AUSTRALIAN NATIVE PLANT SOCIETY

HIBISCUS AND RELATED GENERA STUDY GROUP

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EDITORIAL :

Our cover page depicts a very good image of the 'River Hibiscus' ***Radyera farageii*** from Alex Nelson of Alice Springs. This fine Malvaceae rivals 'Sturt's Desert Rose' ***Gossypium sturtianum*** and is most unusual for a plant from the arid region with its large floppy leaves. Its climatic range is southwards from Alice Springs into the southern interior. I have grown it successfully at Buderim on the Sunshine Coast where it thrived for a number of years producing plenty of blooms and seed.

Alex Nelson's article is a very important observation of the 'River Hibiscus'. This newsletter has Part 1 and next newsletter will have Part 2 of his article. The information needs our follow-up as a study group for all Australian genera. Perhaps an approach to Local Government, the CSIRO and Interest Groups could result in some worthwhile action to save this unique species. Before any action is taken the issue needs to be discussed with Alex so as to determine the best approach.

Our two other articles cover '**Hibiscus and Paper'** as well as '***Brachychiton bidwillii'* in South-East Queensland.** We are covering new ground here with the hope that readers find the contents of interest. Don't hesitate to write in should you require more details.

More Corrections : The Australian Hollyhock has undergone further name changes in a paper titled '***Malva weinmanniana*** (Besser ex. Rebb.) Conran, a new name for the pink-flowered form of ***Malva preissiana*** Miq. (Malvaceae) This was published in J. Adelaide Bot. Gard. 25 (2012) 17 – 25. The name ***M. preissiana*** is retained for the white flowered variation found primarily on near-shore islands of the southern coast of Australia.

We are experiencing some difficulties at present due to health issues with the Study Group Leader. Hopefully these will be overcome in the months ahead and I will be able to catch up with outstanding correspondence and other matters.

With best wishes ……*GEOFF 'Harvey'*

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Gossypium sturtianum Photo: G. Keena

Radyera farragei Photo: A. Nelson

RIVER HIBISCUS IN ALICE SPRINGS – THE ROAD TO EXTINCTION: PART 1

ALEX NELSON, CENTRAL AUSTRALIA

Introduction.

This article relates exclusively to my observations witnessing the gradual disappearance of River Hibiscus (*Radyera farragei*) on the banks of the waterways in and near Alice Springs during a period of time coincident with the spread of exotic grass species, especially buffel grass (*Cenchrus ciliaris*) and couch grass (*Cynodon dactylon*). There is evidence to show that the actions of local authorities intended to implement conservation and management practices have unwittingly accelerated the decline of River Hibiscus, to a point where this species is endangered and proceeding towards complete eradication in the area.

To my knowledge there is little or no recognition of the local threat posed to the existence of this magnificent wildflower, and no assessment of risks to this species posed by exotic grasses over its wider regional distribution. While the problems caused to biodiversity from the introduction and spread of exotic grass species in Central Australia are broadly recognized, there is very little research undertaken to quantify the nature and extent of these threats; in large part due to the continued support for these grasses by the pastoral (beef cattle) industry and often trenchant refusal to acknowledge the risks posed to the environment. Government and research organizations, for their part, were pivotal in their roles trialling and encouraging the widespread introduction of these grasses in Central Australia over a period stretching some 60 years, and there is currently no declaration of these grasses as serious environmental weeds.

Seedlings among grasses

Description.

Amongst the more magnificent of the wildflowers encountered in Central Australia is *Radyera farragei*, commonly known simply as Wild (or Native) Hibiscus in this region. Elsewhere it is known as River Hibiscus, aptly named to describe the inland riverine habitats that this species favours.

This species is a component of the vegetation of plant communities associated with waterways, typically a small shrub encountered on the banks of the major rivers and creeks in and around Alice Springs. River Hibiscus is a

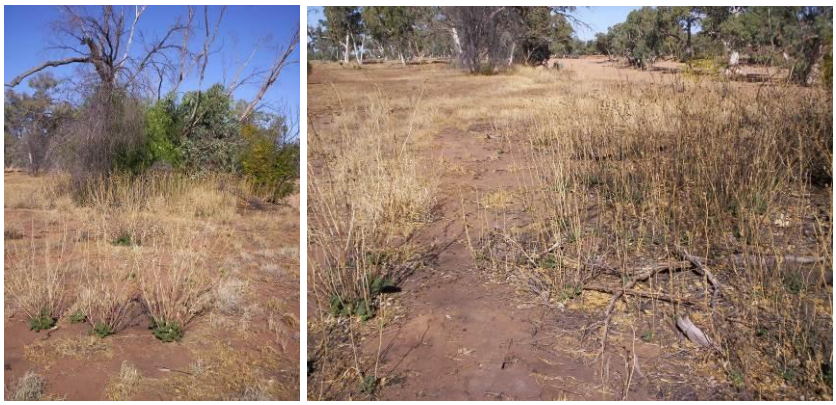
fast-growing plant featuring large, velvety, deep green, rounded leaves that provide a strong contrast to the usual grey-green foliage of other plants; further enhanced by their large lilac blooms, each of which survive a day or so but often in profusion of showy displays that can last for weeks at a time.

River Hibiscus has large, velvety, rounded leaves; with a yellow Paper Daisy in the foreground

Radyera farragei is the Australian member of a genus comprising two species; the other species is *Radyera urens* of southern Africa. The distribution of *R. farragei* occurs broadly within the southern half of the Australian landmass, equating to climatic conditions featuring hot, dry summers and cool winters – it is not a tropical species. The geographical distribution and climatic preferences of both species hint of a long antiquity for this genus, suggestive of a Gondwanan heritage.

The presence of River Hibiscus in Central Australia marks the northern-most occurrence of its natural geographic distribution. Although generally regarded as shrubs (healthy plants can grow up to 2 metres high and wide), River Hibiscus is actually a large herbaceous perennial featuring deep, long-lived root systems that generate flushes of new foliage growth from crowns in response to good rain or floods but that gradually die back to the crowns as harsher conditions prevail.

The inland riverine habitat of River Hibiscus is also home to a rich diversity of other native plant species, and is prone to comparatively frequent fires. The natural vegetation has evolved to adapt to this situation, most significantly with native grasses and other understorey species generally self-limited in growth producing comparatively low biomass sufficient to generate low intensity “cool” fires. This enables larger shrub and tree species (which in Central Australia tend to be fire-resistant) to withstand the flames and/or facilitate the germination of seeds under favourable follow-up wet conditions.



New growth following a bushfire

River Hibiscus is classically adapted for survival along these lines. The above-ground vegetative growth may be damaged by a bushfire, occasionally being burnt to ground level; but the species’ deep roots, sustained by tapping

into the water tables, respond rapidly with vigorous new growth capitalizing on the temporary absence of other competing vegetation. Similarly the cleared soil surface, enriched by a bed of fine ash, provides the ideal conditions for promoting the germination of River Hibiscus seeds. From my own observations these conditions are crucial for River Hibiscus seedlings – they require a "clean slate" of bare soil surface that occurs during a window of opportunity following a bushfire. Once established, River Hibiscus subsequently displays a marked ability to compete with other plant species.

Under natural conditions River Hibiscus is beautifully adapted to surviving and proliferating under the shelter of the large shrubs and trees that characteristically line the banks of inland waterways. For myself, having grown and lived in the vicinity of the Todd River through Alice Springs since the 1960s, the "wild hibiscus" (as I knew it) formed a distinct part of the natural scenery – it was always simply "there". However, it's increasingly no longer so – it is gradually and inexorably disappearing from the river systems of Central Australia – and hardly anyone seems to have noticed.

River Hibiscus at old Heffernan Road Crossing of the Todd River, southeast of Alice Springs. This was the site that, in 1998, alerted the author to the overall decline of River Hibiscus along the local inland waterways.

Cultivation.

For a native plant that is so colourful and showy, we nevertheless have been remarkably ambiguous about its presence. River Hibiscus has generally been taken for granted and ignored; this is reflected in the lack of a specific common name for it, at least in Central Australia. Known to local plant enthusiasts as a "wild" or "native" hibiscus, *Radyera farragei* is invariably mistaken by most people for its cousin in the Malvaceae, *Gossypium sturtianum*, the Sturt Desert Rose, to which it does bear a superficial resemblance to the untrained eye.

Similarly this species has been disregarded by researchers – River Hibiscus is unpalatable to livestock but neither is it poisonous; it does not comprise a major component of the vegetation overall yet conversely has been common enough not to warrant special attention for its conservation status.

River Hibiscus might seem to be a sure contender for cultivation as an ornamental but to date its use in gardens and landscaping has been minimal, at least locally. There are a few likely factors for this; first, it is commonly mis-identified with Sturt Desert Rose, of which the latter is readily available for purchase in nurseries, and therefore is overlooked. Second, its appearance in its natural habitat seems incongruous compared with other native plant species, misleading some people to consider it as a naturalized introduced species.

When cultivation of River Hibiscus has been attempted it has often resulted in disappointment and so its reputation has suffered. As a native plant species it is treated accordingly like so many others, expected to flourish with minimal care and attention. This overlooks the specific requirements of River Hibiscus in its normal riverine habitat where its vigorous root systems can reach the water table. Deprived of this condition in native garden settings, River Hibiscus tends to just survive as miserable and disappointing specimens, prone to attack by grasshoppers, mealybug and spider-mites.

My own experience in attempts to grow River Hibiscus has usually proven unsuccessful. I've had poor responses with germinating seeds (this was before observing germination under natural conditions) and transplanting of seedlings or small plants (especially bare-rooted) invariably fail. This species requires some skill and knowledge to propagate successfully. However, once established and cared for appropriately, River Hibiscus can flourish under cultivation. My father succeeded (in the late 1970s) in establishing two plants at our home at the former CSIRO Field Station south of Alice Springs that grew into magnificent specimens. They had been obtained as young plants from the wild with

substantial balls of soil retained around the roots; and the soil in which they grew was rich alluvial sediment of the floodplain adjacent to the nearby Todd River. They also received regular deep-soaking irrigation.

Many years after leaving this residence I returned to inspect the yard after years of neglect; and it was telling to note that while the majority of local native shrubs and trees we had established continued to thrive, the River Hibiscus had long since vanished. While this experience shows one approach for the successful cultivation of River Hibiscus, it's inappropriate these days to source plants for gardens by their removal from their habitat. But this also illustrates a fundamental change over time, too – when my father obtained these plants, River Hibiscus was common. Today they are scarce.

The invasion of exotic grasses.
The decline of River Hibiscus is mainly due to competition with exotic grasses that now dominate much of the inland river systems; principally they are Couch Grass (*Cynodon dactylon*) and – worst of all – Buffel Grass (*Cenchrus ciliaris*). Both grass species, especially buffel grass, were deliberately introduced over a widespread area of Central Australia. Both species were utilized for soil stabilization and erosion control by conservation authorities; and buffel grass has been widely employed as a drought-hardy pasture on cattle properties.

For the purposes for which these grasses were introduced they have proven ideal; conversely the characteristics enabling them to flourish in the semi-arid rangelands have made them formidable competitors, and is having a disastrous effect on the natural environment – nowhere more so at present than along the inland waterways.

The grasses are deep-rooted perennials that respond rapidly to rainfall which enable them to out-compete, overwhelm and over-shadow most indigenous plant species, in turn leading to a sharp drop in biodiversity. They also produce substantially higher quantities of vegetative growth, especially buffel grass that can grow more than a metre high following exceptionally heavy rainfall. A major proportion of that growth comprises woody stems that hugely increase the bulk of dry matter to fuel wildfires. This has led to more bushfires of greater intensity than is normal for this environment, resulting in more severe losses of larger shrubs and trees that are ill-adapted to these changed conditions.

This situation has developed in Central Australia's riverine ecology from the early 1970s and is continuing to spread into neighbouring ecosystems. Few minor native plant species display any significant ability to withstand this onslaught but River Hibiscus has proven more resistant than most.


River Hibiscus at old Heffernan Road Crossing of the Todd River, southeast of Alice Springs, competing with grasses

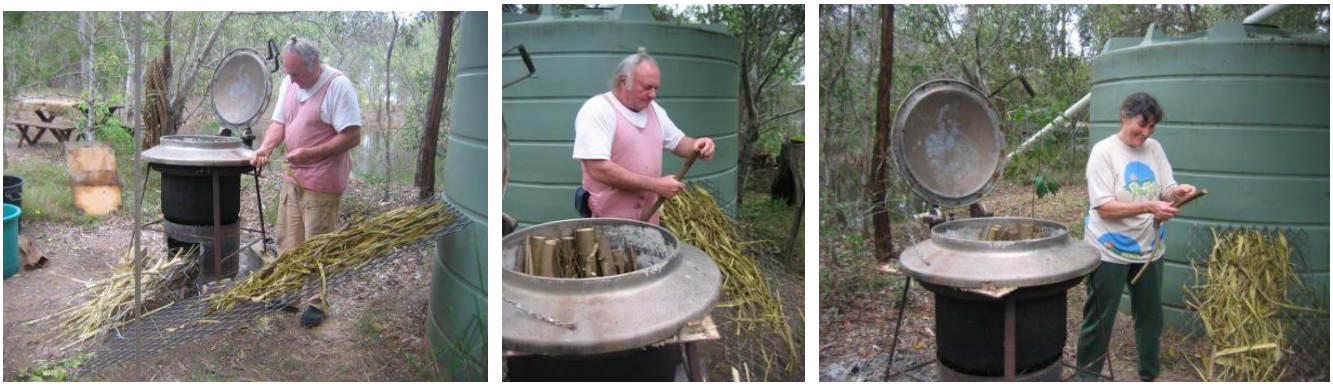
PART 2 of the article by Alex Nelson on River Hibiscus looks at: Ross Highway roadside, Roe Creek, Old Heffernan Road Crossing, an Adaptive Response, Alice Springs Urban Area and Future Prospects.



Seedling amongst grass *Juvenile plant* *Recovery after fire*

HIBISCUS AND PAPER

DION CHANNER, SOUTH-EAST QUEENSLAND



Dion and Sue Peeling Hibiscus in Winter

Tsai Lun, a eunuch, held a high position in the Chinese Emperor's court. The ruler of China of 2000 years ago placed a heavy burden upon his councillor. Confucianism dominated the social, administrative, and legal fabric of the land and, among its many aspects was the requirement for those wishing to enter the public service to study and sit extensive written exams. Another was for the state to maintain libraries and archives.

Hitherto the written word was vouchsafed to sheets of silk and 'books' of bamboo but the first was very expensive and the second subject to destruction from the ravages of insects and humidity. The Emperor charged his faithful servant with finding a new material to replace silk and bamboo as surfaces for ink and brush, which would have longevity but not have the shortcomings of the other two.

The myth is sweet, one day Tsai Lun was wandering along the bank of a wide river, no doubt pondering his commission from the Emperor. He sat down by a tree and idly watched the river as it flowed past when he noticed that some overhanging twigs which had grown down to the water had a 'web' of some fibre spread and meshed across them. He reached out, pulled the branch towards him, and saw that the fibre was hemp. He gathered the twigs and carried them upstream until he came to a fishing village where he saw fishermen repairing their nets. They were cutting out the broken parts, throwing them into the river and replacing them by knotting in new strands.

Tsai Lun watched as the current carried the discarded hemp downstream and saw the twisted bits begin to break up as they hit rocks and the riverbank. It required but a small leap of imagination to realize that the web of fibres caught on the twig was the remains of the fishermen's netting.

The Emperor was greatly pleased with Tsai Lun's discovery when he was presented with sheets of felted fibres, which his courtier had caused to be prepared by having the river's action mimicked using mallets then formed on an open wove cloth stretched over a frame.

This was in 105 AD and the Emperor decreed that the secret of this new material must remain within China's borders on pain of death. 700 years later Arab invaders made a crew of Chinese papermakers they had captured at the Battle of Samarkand, an offer they could not refuse and so paper began its 300-year long journey via the Silk Route to Europe.

Nature has provided a myriad of materials from which paper can be made. One should be aware that paper has a precise definition, which means that nothing, not within that formula, is paper.

Paper is cellulose fibre, which has been macerated, dispersed in water, taken up on a mesh, and dried. From this, one can see that papyrus from Egypt is not paper nor is amytl from South America nor tapa from the South Sea Islands.

The fibres which nature provides papermakers fall into various categories and one is called 'bast'. This group are fibres including those derived from the bark of various trees and bushes. Among them are mulberry, fig and hibiscus. Though these three, among others, are all treated in a similar fashion, it is hibiscus that interests us here so below follows a brief but, one hopes, informative description of how paper is derived from the hibiscus plant.

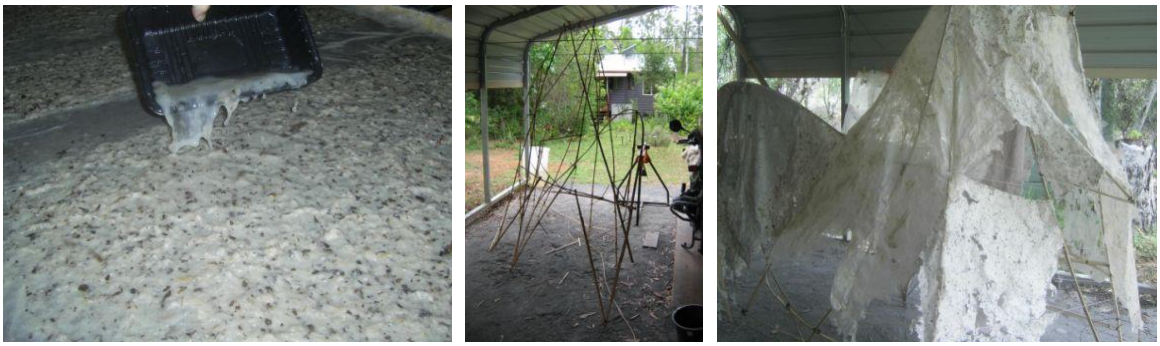
The hibiscus plant is harvested of some of its branches, year old wood being the optimum. It is best to harvest at the end of winter and before new growth begins. (When I lived in Italy, I harvested mulberry after the last snow towards the end of February).

When enough hibiscus sticks have been gathered, they are set 'head' upwards and bound in small bundles having been trimmed to the same size which will fit in a container on which a tight lid can be placed. The container will have a small quantity of water in it and the sticks will sit in the water. The water is brought to the boil and the bundles are steamed. This can take an hour or so. When the 'cook' is finished, the bark will have shrunk a centimetre down the stick and be easy to strip. Working very quickly to limit the cooling of the sticks, each stick is taken from its bundle and the top of the hibiscus bark is nicked and then pulled outwards from the wood which is held vertical, something like skinning a rabbit. The resulting 'ribbons' of hibiscus bark are hung on poles or lines to dry. When completely dry the 'ribbons' are tied in bundles and stored in a dry, dark place until required. (In January, again in Italy, I let my thumb nails grow to have 'knives' for nicking).

Bundles ready for steaming

Peeled Hibiscus bark

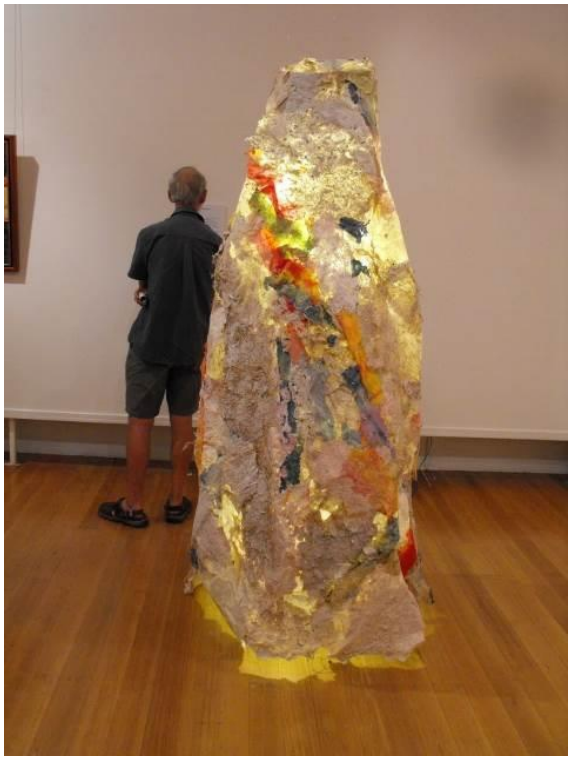
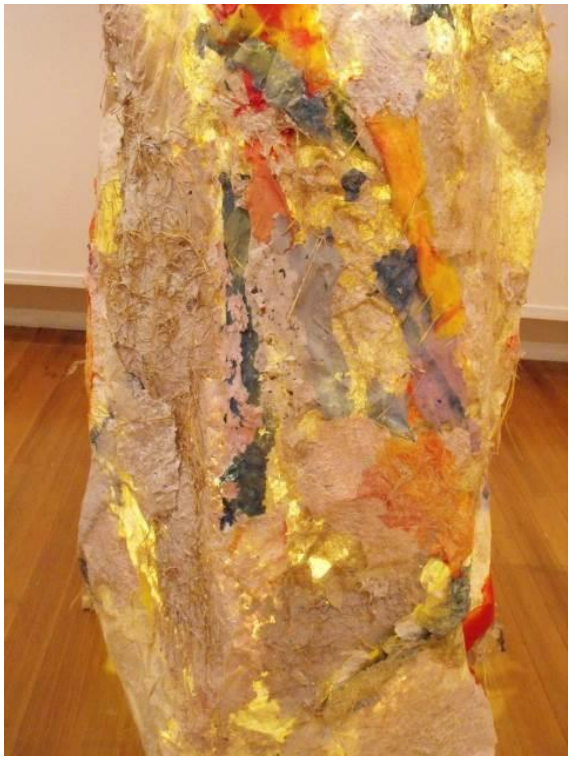
When one decides to make paper from the bark, the first task is to select the number of bundles required. Here, a knowledge of how much paper is to be made and how much each bundle will produce is important in order to have sufficient raw material, not too little that the process has to be repeated nor too much that there is waste.
The selected bundles of hibiscus are broken of their bonds and soaked in water for between 24 and 48 hours to rehydrate and soften. If white paper is required then the outer, dark bark is scraped from the white inner material. The dark bark can be used to make paper too. (Japanese papermakers used to make toilet paper from the outer bark of the mulberry). When all the 'ribbons' have been divided the process of making paper from the two materials is done separately. Usually, the bark is boiled in a mild caustic solution, normally soda ash, and then thoroughly rinsed. A fistful of fibre thus prepared is placed on or in a mortar and pounded with a pestle of some type. A slab of marble and a wooden mallet or two mallets are quite often used. The hibiscus bark is pounded until the strands are separated and soft, experience telling the operator how long to wallop.
Once all the material has been beaten, quantities are added to a vat of cold water to which a de-flocculent has been added. This is a clear, viscous substance which has the effect of 'lubricating the long fibres so they don't knot. Using a large stirrer the water and fibres are gently moved in the vat until they are evenly dispersed. Once this state is achieved the papermaker uses a mould and deckle to take up a layer of fibres which felt together to form a sheet. The sheet so formed is then transferred on to a felt by rolling the mould, paper side down, across a curved table on which the felt has been placed. Another felt is put over the first with its sheet of paper and another sheet is formed and so on until the desired number of sheets have been made.
To explain, for those unfamiliar with the equipment of papermaking, a mould is a frame over which a mesh has been stretched, while a deckle is a frame of the same external size but without a mesh. The deckle is accurately placed on the mould for the forming of the sheet and removed once the sheet has been formed and before transference.
The deckle determines the dimension and shape of the sheet of paper.



Pouring Hibiscus Paper (left); bamboo framework for sculpture (centre);
Sheets of Hibiscus paper draped over framework (right)

The pile of felts and papers, called a 'post', is then pressed and when the excess surface water has ceased being exuded, the post is removed from the press; each sheet of paper is separated from its felt and placed one on top of the other. When all sheets have been so treated, the new post of paper is pressed again. After the second pressing, the sheets are separated one from the other and dried. Once dry they are gathered together and pressed a third time. Once flattened out the sheets are ironed and then stacked and left for a period to 'mature'.

Certain types of papers were left for up to three months for this process. At this point, the paper is ready for use and very beautiful it is too.

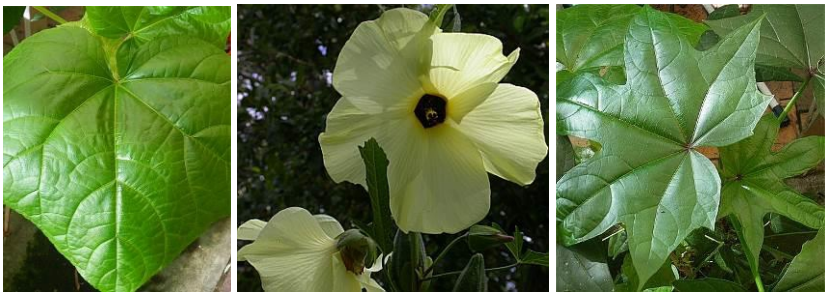



Paper sculpture made largely from Hibiscus on display at an exhibition; Details of Hibiscus sculpture

As a lot of my papermaking has been with Mulberry fibre, making paper with fibre from hibiscus has been an interesting experience. The roots of *Abelmoschus manihot* provide a substance that is an important ingredient when making paper with Mulberry fibre. We have found that it works when making paper with *Hibiscus rosa-sinensis* fibres. Given the result seen above with paper made from *Abelmoschus manihot* and *Hibiscus rosa-sinensis* fibres, we have begun growing native hibiscus for future paper trials.

One hopes this has been interesting and if you should like more information, please contact Colleen who, I am sure, will put you in contact with me.

Dion Channer, 2013



The roots of Abelmoschus manihot provide an important substance for making paper - different forms shown.

REFERENCES FOR THE FOLLOWING ARTICLE ON BRACHYCHITON BIDWILLII

PRINT

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2. Cherikoff, Vic, *The Bushfood Handbook,* Bush Tucker Supply Australia, 1989 (1993 printing), page 57.
3. For information on growing, storing and cooking Brachychiton: 'Wild Lime' by Juleigh Robins, Allen and Unwin, 1996, p.172 f.

WEB

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2. http://anpsa.org.au/b-bidw.html
3. http://www.abc.net.au/queensland/stories/s1778330.htm
4. http://www.brisrain.webcentral.com.au
5. http://www.watercorporation.com.au/w/waterwise_plants_detail.cfm?id=490
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BRACHYCHITON BIDWILLII IN SOUTH-EAST QUEENSLAND

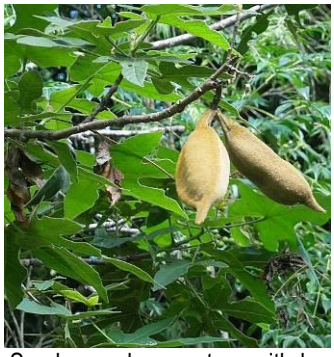
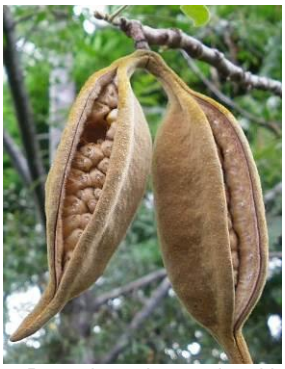
Colleen and Geoff Keena, Glamorgan Vale.
Edited by Kerry Rathie, Leader of the Brachychiton and Allied Genera Study Group

For years I have loved Brachychiton. We have seen brachychitons standing like sentinels in the landscape inland from Maryborough. The Flame Tree makes an outstanding street tree around Brisbane but when we visited North Queensland, we observed Flame Trees that were even more spectacular. We particularly loved the pink-flowering *Brachychiton discolor* covered with blooms in the garden of Geoff Simmons and soon planted one of these for ourselves. We were stunned by the rows of Bottle Trees, *Brachychiton rupestris*, lining the streets of Roma. We also loved the more delicate flowers of *Brachychiton populneus* (below) that is sometimes planted either as a street tree locally or in schools in this area. These last three species occur in our local area.



Having enjoyed brachychitons wherever and whenever we came across them, as well as plants growing in our garden such as the endangered *Brachychiton* sp. Ormeau, I was delighted to find that these plants are now considered to belong to Malvaceae (W1), rather than Sterculiaceae as previously. I felt vindicated in my ongoing enjoyment and planting of them. Previously I had not had a reason for liking them so much but now appreciate that they have been linked with Native Hibiscus, a favourite since I was a child.

I like that the seeds (centre images below) of brachychitons are edible. The seeds can be made into flour and we have eaten brachychiton flour in a 'Bush Tucker' restaurant although we have not made any ourselves as yet. The seeds can also be used to make a drink similar to coffee. Brachychiton seeds must be roasted before eating and care must be taken when removing the seeds as the fibrous material around them can be quite irritating in some species & varieties. The irritant hairs, mainly silica, in some northern species, such as *B. viscidulus, also contain lots of oxalate.* The seeds of Kurrajong, *Brachychiton populneus*, were found by a University of Sydney team to have 25 per cent fat and 18 per cent protein, making them a sustaining food (P1). References are noted below for anyone interested in the 'particularly tasty seeds' of the Kurrajong (*Brachychiton populneus*) (P2), (P3). All the other species have seeds high in protein.

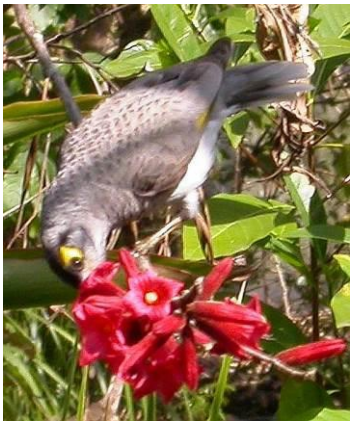



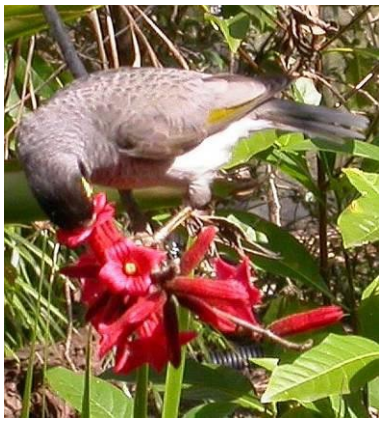
Seed capsule on a tree with leaves Boat-shaped capsule with seeds Close-up of seeds and irritant hairs Capsule present in next season

However, much as I like the species noted above, we like one particular plant so much that we have not only included plants in the Rainforest Section of our garden with other Brachychiton species but have planted it just outside our bedroom window. This plant is *Brachychiton bidwillii*. It is often known as 'Little Kurrajong'. We like the variation in the plant from the brightly coloured flowers on the bare branches in spring to the large boat-shaped capsules that hang amongst the leaves when these have grown after flowering ceases. Sometimes these can be found still on the branches in the next flowering season. We have observed that the flower production is increasing each year (W1).

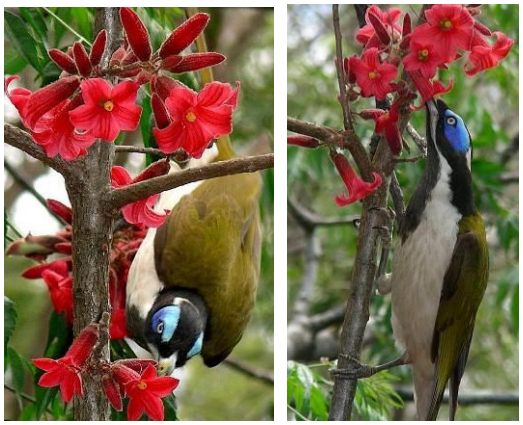
Being deciduous, this is a good feature for the north of the house as sun can enter to warm the house in winter but is excluded in summer when the large lobed leaves have formed: see first image above. However, we have discovered
another feature which makes this a standout performer for us. This species is possibly one of the best bird attractors in our garden, although we have seen birds on other *Brachychiton* species, such as the Flame Tree, *B. acerifolius* (next).

Mother and Baby Owl amongst dense foliage of *Brachychiton acerifolius*, Flame Tree. Blooms are from another plant.



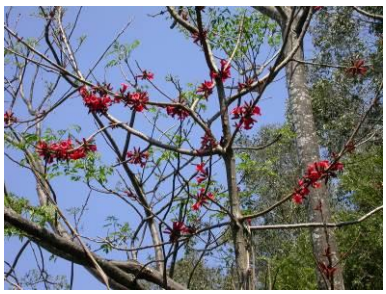


Noisy Miner visiting *Brachychiton bidwillii* blooms



Blue-eyed Honeyeater and *Brachychiton bidwillii*

Brachychiton bidwilli was named after John Carne Bidwill (1815-1853), who was a botanical collector of the 1840 - 1850 period. The genus name comes from Greek: brachys, short; and chiton, a tunic, a reference to the seed coat. It is found in rainforests in Queensland from Boonah, close to the New South Wales border, to Bowen in northern Queensland, almost always in situations with high light levels. In the garden setting, plants flower best in full sun. Our tallest plant is growing near a White Cedar (*Melia azedarac*h, first image below). The White Cedar loses its leaves in winter, resulting in a full sun situation for our tallest plant during winter and early spring. This plant (first two images below) flowers earlier than the two smaller plants grown in the rainforest area of our garden (3rd and 4th images).



Plant 1, flowers begin in September

Plant 1, flowers in September

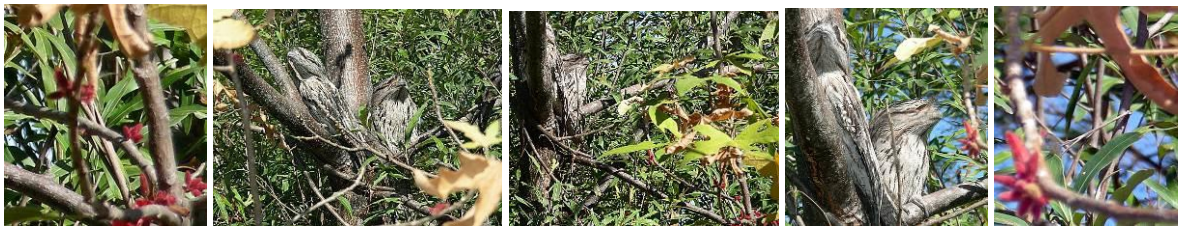
Plant 2, flowers in November

Plant 3, flowers in November

Although *Brachychiton bidwillii* is found in Queensland, there is information on its performance at the Australian Botanic Garden, Mount Annan in Sydney (W1). This reference notes that it can be slow growing in southern areas. The flowering time for Mount Annan is given as Summer but in our garden it always flowers in Spring as noted above.

This is a variable species, mostly an open shrub of about two metres tall, but may sometimes develop as a small tree on a single stem reaching four to five metres as our plant in the open has done (first image above, W2). Two of our three plants are only 1.5 metres tall but the plant grown in the open is over 5 metres tall. All were planted at the same time. Information on different forms can be seen on the ANPSA website (W2).

This ornamental plant is not often seen in cultivation locally although it is suitable not only for our subtropical conditions but for tropical or coastal regions. Its large, attractive flowers, interestingly shaped leaves and attractive woody capsules make it an attractive ornamental. The more northern forms tend to have larger flowers, up to 55 mm wide, & leaves which are mostly unlobed or only lightly lobed. Because most forms lose their leaves immediately before flowering (images below), the flowers make an impressive display (W3), just as the flowers of the Flame Tree, *Brachychiton acerifolius* are spectacular.



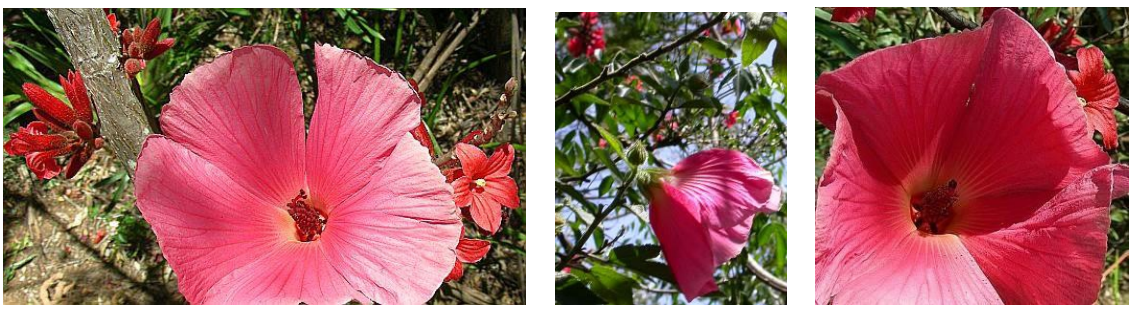
Tawny Frogmouths (centre images) camouflaged on a White Cedar beside *Brachychiton bidwillii,* which is losing its leaves even as buds form.

Brachychiton bidwillii starts flowering when it is very small, which is good as plants can be slow growing. As the plants age, flower production increases, and after eight years or so they may produce bunches of up to 50 bell shaped flowers coming directly from the trunk, as well as the usual flowers on twigs and branches. The flowers can be up to 30mm long and 15mm wide, varying from orange-red to salmon pink**.** Our three plants all have flowers of a different colour as can be seen above. By planting in different locations in our garden, we have *Brachychiton bidwilli* blooms throughout spring. The plant in the open is the one that we have observed as a wonderful bird attractor.

Leaves are simple, alternate with from 3 to 5 lobes and up to 4cm long (W4). From the northern end of their range, many plants have unlobed leaves or ones only lightly lobed, & up to 10 cm in length & width. The foliage is one of its distinctive features (W3). The plants from around Maroochydore are deeply 5-lobed, with hairy leaves that are purple when young, & small flowers that are longer than those of most other strains. The fruit is a boat shaped woody follicle which splits to reveal many hairy seeds inside. In this area, the fruits are found from the end of Summer on into Autumn. Propagation from seed is easy without any pretreatment (but Kerry warns that rodents, crows & bower birds love the seeds.) The seeds are surrounded in the capsule by irritant hairs and are best collected using gloves. The seeds of the more northern strains are usually virtually free of hairs, & the follicles easily 'disassembled' once fully mature., unlike those of *B. acerifolius & B. discolor.*The species usually takes about 3 years to flower from seed. Grafting is also easy, and by using scions of mature material from good flowering forms, plants will flower much earlier than those grown from seed. Seedlings of *B. acerifolius, B. populneus* and *B. discolor* have been successfully used as grafting stocks (W2). *B. rupestris* also serves as a good rootstock and Kerry Rathie (pers. comm.) believes all *Brachychiton* species will graft onto all others, although some (e.g. *B. gregorii*) are more difficult.

Brachychiton bidwillii is very hardy, tolerating a wide range of soil types provided they are well drained (W2). Our plants have been frost resistant to -6C. They are drought resistant as they form tuberous roots at the same time as their first true leaves (W2), making it an excellent choice for a waterwise garden (W5). This plant is included as a 'powerline friendly' tree (W6) and may be good underneath power lines.

Brachychiton bidwillii provides a superb flowering display in spring and is also suitable for large tubs and containers (W7). Perhaps best of all are the birds attracted to the blooms. For those who prefer longer flowering, *Brachychiton bidwillii* is one parent of two hybrids with longer flowering periods. These *spectabilis x bidwillii* hybrids, 'Jasper Lode' and 'Jasper Belle', are promoted by Kerry Rathie. 'Jasper Lode' is a deep pink, sometimes orangey in summer when the flowers are more than twice the size of the red ones in winter. 'Jasper Belle' can be pink to apricot-pink, depending on the clone.' Once well established, 'Jasper Lode' can flower for 10 months of the year and 'Jasper Belle', with flowers up to 70 mm in diameter, can bloom for up to 4 months. Both are as cold-hardy as *B. bidwillii.* The longer flowering period is from crossing a winter-flowering northern inland species by a spring-summer one. A second factor is, being fairly unrelated, pods are rarely set and more plant energy goes into flowers. Interestingly, Kerry notes that some clones of the same cross flowered poorly or not at all. We consider that *Brachychiton bidwillii,* or one of the hybrids just mentioned, would enhance the garden of anyone interested in Malvaceae. We have found that *Hibiscus* 'Brick Red' and our tall flowering plant of *Brachychiton bidwillii* complement each other. Who could resist planting such a combination (images below), especially when bird visitors add to the enjoyment?



Hibiscus 'Brick Red' flowering beside *Brachychiton bidwillii*