at the slide shows that he often gave to local orchid Societies in and around the Perth region. Even at 90 years of age, Ron was still happy to give these slide shows, and indeed he was due to present one at the Orchid Society of Western Australia the week he died.



Pauline & Ron Heberle. March 2003

Both Ron and Pauline will be missed by the orchid community here in WA and everywhere that Western Australian terrestrial orchids are appreciated.

Reg Allison, at age 56, was in his second year as President of the Society and, like Ron Heberle, was also well respected and loved by all who knew him. Reg was one of those quiet, unassuming people, who manage to get the impossible done without seeming to have tried too hard.



He was a returned serviceman, having served with the Australian SAS contingent during the Vietnam conflict, and later was recruited into the initial Australian Anti Terrorist organization. According to Reg, his health problems stemmed from his training with the later group, when he and other trainees were subjected to a mock gas attack which left them all gasping and coughing for weeks afterward. Reg seemed to recover eventually, and after leaving the Army, took up employment in the civilian world. He prided himself on his fitness and frequently ran marathons

just to for the hell of it. He became interested in caged birds and had quite a large collection of them, when he collapsed one day with lung problems.

After much hospitalization and having half of one lung removed, he was advised to get rid of the birds as their dust and feathers could have been a contributing factor to his health problems. This he did, and began to increase his interest in orchids. Reg first came across Australian native orchids when he was training with the SAS in the Queensland rainforests in which orchids abound. He was often seen scaling trees to get a closer look at some orchid or other, as his army friends can attest.



One of the first orchids that Reg 'acquired' was a *Dendrobium speciosum*, which he still had at the time of his death. It is one of the biggest plants of this species that most of us have ever seen and, happily for the plant, Reg's widow, Trish, is to keep this orchid as a kind of memorial to Reg.

Reg's interest in WA's native terrestrial orchids was sparked by Ron Heberle and his nephew, Graham Bowden, the Societies hard working Secretary. The three of them often would travel many kilometers around the state to look at terrestrial orchids in their natural surroundings.

Reg was instrumental in organizing a rescue dig where the Mitchell Freeway is to be extended north of Perth. He had the tenacity to wend his way through a minefield of bureaucracy that would have daunted others, to finally get permission to remove the orchids to safety, a task that was taken up by many members of the Society.

Reg, doing what he loved best. Saving orchids.

With the passing of Reg Allison and Ron Heberle, it is up to the members of the Species Orchid Society of Western Australia continue the work that they have pioneered.

Their loss is deeply felt by all who knew them.

CALADENIA (Spider orchids)

The name derives from Calos meaning beautiful and Aden meaning glands referring to the colourful labellum and the glistening glands at the base of the column that adorn many of the species.

The genus was described by Robert Brown in 1810 from specimens that he sighted in most Australian states, as a member of Matthew Flinders' mapping and exploration visit that circumnavigated Australia. Brown, with assistants, spent just over three years in Australia on botanical research.

The species are terrestrial and usually have a single hairy leaf. They are mostly Australian and are from its southern areas. There are four species in New Zealand and another extends to New Caledonia, Indonesia and Malaysia. The South West corner of Western Australia contains the most spectacular and numerous species, varieties and natural hybrids. The huge variation of form and colour of the species leads to a bewildering array and abundance of hybrids. Many are morphologically difficult to separate with some defying separation at present.

Recent taxonomy revisions have, apparently, largely increased the number of species and split the genus into separate groups. For example, *Caladenia filamentosa* has been split into about forty different species and sub species. This further complicates the issues of identification. The orchids in this gallery and their names and descriptions are the result of my forty plus years of field research. They are all naturally occurring plants. I have named hybrids only if I found the parent species growing in close proximity to them. Similar hybrids found in different locations in the presence - of the same parent species support my determinations. For example, *Caladena ericksonia* is, in my opinion, no doubt a naturally occurring hybrid of *C. douthiae* and the red *C. filamentosa* and also of the hybrid of *C. cairnsiana* and the red *C. filamentosa*.

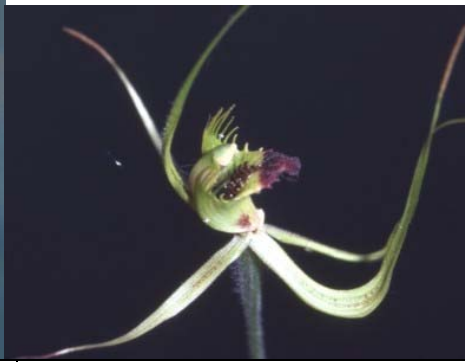
Whilst colour is an unreliable guide to identification with hybrids, it comes through strongly from one parent or the other for most hybrids whatever the parent species. *Caladenia* have generally proven difficult to maintain and cultivate artificially with those removed from their habitat rarely surviving more than a few years. The clumping of many of the species could be a result of tuber division or it could be because the seeds fall at the base of their parents and grow there.

The galleries demonstrate the huge variation within colonies and phytogeographic variation over the range north to south and east to west with ever changing climatic and habitat situations over the 15million hectares of the South West of Western Australia.

Ron Heberle, January 2003.



Caladenia applanata,
Mutton Bird Island



Caladenia attingens, Wilsons Inlet



Caladenia brownii,
Tone River



Possible hybrid *Caladenia brownii* x *Caladenia serotina*, Youngs Siding, Nov 1980



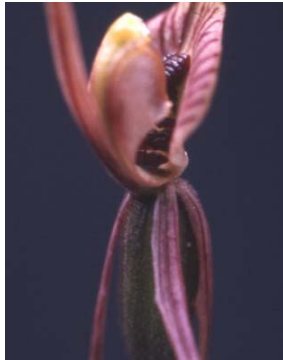
Possible hybrid *Caladenia brownii* x *Caladenia radiata*, Tone River, Nov 1980



Caladenia bryceana, Sep 1992



Caladenia caesarea, Tenterden, Nov 1992



Caladenia cairnsiana,
Green Range, Nov 1973



Possible hybrid *Caladenia cairnsiana* x
Caladenia dougliae, Sep 1983



Possible hybrid *Caladenia cairnsiana* x
Caladenia filamentosa, Cranbrook, Sep 1975



Caladenia chapmanii,
Wagin, Sep 1976



Possible hybrid *Caladenia chapmanii* x *Caladenia eminens*, Dinninup, Oct 1985



Caladenia corynephora, Lake Seppings, Albany, Dec 1979



Possible hybrid *Caladenia corynephora* x *Caladenia radiata*, Lake Sadie, Nov 1981



Possible hybrid *Caladenia corynephora* x *Caladenia serotina*, Lake Sadie, Nov 1986



Caladenia cristata, Lake King, Oct 1992



Possible hybrid *Caladenia cristata* x *Caladenia doutchiaea*, Hyden Aug 1980



Caladenia dilatata, Wilsons Inlet, Aug 1984



Possible hybrid *Caladenia dilatata* x *Caladenia patersonii*, Gordon Bridge, Sep 1985



Possible hybrid *Caladenia discoidea* x *Caladenia hirta*, Toolibin, Sep 1978



Possible hybrid *Caladenia discoidea* x *Caladenia longiclavata*, Gordon Bridge, Sep 1986



Caladenia dorrienii,
Cranbrook, Sep 1975



Caladenia doutchiae, Wedin, Sep 1992



Possible hybrid *Caladenia doutchiae*
x *Caladenia filamentosa*, Boxwood
Hills, Aug 1974



Possible hybrid *Caladenia douthiae* x *Caladenia radialis*, Toolibin Sep1983



Caladenia drummondii, Kulin, May 1987



Caladenia eminens, Sep 1990



Possible hybrid *Caladenia eminens* x *Caladenia lobata*, Frankland Oct1992



Possible hybrid *Caladenia eminens* x *Caladenia falcata*, Bullaring, Sep 1982



Possible hybrid *Caladenia eminens* x *Caladenia hirta*, Wongan Hills, Sep 1979



Possible hybrid *Caladenia eminens* x *Caladenia lobata*, Rocky Gully, Sep 1990



Possible hybrid *Caladenia eminens* x *Caladenia longiclavata*, Sheepwash, Sep 1997



Possible hybrid *Caladenia eminens* x *Caladenia pectinata*, Unicup, Oct 1991



Possible hybrid *Caladenia eminens* x *Caladenia serotina*, Oct 1988



Caladenia ensata, Frankland,
Nov 1978



Possible hybrid *Caladenia ensata*
x *Caladenia longiclavata*,
Sheepwash, Albany, Sep 1997



Caladenia eriksoniae, Green
Range, Sep 1978



Caladenia falcata, Wansborough, Oct 1986



Caladenia ferruginea, Mt Barker, Oct 1994

Possible hybrid *Caladenia ferruginea* x *Caladenia infundibularis*, Karridale, Nov 1984



Possible hybrid *Caladenia ferruginea* x *Caladenia patersonii*, Greenbushes, Nov 1981



Possible hybrid *Caladenia ferruginea* x *Caladenia pectinata*, Mt Barker, Sep 1995



Caladenia filamentosa, Wedin, Sep 1995



Possible hybrid *Caladenia filamentosa* x *Caladenia patersonii*, Lake Grace, Sep 1984



Possible hybrid *Caladenia filamentosa* x *Caladenia radialis*, Kondinin, Sep 1995



Possible hybrid <i>Caladenia filamentosa</i> x <i>Caladenia roei</i> , Toolibin, Sep 1982	<i>Caladenia filifera</i> , Jerramungup, Nov 1976	Possible hybrid <i>Caladenia filifera</i> x <i>Caladenia multiclavia</i> , Jerramungup, Sep 1999
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Caladenia flava, Spencer Park, Albany, Oct 1988



Possible hybrid *Caladenia flava* x *Caladenia latifolia*, Youngs Siding, Sep 1987



Possible hybrid *Caladenia flava* x *Caladenia reptans*, Carbadine Pool, Sep 1995



Possible hybrid *Caladenia flava* x *Caladenia marginata*, Lake Muir, Sep 1986



Possible hybrid *Caladenia flava* x *Caladenia nana*, Nornalup, Sep 1978



Possible hybrid *Caladenia flava* x *Caladenia triangularis*, Frankland, Oct 1984



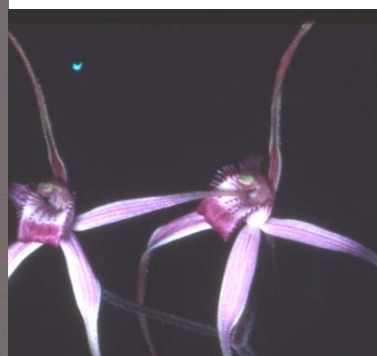
Caladenia gardneri, Broke Inlet to Windy Harbour, Oct 1991



Possible hybrid *Caladenia gardneri* x *Caladenia latifolia*, Augusta, Oct 1992



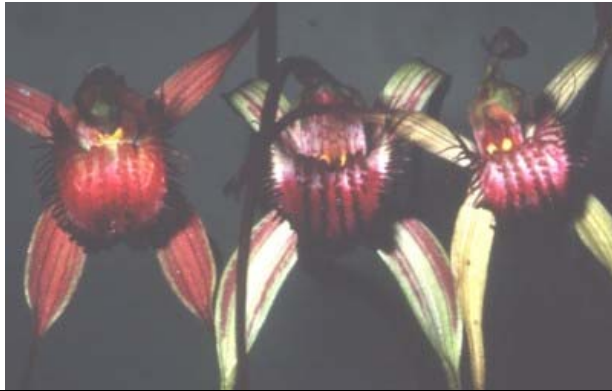
Caladenia graminifolia, Boxwood Hills, Aug 1988



Caladenia harringtoniae, Manjimup, Oct 1985



Possible hybrid *Caladenia harringtoniae* x *Caladenia uliginosa*, Manjimup, Oct 1985



Caladenia pectinata, *Caladenia heberleana* (2x), Emu Point, Albany, Sep 1993



Caladenia hirta, Albany, Sep 1979



Possible hybrid *Caladenia hirta*
x *Caladenia patersonii*,
Jerramungup, Sep 1987

Caladenia huegelii, Green Range,
Oct 1975



Possible hybrid *Caladenia huegelii* x *Caladenia*
longicauda, Bunbury, Oct 1986



Possible hybrid *Caladenia huegelii* x
Caladenia longiclavata, Poorarecup, Sep 1985



Possible hybrid *Caladenia huegelii* x *Caladenia patersonii*, Manjimup, Oct 1981



Possible hybrid *Caladenia huegelii* x *Caladenia pectinata*, Poorarecup, Nov 1988



Caladenia infundibularis, Karridale, Oct 1978



Caladenia integra, Wagin, Oct 1984



Caladenia latifolia, Ledge beach, Sep 1987



Caladenia lobata, Mt Barker, Nov 1988



Possible hybrid *Caladenia lobata* x *Caladenia longicauda*



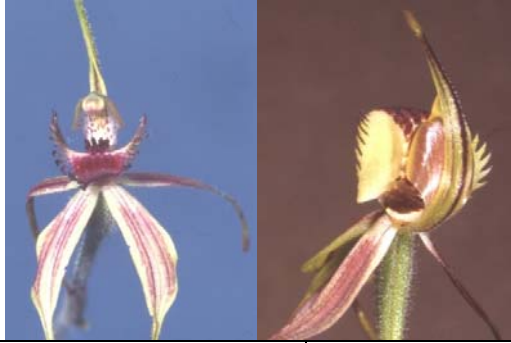
Possible hybrid <i>Caladenia lobata</i> x <i>Caladenia radiata</i> , Tone Bridge, Nov 1980	<i>Caladenia longicauda</i> , Rocky Gully, Nov 1976
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<i>Caladenia longiclavata</i> , Williams, Sep 1994	Possible hybrid <i>Caladenia longiclavata</i> x <i>Caladenia macrostylis</i> , Poorarecup, Sep 1982
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Possible hybrid <i>Caladenia longiclavata</i> x <i>Caladenia magniclavata</i> , Narrikup, Sep 1979	Possible hybrid <i>Caladenia longiclavata</i> x <i>Caladenia patersonii</i> , Manjimup, Oct 1986
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Possible hybrid *Caladenia longiclavata* x *Caladenia pectinata*, Sheepwash, Sep 1997

Possible hybrid *Caladenia longiclavata* x *Caladenia rhomboidiformis*, Alexandra Bridge, Oct 1977



Caladenia magniclavata, Jerramungup, Sep 1987

Caladenia marginata, Bakers Junction, Nov 1974



Caladenia multiclavia, Jerramungup, Sep 1987



Possible hybrid *Caladenia multiclavia* x *Caladenia roei*,
Jerramungup, Sep 1983



Caladenia nana, Pardelup, Oct 1987



Caladenia patersonii, Pardelup, Oct 1982



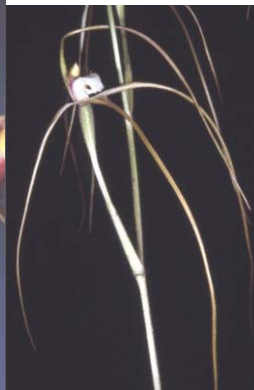
Possible hybrid *Caladenia patersonii*
x *Caladenia radiata*, Frankland, Nov
1982



Caladenia pectinata, Rocky
Gully, Sep 1992



Possible hybrid *Caladenia pectinata* x *Caladenia*
radiata, Frankland, Nov 1982



Caladenia pholcoidea,
Manypeaks, Nov1976



Caladenia plicata,
Manjimup, Sep 1987



Caladenia radialis, Wedin, Sep 1995



Possible hybrid *Caladenia radialis* x *Caladenia roei*, Wedin, Aug 1972



Caladenia radiata, Lake Sadie, Nov 1987



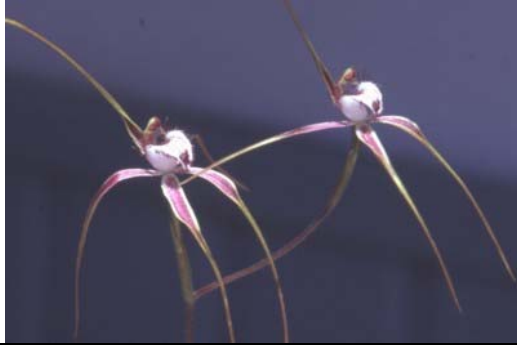
Possible hybrid *Caladenia radiata* x *Caladenia serotina*, Manjimup, Nov 1983



Caladenia reptans, Broome Hill, Sep 1990



Caladenia saccharata, Peak Charles, Aug 1984



Caladenia serotina, Redmond, Dec 1979



Caladenia sigmoidea, Aug 1984



Caladenia triangularis, Gordon Bridge, Sep 1994



Caladenia uliginosa, Lake Muir, Sep 1987



Caladenia unita, Manjimup, Oct 1984



Caladenia voigtii, Lake King, Sep 1992

Caladenia wanosa, Murchison River, Aug 1980

CALOCHILUS (Beautiful Lip or Beard orchids)

Calochilus is widespread throughout Australia with some ten species named. Three of these are present in the south west of WA. and two others are found in the Kimberley in the north of the state. The striking bearded labellum is the focal point shown in the photos. *C. robertsonii* is common in the lower southwest high rainfall areas. Its preferred environment is to grow in sandy peat swap perimeters and in winter wet dried out peat swamps where it can flower with population explosions after previous summer bush fire. There is an inland variant recorded from York to Narrogin and south to Highbury. *C. campestris* was earlier not thought to be in WA but specimens have been found near Albany in the South Stirling Range and further east to Hopetoun. Note the sham eyes in the last two. *C. holtzyei* and *C. aeruleus* from the Kimberley region have been researched by Kingsley Dickson via the Kings Park Research Centre. This area is difficult to access and there is a likelihood of more new species being found.

Ron Heberle. April 2003



Calochilus campestris, South Stirling, Nov 1983

Calochilus robertsonii, Albany, Nov 1986

CORYBAS (Helmet orchids)

There are over 20 species of helmet orchids in Australia, including at least 5 species in West Australia (Hoffman and Brown, 1998). The genera has over 100 species, including some in China, Malaysia, Indonesia and New Zealand. In West Australia, helmet orchids are mainly confined to moist, shaded areas, near the coast.



Corybas abditus, Walpole, Oct 1974



Corybas despectans, Gull Rock, Sep 1987



Corybas limpidus, Gull Rock, Sep 1987



Corybas recurvus, Gull Rock, Aug 1988

CRYPTOSTYLIS (Slipper orchids)

Cryptostylis is another of the hardy summer flowering orchids. The genus is present in Malaysia, New Guinea, Formosa, the Philippines, New Caledonia and numerous Polynesian Islands. Five species are present in Australia with just one in Western Australia (*Cryptostylis ovata*). Its late flowering, the handsome oval leaf and its persistent habit of surviving from year to year easily recognize the species. The flower has rudimentary segments with the exception of the large resupinate labellum with its sexual parts concealed underneath. This pseudo-copulating orchid demonstrates the one to one pollination or plant association where the same type of wasp, Australia wide, fertilizes the orchid. Ron Heberle April 2003



Cryptostylis ovata and wasp, Dec 1982

CYANICULA (Blue orchids)

According to Hoffman and Brown (1998), there are at least 10 species of *Cyanicula*, all occurring in West Australia, with two extending to the eastern States. Most were previously classified as *Caladenia*. The name refers to the blue flowers characteristic of this genus. However, one species has yellow flowers.



Cyanicula amplexens, Walgooland, Sep 1987



Cyanicula caerulea, Boxwood Hills, Oct 1990



Cyanicula deformis, Lort River, Aug 1980



Possible hybrid *Cyanicula deformis* x *Caladenia radialis*, Cunderdin, Sep 1983



Cyanicula gemmata, Cranbrook, Sep 1982



Cyanicula gertrudiae, Mt Clarence,
Albany, Oct 1990



Cyanicula ixioides, Bindoon, Aug 1987



Cyanicula sericea, Mt
Clarence, Albany, Sep 1995

CYRTOSTYLIS (Mosquito orchids)

There are just three named species in the south west of WA. These have been proved to be present as far north as Kalbarri and as far east as Israelite Bay. However the major distribution is in the high rainfall areas of the extreme southwest where these colony forming species can be abundant. The three species are *C. heugelii*, *C. robusta* and *C. tenuissima*. There is also an unnamed species from the Tone River.



Cyrtostylis huegelii, Manjimup, Aug 1984



Cyrtostylis robusta, Jerramungup, Aug 1987



Cyrtostylis tenuissima, Lake Seppings, Albany, Oct 1988

DIURIS (Donkey orchids)

According to Hoffman and Brown (1998), there are over 50 species of *Diuris*, including over 20 in West Australia. One species is found in Timor. The name *Diuris* refers to double tail, the hanging lateral sepals characteristic of this genus. All have grass like leaves and most have yellowish flowers. Many live in moist situations.



Diuris amplissima, Unicup, Dec 1986



Diuris carinata, Lort River,
Aug 1980



Diuris corymbosa, Albany, Aug 1976



Diuris drummondii, Unicap, Dec 1986



Diuris emarginata, Unicap, Dec 1986



Diuris heberlei, Two People Bay, Dec 1993



Diuris laevis, Albany, Oct 1991



Diuris laxiflora, Green Range, Sep 1979



Diuris longifolia, Forest Hill, Nov 1990



Diuris magnifica, Perry lakes, Perth, Sep 1983



Diuris pauciflora, Lower King, Albany, Nov 1978



Diuris picta, Yellowdine



Diuris pulchella, Mt Ney, Aug 1980



Diuris purdiei, Perth



Diuris recurva, Eneabba



Diuris setacea, Mt Clarence, Albany, Nov 1988

DRAKAEA (Hammer orchids)

Named after Miss Drake, a botanical artist who drew orchids and other plants to assist taxonomists in England in the 1800's. This species bears an insectival labellum that is attached to a stem, which holds it aloft. This has an elastic hinge that can only be moved backwards where the broadly winged column carries the pollina and stigma. The elaborate labellum structure is not sensitive and needs considerable force to be moved. This force is applied by fast flying male wasps deceived by the resemblance to the flightless females and the orchids pheromones, which are similar to that which the female gives off when they are ready to mate. The male grasps what he believes to be a receptive female, overcomes the resistance of the elastic hinge and is catapulted backwards so that the back of his head is forced against the column. If he is carrying pollen, it is transferred to the stigma, or, alternatively, he receives a daub of pollen attached to his head for transfer to the next orchid he visits. A truly remarkable mechanism that is highly successful in fertilising the orchid and perpetuating the species. There are four named species, (*Drakaea elastica*, *Drakaea glyptodon*, *Drakaea livida* and *Drakaea thynniphila*.), five in manuscript awaiting validation under the 'code', and three hybrids. The species is presumed to have a one to one pollinating strategy where one insect type (wasp) pollinates one species and no other. However the presence of hybrids suggests otherwise. Ron Heberle. April 2003



Drakaea concolor, Murchison River, Aug 1980



Drakaea confluens, Dinninup, Nov 1982



Drakaea glyptodon, Bayonet Head, Albany, Sep 1987



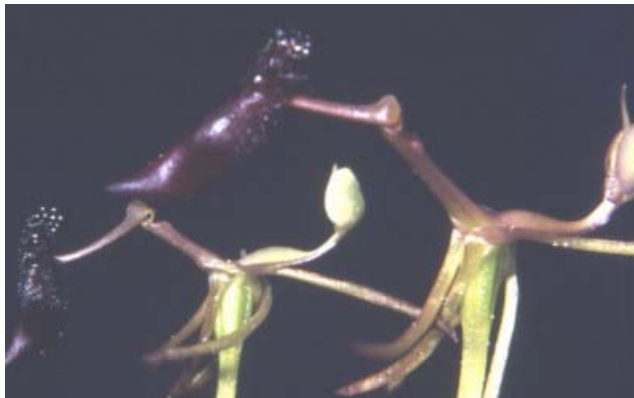
Drakaea gracilis, Manjimup, Oct 1985



Drakaea isolata, Pingrup, Oct 1992



Drakaea isolata, *Drakaea livida*, Pingrup, Oct 1992



Drakaea micrantha, *Drakaea thynniphila*, Mt Barker, Oct 1982



Drakaea thynniphila, *Drakaea elastica*, *Drakaea jeanensis*, *Drakaea glyptodon*, Bakers Junction, Albany and Murchison River, Sep 1980

DRAKONORCHIS (Dragon orchids)

According to Hoffman and Brown (1998), the Dragon orchids were originally placed in *Caladenia*. Their labella are covered in long hairs, rather than calli and they have short, broad leaves which lie flat on the ground. There are at least 4 species, all confined to West Australia.



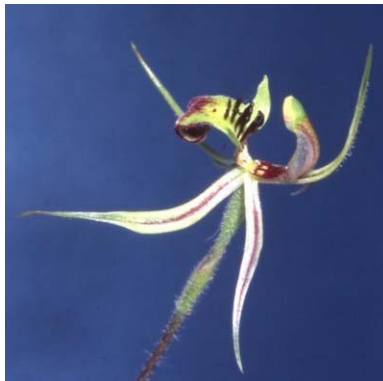
Drakonorchis barbarella, Kalbarri, Sep 1988



Drakonorchis barbarossa, Narrogin, Oct 1991



Possible hybrid *Drakonorchis barbarossa* x *Caladenia eminens*, Pallinup, Sep 1991



Possible hybrid *Drakonorchis barbarossa* x *Caladenia falcata*, Jerramungup, Oct 1995



Possible hybrid *Drakonorchis barbarossa* x *Caladenia patersonii*, Jerramungup, Sep 1984

ELYTHRANTHERA (Enamel orchids)

The name *Elythranthera* is derived from the Greek 'elutron' and 'anthera' and refers to the column wing, which acts like a hood over the anther. The two recognized species of Elythrantheras are easily spotted in the wild by the glossy sheen on the sepals and petals, which tend to shine and appear to be made of porcelain, hence the common name of 'Enamel Orchids'. This unusual feature causes Elythrantheras to be very attractive, when seen in the bush. Elythrantheras are endemic to the Southwest of Western Australia where they are quite common and widespread. Fortunately, they are not endangered despite much land clearing in their range, which is from Kalbarri in the North, to East of Esperance on the South Coast. They are terrestrial orchids that, after flowering, become dormant during the hot summer months while the tubers survive below ground. Their growth begins again with the winter rains and flowering commences during the spring. The solitary leaf, about

10cm long, appears at the base of the stem. The leaf, stem and the margins of the petals & sepals, are covered in small, dark hairs. *Elythranthera brunonis*, the Purple Enamel Orchid, is usually taller, (to 30cm) than *E. emarginata*, (12-15cm) but has a much smaller flower. *E. brunonis* can have up to three flowers per stem that are around 2-3cm across. *Elythranthera emarginata*, the Pink Enamel Orchid, has flowers up to 5cm across and often has more flowers per stem than *E. brunonis*. There are also differences between the two species, in the way the labellum (lip) bends. Even though *Elythranthera brunonis* are purple and *E. emarginata* are pink, there have been Alba specimens of both species recorded, and also hybrids between the species. As mentioned before, the front of the sepals and petals as well as the lip, have an enamel like finish, the backs, however are quite different. The background colour on the rear of the flowers is much lighter with dark pink to purple spots all over. Although both species have much the same range, *E. emarginata* can usually be found in wetter areas, and also tend to form clumps or colonies. *E. brunonis* on the other hand, can be found in many different soil types and plants are often found singly.

Tony Watkinson



Elythranthera brunonis,
Eden, Oct 1988



Elythranthera emarginata, Albany,
Nov 1980



Elythranthera emarginata x *Elythranthera brunonis*, Rocky Gully, Oct 1982

EPIBLEMA (Babe in the cradle orchid)

Epiblema is a species with two distinct varieties. They were first recorded by Robert Brown, a botanist on Mathew Flinders exploration and mapping visit to King Georges Sound, Albany, Western Australia in December 8th 1801 to January 5th 1802. Brown, assisted by Ferdinand Bauer (botanical artist) and Peter Good, (Kew Gardens) recorded some 500 plants, mostly new to botanical science. Thirteen were orchids, including *Epiblema*. These collections were named and described by Brown in *Prodromous* (1810), the forerunner to *The Flora of New Holland & the Island of Van Dieman*. The orchids pictured in this gallery, are of *Epiblema grandiflora* variety *grandiflora*. There is another variety (*var. cyanea*) which occurs in only two known areas, one in a Northern Perth suburb and the other at Walpole on the South Coast.

The variety *grandiflora*, is wide spread throughout the coastal strip from Perth to east of Esperance where the handsome purple flowers grow mainly in swamps covered in thick rushes and often with their roots in water. It seems that they start their growth while there is standing water in the swamps, and growth and flowering continues after the swamps dry out in the summer. After flowering, *Epiblema* become deciduous, resuming growth with the winter/spring rains. *Epiblema* are terrestrial orchids with subterranean tubers, they have a single leaf, that is almost terete, to 20cm approximately. The stem grows to about 80cm tall and can carry up to 8 blue to mauve flowers with darker spots. The flowers are up to 4cm across and have a most unusual series of ribbon like appendages at the base of the labelum. The column wings form a hood over the anther. The flowers are very similar to *Thelymitra*s but do not share the *Thelymitra* habit of closing on cloudy days and at night. They grow in peaty soils in winter wet swamps and tend to form colonies. They do not appear to require fire to regenerate and can be seen flowering between November and January. The other variety, *var. cyanea*, has similar growth habits and differs from *var. grandiflorum* in being pale blue in colour.
Tony Watkinson



Epiblema grandiflorum, Cheyne Beach, Nov 1991

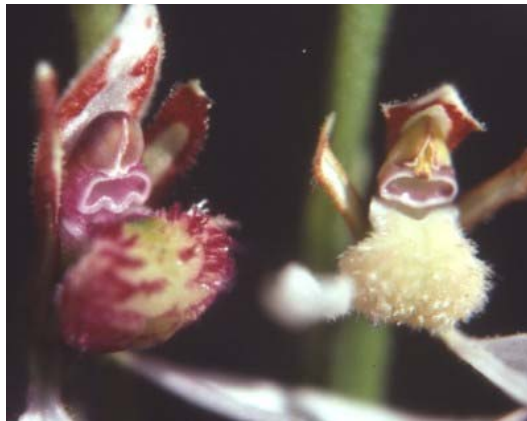
ERIOCHILUS (Woolly lip or Bunny orchids)

This hardy species is an autumn flowerer regardless of early rain or not. They have been found north to Sharks Bay, east to Mundrabilla/Eucla and from the south west inland to the perimeters of the eastern and northern wheat belt. They can flower in thousands, particularly after a summer burn. There are four species validly named, three currently in manuscript and a further four sub-species. The last seven have had their names prematurely released and published in some orchid books bringing them into common use. They have not been validated under the International Code and care must be taken when using them.

E. scaber (rough hairs) or Pink Bunny is quite small but can be super abundant over a wide area. *E. multiflorus* (many flowered) is the tallest of the species with many close packed flowers. *E. dilatatus* or the White Bunny has its sepals dilated and can have up to ten flowers.

E. tenuis or the Slender Bunny Orchid has a later flowering period and is sparsely distributed throughout the South West. Some of the, as yet, invalidly named species are shown in this gallery and remarkably one graphically shows a stern mother with her chastised child who is crying its eyes out and another is from the barnyard where a proud rooster and a little hen are depicted. These species can be easily identified by the thin wiry stems and the small leaves which are present about one third of the way up the stems. Very small native bees pollinate them.

Ron Heberle. April 2003



Eriochilus dilatatus, Bakers Junction, Albany, April 1982



Eriochilus multiflorus, Bayonet Head, Albany, May 1987



Eriochilus scaber,
Bakers Junction,
Albany, July 1986

GASTRODIA (Potato orchids)

According to Hoffman and Brown (1998), the genus *Gastrodia* has at least 25 species, distributed from India to Malaysia, Indonesia, New Zealand and Australia. Only one species occurs in West Australia. *Gastrodia* do not contain green coloration and have no true leaves.



Gastrodia lacista, Torbay, Nov 1991

GENOPLESIMUM (Pygmy orchids)

This genus consists of over 35 species, two from New Zealand, one from New Caledonia and the remainder from Australia (Hoffman and Brown, 1998). Only one species is found in Western Australia.



Genoplesium nigricans,
Lake King, May 1993

LEPORELLA (Hare orchid)

Leporella occurs only in Australia (Hoffman and Brown, 1998). The range is from Victoria, South Australia and West Australia. *Leporella* is latin for hare. There is only one species, which has previously been included with *Leptoceras* and *Caladenia*.



Leporella fimbriata, Bakers
Junction, Albany, June 1987

LEPTOCERAS (Rabbit orchid)

Leptoceras is related to both *Caladenia* and *Leporella* (Hoffman and Brown, 1998). Its only species is found in South Australia, Victoria, New South Wales and Tasmania.



Leptoceras menziesii,
Tone River, Sep 1987

LYPERANTHUS (Rattle beak orchids)

Until recently, *Lyperanthus* consisted of 4 Australian species, two of which have now been placed with *Pyrorchis* (Hoffman and Brown, 1998). One species occurs in West Australia. Both species have a long, narrow leathery leaf and do not require fire to facilitate flowering.



Lyperanthus serratus, Spencer Park,
Albany, Oct 1991

MICROTIS (Mignonette orchids)

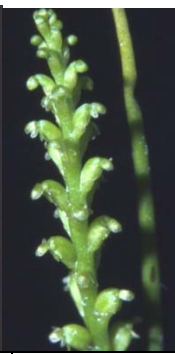
This genus has at least 13 species, all but one occurring in Australia and at least 10 species in West Australia (Hoffman and Brown, 1998). *Microtis* flowers are very small. Most species grow in or near wetlands.



Microtis alba, Lake Seppings,
Albany, Nov 1978



Microtis alba rara,
Emu Point, Albany,
Nov 1984



Microtis atrata,
Bakers Junction,
Albany, Sep 1982



Microtis brownii, Lake Seppings,
Albany, Dec 1975



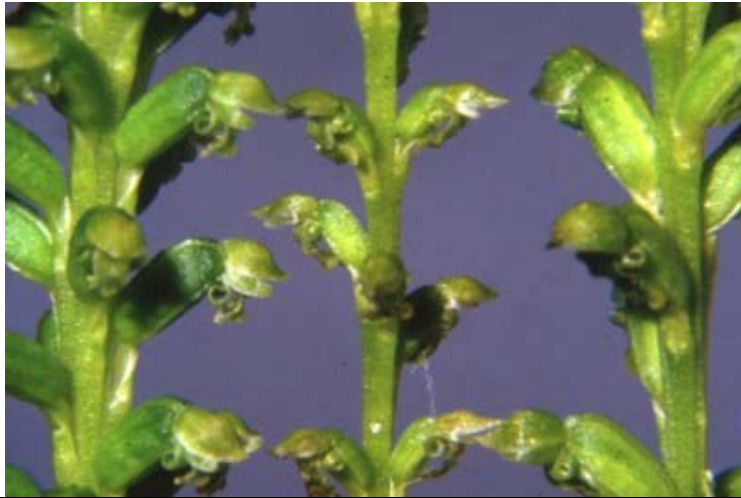
Microtis globula, Bakers Junction,
Albany, Nov 1986



Microtis media,
Lake Seppings,
Albany, Nov
1987

Microtis orbicularis,
Gledhow, Albany, Nov
1994

Microtis pulchella, Bayonet
Head, Albany, Nov 1986



Microtis unifolia, Lake Seppings, Albany, Nov 1987

MONADENIA (South African orchid)

The genus *Monadenia* has at least 20 species, all native to South Africa (Hoffman and Brown, 1998). One species has become established in West Australia. It was probably introduced from seed in sacks covering goods unloaded in Albany but has since spread to Geraldton and Esperance.



Monadenia bracteata,
Gledhow, Albany, Nov 1992

PARACALEANA (Duck orchids)

Paracaleana is a genus of at least 9 species, including 8 from West Australia (Hoffman and Brown, 1998). The other species is found in Queensland, New South Wales, Victoria, South Australia, Tasmania and New Zealand. All species have a labellum which flicks over when touched, facilitating pollination by insects.



Paracaleana nigrita, Cape Le
Grande, Nov 1979

PRAECOXANTHUS (Leafless orchid)

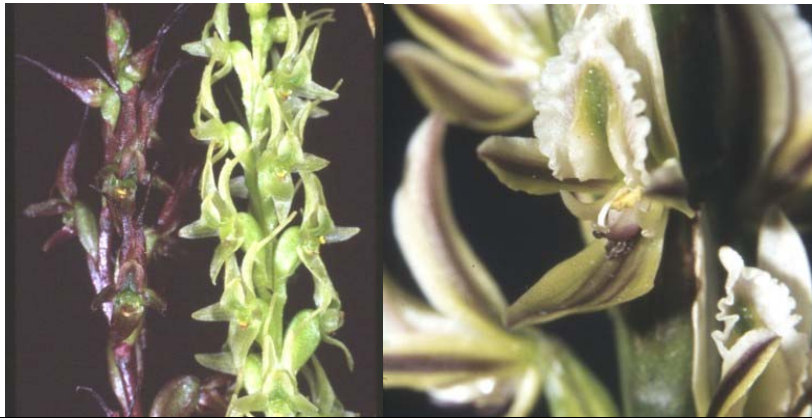
This genus, of one species, confined to West Australia, was previously included with *Caladenia* (Hoffman & Brown, 1998). Flowering plants do not have a leaf but non-flowering plants have a small, flat, oval-shaped leaf.



Praecoxanthus aphyllus,
Bayonet Head, Albany, May
1987

PRASOPHYLLUM (Leek orchids)

The genus has at least 50 species, most found only in Australia. There are at least 25 species in West Australia (Hoffman and Brown, 1998). They are known as leek orchids because of their hollow, leek like leaf. They range in size from dwarfs up to 15cm tall, to giants well over 2m, with over 100 flowers.



Prasophyllum attenuatum,
Prasophyllum macrostachyum,
Tenterden, Rocky Crossing, Sep
1984

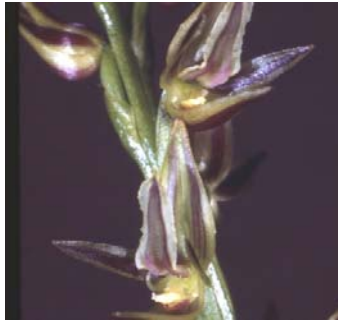
Prasophyllum brownii, Gull Rock, Albany,
Nov 1998



Prasophyllum cucullatum, Gull Rock, Albany, Oct 1985



Prasophyllum cyphochilum, *Prasophyllum ovale*, *Prasophyllum plumaforme*, Frankland, Oct 1979



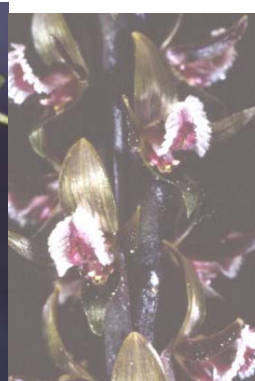
Prasophyllum drummondii, Frankland, Oct 1976



Prasophyllum elatum, Albany, Oct 1985



Prasophyllum elatum, *Prasophyllum grimwadeanum*, *Prasophyllum regium*, Spencer Park, Albany, Oct 1998



Prasophyllum fimbria, Manypeaks, July 1979



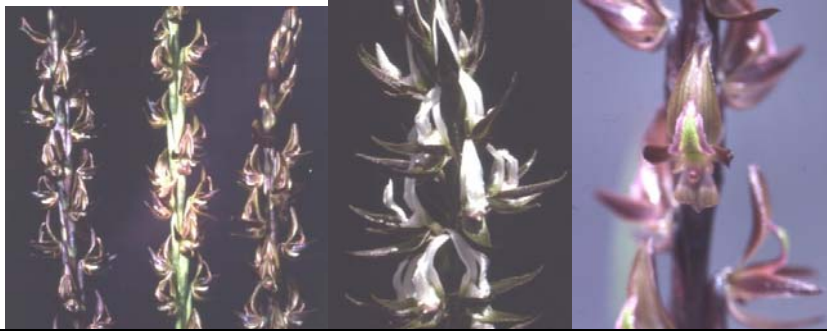
Possible hybrid <i>Prasophyllum fimbria</i> x <i>Prasophyllum grimwadeanum</i> , Bunbury, Sep 1985	<i>Prasophyllum gibbosum</i> , Bakers Junction, Albany, October 1986	<i>Prasophyllum hians</i> , Gull Rock, Albany, Oct 1983
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<i>Prasophyllum lanceolatum</i> , Walpole, Nov 1981	<i>Prasophyllum macrostachyum</i> , Sep 1982	<i>Prasophyllum odoratum</i> , William Bay, Oct 1984
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<i>Prasophyllum ovale</i> , Yealering, Sep 1983	<i>Prasophyllum parvifolium</i> , Spencer Park, Albany, Jun 1987	<i>Prasophyllum paulinae</i> , Cuthbert, Albany, Dec 1998	<i>Prasophyllum plumiforme</i> , Lake Muir, Oct 1991
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<i>Prasophyllum regium</i> , Middleton Beach, Albany, Dec 1981	<i>Prasophyllum sargentii</i> , Lake King, Sep 1979	<i>Prasophyllum triangulare</i> , Albany, Oct 1980
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PTEROSTYLIS (Greenhoods)

Other common names are Shell, Snail, Midget, Jug, Cockatoo, Banded, Dwarf. The genus is widespread throughout Australia and most abundant in the southern areas. Their underground vegetative reproduction produces masses of over lapping leaf rosettes, which are mostly immature plants of which about 10%, flower each year. The flowering plants do not produce rosettes but have varying sized and numbers of cauline leaves. The highly successful pollinating strategy produces copious seeds that germinate readily and produce large numbers of plants. Darwin, in his classic work "The Fertilisation of Orchids", stated that Pterostylis had evolved the most amazing and effective reproduction strategy within the world's Orchidaceae. The first research relating to these strategies was undertaken by Cheeseman in 1833 in New Zealand and this was followed by Fitzgerald 1882; Edith Coleman in the Eastern States and Sargent in 1907 in WA. All were able to define the remarkable mechanism of the sensitive labellum that was able to trap visiting insects. The insects enter the galea (pouch) and probe the base of the pouch for a liquid they find irresistible. This activates the sensitive labellum, which with the assistance of the column and the column wings forces, the insect backwards and traps it in a confined space. The margins of the column are coated in coarse hairs and notches ensuring that the only way out is upwards. The column wings channel the insect to the sticky stigma and the two pollen sacks. A daub of this sticky glue fastens the pollinia to the insect and they are then transported to the next flower. The insect attracting agent is a sublime secretion at the base of the pouch and some researchers have postulated that the insects receive a drink/food with possible sexual attractions. The galea encloses the winged column and sensitive labellum where the dorsal sepals and petals and the lateral sepals unite to form the pouch. The labellum, broadly elliptical, has hairs and indentations along both sides giving footholds to enable the insect to escape upwards. It is held forward below the sinus (the union of the lateral sepals) by an elastic claw at the base. Insects entering trigger off the sensitive labellum that forces the visitor to a confined space where the only escape is upwards so that the pollinating process described earlier is effected. If pollination has not been effected then the labellum retracts ready to repeat the process. This takes from 20 minutes to some hours depending on the

ambient temperature. The precise explanation of just how the elastic claw performs its purpose is still subject to scientific research. However the mechanism seems to be highly efficient as almost all flowers produce seed capsules.

Bird orchids. This distinctive group is present in most of the lower southwest with only a few outside this area. The actual number of species is not known but this should be rectified when the current revision is published. The species name 'barbata' refers to the hairy bearded labellum that is characteristic. The labellum is thin, wiry and has mostly coarse irregular hairs that serve to close off the orifice containing the stigma and pollinias. The same sensitive elastic hinge, as for the entire genus, is employed.



<i>Pterostylis allantoidea</i> , Ravensthorpe, Sep 1987	<i>Pterostylis aspera</i> , <i>Pterostylis rogersii</i> , Ledge Beach, Albany
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<i>Pterostylis barbata</i> , Manjimup, Sep 1981	<i>Pterostylis concava</i> , <i>Pterostylis vittata</i>
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Pterostylis cycnocephala,
Northampton, Aug 1992



Pterostylis despectans, Hyden, Aug
1975



Pterostylis hamiltonii, Wagin, Aug
1988



Pterostylis leptochila, Pallinup, Nov 1984



Pterostylis macrocalymma, Murray Bridge, Sep 1994



Pterostylis nana, Katanning, Sep 1979



Pterostylis plumosa, Hyden,
Pterostylis barbata, Pemberton

Pterostylis pusilla,
Boxwood Hills, Oct 1982



Pterostylis recurva, Wagin, Sep 1990



Pterostylis roensis,
Jerramungup, Oct 1976



Pterostylis rufa, Boyup Brook, Nov 1980



Pterostylis sanguinea,
Billercay, Sep 1995



Pterostylis scabra, Aug 1980



<i>Pterostylis barbata</i> , <i>Pterostylis turfosa</i> , Bullcreek, Perth, Sep 1986	<i>Pterostylis vittata</i> , Wagin, Aug 1988
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PYRORCHIS (Beak orchids)

The genus includes 2 species previously classified as *Lyperanthus* (Hoffman and Brown, 1998). Both species have a fleshy, oval leaf, live in colonies and flower following hot summer bushfires. *Pyrorchis nigricans* also occurs in South Australia, Victoria, New South Wales and Tasmania.



<i>Pyrorchis forrestii</i> , Nov 1974	<i>Pyrorchis nigricans</i> , Denbarker, Oct 1988
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RHIZANTHELLA (Underground orchids)

In 1928, Farmer John Trott of Corrigin, unearthed the first specimens of *Rhizanthella gardneri* when ploughing new land that had been previously rolled and burnt. He took the specimen to Charles Gardner, the Government Botanist, who, in turn, forwarded them onto Dr. Sanders Rodgers who named the species in Gardner's honour. As the common name implies, the species spends most of its life cycle underground, growing in association with, and close to *Melaleuca uncinata*, that sheds its leaves to produce thick layers of leaf mould. The developing capitulum of tiny, crowded orchids, are exposed when the floral bracts expand and,

occasionally push through the leaf mould, allowing light, and presumably pollinators to enter. Since the first finds, just six confirmed sightings were made in Corrigin - Babakin areas. A breakthrough occurred in 1979 when farmer John McGuinness of Munglinup, East of Ravensthorpe, turned over a Malley root and found an orchid under it. Research then and again in 1980 produced a total of 26 specimens. Further collections were made at the Oldfield locations, with another 9 plants sighted. Finance was made available for research from the World Wildlife Fund, resulting in a well organized research program led by Kings Park research scientists and assisted by the members of the Western Australian Native Orchid Study Group. Around 150 sightings were made and as a result of this and ongoing research, the knowledge of the biology of *Rhizanthella gardneri* has been greatly advanced. *Rhizanthella gardneri* are unusual in other ways amongst the orchid family. The flowers are produced in a capitulum, which appears to be one large flower but on closer examination, proves to be a whole group of small flowers grouped together within a series of bracts which gives the appearance of being a single flower.

Ron Heberle



Rhizanthella gardneri, Corrigin, May 1982

SPICULAEA (Elbow orchid)

Spiculaea (spiked column wings) *ciliata* (soft hairs on the labellum). This remarkable orchid is the product of a much harsher environment than that of the present. It has adapted to survive, flower and reproduce in the summer months (November to January) when all surface moisture is absent. It is widely distributed inland to the goldfields and west to the Darling Scarp where it grows in thin layers of moss and soil on and around granite sheets of rock. To withstand the environmental hazards, the leaf and stem dry off from the base upward to force the sap up the succulent stem enabling the buds to open in turn. This survival trait is demonstrated well when a plant can be plucked, placed in a letter and sent by post without any protection half way across the world to the USA or to Europe, and when received the buds will continue to open. The pollinating strategy is similar to that of the *Drakaea* where the insect imitating labellum is attached to a wiry stem hinged in the centre. Although not sensitive it can only move in the direction of the column (as with *Drakaea*) and achieves pollination via pseudo-copulation. The male wasps, attempting to carry off the sham female, are carried forward and guided by the spiked column wings either

to transfer pollen to the stigma or to be daubed with pollen to be carried to another plant. A truly remarkable orchid. Ron Heberle April 2003



Spiculaea ciliata, Moirs Rock, Oct 1978

THELYMITRA (Sun orchids)

Thelymitra's are a terrestrial orchid genus found in Australia, (50 odd species) New Zealand, (about a dozen species) New Caledonia, (2) and the odd one in Timor, Java, and The Philippines.

The Thelymitra's on the following pages, all come from the south west of Western Australia, specifically, the area around Albany, which is known for it's unusual flora. Thelymitra's are known as 'Sun Orchids' because of their tendency to only open on sunny days, closing at night and during cold and cloudy weather. Unlike most orchids, the lip, or what passes for a lip, is usually the same shape as the petals. There are, however, a few species in which the lip tends to be modified slightly, and appears to be shaped like a 'normal' orchid lip. One of the most outstanding features of Thelymitra's, is the huge colour range, which can include white, yellow, pink, red, orange, blue, purple and all sorts of combinations of the above, which can produce orchids that are quite stunning, as Ron Heberle's photographs will show. The blue Thelymitra's can be quite unbelievable when one comes across them in the bush, as true blue orchids are so rare in nature. The number of flowers carried on Thelymitra's, varies between one and 20 to 25, sometimes more. Flower size is between 1 - 6cm.

Ron Heberle



Thelymitra antennifera, Mt Clarence, Albany, Oct 1988



Thelymitra apiculata, East Mogumber, April 1986



Thelymitra benthamiana, Poorrarecup, Frankland, Nov 1989



Possible hybrid *Thelymitra benthamiana* x *Thelymitra macrophylla*, Mt Barker, Nov 1980



<p><i>Thelymitra campanulata</i>, Grange, Oct 1980</p>	<p><i>Thelymitra canaliculata</i>, Lake Seppings, Albany, Dec 1987</p>
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<p>Possible hybrid <i>Thelymitra canaliculata</i> x <i>Thelymitra macrophylla</i>, Albany, Dec 1980</p>



<p><i>Thelymitra carnea</i></p>	<p><i>Thelymitra cornicina</i>, Bakers Junction, Albany, Sep 1987</p>
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<p><i>Thelymitra crinita</i>, Mt Barker, Mt Barker, Nov 1990</p>	<p><i>Thelymitra crinita Albino</i>, Frankland, Nov 1980</p>
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<p>Possible hybrid <i>Thelymitra crinita</i> x <i>Thelymitra canaliculata</i>, Emu Point, Albany, Nov 1985</p>	<p>Possible hybrid <i>Thelymitra crinita</i> x <i>Thelymitra macrophylla</i></p>
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<p>Possible hybrid <i>Thelymitra crinita</i> x <i>Thelymitra nuda</i>, Albany, Nov 1985</p>



Thelymitra cucullata



Thelymitra flexuosa, *Thelymitra psammophilla*, Borden, Sep 1982



Thelymitra fuscolutea, Mt Clarence, Albany, Dec 1982



Thelymitra fuscolutea (yellow), Poorarecup, Nov 1989



Possible hybrid *Thelymitra fuscolutea* x *Thelymitra nuda*, Albany Nov 1985



Thelymitra macmillanii, Northampton, Aug 1992



Thelymitra macrophylla, Lake Muir, Oct 1991



Thelymitra mucida, Redmond, Nov 1991



Possible hybrid *Thelymitra mucida*
x *Thelymitra nuda*, Redmond, Oct
1978



Thelymitra nuda,
Frankland, Nov 1985



Thelymitra pauciflora, Bannister,
Sep 1978



Thelymitra psammophilla, Borden, Oct
1984



Thelymitra sargentii, Murchison, Sep 1972



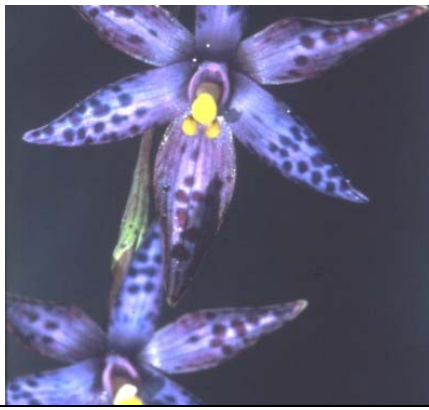
Possible hybrid *Thelymitra sargentii* x *Thelymitra villosa*, Yournanning, Sep 1991



Thelymitra spiralis, Nanarup, Jul 1978



Thelymitra spiralis variety *punctata*, Popaninning



Thelymitra spiralis variety *scoulerae*,
Popaninning



Thelymitra stellata,
Armadale, Sep 1986



Thelymitra tigrina, Lake Seppings, Albany, Dec 1987



Thelymitra tigrina, Two People Bay,
Dec 1991



Thelymitra variegata, Capel,
Sep 1987



Thelymitra variegata variety *apiculata*,
Mogumber, May 1986



Thelymitra villosa, Lort River, Sep 1995

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