

WALLUM and COASTAL HEATHLAND STUDY GROUP



Wallum boronia
Boronia falcifolia

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From Wallum Study Group "headquarters" in south-east Queensland, comes a very short issue covering coming events of interest to members. As usual I am chasing time and losing, so I plan to produce a fuller newsletter towards the end of October.

SUBSCRIPTION RENEWALS: These are now well and truly due, and I would like to receive them as soon as possible, so I can compile an up-to-date membership list for the next newsletter. Several members didn't renew last year, but will still receive this issue. A membership renewal form is attached, please notify me of any changes to names or addresses. This applies to other State regions and groups where "Australian Plants Society" is the new name. If you have already renewed, you won't receive the form. Still \$5, cheques/money orders payable to "ASGAP Wallum Study Group", thank you.

COMING EVENTS in south-east Queensland:

Sunday 22nd August: Wildflower walks on Bribie Island. Meet 9a.m. outside the Over 50's Village at Cotterill Avenue, Bongaree. Bring hat, sunscreen, repellent and water. Or meet at the Arts Centre, Bicentennial Gardens, Sunderland Drive, Banksia Beach, for the annual walk organised by Val Yaxley, phone 07 34082156 for details. Same needs as for the other walk, notebook, binocs, camera optional, a 10x hand lens useful. Watch Channel 7's "Great South East" at 5.30p.m. for a segment on Emu Mountain and its wildflowers, yours truly "starring".

Saturday 28th & Sunday 29th August: The annual Sunshine Coast Wildflower Show at the Coolumb Beach Civic Centre - 10 till 4 on Saturday, 11 till 4 on Sunday. Bus trips to wildflower areas: Mudjimba wildflowers 11.30a.m. - 1p.m. & Marcus High Dunes 2p.m. - 3.30p.m. on Saturday; Emu Mountain 2p.m. - 3.30p.m. on Sunday. Any members able to spare some time to assist with our display stall on either day please contact me on 07 32899272 before next Wednesday the 25th, as I leave on Thursday for my annual week's "holiday" on the Coast. Any other details also available from me.

Saturday 4th September: Members of the Caloundra Wildlife Preservation are guiding walks in Currumundi Environmental Park between 9a.m. and 3p.m. There will be a small Study Group display but this is not meant as a compulsory activity, just come along and enjoy this lovely place and its wildflowers. It is easily found, just over Currumundi Creek, take the David Low Way, not the Sunshine Motorway.

Saturday 11th & Sunday 12th September: The SGAP Queensland Region Spring Flower Show in the Evans Deakin Building at the Mt. Gravatt Showgrounds. There will be a Wallum Study Group display, I'll be there both days and any assistance from local members would be appreciated. Please contact me. Does anyone have access to Wallum wildflowers, or have any growing? They would certainly add to our display.

Saturday 25th & Sunday 26th September: A weekend based at the Beerwah Field Study Centre from 10.30a.m. on the Saturday. Visit local places to Wallum interest, Study Group meeting, slides on Saturday evening. I don't want to be the only one overnighing as it is rather lonely, and we aren't doing a wildflower walk this year, so please come for the night and a good start on Sunday. Contact me for details and regarding accomodation before the 17th of September.

Sunday 17th October: Meet 9.30a.m. at Kerry Rathie's garden at 5 Salston Road, Greenbank. BYO lunch, etc.



Grass trigger plant
Stylidium graminifolium

Sunday 14th November: Meet at 9a.m. in the parkland opposite the Arts Centre and Bicentennial Gardens, Sunderland Drive, Banksia Beach, Bribie Island. Bring lunch, morning & afternoon tea, hat, sunscreen, etc, etc. This will be the Study Group's break-up outing, so bring families as well. There will be some wildflowers somewhere, but as it could be a fairly warm day, swimming will be on the agenda for anyone who wants it. It is meant to be a low-key happy social day with some talk about Wallum, of course.

I hope this activity programme will cater for Study Group and other interested SGAP members around south-east Queensland. Visitors from elsewhere are always welcome. Contact me on 07 32899272 with any enquiries.

1999 was a big year for SGAP Queensland Region, hosting the 20th Biennial ASGAP Conference, seminar and tours. It took a lot of energy out of the organising committee of 8, and they were grateful for the assistance for other SGAP members on the day tours and with the myriad of other tasks. Perhaps if I had known two years ago just what was ahead, I would not have so innocently committed myself. But it was a wonderful experience and I was amazed at how I did things I once thought I wasn't capable of.

Several Study Group members were involved in the organisation of visits to Wallum areas, and our biggest worry was the WEATHER. Up until the end of 1998, everything was perfect, then it began to RAIN, didn't it? And it didn't know when to stop. At Beerwah, members from the Caboolture area watched the swamps start to fill up, and puddles developed along the sand tracks of the Beerwah State Forest Scientific Area. It got worse and worse until we couldn't access the tracks in our cars, and members constantly asked me, from June onward, "What are we going to do? We won't be able to bring anyone in here - what do we do? Where else can we go?" The trouble was, there was nowhere else to go as the Wallum was overflowing everywhere! Bus access being a big concern, we had to have somewhere to safely drop off 4 busloads of around 40-50 persons, without getting the buses bogged. So we stayed with Beerwah, and I told everyone to stop listening to weather reports, and not to say the word "RAIN". Then the Dept. of Natural Resources/Forestry section decided to place locked gates on every access track into the Scientific Area. This was almost too much for me, on top of all that water in the swamps.

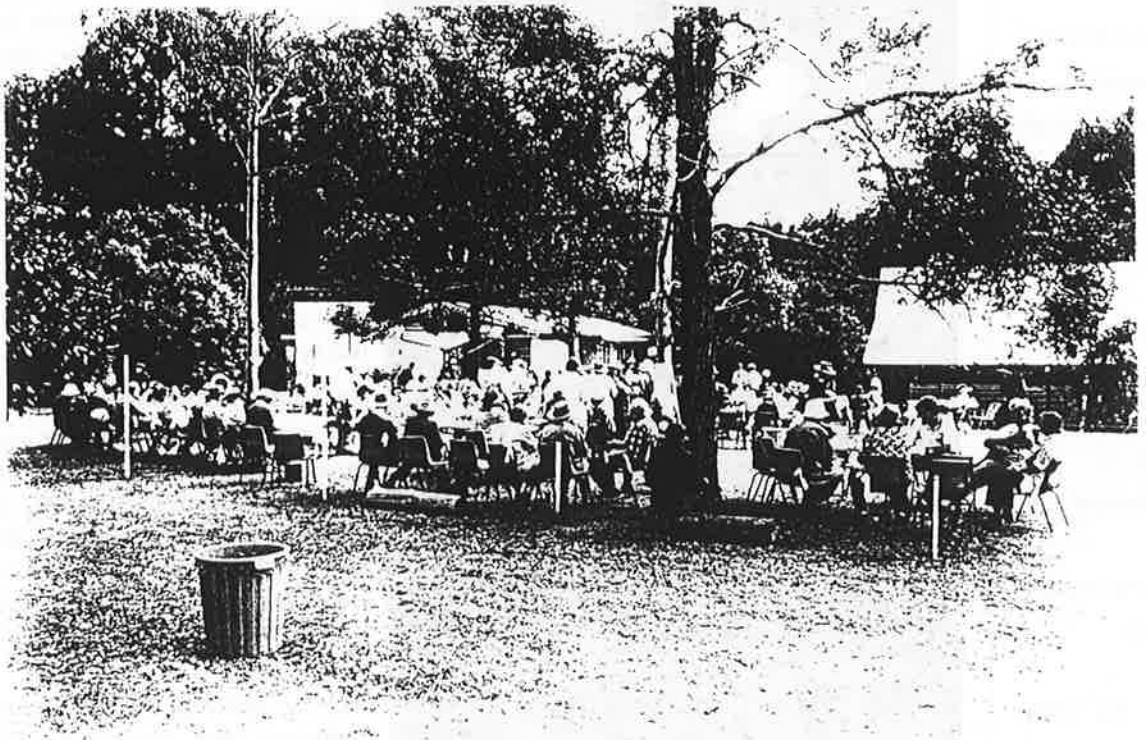
And down on the Gold Coast, Peter & Lyn Reilly were doing regular checks on Pine Ridge Environmental Park, another Wallum area to be visited on the Post-Conference tour. It was as waterlogged as Beerwah, and at one point I suggested to Peter that we take our visitors boating in the Wallum, instead of walking. Their main track was completely under water, and there was no way they would be able to show-off the beautiful and rare Boronia saffrolifera.

Anyway, our big day for Beerwah dawned. Someone up there was smiling on us, and gave us what one member described as a "soft day". No wind, and a gentle cover of light cloud which lessened the force of the sun without making the day chilly. The sight of all those people walking along the track in Beerwah was reward enough for all the work and worry. We had been forced to use our third walk option, and buses couldn't access the area at all, so everyone had an extra walk before even reaching the track, but as well as the lovely weather, the flowers had suddenly appeared within a week, and there were enough along the shorter walk to give our Wallum some credibility.

A BIG THANK-YOU goes to all Study Group members who helped make the day such a success. Unfortunately, one of our most energetic workers, and my virtual 2IC on many occasions, Dot Brown from Toorbul, missed the big day when she developed Bell's Palsy on, believe it or not, the Monday before (our day tour was on Tuesday 13th July). Not only did Dot miss out on the pleasure of seeing the results of so much work, she also missed meeting old friends within the Society, from other States.

It was such a busy day that I didn't manage to grab my camera before setting off on the walk, but luckily Michael Lowe from Tin Can Bay, who came down to be a guide, sent a couple of photos of the walk plus one of 2 busloads having their lunch at the Field Study Centre.

See Michael's photos on page 3, at present my only visual record of the big day. I am going to ask for copies of any other photos taken by anyone else who took a camera.



In this short issue I am including an article taken from the Winter 1999 "The Growing Idea" of Greening Australia Queensland Inc. In October 1993, members of our Study Group first obtained permission from developers at Marcoola, to remove Wallum plants ahead of the bulldozers. This continued (see past newsletters) until the bulk of the area was totally cleared early in 1998. In February 1997, Stuart Neal, G.A.Q. officer at Caboolture introduced me to Chris Jonkers who at that stage hadn't a clue what Wallum was. We stood in the Marcoola wildflower patch and he asked me "Where is all this Wallum you're talking about?" I replied "You are in the middle of it." He has come a long way and learned a lot since then. More to come in the next newsletter.

Barbara H. 07-32899272

Barbara Henderson



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The Growing Idea

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IN THIS ISSUE

Wallum Heathland
Regeneration

Environmental &
Social Repair

The Unusual Life
of Strangler Figs

Help Us Save the
Richmond
Birdwing Butterfly

Working on the
edge

Queensland
Science Contest

World
Environment Day

Greening Australia
Awards

Arbor Day Awards

Townsville's
community
revegetation project

Eco-drive: a
bushwalk in the
outback

Transport Corridor



The Caloundra area was once ablaze with the delicate, pink flowers of the Boronia.

Wallum Heathland Regeneration - it can be done!

by Chris Jonkers, Maroochy Shire Council, Greening Australia Extension Officer

Maroochy Shire Council Extension Officers have been involved in wallum plant rescues since 1997. Two major rescues from Mount Coolum Shores Estate and the North Shore Multisports Complex development sites have provided the opportunity to trial and monitor various techniques. These techniques are discussed below to encourage groups, in other coastal areas, to work towards saving our wallum wildflower heritage; and to build on and refine the techniques, developed with the support of the Maroochy Shire Council.

Wallum or Coastal Heathland once occurred along the South East Queensland coast from the Gold Coast to Rockhampton and adjacent islands. Characteristically treeless areas dominated by low shrubs, herbs and sedge, the occurrence of wallum heathland generally indicates the presence of an underlying impervious coffee rock or clay layer with consequent high water tables overlain by acidic low-nutrient peaty sands.

These ancient beach sand deposits have allowed the evolution of a unique vegetation type and associated fauna. And while mega diverse conjures up visions of a rainforest, heathland is very rich in plant species, many occurring in this habitat alone. By way of example, over 200 plant species were found on a two hectare site of heathland in Maroocha.

Rare and Threatened

The *Conservation Assessment and Management of Coastal Bushland Remnants* report, by Mary Maher and Associates for Maroochy Shire Council in 1997, concludes that heathland on the Sunshine Coast supports **more rare or endangered species than any other habitat**. This includes three vulnerable wallum frogs; two vulnerable birds; two rare reptiles; three endangered plants; three vulnerable plants; and four rare plants.

Wildlife listed as vulnerable and **occurring in wallum heathland only** includes the Wallum Tree Frog (*Crinia oblongburensis*), Wallum Froglet (*Crinia tinnula*), Wallum Rocket Frog (*Litoria freycineti*), the Eastern Chestnut Mouse, Red Backed Button Quail (*Turnix maculosa*), Ground Parrot (*Pezoporus wallicus*), and the Burrowing Skink (*Opioscinus truncatus*). Insects, wallum fish and crustacea unique to the area, but not listed under the Nature Conservation Act, include the Swamp Crayfish (*Tenuibranchiurus sp*) and Ornate Sunfish (*Rhadinocentrus ornatus*).

(continued on page 4)



Bushcare

Published with the assistance of Bushcare – a program of the Commonwealth Government's Natural Heritage Trust

Wallum Heathland Regeneration - it can be done!

by Chris Jonkers, Maroochy Shire Council, Greening Australia Extension Officer

(continued from page 1)

Threatened, vulnerable or rare plants include the Wallum Leek Orchid (*Prasophyllum wallum*), Tiny Wattle (*Acacia baueri*), Attenuate Wattle (*Acacia attenuata*), Christmas Bells (*Blandfordia grandiflora*), Emu Mountain She-oak (*Allocasuarina emuina*), Mt Coolum She-oak (*Allocasuarina thalassoscopica*), Wide Bay Boronia (*Boronia rivularis*), and Swamp Stringybark (*Eucalyptus conglomerata*). Yet to be named species including a prostrate form of *Persoonia* have also been noted.

Conservation status

The predominance of heathland on prime real estate behind the frontal dunes and on coastal estuaries, coupled with the ease of clearing these treeless areas, and the limited value placed on them by past state and local governments, has seen much wallum heathland disappear under forestry, cane farms, industrial/residential development, sports fields, roads and airports. Remaining remnants have become dissected and fragmented by motorways, roads, drains, and easements of every description.

The significant habitat, biodiversity and tourism benefits of our wallum wildflowers was not lost on early planners who in 1949 declared a large area of wallum heathland near Mount Coolum a national park, only to see national park status revoked in 1959 to establish an airport and industrial area. Forty years on and the battle still continues!

The Caloundra area was once ablaze with Boronia, and mass flowerings of Christmas Bells are well recorded. The Kawana strip was a sea of living colour and architectural form dominated by the pure whites of the Wedding Bush, golden yellows of the pea bushes (Fabaceae) and Wattles (Mimosaceae), whites and pinks of Epacridaceae, multicoloured delights of the Liliaceae and Proteaceae families, and a forest of grass tree spears (Xanthorrhoeaceae) and *Banksia oblongifolia* 'candles' complemented by grasses and sedges of the Poaceae, Cyperaceae and Restionaceae families. And for those with an eye for detail, the delight of spotting numerous varieties of the delicate ground orchids (Orchidaceae), trigger plants & insectivorous plants (Droseraceae, Lentibulariaceae).

Threats

Wallum heathlands are tough and resilient -

adapted to poor drainage, low pH, low nutrients, cyclones, floods, drought, fires, salt spray, even the odd slash and backhoe.

Self-sustaining by virtue of a wealth of nitrogen fixers in the pea family, specialised roots adapted to low nutrient soils, eg proteoid roots of Proteaceae; ability to capture trace nutrients from salt laden rain; and beneficial associations with soil mycorrhizae; ensure that heathlands can survive and thrive where few other plants can.

The major threats are man-made: clearing for development; nutrient enrichment; associated weed invasion; impacts of lowered watertable through drainage works; changed fire regimes; and predation of wildlife by domestic animals.

Wallum Regeneration

Through the Greening Maroochy Program, over 10,000 plants have been successfully transplanted by volunteers from two development sites in Marcoola and Mudjimba to seven new sites on the Sunshine Coast. Three main techniques were used to transplant and re-establish wallum plants

1. Transplanting individual plants or clumps by hand.
2. Transplanting using a bobcat and small truck.
3. Spreading wallum soil over a regeneration site.

Site Selection

In selecting a transplant site, bear in mind the habitat of heathland plants being rescued:

- Sandy peat soils;
- Low nutrient soils (in particular low phosphorous);
- Low pH soils (pH 3.5 - 4.5);
- Impervious subsoil of clay or coffee rock;
- Low areas for wet heath, elevated areas for dry heath;
- Periodically wet but **not waterlogged** sites;
- Full sun - vigour and flowering will be diminished in shady sites;
- Weed free sites - weed seed input from nearby areas should be minimised;
- Frost free sites;
- Water availability, if transplanting individual plants; and
- Consider site access for materials, vehicles, trailers, trucks, and machinery.

The ideal site is one that has supported wallum heathland before and has not been

altered by filling, drainage or fertilising.

The less fertile the site the better - if weeds grow well, then the soil may be too rich.

Try to recreate microclimates similar to the site you are transplanting from - small hollows & ridges, tall plants to protect small ones, sedge & grass areas and nitrogen fixers. Often however your choice of sites will be determined by the community or other factors and are less than ideal.

Importing wallum soil may be the best option.

1. Site Preparation

Regardless of the transplant technique, all sites need to be prepared beforehand:

- Spray out grass, in areas to be planted, with Roundup two weeks prior to transplant.
- Prepare hand planted areas with walk behind rotary hoe to a depth of at least 20cm.
- Create hollows and high spots to create small landform variations & microclimates.
- Prepare mechanically seeded areas by scraping with bobcat, rippers, or rotary hoe.

1. Transplanting individual plants or clumps by hand

Transplanting wallum plants by hand is risky, not all transplanted plants will survive. This may not be desirable for a frontline landscaped entry statement. However, the plants that do survive are likely to produce beautiful and unusual flowers and foliage of a type generally not available from nurseries.

When transplanting:

- use square headed spades to remove the plants in *cubes* of soil, digging straight down around the plant to a minimum of 200mm, until the cube containing the plants can be lifted. During this process, ensure the soil *cube* does not break up or fall away from the roots of plants being moved.
- place *cubes* straight into a trailer or ute and drive them to prepared site for planting.
- plant *cubes* with plants intact and as close together as possible.
- fill any gaps or spaces between *cubes* with wallum sand to prevent roots drying out.
- water in well.
- mulched transplant sites have survived better than un-mulched sites. A light mulching of 25-50mm is all that is required. While some seedling regeneration potential may be lost as a result, wallum sand dries

out very quickly - and as wallum plants have numerous fine hair like roots necessary to capture nutrients in this poor soil, these roots dry out quickly too.

Remember timing and selection of plants is important - resist selecting only pretties!

- Nitrogen fixers are the key to sustainability.
- Big is not always better - younger plants have better survival and longevity.
- Autumn is the ideal time. Spring flowering is a low energy time for plants, and very dry.
- Transplant when soil is wet. When soil is dry *cubes* tend to fall apart.
- Early morning, late afternoon, cloudy days are better for plants (and volunteers).
- Take the biggest *cube* of soil you can handle - with as many plants in it as possible - if one dies, others may survive.
- Watering and aftercare, as always, are more important than the transplant process.

2. Using machinery

Machine transplanting enables removal of larger *cubes* of soil and plant material with biological integrity intact (ie. natural plant associations complete with beneficial soil microbes / stored seed / dormant plant propagules etc) It's easier on volunteers too! Use a bobcat or front end loader to remove 300mm thick slabs of earth and plant material, place on a flat-bed truck and transplant. The difficult part is getting plants off the truck without the slabs falling apart with resultant root damage and plant loss.

When transplanting:

- Use machine to excavate slabs & carry them direct to prepared plant site if possible.
- Use a front end loader with the largest bucket possible.
- Dig straight down a minimum of 200mm, before cutting out slab to the depth of bucket.
- Then work to a 'face'.

- Avoid slabs breaking up during transport.
- Have trench the same width/depth of bucket & slab already prepared at transplant site.
- Unload carefully to avoid slab falling apart.
- Slabs hold together better when soil is still wet after rain. The drier the soil, the drier the weather, the hotter the day the higher the risk.
- Push slabs as close together as possible, fill all gaps with wallum soil to ensure roots don't dry out.
- Watering and aftercare, as always, is more important than the transplant process.
- Mulching may not be necessary if the slabs are pushed tightly together.
- The ideal transplanting time is considered to be Autumn.

3. Spreading wallum soil

This technique has been very successful and is as simple as it sounds - scoop up wallum topsoil, plants and all, spread to a minimum depth of 200mm over a regeneration site, and let nature take its course.

Suited to larger project sites with no time constraints and where instant landscapes are not required, the end result is about as close to playing god and recreating wallum heathland in all its glory as we can hope to get. The seed and plant propagules, that do regenerate, are selected by and are in balance with their new environment. It's survival of the fittest.

Some real surprises have emerged from this technique. Wedding Bush (*Ricinocarpos pinifolius*), normally so difficult for nurseries to propagate from seed, was one of the first plants to emerge from seed and is still the most common plant in one trial at Stumers Creek.

Where watering was available, many plants survived from plant propagules as well as regenerated from seed. Where water was not available most regeneration occurred from seed, with seed still germinating on trial sites 12 months after wallum soil was spread.

Again site preparation and timing are important. Late Summer/Autumn is likely to give best results, although trials at the hottest driest time in December also succeeded.

Wallum areas are remarkably free of weeds, probably because the soils are so poor and acidic that even weeds can't grow. But once moved and disturbed, weed infestation is a major cause of failure with this technique, as with any direct seeding type exercise. Selection of a site as free as possible of weed seed input is critical for success.

Maintenance

It is vital that hand transplanted wallum is watered regularly and thoroughly for at least six months after transplanting.


Hand-weeding will also be necessary from time to time.

Wallum plants are highly phosphate/nitrate intolerant, and are adapted to very low acidity (pH4.5) soils. Fertilisers are not recommended, dolomite or lime should be avoided, run-off from turfed or other landscaped areas should be directed away from site, and water quality monitored (avoid recycled effluent).

Preservation

Greening Australia Queensland considers in-situ preservation of wallum heathland as the only sustainable long-term option. It is only when all other efforts to preserve these habitats have been exhausted that techniques such as those discussed above are contemplated.

It must also be noted that the Nature Conservation Act and Regulations strictly control the collection of plants and plant parts from the wild. Plant rescue work must be conducted with full authorisation from the Environmental Protection Agency as well as the relevant landowners.

If you would like a list of wallum species which transplanted well, and a list of species that have regenerated from seed, please contact the editor on Tel: 07 3844 0211 



Wallum Plant Rescue, North Shore Multisports Association development site



Transplanting Wallum in Yinneburra Bushland Park