

RAINFOREST STUDY GROUP

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Group Leader - Graham Quint, 16 Evans Street, Peakhurst, 2210, N.S.W. Australia.

STUDY GROUP MEMBERSHIP

Welcome to the Rainforest Study Group! At the end of November, 1981 there were 23 members of the study group and membership fees paid to that date will cover the 1982 calendar year. At present we have members from South Australia, Queensland and New South Wales. The Rainforest Study Group will be examining and investigating all types of rainforest in Australia and it is hoped that information gathered by the group will enable large numbers of Australian rainforest plants to be brought into general cultivation.

SEED BANK CURATOR

Would anyone like to take on the job of group seed bank curator? Little is known about the viability of rainforest seed but it is generally accepted that the period of viability of many species may be quite short. This theory must be tested and accurate information obtained. I had forgotten about a plastic container of Red Apple fruit (Eugenia brachyandra) and when I finally opened the container I expected to see a mass of mould. I was right, the seeds had gone mouldy, but, they had also sprouted. Almost all the fruit had germinated and I was able to pot them up. The job of Seed Bank Curator in this group will be a key position. Storage of seed collected may be a difficult matter and a deal of experimentation may be required. It may be necessary at times to remove seed from fleshy fruit or alternatively such a procedure may lead to a drying out of the seed and loss of viability. Only accurate records of seed dispersed, its condition when issued and germination results will produce this information. Who would like to give it a go? Please contact the Group Leader if you would like to try!

RECOMMENDED READING

'Planting a Native Garden', Volumes 1 and 2, by Rainforest Study Group Member Jan Sked of the Pine River's Branch of S.G.A.P. (Qld) is highly recommended for all members wishing to establish a rainforest garden. Both volumes feature a large number of rainforest species and supply descriptions, cultivation notes and many line drawings of the plants in question. For copies of these books or further information contact - Mrs J. M. Sked, "East Sunrise", Cnr Myles & Galvin Sts, Lawnton, Qld. 4501.

MEMBERS' NOTES

Study Group member, David Bray of Doyles River Road, Elands, N.S.W. and his wife have just started a rainforest nursery on their mountain bush block about 80 km west of Port Macquarie. The block includes some 50 acres of rainforest with both mature rainforest and regenerating areas. Here are some hints from David on seed viability and germination -

"Seed viability is sometimes very short and may be only a few days. However, seed which naturally falls in late Autumn or Winter seems to do best if stored until early Spring. For example, some Orites excelsa collected in April started to germinate in June but these seedlings just wilted (cold and wet) while the remaining seed germinated in August and is looking OK. Presumably, most species are adapted to a dry winter (at least in N.S.W.)"

"Seed viability seems to be best in seed that has freshly fallen from the tree. Pods picked from the tree may subsequently ripen but the viability of these seeds may be less."

"Most species are attacked by insects or birds which eat either the flesh of the fruit or the seed itself. This may be a dispersal mechanism since the birds are often 'messy' eaters."

"Species with soft seeds (Syzygium, Cryptocarya spp. etc) store better in a plastic bag than in paper bags (which dry out the seed) and they may germinate quite happily in the plastic bag (by which time the pulp is rather smelly!)"

"Germination may take several months, even in summer, and my white cedars kept popping up sporadically for 12 months (still coming up). Soaking in warm water hasn't obviously helped. I have just tried two batches of Flame Tree seed, one in sand and one in compost and the compost batch has germinated well before those in sand so that may be a clue to follow up."

MEMBERS' NOTES (CONTINUED)

Robert Payne of the Crommelin Native Arboretum near Gosford, N.S.W. who for the past five years has been establishing a rainforest area for study and research at the arboretum, writes -

"Seed is very difficult to germinate and I have had only about a 40% success. This is because rainforest seed loses its viability very quickly, sometimes almost as soon as it dries out. Thus any sent by mail unless enclosed in a wet sealed bag and very fresh is useless. For germination a small misting device is a good idea as it creates a constant moisture supply whilst not keeping the soil too damp. Believe it or not, a lot of rainforest seed is susceptible to rotting and most particularly to attack by small insects. I found the bog method then a complete failure for this purpose. Rainforest seed then should be placed on the soil surface of seed trays and not buried."

"Germination of rainforest seed is considerably variable. Some, such as *Hymenosporium flavum* will strike within a week or so but others can take years. Some seed of *Endiandra mitrorsa* which I sowed in May, 1979, is just beginning to germinate." (August, 1981)

"Without a constant watering supply, trees planted out will die. I have found this time and time again unless they are planted close to the creek. Thus a misting or sprinkling system is a necessity. I am presently having installed an automatic system covering my rainforest area and will simulate a rainfall of 110 inches per year. The extensive rain simulated conditions though will eventually leach out most of the soil nutrients especially in the deep grey sandy alluvium such as occurs at Pearl Beach. I am trying to substitute this by applying a well balanced N:P:K fertiliser such as Multigrow to the trees twice a year in Spring and Autumn."

"Up to the present stage growth of the trees has been slow probably because of this lack of nutrients and water. I have only managed to improve the rate of tree growth in two ways. The first is to surround the trees with 'Sarlon' shade cloth so that a narrow funnel is created and the trees have to reach out of this for the light. There is also a twofold purpose in this - to protect them from the hot summer sun. This practice greatly improved the rate of growth this year in some species only. The second method is to grow any epiphytic species such as *figus* sp. in a hollow log or tree stump sometimes several metres high. The log is first filled with rotted mulch. The growth in these conditions was found to be far quicker when compared to those planted directly in the ground."

"Seed source needs to be accurate and definite and I stress this is important. Some seed sent to me in 1976 as *Toona australis* has turned out to be *Toona sinensis* - Chinese Cedar. This leads then to another point, every species when grown should be identified by the Herbarium. Rainforest trees are more difficult to identify and in any rainforest regeneration programme you do not want 'exotic' species."

"If any member of the Rainforest Study Group wishes to utilise the Crommelin Native Arboretum rainforest area for study and research they are quite welcome to do so."

Thanks very much Robert.

ROYAL BOTANIC GARDENS, SYDNEY

Many Australian Rainforest trees and shrubs can be seen growing at the Royal Botanic Gardens, Sydney, species include -

Near Macquarie Street - *Glochidion ferdinandi*, *Pongama pinnata*, *Arytera divaricata*, *Eupomatia laurina*, *Ficus benjamina*, *Cupaniopsis anacardioides*, *Drypetes australasica*, *Malotus philippensis*, *Lagunaria patersonia*, *Macadamia tetraphylla*, *Cordyline fruticosa*, *Diospyros fasciculosa*, *Syzygium luehmannii*, *Ficus rubiginosa*, *Cissus oblonga*, *Ficus macrophylla*, *Schefflera actinophylla*, *Syzygium paniculata*, *Graptophyllum excelsa*, *Jasminum didymum*, *Ficus obliqua*, *Scolopia braunii*,

Near the Tropical Glass Pyramid - *Acmena hemilampra*, *Microcitrus australasica* x *australis*, *Backhousia citriodora*, *Buckinghamia celcissima*, *Litsea reticulata*, *Syzygium floribundum*, *Grevillea hilliana*, *Coelebogyne ilicifolia*, *Pleiogynum timoriense*, *Cryptocarya triplinervis*, *Castanospermum australe*, *Planchonella obovata*, *Atalaya multiflora*, *Cryptocarya obovata*.

Between the Kiosk and the Herbarium - *Oreocallis wickhamii*, *Nothofagus moorei*, *Cryptocarya laevigata* var *Bowiei*, *Melicope octandra*, *Polyscias elegans*, *Brachychiton discolor*, *Planchonella myrsinoides*, *Arytera divaricata*, *Alphitonia excelsa*, *Diospyros fasciculosa*, *Cissus antarctica*, *Planchonella australis*, *Arytera distylis*, *Davidsonia pruriens*, *Beilschmiedia elliptica*, *Brachychiton bidwillii*, *Elaeocarpus kirtonii*, *Ailanthus triphysa*, *Brachychiton acerifolium*, *Rhodamnia argentea*, *Randia fitzalanii*, *Pleiogynum timoriense*, *Acmena smithii* var *minor*.

WINGHAM BRUSH

Wingham Brush is an 8 hectare remnant of lowland sub-tropical rainforest on alluvial soil on the banks of the Manning River in the town of Wingham, 6 kilometres west of Taree.

This type of rainforest was widespread on the North Coast river floodplains but was rapidly cleared following European settlement. Only a few stands remain and only two areas exist on the Manning River, Wingham Brush and Coocumbac Island. It has been estimated that 100 hectares of this type of rainforest remain in New South Wales so that Wingham Brush would represent 8% of this total area.

Due to various pressures the Brush had entered a state of decline. Four main problems were contributing to this deterioration.

1. Introduced (weed) plant species.
2. Over-usage by people.
3. The large number of flying foxes.
4. The length of the edges of the rainforest area.

The main problem weeds in the Brush are Wandering Jew (*Tradescantia albiflora*), Cat's Claw Creeper (*Macfadyena unguis-cati*), Madeira Vine (*Anredera cordifolia*), and Balloon Vine (*Cardiospermum halicacabum*).

Over-usage of the Brush by people has led to soil compaction, reducing soil aeration and water penetration. A proliferation of small tracks has also increased the risk of trampling of young native seedlings.

A huge number of Flying Foxes inhabit the Brush and their weight breaks off branches.

The length of the boundaries of the Brush makes it very accessible for the dumping of garden refuse which contributes to the weed problem. On unprotected edges, wind velocity and sunlight are high and the humidity is probably much lower and fluctuates more widely than would be usual. Trees on the edges of the Brush show the effects of stress far more quickly than those in the bulk of the area.

In order to preserve the Brush in its natural condition as a living example of rainforest for appreciation by the present and future generations the local Shire Council contracted with the National Trust of Australia (N.S.W.) to regenerate the area following the principles of the Bradley Method of Bush Regeneration.

At present a team of six National Trust Bush Regenerators are working in the Brush and it would appear that this work is progressing most satisfactorily.

To protect the Brush against the adverse effects of wind, sunlight and weed invasion, the edges will be planted with hardy tree species indigenous to the Brush.

Following is a list of species found in Wingham Brush as compiled by A. Floyd (1976) Weeds are indicated by an asterisk. Abundance of the particular species is indicated by the following code - R = Rare, O = Occasional, C = Common, VC = Very Common.

Trees

Ulmaceae	<i>Aphananthe philippinensis</i>	Native Elm	VC
Moraceae	<i>Ficus coronata</i>	Creek Sandpaper Fig	R
	<i>F. macrophylla</i>	Moreton Bay Fig	VC
	<i>Morus nigra</i> *	Mulberry	O
	<i>Streblus brunonianus</i>	Whalebone Tree	C
Urticaceae	<i>Dendrocnide excelsa</i>	Giant Stinging Tree	VC
	<i>D. photinophylla</i>	Shiny-leaved Stinging Tree	O
Monimiaceae	<i>Daphnandra micrantha</i>	Channel-leaf Socketwood	C
Lauraceae	<i>Beilschmiedia elliptica</i>	Grey Walnut	C
	<i>Cinnamomum camphora</i> *	Camphor Laurel	R
	<i>Cryptocarya meisnerana</i>	Thick-leaved Laurel	R
	<i>C. obovata</i>	Pepperberry	O
	<i>Neolitsea dealbata</i>	White Bolly Gum	O
Capparidaceae	<i>Capparis arborea</i>	Native Pomegranate	C
Pittosporaceae	<i>Hymenosporum flavum</i>	Native Frangipani	R
	<i>Pittosporum undulatum</i>	Sweet Pittosporum	R
Mimosaceae	<i>Abarema sapindoides</i>	Snowcapwood	O
Rutaceae	<i>Acronychia oblongifolia</i>	White Lilly Pilly	R
	<i>Bauerella simplicifolia</i>	Yellow Acronychia	R
	<i>Euodia micrococca</i>	Hairy-leaved Doughwood	R
	<i>Geijera latifolia</i>	Scrub Wilga	R
Simaroubaceae	<i>Guilfoylia monostylis</i>	Native Plum	O

Meliaceae	Dysoxylum rufum	Hairy Rosewood	C
	Melia Azedarach var australasica	White Cedar	VC
	Toona Australis	Red Cedar	R
Euphorbiaceae	Baloghia lucida	Brush, Bloodwood	O
	Glochidion ferdinandi	Cheese Tree	R
	Mallotus philippensis	Orange Kamala	O
Celastraceae	Elaeodendron australe	Red Olive Berry	R
Icacinaeae	Pennantia cunninghamii	Brown Beech	R
Sapindaceae	Alectryon subcinereus	Wild Quince	O
	A. tomentosus	Wild Quince	O
	Cupaniopsis parvifolia	Small-leaved Tuckeroo	O
	Diploglottis australis	Native Tamarind	R
	Elattostachys nervosa	Beetroot	C
	Guioa semiglauc	Guioa	O
	Rhysotoechia bifoliolata	Two-leaved Tuckeroo	R
Rhamnaceae	Alphitonia excelsa	Red Ash	R
	Emmenosperma alphitonioides	Yellow Ash	R
Elaeocarpaceae	Elaeocarpus obovatus	Blueberry Ash	R
Sterculiaceae	Brachychiton acerifolium	Flame Tree	R
	Heritiera actinophylla	Black Booyong	C
Flacourtiaceae	Scolopia braunii	Flintwood	R
Myrtaceae	Backhousia sciadophora	Shatterwood	R
	Callistemon salignus	Pink Tip	O
	Eucalyptus grandis	Flooded Gum	R
	Syzygium floribundum	Weeping Myrtle	O
	S. paniculatum	Brush Cherry	R
Araliaceae	Polyscias elegans	Celery Wood	R
Alangiaceae	Alangium villosum	Black Muskheart	VC
Sapotaceae	Planchonella australis	Black Apple	C
Ebenaceae	Diospyros pentamera	Grey Persimmon	O
Ehretiaceae	Ehretia acuminata	Koda	O
Verbenaceae	Clerodendron tomentosum	Hairy Clerodendron	O
SHRUBS			
Pittosporaceae	Citriobatus pauciflorus	Orange Thorn	O
Rutaceae	Citrus limon *	Bush Lemon	O
Oleaceae	Ligustrum sinense *	Small-leaved Privet	C
Solanaceae	Physalis peruviana *	Cape Gooseberry	O
	Solanum mauritianum *	Wild Tobacco	C
HERBS			
Adiantaceae	Adiantum formosum	Giant Maidenhair Fern	O
Araceae	Alocasia macrorrhizos	Cunjevoi	R
Commelinaceae	Tradescantia albiflora *	White Wandering Jew	VC
Urticaceae	Urtica uncisa	Scrub Nettle	R
VINES			
Polypodiaceae	Microsorium scandens	Fragrant Fern	O
Liliaceae	Asparagus plumosus *	Asparagus Fern	O
Piperaceae	Piper Novae-hollandiae	Pepper Vine	O
Moraceae	Maclura cochinchinensis	Cockspur	O
	Malaisia scandens	Burny Vine	R
Nyctaginaceae	Bougainvillea glabra *	Bougainvillea	O
Basellaceae	Anredera cordifolia *	Madeira Vine	VC
Menispermaceae	Legnephora moorei	Grey Roundleaf Vine	O
Fabaceae	Derris involuta	Derris Vine	R
Celastraceae	Celastrus australis	Small-fruited Staff Climber	O
Sapindaceae	Cardiospermum halicacabum *	Heart Seed	VC
Vitaceae	Cissus antarctica	Simple Water Vine	O
Passifloraceae	Passiflora aubpeltata *	White Passionfruit	R
Apocynaceae	Melodinus australis	Rubber Vine	R
	Parsonsia straminea	Ivy Silkpod	R
Verbenaceae	Lantana camara *	Lantana	O
Rubiaceae	Morinda jasminoides	Morinda	O
EPIPHYTES			
Polypodiaceae	Pyrrrosia confluens	Horseshoe Felt Fern	VC