

VERTICORDIA STUDY GROUP

ISSN-0811-5346

NEWSLETTER NO 26 -- AUGUST 1996.

MEMBERSHIP

The study Group is pleased to welcome new member:-

Wendy Bedgood RMB 5354, Horsham, Victoria 3401

Wendy has been growing several plants of *Vert.monadelpha*, *V.mitchelliana* and *V. drummondii* for nine years and has now decided it is time to enlarge her collection. She has tried 50 packets of Verticordia seed of various species but so far with negative results. I have suggested to her that she might like to try the 'smoke treatment'; now becoming popular, with some difficult to germinate species. We would be very interested to hear of her results if she does follow this suggestion.

Wendy has sandy soil "very similar to much of W.A. where many species occur naturally and she adds, the plants noted above have "thrived on neglect"

I would think her soil type would certainly hold advantages for growing many Verticordias as also would the seasonal climate of her area..

In the last Newsletter I referred to a pleasant visit to the garden of **John and Judy Grows** at Parkerville W.A., and I mentioned Johns improvement from ill health. Sadly I must report that Johns improvement was not sustained and following quick deterioration, he passed away early in February. We all extend our sympathy to Judy. She has indicated her determination to continue her efforts with her Verticordias when she has had a little time to sort things out. A brief comment from her has been included later in this Newsletter.

FINANCES 1.7.95 TO 30.6.96

Credit Balance 30.6.95-----	\$233.56
Receipts 95/96-----	381.00
Expenses 95/96-----	176.04
Surplus income for year-----	204.96
Credit Balance 30.6.96-----	438.52

The above Credit Balance may appear a little artificially inflated, relative to annual considerations, because some members have accepted my offer to pay subscriptions in advance for an ensuing year

SUBSCRIPTIONS

Prompt attention to submission of your 1996/97 subscription would be appreciated. The annual rates of \$3.00 or \$10.00 overseas will remain unchanged.

Regrettably a few members have failed to respond to fee overdue reminders and are now considered to have resigned.

W.A. WILDFLOWER SOCIETY (INC)--SPRING FLING 96

The Society extends a warm welcome to all to join them at their their annual Wildflower Display to be held On Sunday September 8 1996 at Perry House, 71 Ocean Drive, Floreat Park from 9.30 a.m. to 4.00 pm. Interstate travellers will be particularly welcome.

Enquiries Tel (W.A.) 383 67979.

DONATIONS

As noted previously donations or above standard payments, continue to play a significant part in enabling us to continue our very useful Study Group research efforts while still maintaining a low nominal fee. I am very pleased to acknowledge the following:-

Jeff Jones	\$4.00	Dave Gordon	\$7.00
Nich Derera	\$3.00	Michael Mattner	\$4.00
Phil Hughes	\$4.00	W.A.Wildflower Producers Assn.	\$22.00
Alec Hooper	\$17.00	SGAP Victorian region	\$7.00
Ian Otto	\$4.00	SGAP Queensland Region inc.	\$20.00
Alex. George	\$4.00	Doug. McKenzie	\$4.00
Phil Strong	\$2.00	Ray Purches	\$7.00

CHANGE TO TELEPHONE NUMBER. Will members please note that my telephone number has been changed by Telstra to (02) 9484 2766.

SOME EARLY OBSERVATIONS ON VERTICORDIA CULTIVATION

The initial issue of 'Australian Plants' in December 1959 was, I believe, a very significant milestone in our Society, heralding the general position of esteem which we currently enjoy, with many species of our Australian Flora now so widely grown. Volumes 1 and 2 featured contributions by a number of Verticordia enthusiasts. It is interesting to go back and review, in the light of our current understanding, the words of wisdom imparted by those 'Verticordia pioneers', and to note how their comments and suggestions stack up against the experience of the subsequent thirty five or so years.

Despite a popular conception at the time that this florally outstanding genus of Australian wildflowers was impossible to maintain under garden conditions, they felt that, with objective approach, advances could be made. Some of the comments, especially with regard to habitat, should be of special interest to those members who may have experienced difficulties with particular species and are prepared to put that little extra thought into their efforts. It should be appreciated however that some comment may be most appropriate to growing in a particular climatic zone. Where observations and suggestions are made which seem appropriate to our current understanding they have been highlighted.

In Volume 1 No3 **W.N.B.Quick** wrote:-

"Although we are told that these plants are of the sand plains, two points soon became apparent: First that the term 'sand plain' as commonly employed in the West, is a very general term applied to an area covered by a film of sand quite regardless of its depth or of the immediate sub-strata. In small areas the sand cover may be completely absent, exposing materials as diverse as laterite (massive, nodular or pisolithic), granite, various clays and kaolin. Secondly, Verticordias are certainly not limited to the sand plains.

One particularly frequent soil profile in areas of great floral wealth, consists of a layer of very light-textured pale yellow-grey sand 8 in to 18 in deep, underlaid by a layer of nodular laterite of considerable depth, beneath which again there is clay-----"

He goes on to describe in detail the soils and aspects for five species; *V. picta*, *V. chrysantha var. preissii*, (now *V. chrysanthella*), *V. grandis*, *V. acerosa* and *V. plumosa*. and follows with a discussion of garden trials of same in Melbourne, including propagation methods. He noted that in all locations for the above, the areas are :-

“subject to appreciable amounts of sea-salt being deposited by gravitation and rainfall after having been carried inland by the prevailing winds, but that in no case was there any accumulation of calcium salts present within reach of the roots”. Further that :- “plants in these areas are able to absorb huge amounts of sodium and potassium salts, as is indicated in a simple flame test of their ashes by the intense sodium and potassium flames.”

He also observed:- “In no case is the root-run or soil around the root area exposed to the direct or day-long heat of the sun’s rays. Possibly such situations do, in certain areas, carry these plants, but the very nature of the light sandy, open-textured soil in many areas and the structure of the “B” horizon, would provide a very substantial insulation against heat, sudden temperature change and loss of moisture”

He at first felt that “occasional application of small doses of mixed chlorides of sodium and potassium would greatly assist the cultivation of these beautiful plants “ but after trials concluded that they “did not appear to be of any importance although no ill effects were produced”

Other points on which trials were based were:-

“Adequate drainage

Provision of shelter from the worst of the summer sun.

Selection of species suited to the type of soil available with fairly wide limits (Experiment has shown that *V. acerosa* is easily grown in sand to which has been added 10% of powdered clay, while it will not grow in sand alone)”

He added that “subsequent trials on the above basis have given generally very satisfactory results” but that “ a number of species, **(in particular *V. grandis* and its close relatives), appear to be quite intolerant of any excessively humid conditions”**

He notes that most species come from low-rainfall areas which dictate xeromorphic modifications to the leaves and that demand for moisture from their small root systems is relatively constant.

“If the demand is reduced severely by too heavy pruning, pruning during the wet season, or by humidity reducing the rate of transpiration, soil in the immediate vicinity of the root-system becomes overcharged with moisture to the exclusion of oxygen. If the soil is appreciably warm when this happens, trouble in the form of root-rot will be encountered, and almost invariably proves fatal. We obviously can’t prevent the soil in the higher-rainfall areas from becoming appreciably damp at times, nor can we control the humidity effectively, and the only effective approach is to create conditions unfavourable to the organisms causing root-rot.

He suggests planting in close proximity to a tree so that it is shaded to a degree from mid-day summer sun yet enjoys sun exposure under lower sun conditions. The tree roots furthermore tend to absorb excess moisture and good air circulation is available below the tree foliage. **He advises against planting “among dense, low -branched shrubs as far as possible.”** He says these recommendations apply of course, only to areas where soil and aspect are different to those to which the particular sandplain species are accustomed. He adds:- **“Little trouble should be experienced with species from the south such as *V. plumosa*, which will flourish for many years and flower freely in almost complete shade or part sun, in a wide variety of soils”**

He reported that twelve species tried had proved very successful shrubs but that shelter should not be overdone as **generally speaking they liked lots and lots of fresh, moving air, sun** and a friable acid soil with good drainage. With such small root-systems however drainage need not be to great depth. Pointing to their vulnerability to wind damage he suggests that no species should be allowed to exceed eighteen inches in height. He noted that plants will stand quite heavy cutting during or after flowering.

Two articles by **W.A.Strutt**, (National Park W.A.), headed 'Verticordia for the Garden' are of particular interest. He says:- "Having travelled Australia extensively and having a knowledge of each individual state equal to that of Western Australia", he believes the beautiful "Feather Flowers" could be a colourful and striking addition to the shrubbery or native flora plot in many other areas. For various coastal areas from Cairns to Adelaide, he suggests groups of species which could possibly be adapted. For inland areas, with drier atmosphere and less density of timber and undergrowth, resembling more closely the natural environment of the of the genus in Western Australia, he considers the chances for successful cultivation "infinitely greater"

His observations on the soils and habitat of many species in their natural environment are certainly well worth contemplation and give much food for thought. In adapting some species to differing climatic situations he says:- " **A porous sub-soil appears to be more important than the richness of good loam**"

He is also emphatic that no Verticordia will stand 'wet feet', adding:-

"This may be disputed by those who have seen plants standing in water in depressions with a non-porous clay soil but I think that after observations over a period of a few months it will be agreed that these conditions prevail mainly throughout the milder months of July and August, and into September during a prolonged winter, and that during this period new growth to carry the spring or early summer blossom is being made by the plants. Prolonged wet conditions will delay and extend the flowering season but invariably the areas are drying out as seed-setting commences and the clay dries out hard during summer. It would appear that the spread of foliage to protect the root system during summer, and frequently later maturing swamp grasses, carpet the surface to mulch the shallow roots. Where such an area is surrounded by shrubbery, leaf litter will also accumulate in the depression as a mulch. At no time will these species be subjected to 'wet feet' during periods of high temperatures."

In referring to *Vert. nitens* and *V. densiflora* as "Swamp Morrisons" he adds that they do not grow in water but rather:-

"Where *V. nitens* takes control of a huge depression, the shallow water courses and basins, which retain too much moisture until summer sets in, are conspicuous by the absence of plants. In the very slightly elevated soil of a definitely acid sandy swamp, water has gravitated to the lowest level, which is the reason why *V. nitens* is the latest to blossom."

He also noted that plants frequently grow in association with trees. He quoted cultivation efforts with plants grown over clay sub-soil in the hills with an inch of sand on the surface. With watering carried out during summer to prevent drying out, they responded with a second flowering, and a third flowering in autumn. The plants however died out within two years. A second group, in a less elevated position, were well watered just before flowering, but watering discontinued during summer. This group were still surviving after four years.

Vert densiflora, he says;-"favours the clay-swamp localities, but grows profusely alongside roadside drains or ditches; not in the drains themselves, unless the drain dries out in summer.---- Apparently it does not require the protection of other shrubs and trees and will flourish when grown in more elevated positions and steep slopes with red volcanic soil and diorite or granite outcroppings.---- In such situations its colour shade has not the depth found where it absorbs more moisture."

Vert. serrata, he considers, is the choicest of the yellow-flowering species. It is one *Verticordia*, he says which "requires a depth of free soil, growing naturally in areas of very slight gradient, having a sub-soil of fairly rich light red sand." Grown in hills, with fall about one in twenty, trees providing shade from about mid-morning on, and a generous scattering of sand for top soil, it not only survived for five years but reproduced from seed. In steeper situations and clay-based soils it only survived for three years.

Vert insignis, he feels "could prove to be most adaptable, as it has, under dry summer conditions, a more extensive root system than most of the genus. Grown in clay soils it took four to five years to attain a height of 20 inches in a spreading form. In soil of more porous nature; mostly black sand with a small percentage of leaf mould, and well sheltered and shaded, it assumed an upright habit before flowering. In an exposed and slightly sloping northerly aspect, plants flowered heavily but several branches died during a severe summer. With dead wood removed during autumn, new growth was made during the following winter"

He finally noted that "characteristics of this species could be an indication of tolerance to humidity and summer watering". (???)

Vert. huegelii. "An exceptionally wide-spread species found in a variety of soils; grey clay and red clay with no porosity; porous 'tight' fine sand with a percentage of clay in areas of negligible summer rain, and in yellow clay well overlaid with heavy grit from decomposing granite outcrops. Favouring more open situations in any aspect than most *Verticordias*, it definitely will not stand summer watering in low-lying or level areas. Drainage is most essential and although plants which appear to have succumbed to severe summer conditions without watering, revive quickly with first winter rains it is intolerant of humidity"

Vert. plumosa. He points out "this species can be very shallow rooted, many plants existing in 1½ inches of soil on flat granite slab or shelf". The finest plants he has seen established were in "a high situation with northerly aspect, in red volcanic loam, overlaying yellow clay and granite boulders, and with more than average exposure to the elements."

Vert. acerosa." While this attractive yellow species grows in close association in places with *V. densiflora*, it is usually found on a little higher level of the slopes, the best established areas having an easterly aspect in the foothills of the Darling Ranges. The absence of shade trees or shrubs could denote frost resistance. On slopes and slight undulations denuded of any fine top soil it favours a variety of clay soils and yellow clay shot with nodular laterite."

Vert. chrysantha. (Probably now *V. chrysanthella*). He describes it as "a rounded shrub with age, which appears **long-lived and adaptable**, found on soils

ranging from porous yellow clay overlaid with fine sand on gradual slopes at foothills to grey clay and red clay patches in flat country and depressions.”

Vert. picta “Endemic to a large area of Western Australia's sandplain, wheat belt country, 50 to 150 miles inland from the coast, **this particularly attractive pink species relishes soil of a looser texture than most of the genus.** White or grey sand to a depth of three or four inches on the surface is the usual feature of the undulating country that it loves. It is prolific also where sub-soil is of compact yellow or reddish sand and also in porous yellow or grey clay with no more than an inch or two of fine surface soil. It has been introduced to and flourishes in slightly sloping situations with yellow clay soil to the surface and has withstood early morning summer watering when shade has been provided for the heat of the day by scattered Eucalypts.”

Vert. grandiflora (Probably now *V. nobilis*). “Laterite, ironstone, gravel: This could sum up a ‘must’ in the requirements for a really good display from this species. On the western slopes of the hills overlooking the coastal sandy areas fifty miles north of Perth it grows from outcropping boulders and ledges of laterite. Scattered through the hills and to the undulating country beyond, gravel lumps and shot gravel always appear freely in the sub-soil and produce a shrub of compact foliage and an abundance of large flowers. Introduced to soil of compact yellow clay on a very slight slope, plants are unspectacular and flowers insignificant, although surviving over a number of years and self propagated from seed “

CULTIVATION NOTES

Members will have noted guides to the cultivation of many *Verticordia* species in the recent issue of *Australian Plants*, No. 145, December 1995, derived largely from climatic conditions in Eastern Australia and some may be persuaded to believe that all of our problems have now been solved. This is far from so however. If we are to fully achieve the aims of our Study Group; to adequately understand requirements for growing many of the species in our gardens throughout all of Australia, the continuing efforts of all members is essential. The cultivation procedures suggested must be tested and we must ensure that results and assessments are passed on to the Group Leader for assessment.

If climatic conditions were reasonably consistent year by year our studies would be simplified. Such is not the case however, and some implications of seasonal variation have become very apparent to me personally during the recent two or three years, which have been characterised in Eastern Australia by a series of drought periods. A number of *Verticordias* in my garden have either been lost or have since failed to make reasonable seasonal recovery.

During these extensive dry periods we received little or no rain during most of winter and spring, a time when many *Verticordias* should be putting on vigorous growth in preparation for flowering. Some hand watering has helped marginally but has not compensated significantly for the lack of natural growing conditions. Plants have flowered but I suspect that this itself has placed the specimens under more stress than they could handle comfortably without adequate preflowering development. Furthermore, this year, and to a slightly lesser degree last year, summer temperatures have been unseasonably low, and have been followed by drier than usual early autumn conditions.

With these seasonal conditions, considerably less foliage problems than usual from mildews and moulds have been evident than in our more typical and wetter, late summers, but

I would have expected better, late autumn plant recovery. Apart from a few species, viz *V. picta*, *V. plumosa* var. *plumosa*, *V. densiflora*, *V. minutiflora*, *V. fastigiata* and *Vert. endlicheriana* var. *angustifolia*, which seem to be progressing reasonably, general autumn recoveries have not been up to expectations.

I have wondered if perhaps the extremely cool summer conditions, with temperatures hovering around 18 to 20 degrees C for most of January and February may have had an adverse influence in depriving the plants of seasonal contrast.

Another possible explanation may relate to the soil conditions I have used for some species, designed to cope with pathogen problems expected under warmer and more humid late summer conditions. Where, for instance, in some cases, plants have performed reasonably for several years under more average winter and spring seasonal conditions, grown in elevated beds of nutrient deficient sand or gravel plus a little fertiliser assistance, recent results, as noted, have been a little disappointing. The deep drainage had previously proved a reasonable answer to problems from root rotting, and the relatively sterile surface from collar rot. Perhaps the lack of reasonable seasonal growing conditions for the last two or three years has compounded with growing in relatively nutrient deficient soils to produce the adverse effects noted.

By way of contrast, the balance of my garden, with virtually no special attention by way of watering or fertilising has recovered very quickly from the dry conditions and currently shows no adverse effects.

To test the premise that the relatively nutrient deficient subsoil as noted, may have contributed significantly to the poorer than expected growth performances, I have made recent *Verticordia* plantings in sandy sections, enriched to shovel depth, with copious quantities of compost plus a little loam. Only time will, of course, tell.

W.A. Wildflower Producers Association have a number of projects in train to research the potential of *Verticordia* cultivation on a commercial basis for the cut flower market. Their Newsletter notes the depletion of natural stands of *Verticordia eriocephala* and efforts to develop satisfactory methods for cultivation and regeneration.

They report that a number of other species have been evaluated for adaptation to in-vitro micropropagation techniques, including *V. muelleriana*, *V. drummondii*, *V. grandis*, *V. hughanii*, *V. roei* and *V. monadelpha*.

Their Newsletter also reports on research in exposure to dilute ethylene gas, of cut flower specimens of *V. nitens*, *V. plumosa*, *V. chrysantha* and *V. densiflora*.

Gay Bennison, Wellington N.S.W., who is employed at Burrendong Arboretum and who is taking a keen interest in the *Verticordia* collection there has sent the following progress report dated 6/96 :-

<i>Vert. chrysantha</i>	Doing well
<i>V. fastigiata</i>	Going OK
<i>V. longistylis</i>	Doing well
<i>V. minutiflora</i>	New planting
<i>V. staminosa</i> ssp. <i>cylindracea</i> var. <i>erecta</i>	Doing well
<i>V. attenuata</i>	Doing well
<i>V. drummondii</i>	Doing well
<i>V. mitchelliana</i> (grafted)	Doing well
<i>V. pennigera</i> (E. Mt. Barren form)	Slow but sure.

<i>V. pennigera</i> (N. Newdegate form)	Doing Well
<i>V. multiflora</i>	Doing well
<i>V. densiflora</i>	Going OK
<i>V. sieberi</i>	Going OK
<i>V. fragrans</i>	New planting
<i>V. brownii</i> (grafted)	New planting
<i>V. helichrysantha</i>	New planting
<i>V. blepharophylla</i>	New planting
<i>V. plumosa</i>	These not so good in beds. They might prefer a heavier clay loam. Better over on the hillside.

The above comments indicate that their collection at Burrendong is coming along very well despite the recent drought conditions in Eastern Australia. I will be watching further results with interest as I believe the climatic situation, in the central west of N.S.W. should be very suitable for many *Verticordia* species, with drier air conditions prevailing to much greater extent than in the East Australian coastal strip.

The observations with regard to typical *V. plumosa* are not entirely surprising. I have noted a degree of variation in the performance of some clones of the typical species with regard to soil type acceptance and soil pathogen resistance. Generally speaking growth in the more humid, near coastal conditions has been very good in light soil conditions. While I would expect the natural soil at Burrendong, which is a medium textured clay loam, to be very suitable for most clones of the species, it may well be that the beds mentioned by Gay may have tended to dry out a little too much for its liking during the recent drought spells.

Judy Grows, Parkerville, W.A. (2/96), says:- It will be a while before I get re-organised and work out how to manage without John but -----I will get back eventually. We are having the hottest, driest February in years at the moment. The *Verticordias* are getting no help so we will see how they manage."

She adds:- *Vert. eriocephala* was beautiful this year, so the building up of the earth around the base was not detrimental and, if it encourages new growth from the base, will be beneficial."

This was an interesting observation about a species which certainly requires more understanding, and follow up observations will be keenly awaited. I have noted from the Newsletter of the West. Australian Wildflower Producers Association that much concern is currently being felt in W.A. as it has been a very popular species for wild source cutting by the cut flower industry and many stands have failed to respond with new growth and are under threat of extinction.

A brief note from **Phil. Hughes**, Whitebridge N.S.W., (2/96) says:- "Have not done very much yet of a practical nature, but I have a *Vert. plumosa* which has grown well for several years while only receiving morning sun, and *Vert. chrysanthella* has been growing slowly in a very well-drained sunny position".

Jeff Jones, Banksis Park, South Aust., (2/96), says:- "I've lost my *V. affin. lindleyi* but feel it just died of grizzly old age. Luckily I struck some cuttings a few months ago. Some while ago I had a *V. plumosa*, 0.6 x 1.5 across, which was very dense and was a good flowerer. Some of the more open, upright forms seem to flower at a different time and on the tips only. It appears this is a very variable species."

Jeff also enquired if I was having any success with the cuttings of *Vert. crebra* which I took from his very healthy plant last year on our return from our trip to the West. The answer to this is no, although the cuttings held on for nearly six months. He says he has never had one strike from it in all the time he has had the specimen and wonders if a stronger hormone may be the answer.

Graham Eatwood, Batemans Bay N.S.W. (5/96), makes a few comments after receiving some inspiration from a little rain in April, which had been sorely needed, although as he said, it has been his experience that when rain does fall after an exceptionally dry spell, a few plants always seem to suffer a few weeks later. One such plant to be lost was *V. venusta* which, although having produced several flowers at times, had never been really vigorous. By way of contrast *V. citrella* and *V. brachypoda*, in close proximity, had done very well. *Vert. fragrans*, he says, has continued to do well, being well furnished from top to bottom and free from disease. *Vert. staminosa* is also doing well and about to break out into flower.

A brief note from **Doug. McKenzie**, Ocean Grove, Victoria, (7/96) promises a complete update of his earlier reports on grafting responses as soon as he can find the necessary time, but adds the following comments:-" Briefly, the Verticordias are still growing well with few exceptions. -----Those grafted on to Geraldton Wax as rootstock, (*Vert. albida*, *Vert. grandis* and most of the other species with round leaves), are prone to leaf drop in our humid and cold climate and Geraldton Wax is not the best rootstock here. Nevertheless they are surviving and certainly would be more successful, I am sure, in a drier, less humid atmosphere."

One final comment from your Leader. As I prepare this Newsletter, (late July), it is raining. After three extremely dry winter/spring seasons, things may be on the up and up.?

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