Coordinator

ASGAP INDIGENOUS ORCHID STUDY GROUP ISSN 1036-9651

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CHILOGLOTTIS LONGICLAVATA

Correction: In our last issue we reported on the occurrence of the terrestrial orchid, *Chiloglottis longiclavata,* in an Atherton (Queensland) property. We have had a communication from the householder, in which he says, in part: 'The only problem with the story was that the orchid involved was *Cheirostylis ovata* and not *Chiloglottis longiclavata* which, (i.e. *C. longiclavata*), based on the description in Dockrill's orchid book is more likely to occur on the higher ranges near the Atherton Tableland and Bellenden Ker. "It grows in small colonies in wet sclerophyll forest or rock shelters". From this description I would suspect Atherton to be too low an altitude for *C. longiclavata* although it may occur at the base of the rhyolitic slopes of Mt Baldy close to Atherton, but I doubt if it would occur on the volcanic soils at my place.'
(This seems like one of those times when I didn't let the facts obscure a good story! - Don.)

CHEIROSTYLIS OVATA

Cheirostylis ovata, according to *Australian Tropical Orchids* by Bill Lavarack & Bruce Gray, is also known as Caterpillar Orchid. It occurs in an area ranging from north of Cooktown to as far south as Grafton in northern New South Wales. The plant does indeed have the appearance of a weedy herb, and is difficult to detect during the dry season since it sheds its leaves and is covered by forest floor debris. The stem lacks 'normal' roots but has numerous white root hairs which attach themselves to rocks for support or to decaying leaves and humus. Thus the plant has a saprophytic habit which supplements its nutrition during the dormant period when leaves are absent. Flowers are produced in the cooler period of the year, two or three at a time. The flowers are two to four centimetres in length, white and tubular with a projecting labellum. The plant is said to be fairly easy to grow in a shallow pot of leaf mould. It must be left to dry out while dormant.

If any reader is aware of any other occurrences of this little orchid, please let us know so that we can publish the information. Knowing the range of a particular species is important.

DISA BRACTEATA (Once again)

I enquired from the Wildlife Society of Western Australia whether the State Government was doing anything about this South African weed. Their President, Janet Atkins, was unaware of any Government action. She felt they would not put any effort into its eradication as it was not an "agricultural weed". I have since observed that all States make a distinction between

"environmental" and "agricultural" weeds and are not likely to fund efforts to control a weed unless it is demonstrated that it is financially detrimental to agriculture.

SAPROPHYTIC ORCHIDS

The flora of Australia includes about 660 species of orchids, which constitute approximately 4% of that flora. Of these orchids 70% are not found outside Australia, the others generally being shared with similar climatic conditions in the Pacific, Indonesian and South East Asian regions.

Orchids in general prefer to grow either in the ground – terrestrially – or upon another plant or physical support e.g. rocks, and these are called epiphytes (which includes lithophytes). Australian orchids comprise 25% epiphytes, predominantly in the tropics and sub-tropics, and 75% terrestrials, mostly in the southern parts of our country.

All living things require an input of nutrients to sustain their life and growth. Most plants acquire these nutrients in two ways - their roots absorb simple compounds from the soil, and their foliage manufactures complex carbohydrates by a process of photosynthesis. This process uses the chlorophyll in the leaves to convert atmospheric carbon dioxide to accesible carbohydrates.

Nature is so designed that there are always exceptions to any generality. Some plants bypass the food manufacturing process by parasitising other (host) plants. Well known parasitic plants are Mistletoe, Desert Quandong, and Sandalwood.

In this discussion we will look at yet another way for a plant to acquire necessary nutrients. Saprophytic plants absorb their food supplies from the decaying tissues of dead plants. Of our 660 Australian orchids, only 19 species, comprising 12 genera, are pure saprophytes. Others have some saprophytic activity whilst maintaining their green foliage leafs. In a few genera, e.g. *Dipodium*, some species are partly, and some wholly, saprophytic.

Normal plant roots are not capable of extracting complex organic substances from dead or decaying plant tissue and they need a partner to facilitate the process. This partner is provided by a fungus. The fungus lives directly on the orchid root and its thread-like bodies (hyphae) penetrate the outer layers of the root. The hyphae penetrate the soil or organic matter in which the root is situated for comparably long distances. The hyphae are capable of dissolving organic tissue and transporting it to the root of the partner plant, which absorbs the nutrients from the hyphae. The orchid roots provide a stable environment for the fungus and the fungus provides "fast food" for the orchid. This is a symbiotic arrangement, and these fungi are called "mycorrhizal fungi" which literally means "growing on a root".

Australia's saprophytic orchids are found in a wide range of habitats, from open grasslands and coastal scrublands (*Dipodium* spp), Eucalypt forests (*Erythrorchis*), to dense rainforests (*Pseudovanilla*). All sites are dependent on the presence of two essential criteria - decaying organic matter and the correct mycorrhiza. Some saprophytic orchids grow in loose colonies or groups (*Epipogium, Eulophia, Aphyllorchis*), the area dependent on the continuing availability of the food source. Some groups are probably formed by the replication of a parent plant (Rhizanthella) in a suitable situation.

Saprophytes do not have "normal" foliage leaves. Having no chlorophyll, the colour green is lacking from the plants which are often a brownish or reddish colour. Size may range from very small - *Gastrodia queenslandica* reaches only 8cm when in flower - to very large - *Pseudovanilla foliata* can climb to a height of over 15 metres. The climbers have fleshy, adherent root appendages which enable the plant to cling strongly to its support. These are often interlaced and distinctive as in *Pseudovanilla foliata*.

Pollination is most often effected by native bees which are attracted by a flower's perfume. Other pollinating agents known are flies, wasps and even termites in the case of Western Australia's *Rhizanthella gardneri*. Flowers may only last a short time - *Gastrodia queenslandica* appears above ground for less than a fortnight after the onset of the wet season. *Didymoplexis pallens* also flowers with the first rains of the wet and individual flowers last less than a day. Others, *Erythrorchis cassythoides* and *Pseudovanilla foliata* , survive for as long as the food source lasts. Since this is usually a large fallen tree the plant can persist for several years. In that time these two species will have produced perhaps billions of seed to float over the landscape and seek a suitably receptive landing ground. *Erythrorchis* produce flower stems up to a metre long, each holding eighty or so flowers, whilst *Pseudovanilla* is even more prolific. Plants have been reported to have many flower stems two metres long, each with up to 150 flowers.

Some saprophytic orchids flower regularly according to climatic conditions, e.g. *Epipogium roseum* or *Dipodium hamiltonianum*. Others such as *Eulophia zollingeri* need a stimulus to initiate flowering which can then be quite spectacular. These are rarely seen orchids. Even more rarely encountered are the Rhizanthellas - the species *gardneri* is endemic to Western Australia and species *slateri* ranges from SE Queensland to Central eastern NSW. These orchids spend their entire life cycle underground and even their inflorescences do not properly break the surface.

In general, saprophytic orchids cannot be grown by any normal means. They depend on the food source and the mycorrhiza, and such actions as digging them and transplanting lead at best to a short life in the new situation. Some success has been achieved with *Gastrodia sesamoides*, which grows in a range of conditions in all states as well as New Zealand. Tubers planted close to Eucalyptus trees may survive for some time.

These orchids are to be enjoyed in their natural habitat and no laws are necessary for their protection since removal is pointless. If a landholder has a colony of saprophytic orchids on his property then he is richer than Croesus since no money can buy such a garden decoration.

BOTANICAL ILLUSTRATIONS

We recently had a very encouraging mailing from Kate Vlcek, of Scarsdale, Victoria. Kate is a botanical artist who is very keen on native orchids, and she has sent us a portfolio of beautiful gray-scale orchid illustrations. Since Kate is from Victoria, her illustrations are necessarily those of southern Australian plants. We plan to get some high-quality photocopies done of Kate's artwork, and feature one of her species in each issue of forthcoming newsletters. We shall commence with *Dipodium punctatum* in this issue since it ties in very neatly with our exposition on saprophytic orchids.

We have no personal experience of growing or viewing most of the species illustrated by Kate; we appeal to any readers who are familiar with any of her species to write and tell us so that we can publish information on the plants rather than just plagiarise Jones et al.

Species illustrated are:

Dipodium punctatum
Caladenia tentaculata
Thelymitra pauciflora, T.antennifera, T.ixioides
Diuris sp., D. sulphurea
Calochilus robertsonii
Dendrobium ellen, D.speciosum, D.schoeninum
Pterostylis nutans.

We realise that our newsletter seems to be top-heavy with tropical species, due simply to lack of southern contributions. This is a perfect opportunity for us to feature orchids from the southern part of our country, so please let us have your reports.

DIPODIUM PUNCTATUM

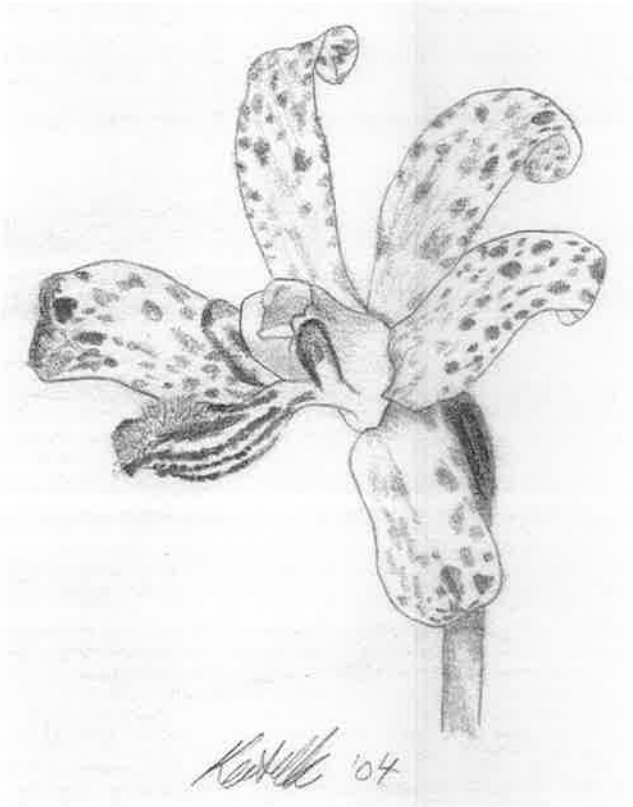
Also known as Hyacinth orchid, or Blotched Hyacinth orchid, this is one of the saprophytic orchids referred to elsewhere in this newsletter. It can be locally common and makes a pretty sight when in flower in summertime. Hyacinth Orchid occurs in New South Wales, Victoria, Tasmania, and South Australia, and there is a related species found in northern Western Australia whilst other closely-related *Dipodium* species are found in the same area as *Dipodium punctatum*.

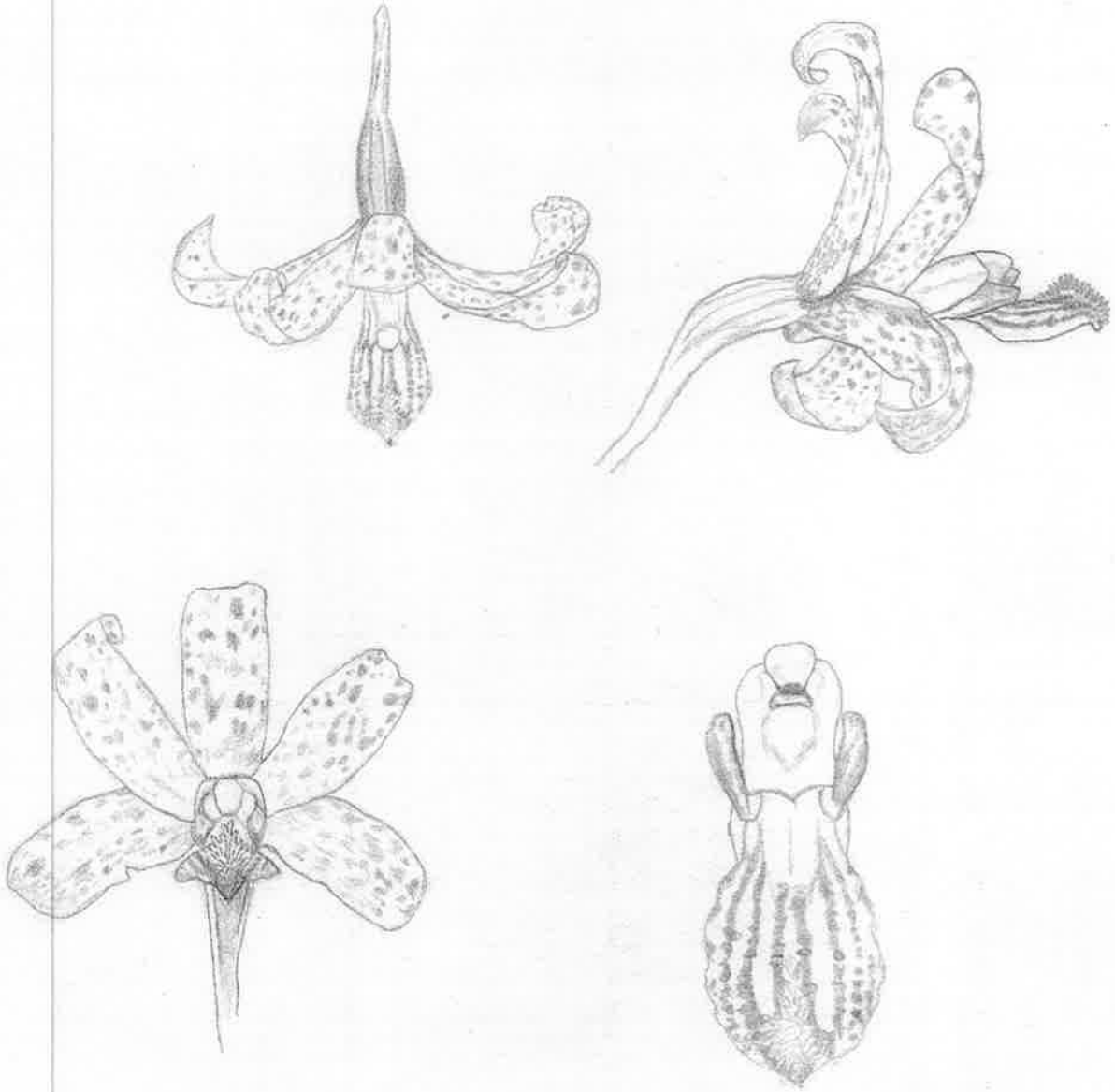
The plant is easy to find when flowering since the scapes (stems that hold the inflorescence) are up to a metre tall, and are a dark purplish-red colour. This stem colouration is typical of a saprophyte which has no green colouring. Each scape grows directly from the underground rhizome with no intervening stem, and can carry up to 60 flowers.

The flowers are up to 2.5 cm across, coloured from pale to dark pink with darker blotches. As shown in Kate's illustrations, the tips of the flower segments are recurved, and this presents the labellum (which is projected forwards) in a most inviting manner to the pollinator which is probably a small species of native bee. Kate's drawing of the labellum shows clearly that it has a band of hairs running longitudinally from base to tip. It has been suggested that these hairs may play a part in helping the pollinating insect to locate itself on the labellum without penetrating too deeply into the flower.

Dipodium punctatum grows in open forest in coastal areas and can be found from sea level to relatively high elevations.

(Information above was gleaned from *Native Orchids of Australia* by David L. Jones, and *Native Orchids of Southern Australia* by David & Barbara Jones. There is also an informative article on Dipodiums in "The Orchadian" December, 2000).





Dipodium punctatum
Hyacinth Orchid

LIPARIS SIMMONDSII

Mary Gandini of Cairns gave us this information in September 2003. We held off printing to give Mary the opportunity to secure recognition in an orchid journal, but our encouragement was not enough for her to submit it.

"A range extension for *Liparis simmondsii* Bailey ex j. Bailey and C. White

"On a recent botanical excursion to Mt Harris (Black Mountain, Kuranda) I discovered a colony of terrestrial orchids that I could not immediately identify. They were growing in thick leaf litter at the base of a large granite boulder. They resembled *Malaxis latifolia* but lacked the angular stems. Leafless stems were almost buried in the litter and two were erect. These two bore ovate, plicate leaves with undulate margins. Flowering had occurred and most specimens each presented several seed capsules on a single, tall, four angled stalk.

"Orchid experts – David Jones and Bruce Gray – have confirmed that this orchid is *Liparis simmondsii*. The flowers are reported to be deep reddish purple and about 15mm across. This orchid occurs in south eastern Queensland and north eastern New South Wales as a lowland species. However, a disjunct distribution is recorded from above 1,000 metres from the Paluma Range to the southern end of the Evelyn Tableland. This latest recording places it at a lower altitude and much further north. Mary Gandini"

We too became rather excited about a possible range extension – this time for *Chiloschista phyllorhiza* – but found it was purely a knowledge extension for us, not to be sneezed at mind you! In the past six months "we" have found several orchid populations near where we have lived for 27 years, and we put this down to changed usage for the surrounding land. One block is no longer being burned year after year; some of it is now being farmed organically. Another, once under cane with the hills being logged, is regenerating. Part of it is transformed into an orchard and the owner has undertaken extensive creek bank rehabilitation. Our species count for this small area is now 10 in seven genera.

On the subject of burning, we should like to promote a discussion on fire and would be pleased to hear members' experiences and theories. Is fire of lasting benefit to orchids? Or, do orchids with underground rhizomes react more quickly to fire than surrounding undergrowth, are more readily visible and so give the appearance of benefit?

Margery from Bundaberg writes:

"I always enjoy reading the Orchid Study news. [Thank you, Margery; that's good to hear. Ed] Years ago I had a Wisteria tree which was ideal for growing indigenous orchids. With daily watering they had hot morning sun and afternoon shade. Among these were *Dendrobium teretifolium, D monophyllum, D tetragonum* and *Sarcochilus falcatus*, all of which did very well. (Some of my names might be out of date) Unfortunately when the tree had to be removed, I could not find a substitute home that they liked and I gradually lost all of them.

"These days I have a small collection growing quite well in my fernery. *Rhinerrhiza divertiflora* and *Sarcochilus falcatus* flowered last year. *D linguiforme* is growing well as is *Sarcochilus ceciliae* but yet to flower. We have installed a spray system which I think the orchids like. Also have *D speciosum, D kingianum, D discolor, Bulbophyllum baileyi,* and what I think is *D lichenastrum* var. *prenticei* (from a picture).

"Ground orchids I have include *Spathoglottis plicata, Calanthe triplicata* and *Phaius tankervilleae* and *P australis.*"

Margery goes on to say she is also a member of the Daisy Study Group, that they are Banksia nuts and grow Grevilleas too. Sounds like typical SGAPers.

OVERSEAS MEMBERS

Frans in Belgium wrote: "Thank you for the wealth of information that you have send to me, I'm very pleased with the content of your letter. But daunting is the conclusion that it's very costly to order tubers (dormant or not dormant) according to international health regulations without (possibly) a chance of success. And I'm now in retirement, that means less money to spend (or more efficient spending)." He is now going to search in Europe for an orchid grower who knows all the regulations and can grow from seed. He has found on a website, ATCROS, seed sellers in the north of Australia for palms, trees and shrubs. He concludes: "To my regret is there no need to renew my membership in the Indigenous Orchids Group, and I think to switch my NSW membership to that of the Queensland region, because I'm more interested in (sub) tropical plants that have a rest period in winter, and this is also to avoid exotic invasive plants which could be cold hardy in Belgium." I wonder if our piece on *Disa bracteata* influenced Hans.

Sue from North Yorkshire, England, has recently become interested in orchids and would like to specialise in Australian Orchids. Do any of you World travellers out there have any knowledge of orchid growing in England? We will send Sue all the information we have, but there is nothing like personal experience.

HILDA POXON is continuing to go through a cycle of grow and be eaten. I'd no sooner get excited about a new keiki, then find it chewed. It's making a brave recovery with the help I believe of Confidor. With so much rain interspersed with scorching days, and a leaky shade house roof, it never was the right time to spray with Sunlight. The lice on my ferns prospered so I went for the big gun. But, wouldn't you know it – sunbirds had two eggs in a nest suspended from my worst affected tassel. They've fledged now and we're looking forward to some lovely Autumn weather to get back into looking after our orchids regularly.

CONGRATULATIONS to Mary GANDINI on receiving Life Membership of the Cairns Branch of the Society for Growing Australian Plants. We're sure this will be no surprise to those who know of Mary's involvement in SGAP or to those who are regular readers of this newsletter. Mary, together with Rob JAGO, was voted Life Membership at Cairns Branch AGM on 27 March, 2004. They are the first life members of this Branch. Rob and Bianca Jago were at the inaugural meeting and Mary joined the Branch very soon afterwards.