ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTS.

AUSTRALIAN FOOD PLANTS STUDY GROUP. **ISSN 0811 5362.**

NEWSLETTER

NUMBER 53. DECEMBER **2007.**

323 Philp Ave
Frenchville
Qld.
30/12/2007

Dear Members and subscribers,

We hope you had a wonderful Christmas season, and are heading towards a bright and prosperous new year.

I came back from the ASGAP bi-ennial conference in Newcastle all fired up to complete this newsletter, but, as always seems to happen, life got in the way! So this is a short covering letter this time, and I promise a longer, more newsy one next issue, which will contain (among other things) an account of the presentation by Murri Magic at the Rockhampton SGAP meeting at the end of November.

There was no presentation specifically relating to food plants at the Conference, though we saw a number on the various excursions. I mounted a small Study Group display of posters and photographs in the lecture hall on behalf of our group, and attended the Study Group leaders' meeting. As always, the conference was both interesting and enjoyable, and I learned of a new and very exciting technique - long stem planting!

On a sadder note, the West Australian Nut and Tree Crop Association (WANATCA) is winding up, due to a combination of circumstances including declining membership numbers, an aging membership, lack of people willing and able to take on executive positions, and spiralling costs. The website will be maintained with remaining funds, past yearbooks will gradually be added and the site made available to the general public.

The Australian Food Plant Study Group has had a long and productive relationship with WANATCA, swapping newsletters and information, answering questions, passing on contacts, etc, and it is very sad to say goodbye. The final letter from the editor of "Quandong" is published further on.

At the local level, we have received enough rain during the second half of the year to keep things green, though the creeks have not yet run. However, there have been summer storms in December, and almost a week of light drizzle to date, so we are very hopeful that the coming

January and February will see a return to the old weather pattern of the summer "Wet".

On that hopeful note, I'll sign off, with best wishes to you all in this new Chinese Year of the Rat.

Regards,

Lenore Lindsay and Rockhampton SGAP.

E-mail: lenorelindsay@hotmail.com

EDIBLE SPECIMENS TABLED AT MEETINGS:

25/5/07: *Acronychia laevis, Alectryon connatus, Bridelia leichhardtii,* (fruit), *Clerodendrum floribundum* (root), *Diospyros humilis, Eugenia reinwardtiana* (fruit), *Geijera sp., G.salicifolia* (medicinal), *Grevillea "Honey Gem", G."Marmalade", Melaleuca viridiflora* (red) (nectar).

22/6/07: Fern Workshop: *Acrostichum aureum, Blechnum indicum, Lygodium scandens* (rhizomes), *Marsilea drummondii* (sporocarps).

27/7/07: *Eleagnus triflora* (fruit), *Acacia podalyriifolia* (flowers), *Cissus reniformis* (fruit flesh), *Grevillea* "Honey Gem", *G.rosmarinifolia* (nectar).

24/8/07: A*cronychia laevis, Alectryon tomentosus, Bridelia leichhardtii* (fruit), *Callistemon "Little John", C.viminalis* (nectar), *Capparis canescens, Cupaniopsis anacardioides, Diospyros humilis* (fruit), *Dodonea triquetra* (hop substitute), *Eleagnus triflora* (fruit), *Eustrephus latifolius* (roots, arils), *Geijera paniculata* (medicinal), *Gossia bidwillii* (fruit), *Grevillea banksii fosteri, G."Firesprite", G."Honey Gem", G."Marmalade", G.rosmarinifolia* (nectar), *Hibiscus heterophyllus* (buds, flowers, shoots, roots), *Leptospermum "Cardwell", L."Cardwell Pink"*(leaves as tea), *Lomandra hystrix* (leaf base), *Melaleuca dealbata, M.fluviatilis, M.leucadendra, M.nervosa, M.quinquenervia, M.sp. "Fitzroy River"* (nectar, paperbark), *Murraya ovatifoliolata, Myoporum sp.* (fruit), *Phaius tancarvilleae* (tuber - not that you ever would!), *Wahlenbergia sp.*(flowers), *dried Nonda Plums (Parinari nonda)* (fruit).

28/9/07: *Eugenia reinwardtiana* (fruit)

26/10/07: *Acronychia laevis, Auranticarpa rhombifolium* (fruit), *Backhousia citriodora* (leaves), *Brachychiton bidwillii, B.acerifolium* (seeds), *Capparis lucida* (fruit), *Cassia brewsteri, C.tomentella* (edible gum), *Castanospermum australe* (possible medicinal), *Cissus reniformis* (fruit flesh), *Cupaniopsis anacardioides, Diospyros humilis, Eleagnus triflora* (fruits), *Erythrina vespertilio* (roots), *Eucalyptus shirleyi* (nectar), *Euroschinus falcata, Gossia bidwillii* (fruit), *Grevillea "Honey Gem", G."Marmalade"* (nectar), *Leptospermum flavescens* (leaves for tea), *Lomandra longifolia* (leaf base),

Melaleuca linariifolia, M.stenophylla (nectar0, *Micromelum minutum, Murraya ovatifoliolata, Pleiogynium timorense* (fruit), *Phaius tancarvilleae* (tuber), *Pouteria sericea* (fruit), *Sterculia quadrifida* (seed), *Syzygium australe, Terminalia porphyrocarpa* (fruit).

30/11/07: Arytera divaricata (fruit), *Backhousia citriodora* (leaves), *Brachychiton bidwillii* (seeds), *Callistemon polandii* (nectar), *Capparis humistrata, Cupaniopsis anacardioides, Ehretia acuminata, Euroschinus falcata* (fruit), *Ficus opposita* (fruit, shoots, medicinal sap), *Geijera latifolia* (medicinal), *Grevillea banksii fosterii, G."Marmalade", G.rosmarinifolia* (nectar), *Leptospermum "Cardwell"* (leaves for tea), *Murdannia graminea* (tuber), *Orthosiphon aristartum* (medicinal), *Pipturis argenteus, Podocarpus elatus, Psydrax odoratum* (fruits), *Wahlenbergia sp.*(flowers).

EXCURSIONS:

3/6/07: Tondoon Ecofest, Gladstone: Helping Gladstone SGAP at their stall/information/bush food tasting tent.

1/7/07: Raglan-Marmor area: Near Marble Creek, Bruce Highway: *Acacia salicina* (seed), *Capparis canescens, C.lasiantha, C.ornans, Citrus glauca, Siphonodon australe, Mallotis discolor, Amyema congener, Carissa ovata, Cupaniopsis anacardioides, Diospyros humilis, Alectryon diversifolius, Smilax australe, Cassytha* sp (fruit), *Brachychiton australis, B.rupestris* (seeds, roots, shoots, mucilage from wood), *Terminalia porphyrocarpa* (fruit), *Cissus antarctica* (fruit flesh), *C.opaca* (fruit flesh, tuber), *Trophis scandens* (arils), *Eucalyptus exserta* (nectar, medicinal leaves.

Cattle Creek, Old Station: *Ceratopteris thalictroides* (fronds).

Marble Creek, South Ulam: *Acacia bidwillii, Clerodendrum floribundum* (roots), *Acronychia laevis, Bridelia leichhardtii, Capparis ornans, Carissa ovata, Cassytha* sp., *Cupaniopsis anacardioides, Drypetes deplanchii, Euroschinua falcata, Exocarpus latifolius, Grewia retusifolia, Lantana camara*, Maclura cochinchinensis, Melodorum leichhardtii, Planchonia careya, Pleiogynum timorense, Psydrax odoratum, Rapanea variabilis, Terminalia porphyrocarpa,* (fruits), *Cissus oblonga* (fruit flesh), *Dodonaea viscosa, D.stenophylla* (capsules as hops substitute), *Ficus opposita, F.virens* (fruit, shoots, medicinal sap), *Hibiscus heterophyllus* (buds, flowers, shoots, roots), *Geitonoplesium cymosum* (shoots), *Brachychiton bidwillii, Gahnia sieberi* (seeds), *Clematis glycinoides* (medicinal), *Melaleuca leucadendra* (nectar, paperbark).

5/8/07: Sandy Point, Capricorn Coast: *Acacia disparrima* (root), *Cupaniopsis anacardioides, Euroschinus falcata* (fruit), *Avicennia marina, Gahnia aspera* (seeds), *Carpobrotus glaucescens* (fruit, leaves), *Sarcocornia quinqueflora, Sesuvium portulacastrum, Suaeda australis* (leaves), *Acacia disparrima* (root), *Acronychia imperforata, Cyclophyllum coprosmoides, Alectryon connatus, Carissa ovata, Cupaniopsis anacardioides, Dianella caerulea, Mallotus discolor, Myoporum acuminatum, Lantana camara*, Pipturus argenteus, Planchonia careya, Passiflora suberosa** (fruit), *Ficus obliqua, F.opposita, F.virens* (fruit, shoots, medicinal sap), *Melaleuca viridiflora*

(nectar), *Eustrephus latifolius* (roots, arils), *Commelina cyanea* (leaves), *Tetrastigma nitens* (fruit, tuber), *Geodorum neocaledonicum* (tubers), *Livistona decipiens* (palm "cabbage"), *Macrozamia miquellii* (treated seed), *Emilia sonchifolia** (whole plant), *Blechnum cartilagineum, Lygodium microphyllum* (rhizomes), *Pteridium esculentum* (fiddleheads).

Samphire Report (and yes, you sceptics, we survived to write about it!)

After the last excursion, I took my small sample harvest of Samphire (Sarcocornia quinqueflora) home to experiment with.

I'd recently seen a programme on "The Food Lover's Guide to Australia" in which an English chef decided to stay on Kangaroo Island after finding the swards of Samphire that the locals ignored. She said a 100g punnet would cost about 4 pounds in Harrods Food Hall, and demonstrated how to prepare the vegetable.

The secret is to cut only the slenderest, greenest, freshest sprigs. Remove any woody pieces and wash carefully. Blanch in boiling water for a minute or two and drain. Then dress with good olive oil and serve, either as a green vegetable, or cold in a salad.

It was great hot with roast pork and veges, and tasty cold on ham and tomato sandwiches.

Definitely a successful effort, though I can see why no-one is harvesting commercially in Australia! The labour investment is enormous.

(Lenore in the Rockhampton Branch Newsletter, August 2007)

2/9/07: Foot of Mt Archer: *Acronychia laevis, Alectryon connatus, Bridelia leichhardtii, Cyclophyllum coprosmoides, Carissa ovata, Coelospermum reticulatum, Cupaniopsis anacardioides, Diospyros geminata, Drypetes deplanchii, Euroschinus falcata, Lantana camara*, Planchonella pohlmaniana, Planchonia careya, Pleiogynum timorense, Psychotria daphnoides, Psydrax odoratum, Syzygium australe, Terminalia porphyrocarapa, Capparis ornana, Passiflora foetida*, P.suberosa*, Melodorum leichhardtii, Solanum nigrum, Dianella caerulea* (fruits), *Cissus oblonga* (fruit flesh), *Clerodendrum floribundum, Glycine tabacina* (roots), *Dioscorea transversa* (tubers), *Geitonoplesium cymosum* (shoot), *Dodonaea viscosa* (capsules as hop substitute), *Corymbia intermedia* (nectar), *Geijera latifolia* (medicinal), *Ficus opposita, F.virens* (fruit, shoots, medicinal sap), *Cycas ophiolitica, Macrozamia miquellii* (treated seeds), *Tetrastigma nitens* (fruit, tuber), *Opuntia stricta** (fruit, "pads"), *Gahnia aspera* (seeds), *Xanthorrhea* sp. (leaf bases, growing tip), *Lomandra* sp. (leaf bases).

7/10/07: Olsen's Caverns, The Caves: This was specifically to participate in a rescue mission (conducted by Greening Australia with all necessary paperwork) for the rare endangered cave fern, *Tectaria devexa*, so any edibles noticed incidentally took a back seat. However, it was hard to miss the *Ficus rubiginosa* (fruit, shoots, medicinal sap).

4/11/07: "Melrose", Morinish: *Acacia bidwillii, Erythrina vespertilio, Glycine tabacina, Boerhavia pubescens* (roots), *Alectryon*

connatus, A.subdentatus, Amyema congener, Bridelia leichhardtii, Capparis sp., *C.lasiantha, Diospyros geminata, D.humilis, Drypetes deplanchei, Euroschinus falcata, Exocarpus latifolius, Grewia latifolia, Psydrax odoratum, Pittosporum spinescens, Pleiogynium timorense, Pouteria cotonifolia, Santalum lanceolatum, Terminalia porphyrocarpa* (fruit), *Ficus rubiginosa, F.opposita* (fruit, shoots, medicinal sap), *Brachychiton australis,* (seeds, roots, shoots, mucilage from wood), *Hibiscus heterophyllus* (buds, flowers, shoots, roots), *Geijera salicifolia* (medicinal), *Lysiphyllum hookeri* (nectar), *Melaleuca fluviatilis* (nectar, paperbark), *Cissus opaca* (fruit, tuber), *Trophis scandens* (arils), *Eustrephus latifolius* (tubers, arils), *Wahlenbergia* sp. (flowers), *Themeda australe* (seeds), *Opuntia stricta** (fruit, "pads"), *Marsilea hirsuta* (sporocarps), *Lomandra* sp. (leaf bases).

2/12/07: Christmas barbecue on Mt Archer summit: *Xanthorrhea* sp. (leaf bases, growing point), *Cycas ophiolitica, macrozamia miquellii* (treated seed), *Rubus probus* (fruit), *Corymbia intermedia* (nectar), *Eucalyptus citriodora* (nectar, leaves).

LETTERS TO THE EDITOR

WANATCA,
PO Box 565,
Subiaco. WA 6008.

Dear WANATCA friends,

It is a sad day. All good things must come to an end, so they say, and this is the end of WANATCA as an association.

I have enjoyed being the editor of "Quandong" for these last ten issues. I learned a lot - about trees, fruit and nuts, and about how to produce a magazine.

The website (http://www.wanatca.org.au) will continue, and more Yearbooks will be added to it. You will be able to find other ways to continue to get your 'tree fix'. There are other tree-growing associations you can join, plus some good chat groups on the internet.

My heart fills with emotion at this last goodbye, so I will borrow some famous words of parting.

"~~Farewell, cruel world, I'm off to join the circ.~~" No. Try again.
"~~So long, and thanks for all the fi..~~" No, no, no.

Ah, here it is: "With all its sham, drudgery, and broken dreams, it is still a beautiful world. Be cheerful. Strive to be happy."

Written by Max Ehrmann in the 1920's

I second that!

Cheers,

Pat (Scott).

Warming to the Ice Plants

By Phil Watson

Introducing the Ice Plants

The challenges of Global Warming are yet to be fully appreciated in relation to their potential impacts on our vulnerable indigenous vegetation communities and the habitat they support for our threatened flora and fauna. One predicted response to the gradual global warming will be a relentless search for tolerant species, suitable for our future landscape and revegetation sites which will be able to adapt to the harsher environmental realities. Fortunately members of the Ice Plant family have a series of rare attributes which will enable them to flourish in these predicted climatic extremes. This article seeks to explore these attributes further as well as highlight some of the fascinating cultural, historic and bush tucker values ascribed to its members.

Known botanically as the Aizoaceae, (Latin for "evergreen" or "ever living"), the name reflects the ability of members to maintain green coverage of fleshy foliage whilst existing in the harshest and driest environments. There are over 2300 succulent, herbs and shrubs in the family from South African, Asian, North and South American with only 60 indigenous Australian species (4 Tasmanian species). Disturbingly already over 20 naturalised South African invaders thrive in Australia's harsher locations suggesting Climate Change may exacerbate their invasive potential.

The family is composed of 2 groups, based on the presence or absence of petal-like staminoides (large sterile stamen). The sub family Mesembryanthemoides has showy daisy-like flowers made of these brightly coloured staminoides typically seen in Pig Face Carprobrotus rossii, whilst the other sub family Ruschioides has small insignificant flowers which are brightly coloured on the inside as seen in Tetragonia implexicoma.

Like many of the Australian species the Tasmanian representatives act as key framework species in saline wetlands and dry coastal communities. Local examples include the Pitt water and Lauderdale salt marshes as well as the remaining 100 kilometres of undisturbed Tasmanian sandy beaches exclusively vegetated by indigenous flora.

From an historic perspective immense significance can be directly attributed to two of the family's indigenous species Tetragonia implexicoma and T. tetragoniodes (many common names apply such as Ice Plant, NZ Spinach, Botany Bay Spinach, Warrigal Greens and Cook's Cabbage). It could be considered that these species are held directly responsible for the choice of establishing Australia instead of colonial African nations, as the preferred Penal colony. Undeniably many Tasmanians' ancestries would link to this decision.

Adaptive responses to the Global warming challenge

Climate Change's predicted warming, reduction of overland flows and reduced soil moisture will impose severe habitat limitations on our indigenous plants and animals. However certain plants within families such as the Ice Plants, Native Grasses (Poaceae) and the Cactuses

(Cactaceae) will be competitively advantaged and potentially increase their natural ranges. Consequently they will attract attention due to their tolerance and adaptability. An obvious example will be Kangaroo Grass, (Themeda triandra which benefits from a more efficient photosynthetic process (known as a C4 pathway) enabling it to flourish in the dry summer periods when most other competitive grasses withdraw into dormancy. Interestingly, recent observations suggest an increased richness of native grasses on disturbed dark-soil grassy woodland due to their exotic competitor grasses, such as Yorkshire Fog Grass, Holcus lanatus, and Quaking Grass, Briza maxima etc. withering and dying under drought stress.

Remarkably, Ice Plants have evolved a separate mechanism to be known as "Night-time breathers"[1] or technically Crassulacean Acid Metabolism (CAM) that will increase the plants adaptive capacity to Climate Change. By storing Carbon, in the form of organic acids produced during night time respiration they do not need to absorb Carbon Dioxide, by opening their stomatal pores. Hence CAM plants stop moisture loses through their pores during the heat of the day. This endows them with added xerophytic abilities that enhance their succulency mechanism to accumulate moisture and halophytic characteristics to survive in highly saline areas.

A Family with many appealing Common Names

The family members are suitably bestowed with intriguing common names, most relating to their striking attributes which enable them to survive low moisture or high salinity conditions. The name of "Ice Plant" is linked with many family members mostly as a consequence of their leaves being surfaced with salt accumulating bladder-like cells that often sparkle like ice granules to reflect sunlight and reduce transpiration. This name is applied to the fleshy leaved South African Ice Plants (Mesembryanthemum sp. and Lampranthus sp) as well as previously mentioned T. implexicoma.

The aptly named "Livingstones" or "Pebbles" (Lithops sp.) and Livingstone Daisy (Doroanthemum bellidiformis) are robustly designed to mimic both the colour patterns and tough surface textures of surrounding stones and pebbles. This ensures survival during arid periods by imparting drought resistance and camouflage from foraging herbivores. During the rainy season when the desert is alive with edible vegetation they transform from their chameleon-like behaviour, into large perfumed boldly coloured daisy-like flowers in an attempt to gain the pollination services of passing insects or butterflies.

The term "Noon flower" is another popular descriptive name applied to family members such as the Australian Coastal Noon flower C. glaucescens, the Tasmanian salt marsh, Round Leaf Noon flower Disphyma crassifolium, as well as the many South African spe The term "Noon flower" is another popular descriptive name applied to family members such as the Australian Coastal Noon flower C. glaucescens, the Tasmanian salt marsh, Round Leaf Noon flower Disphyma crassifolium, as well as the many South African species such as Wiry Noonflower (Psilocaulon tenue), due to their habit of opening attractive blooms around noon and closing later in the afternoon. The resulting pinks,

[1] The term *night time breathers* was referenced from the Royal Tasmanian Botanical Gardens information sheet "The Century Plant"

yellows etc carpets are irresistible to their insect pollinators which are at their busiest from noon to the mid afternoon.

The less than attractive common name "Snot wort" (Conicosa pugioniformis) relates to this succulent's slimy roots which surprisingly are valued as a South African bush tucker delicacy.

The tasty "Greens" were highly valued by early Explorers

As mentioned in the introduction, Ice Plants form an important historic connection with our Tasmanian convict ancestry. This arose as a consequence of the 1768 voyage of Captain Cook's to observe the transit of Venus. He satisfied his scurvy-stricken crew's desperate need to savour fresh greens by harvesting the pot herb NZ Spinach, T. tetragoniodes from the NZ's shoreline. Following discovery along the Australia coast by Cook and other explorers, of large swards of both T. tetragoniodes and Botany Bay Greens, T. implexicoma, they soon came to rely on these greens as dietry necessities, to enhance their Spartan rations. It is interesting to note, if the early explorers and colonists had shown a little appreciation for the Aboriginal way of life, they would soon have selected today's popular bush tucker treats but instead limited their choice to only those indigenous plants that reflected the image of English vegetables. Besides the Ice Plants these included Sea Celery Apium prostratum and Botany Bay Greens Atriplex cinerea.

So impressed was Sir Joseph Banks with these Ice Plants, he sent their seeds to Kew Gardens from where it rapidly gained favour in high society cuisine as a summer spinach. In 1779 Bank's fondness for this plant's ability to provide reliable quantities of nutritious greens, was portrayed exuberantly in the House of Common's inquiry delving into the relative suitability of Australia compared to West Africa as a convict-based colony [2]. He obviously left a strong impression and the rest is now history.

"Pigface" was Tasmania's first Bush tucker?

Tasman's voyage of 1642 was not only historically significant as the arrival of the first explorers in Tasmania, but also the collection of 'Greens' (recorded as a Mesembryanthemum sp) by his crew's shore for detachment from the banks of the Boomer Creek flowing into Marion Bay. This collection heralded the start of the current bush tucker bonanza. The collection of what is considered to be Carprobrotus rossii was reported to be "not unlike a certain plant growing at Cabode Bona Esperance" (Cape Town).

Many diaries of early explorers and settlers not only record positive entries on the edibility of these "Greens" but also draw attention to the unique strawberry-fig like flavour of the Native Pigface's fruits. During the late 18th century a number of explorers referred to the harvesting of Ice Plants for pot herbage or edible fruits. These included Bligh's 1788 voyage on the Bounty in Adventure Bay, Bruny Island and D' Entrecasteaux's 1793 voyage on the Esperance in Recherche Bay. During this voyage he noted that "the fruit proved a delicacy with the New Hollanders (Aborigines) and resembled the Hottentot's Fig of South Africa (Mesembryanthemum edule) except that

[2] Low, T. *Bush Tucker Australia's Wild Food Harvest* Angus &Robertson, Sydney, 1992: 134-135

the flowers were not yellow but reddish purple". Settlers at Collin's first settlement at the "Camp" (Risdon Cove) collected of Ice Plants for nutritious "Greens"[3] whilst inland explorer Edward John Eyre partook of Pigface fruits freely noting the ripe fruit was rich, sweet and refreshing in hot weather

Robust landscape plants with weed potential.

Australia has approximately 25 exotic species recognised as environmental weeds, a number of which derived from naturalising around old settlements, especially near the coast.
The Tasmanian weed representatives including Noon Flower Lampranthus glaucus, Heart Leafed Ice Plant Aptenia cordifolia , Common Ice Plant Mesembryanthemum crystallinum and the South African Hottentot Fig or Sour Fig Carprobrotus edulis and the Chilean Pig Face C. aequilaterus. Of these, the later two present major concerns as they are either out-competing the native species or are being inadvertently planted by unaware, enthusiastic bush regenerators. Their ability to release 100's of seeds when triggered by rainy spells from the fleshy fruit or establishes from fresh or even significantly dehydrated cuttings ensures they will remain a persistent threat. Given the recent enthusiasm for planting indigenous Pig Faces, it is important to positively identify the Pig face before planting. Remember, if it has a yellow flower err on the side of caution and check it is not a weedy Sour Fig!

Valuable "People's Plants" supplying food and medicine

It was apparent that explorers and colonists developed a strong desire for the tasty and nutritious green foliage of Tetragonia species. This attraction continued to gain momentum over the next two centuries with these pot herbs being cultivated in European gardens. They have now become an heirloom vegetable, worthy of any menu especially being suited to stir fries, spinach dishes and quiches. Of course, they also prove just as attractive to wildlife; hence protection from browsing is required, during their establishment. Once growing vigorously the wild life grazing can be used to advantage by acting as marsupial pruning shears to limit their rampant growth!
It is important to be aware that, like rhubarb and silver beet, it is best not too over indulge in them due to the low levels of oxalates and saponins existing in the succulent leaves and stems.

In relation to the luscious fruits of Carprobrotus rossii, local Aboriginals eagerly awaited their summertime ripening. Aboriginal family bands would often establish camp next to broad expanses of fruiting pigface in order to supplement their fish and seafood diets with otherwise distinctly difficult to find harvestable offerings of summer ripening bush tucker. They not only enjoyed the fruits but also cooked leaves of this native Pig Face or at times the Round Leaf Noon flower Disphyma crassifolium to accompany their fire pit-roasted possum, roo or echidnas etc.
Beyond their bush tucker attributes, the finger-like leaves and stems when squeezed ooze a gel-like sap which acted as a soothing lotion in much the same way as Aloe vera does today. As an aside these bulky, sappy leaves have proven problematical for all those plant collectors

[3] Potts, B. etal. (ed.) *Janet Somerville's Botanical History of Tasmania*, 2006

and students who have attempted to use plant presses to dry and press specimens. They are botanist nightmare!

When exploring the world wide range of extraordinary plant uses attributed to Ice Plants, it would be remiss not to mention the captivating mind and mood altering qualities of the South African species known locally as "Kanna" Sceletium tortuosum[4].

This mood-altering plant (attributed to the alkaloid "mesembrine") has been used by hunter-gathers and pastoralists from prehistoric times, to elevate mood and decrease anxiety, stress and tension. Amazingly larger doses have no severe adverse affects, as it induces a euphoric state enabling pastoralists to decrease thirst and hunger or for its application as a local anaesthetic and analgesic for tooth extraction. Traditionally prepared by crushing the succulent plant before sun drying prior to chewing, smoking, inhaling as snuff or brewing as a tea, it is an important children sedative and has been effectively used by indigenous healers to withdraw alcoholics from their addiction. Even now the plant may be called onse droe drank- "our dry liquor". Although once widely traded in the South African Cape provenance and stocked in trading stores, inventories of wild plants have dwindled due to over harvesting and habitat destruction. This has sadly resulted in its replacement by alcohol, tobacco and cannabis. It is pleasing to note that, using only cultivated rather than wild harvested materials, currently phyto-pharmaceuticals from Sceletium are being extracted for clinical trials in readiness for the international market.

Finally it is worth reflecting on another South African Pig Face look alike known as "Khadi Root" Khadia acutipetala. Its fleshy rootstock provides an alternative yeast source to act as the key fermentation agent in brewing a distinctively flavoured, yet extremely prized beer known as Khadi.

Conclusion

As alluded to earlier, the Ice Plant family primarily consists of hardy and environmentally resilient plants. Their tolerance is a consequence of their efficient methods of seed dispersal, ease of propagation from cuttings or off sets, their succulence, pest and disease resistance, fire resistance, xerophytic and halophytic abilities all supported by their CAM metabolism. In light of the global warming impacts, it is predicted that their recent popularity as landscape, erosion control, bush tucker and revegetation species will increase. Disappointingly these competitive advantages will also result in the prevalence of many more exotic members menacing indigenous vegetation communities as invasive weeds.

To offset this dilemma, many exotics and native members add a rare three dimensional element to landscapes. This is a consequence of their thick, succulent leaves symbolising shapes of limbs and fingers. They can provide an inspiring contrast with the two-dimensional, flat leaves of the most other plants in the landscape[5].

5 Low, T. *Bush Tucker Australia's Wild Food Harvest* Angus & Robertson, Sydney, 1992

[4] Ben-Erik van Wyk and Nigel Gericke *People's Plants A Guide to useful Plants of Southern Africa* Briza Publications 2003

New Book: ***Australian Succulent Plants***

- By Attila Kapitany

Succulent plants grow round the world in a range of climates and environments, not just in deserts as is generally assumed.

Semi-arid or seasonally dry regions have the highest succulent plant diversity. These areas are found across most of Australia, sometimes even in tropical and other seasonally wetter parts of the country. Australia is seen by many as having relatively few succulents, because, of the 20,000 or more Australian vascular plant species, fewer than 400 can be regarded as succulent, and many of these are not particularly obviously so.

Australian native succulent plants have historically been poorly covered in most botanical literature, though there is currently work underway revising and expanding what is known about these plants. It would appear there are some new discoveries, and many new and changed names in the pipeline.

This new book, "Australian Succulent Plants", covers approximately 100 species from 40 genera, and describes and illustrates most in some detail. There are additional notes on traditional and modern foods, availability, cultivation, conservation and other items of interest.

Many of these diverse and interesting plants are among the most drought or dry-tolerant of all plants, though some are not obviously succulent.

The author has been trialling many of these plants for suitability in the house and garden with some success.

This book is available through Botanical Gardens and the author.
Retail price $75 plus $10 postage.
Contact Attila: Phone 041 999 0934; email gecko@connexus.net.au
For more details see: www.australiansucculents.com

And while on the subject of succulents, on a recent ABC Gardening Australia programme Jerry Colby-Williams demonstrated propagation of both Samphire *(Sarcocornia quinqueflora)* and Seablite *(Suaeda australis)* from tip cuttings, and emphasised that both would grow perfectly well in an ordinary vegetable garden. I should imagine this would result in fewer woody stems, and faster, more uniform growth.

I've pickled Seablite quite successfully in spiced vinegar in the past. (Ed.)

SOS: Long-time member and supporter Vic Cherikoff, one of the earliest pioneers of the commercial production and marketing of Australian bush foods, has asked if anyone has, or knows anyone who has, a quantity (preferably a large quantity) of *Citrus australis* (Round Native Lime) for sale. If you can help, please contact Vic on 02 95549477 or at <vic@cherikoff.net>

USING GREYWATER IN THE GARDEN:

Many of us now need to use greywater in our gardens. Here are some tips to prevent soils and plants being damaged. ***By Kevin Handreck.***

1. Bathroom effluent will not cause any problems. The minor amounts of soap and shampoo will not adversely affect plants or soils.

2. Laundry effluent is a totally different matter, because of the damage that some of the components of laundry detergents can do to both plants and soils. The damaging components of laundry detergents are sodium, phosphorus, high alkalinity and, for a few, boron.

3. If you want to minimise or eliminate damage to your plants and soils you must use liquid detergents. Many powders, while they might be good detergents, contain so much sodium that they will eventually wreck the structure of your soil.

4. Lanfax Laboratories of Armidale, NSW, has analysed the sodium and phosphorus concentrations in greywaters produced when a wide range of laundry detergents are used. See the Lanfax Laboratories website at www.lanfaxlabs.com.au/sodium.htm

5. With powders, the range of sodium concentrations in greywaters ranged from about 40 to about 710 mg/L. These concentrations are to be compared with the concentration in Adelaide tap water of about 100 mg/L and Melbourne tap water of about 4 mg/L.

6. By contrast, liquid laundry detergents give sodium concentrations in greywaters in the range 1 to about 130 mg/L.

7. The main concern with repeated application of sodium to soils is that sodium will displace calcium and magnesium from the soil. This will cause the soil to become what is called SODIC. A sodic soil is one in which there is a high proportion of sodium on the clay particles compared with the concentrations of calcium and magnesium. A sodic soil tends to set into hard clods on drying. Hard crusts form on its surface when it dries. More importantly, the rate of infiltration of rainwater into it is much reduced compared with when it was not sodic. You will not notice these problems while you are applying the greywater to your garden. In fact, you may well see excellent growth because of the extra phosphorus you will be applying in the greywater. In the short term, the high concentration of salts in the greywater will prevent the sodium-rich clay from dispersing and blocking pores and producing crusts.

8. The problems start to show up on clay soils such as the red-brown soils of the Adelaide Plains with the first rains. Then, the low salinity of the rainwater allows the sodium rich clay to disperse. If you have added a lot of high-sodium greywater to the soil during the summer, you could even notice that the water just ponds on the surface of the soil. If you see this, you have wrecked the structure of your soil. The only way to fix this is to apply gypsum at a high rate (probably 1-2kg/m^2). (The science is definite on this, but I also know from personal experience. When Eleanor and I first started to apply greywater to our garden in

the early 1970's, we experienced the adverse effects of using powder detergents. We had to apply much gypsum to the affected area of soil. It was then that we switched to liquid laundry detergents).

9. So, while you may comment that your lawn etc.is showing excellent growth following four months of use of a greywater containing powder detergent residues, in the longer term, you will see that your soil is of poorer quality. To save the expense of having to apply large amounts of gypsum, I strongly recommend that if you want to use greywater in your garden you use only liquid laundry detergents.

10. Here are a few listings from the Lanfax Labs website:

    Powders of highest sodium content: Price Saver, Savings, Bi-Lo, Home Brand, Bushland, Omo, Dynamo.

    Powders of the lowest sodium content: Planet Ark, Aware, BioZet Advanced, Amway (Most of these are still higher than are the liquid detergents).

    Liquids of highest sodium content: Cold Power, Omo, Dynamomatic.

    Liquids of lowest sodium content: Earth Choice, Home Brand Liquid.

    See the Lanfax website for the full listing.

11. The Lanfax site also lists phosphorus concentrations in greywaters from the various detergents. Some powders contain so much that repeated addition to your soil may eventually produce deficiencies of trace elements such as iron and zinc. These greywaters will be lethal to any plants that are sensitive to phosphorus. Omomatic and Dynamomatic have by far the highest phosphorus concentrations. Greywaters from them were shown to contain a staggering 80 mg/L phosphorus. The highest among the liquids is less than 6mg/L. Many products do not contain phosphorus.

12. Not listed on the Lanfax site is the alkalinity of the greywaters. Powder detergents are loaded with sodium bicarbonate. This raises the pH of the greywater to as high as 10. Repeated application of this water to any acid-loving plant will give it a severe dose of iron deficiency.

13. By the way, take no notice of the claim on detergent packages that the product is biodegradable. This claim applies only to the organic material in it. In powders, this may be only a few percent of the total. The rest of the stuff is definitely not biodegradable. It will remain in your soil.

IN SHORT: For the least damage to your soil of your garden by greywater, use only liquid laundry detergents, and then only those with the lowest sodium concentrations and no phosphorus. There are still plenty to choose from.

If you must use a powder, the choice is between Planet Ark and Aware (Australian), BioZet (China) and Amway (USA). Planet Ark supports many environmental projects in Australia.

FRIENDS OF THE ROYAL BOTANIC GARDENS, CRANBOURNE:

The first lecture series afternoon for 2008 will be held on Sunday June 22nd at 2pm. The venue will be the new Balla Balla Community Centre, 65 Berwick-Cranbourne Road, Cranbourne East, just on the Cranbourne side of Cranbourne Library where parking is available.

The guest speaker will be JULEIGH ROBINS, co-founder of Robins Bush Foods and author of "Wild Lime" and "Wild Classics". Founded in Melbourne in 1987, Robins Bush Foods now supplies both ingredients and products throughout Australia and also overseas.

Cost for the afternoon is $12 for Friends of RBG Cranbourne, or $15 for non-members. Booking on 9702 2206 would be appreciated.

Different Ways of Cooking Lotus *(Nelumbo nucifera)*:

Root:

Stir fried with chicken or other meat
Pickled Japanese style in vinegar and sugar, with squid or anything else
Baked like a potato
As tempura - deep fried in thin crispy batter
Braised with pork ribs or whatever else you fancy
Raw in a lotus coleslaw
Simmered in soup or one-pot dishes

Leaf:

Wrap rice in leaves and steam
Young leaves boiled as a green vegetable

Inner Stem:

Raw like celery
Braised

Seeds:

Raw
Roasted
Boiled
