IPHA Newsletter #13

April 2021 edition

www.indigenousplantsforhealth.com

Indigenous Plants for Health Association FIELD DAY 27th March 2021

By Pat Collins

What a great field day we had at our place at Martindale and thanks for all the positive feedback you all sent me. It was a glorious day after all the rain and after two previous failed attempts to run the day (due to covid) we all made it happen. Earlier that week our creek flooded, so that put an end to driving across the creek to camp. As the creek roared near our house my husband raced down to make sure our walking bridge survived. All supplies for the camp along with the stills, wheelchair, chairs, dogs and people crossed that bridge.

The way into Pat & Bryant's beautiful valley with the road impassible, but the walking bridge holding firm and making it all possible.

We are all very grateful Trevor and Marion Woolley allowed everyone to camp on their place and then drive up the dirt road and cross the walking bridge to our place.

It took a little organisation but finally the day started with Andrew and Pat taking groups around to talk about the native plants and the useful weeds that grew around the campsite and garden.

Then after a few problems with power Rob was able to show us how his still worked and everyone took home some hydrosol of lemon verbena. Due to the flooded creek we couldn't access the Yellow Box we were going to distil.

Indigenous Plants for Health Association, Inc.

Indigenous Plants for Health (IPHA) is a not-for-profit incorporated association, formed with the objectives of raising awareness, sourcing grants and sponsorship for sustainable production of indigenous plant-based products.

We acknowledge that Aboriginal and Torres Straight Island Peoples are the Traditional Owners of this country, and they retain their relationship and connection to the land, sea, and community .

Andrew & Rob with the still—filled with the lemon verbena.

Then it was lunch time. Tash and I with a little help from others worked long hours on Friday to create our lunch of Nettle vegetable slice, Fat hen fritters, garden salad with wild greens plus twister on a stick with Blackberry nightshade jam.

In the afternoon everyone had a treat with Tash talking about all the bush products she has made and about the indigenous Australians who once inhabited our land. Then her sister Roz who is so good at basket weaving had a talk about what she did and got everyone involved in learning how to create bangles for kids, baskets etc.

Rob also talked about bees, honey and essential oil in honey so what a fantastic afternoon.

The day finished with a feast of kangaroo shish kabobs, bunya nut curry, stuffed pumpkin cooked in the coals, sweet potato, damper and afterwards local blackberries, acacia and macadamia nut ice cream and a great favourite was lemon myrtle cheesecake.

So good to try foods cooked on the campfire using lots of local and native foods and by the feedback I got on the day everyone loved it.

I hope the field day show cased the things IPHA encompasses. We all love to share our knowledge and hope you will in turn share it with friends. Big thank you to all the presenters and a special thank you to my lovely daughter Kim and her two little helpers that just kept everything going.

… It was wonderful to see you on Saturday…congratulations on a very successful Field Day, which was very energising, informative, and fun!

I know the huge amount of work involved in preparing for this. It showed in everything, from the mowed lawn, getting us sorted for parking, camping, etc, then up to your house, inspiring workshops, walk around identifying plants… all of it….including the delicious food…I had a particular weakness for the lemon myrtle cheesecake!
Brynnie Goodwill

Iron pot cooking in the hot coals the amazing banya nut curry and stuffed pumpkin.

I have five "one word" to describe the day!! …
Enlightening … Inspiring … Motivating … Stimulating … "Fantabulous" - not sure if that is a word!
All those words are the reasons I have achieved sooo much this last week - thank you all so much!
Merelyn Tolmie

Afternoon circle learning about traditional bush crafts and the use of native flora to make products such as string, bowls, bush medicine and more with the very knowledgeable Natasha Kellet and her sister Roz. Also, Rob's discussion of his honey medicine, aromeils (essential oil + honey).

Below—display of Natasha's work. Right—Mia showing her handmade bangle

Above: Twisters (damper on a stick) on the grill.
Right: Kangaroo kababs on the grill.

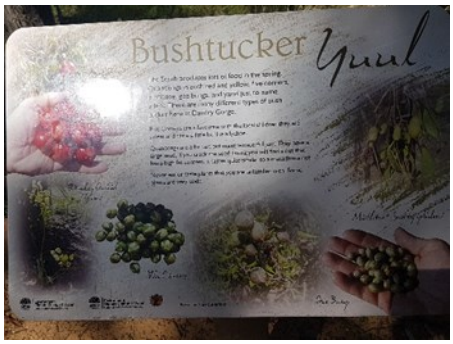
Editorial

This newsletter was held back an extra two weeks in order to feature the field day report. I think you will agree that it was worth the wait. I don't need to embellish Pat's report, other than to express my sincere thanks to Pat, Bryant and their family for all of the hard work they put in just to make the event happen, then to make it the success that it undoubtedly was. A big thanks also goes out to Trevor Woolley, Pat's neighbour who was gracious enough to allow 20 or so strangers to camp on his property, given that we couldn't get our cars through the floodwaters to Pat's place.

The newsletter may look a little different this time, I now have a co-editor in the person of Reesa Ryan, who is also IPHA secretary. Reesa is helping with proof reading, layout and final production, allowing me more time to focus on writing, for which I am most appreciative.

For me the Field Day has also been a long overdue opportunity to visit people and places in the Hunter region, then to Rylstone and the Central West. Following the summer of rain that climaxed in such a deluge, it was a great pleasure to see the country looking so green and lush—all the way back home to the Granite Belt in South Queensland. I did make a stop at the Pilliga Scrub in Gamilaroi Country, apart from some stunning sculptures the area is a wildflower paradise. Most plants are now in bud so I plan to go back in the Spring when they will be at their optimum.

I wish all members had a happy Easter break, Andrew



Seen at Dandry Gorge Aboriginal area, in the Pilliga Forest.

More on the Field Day …

The "field day … was indeed a wonderful time, despite the odds." Phil Sheppard

"It was terrific for us to catch up with people and take things as they came on the day." Sue and Fred

"That was a fantastic day - a huge thank you to everyone involved in organising and teaching!!" Merelyn

"It was a wonderful day … Think everyone had a good time…and learned a lot!" Brynnie Goodwill

Nina, Spot and I had the most wonderful time and didn't want to leave! It was packed full of the most friendly experiences, fun and healthy activities and a sharing of knowledge, skills and delicious food in a beautiful environment!

Thank you so much for your wonderful hospitality, kindness of spirit and sharing of your time.

Thanks to all those who made it a very successful and memorable time. Lynne Neilson

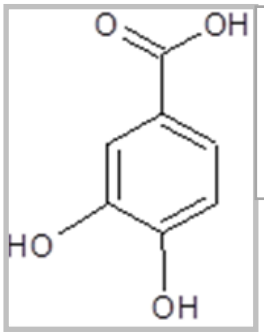
Top left—Jayne Azzopardi demonstrating her decorative and functional Portuguese Alembic copper still.

Left—lunch spread with the nettle slice, fat hen fritters and wild salads.

Below—the guided garden walk.

Table of Contents

Phytochemistry of the bush



Protocatechuic acid

- A simple polyphenol
- A building block for the synthesis of many tannins

—Pt. 2 Tannins

By Andrew Pengelly PhD

Introduction

Tannins are classified within the larger group of plant constituents known as polyphenols. These structures consist of one or more benzene rings with at least two hydroxyl (OH) functional groups attached to a benzene ring.

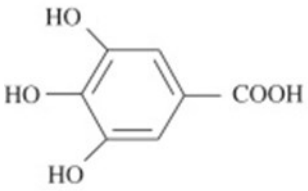
There are many categories of phenols and polyphenols, of which tannins may be the largest group. Non-tannin phenols include phenolic acids, phenylpropanoids, flavonoids, anthocyanins, lignans, macrocarpals and stilbenes. Some of these compounds have tannin-like properties. Polyphenols in general compromise the major dietary antioxidants. Many analytical studies assess the total phenolic content as distinct from the individual compounds present, and correlate these with antioxidant activity. Further, polyphenols help to prevent chronic diseases such as cancer, heart disease and diabetes (Netzel et al., 2007).

Tannins are widely distributed in the bark of trees, insect galls, gums and resins, leaves, stems and fruit. They are the chief plant constituents responsible for astringency in plants.

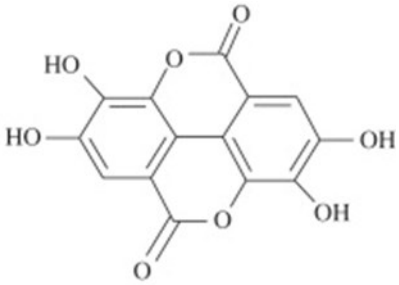
Tannins are high-molecular-weight polymers, they contain multiple benzene rings with hydroxyl groups attached. Their unique property is the ability to precipitate proteins such as albumin out of solution, the basis of their astringent effects and of the ‘tanning’ of animal hides. Due to protein precipitation, tannins exert an inhibitory effect on many enzymes, the basis of their pharmacological effects. Tannins may act as digestion inhibitors in humans, making proteins difficult to absorb as well as some minerals such as iron. Despite this, tannins provide many health benefits, and humans have a long history of consuming tannin rich foods and beverages, including tea and red wine.

Phytochemistry of the bush, Pt. 2 Tannins cont...

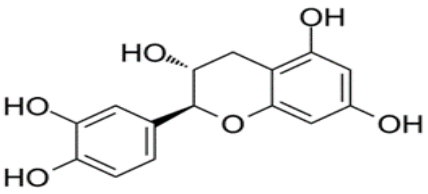
On the basis of their chemical structures, tannins are categorized as either hydrolysable or condensed. Hydrolysable tannins are polymers of gallic or ellagic acid linked to glucose molecules, while condensed tannins – much smaller molecules – contain 2 or more units of catechin. Complex tannins are also found, consisting of mixtures of both hydrolysable and condensed tannins.



Gallic acid



Ellagic acid



Catechin

Hydrolysable tannins are highly soluble in water, this can be demonstrated by the simple dipping of a teabag in hot water, or by observing the dark colour of many coastal rivers, whose banks are lined with trees such as paperbarks (*Melaleuca* spp.) containing tannin-rich leaves. Condensed tannins by comparison are less water-soluble.

Tannins have a wide range of therapeutic actions, these include antimicrobial and antiviral activity, protection and drying effect on inflamed mucous membranes, reduction of secretions and swelling which accompany infections, reduction of bleeding both from external wounds and excessive menstrual bleeding, binding effect in the gut for relief of diarrhoea and dysentery, and for external uses in the form of douches, snuffs, eyewash, mouth rinse and throat gargle. In addition, condensed tannins are potent antioxidants, tend to be cardioprotective, and many are under investigation for anticancer and anti-aging effects.

Various species of fig are reported to treat diarrhoea, one of them being *Ficus racemosa* or cluster fig. The astringent, antidiarrhoeal action has been demonstrated in rats, and attributed to the high levels of tannins present (Savigni, 2016).

While many plant sources including Acacia bark and Eucalyptus kino contain both hydrolysable and condensed tannins, this review will focus mainly on the hydrolysable type, most notably ellagitannins.

Acacia decurrens

Acacia tannins

In Australia tannin-containing plants have been used in traditional medicine for centuries, and there is early documentation of some tribal groups tanning kangaroo hides. The first European use of tannin-containing plants was also for the purpose of tanning hides, and our wattles were highly favoured for this purpose – species such as *Acacia decurrens* and *A. meanserii* were in high demand during the late 19th century (Williams, 2011). It is probably no coincidence that bark of *A. decurrens*, the green wattle with strong astringent

Images of wattles from Wattles of Australia (Lucid Central)
https://apps.lucidcentral.org/wattle/text/intro/index.html

properties, was also the most widely used medicinal *Acacia* in colonial times. Bark of the species was exported to Britain and was at one time included in the *British Pharmacopoeia*. The bark was collected from trees seven or more years-old, it was then allowed to mature for a year before use. The bark of blackwood (*Acacia melanoxylon*), a large tree that grows in the Eastern states from Tasmania to Cairns, is another tannin-rich species widely used by Aborigines, mainly reported for bathing rheumatic joints (Lassak & McCarthy, 1983).

Acacia melanoxylon

The colonial botanist Joseph Maiden reported the use of Acacia bark from species such as *A. falcata* and *A. implexa* by Aborigines for topical treatment of skin disease, the active constituents noted as tannins (Lassak & McCarthy, 1983).

Eucalyptus tannins

Nearly all parts of the Eucalyptus tree contain tannins, particularly the leaves, bark, fruit and kino exudate. Kino, the sticky exudate that forms when the truck or branches are damaged in some way, may contain as much as 50% tannin, responsible for the reddish-brown colour and astringent taste. As with some Acacias, species of *Eucalyptus* were ruthlessly exploited in colonial times, originally from Botany Bay with species such as *E. robusta* (swamp mahogany), and later from Western Australia, the marri *(E. calophylla,* now *Corymbia calophylla*) purportedly producing kino with 68% tannin (Williams, 2011). A potent antimicrobial Eucalyptus kino was listed in early 20th century editions of the *British Pharmacopoeia*, but interest waned with the advent of antibiotics, as was the case with other plant-based antibacterial agents.

Kino exudate from *Corymbia calophylla* (Wikipedia)

The most widely studied Eucalyptus from the phytochemical point of view is the Tasmanian blue gum (*E. globulus*), not only as the major essential oil-producing species, but also in terms of non-volatile constituents. Leaf extracts of *E. globulus* contain significant levels of gallic and ellagic acid, along with the ellagitannin oenothein B, all exhibiting potent antioxidant actions (Amakura et al., 2009).

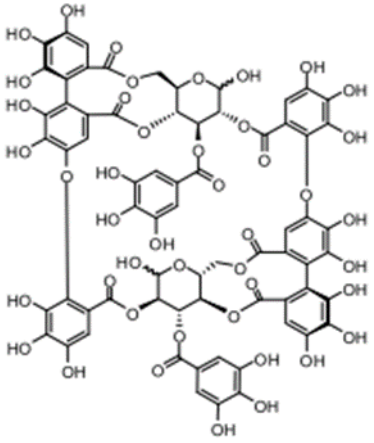
Oenothein B, also found in species of *Epilobium* (willow herb) and *Oenothera* (evening primrose), is a known anti-inflammatory and immunomodulatory agent. Among other therapeutic actions It has been shown to inhibit enzymes involved in the genesis of prostate cancer, and to reduce neuroinflammation of the brain in mice (Okuyama et al., 2013).

Eucalyptus globulus – Tasmanian blue gum

Over recent years several other ellagitannins and gallotannins have been isolated from *E. globulus* leaves (Boulekbache-Makhlouf et al, 2012). Two tannins of interest for this species, eucaglobulin and globulusin A, consist of gallic acid linked to monoterpenes with glycosidic bonds. These compounds demonstrated potent antioxidant, anti-inflammatory and anti-melanogenesis activity in vitro (Hasegawa et al., 2008).

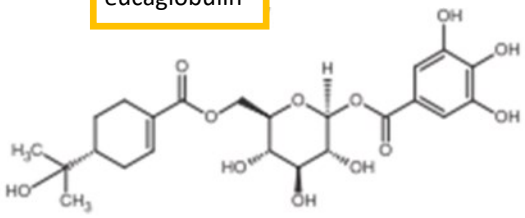
E. globulus fruit (which are oversized gumnuts) are another rich source of tannins. In one

analysis 18 gallotannins and 26 ellagitannins were identified, at higher levels than the leaves of that species (Boulekbache-Makhlouf, 2010).



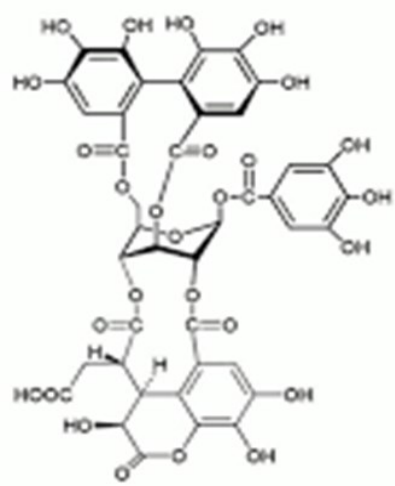
oenothein B – a dimeric macrocyclic ellagitannin

eucaglobulin

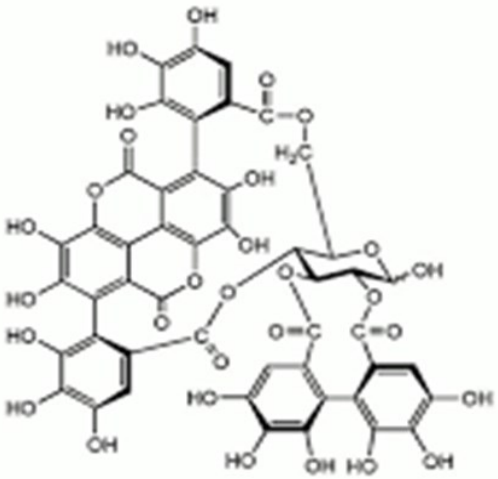


The leaves of Australia's most widely distributed species, *E. camaldulensis* – river red gum – contain dimeric ellagitannins, including tellimagrandin and pedunculagin, they demonstrated potent antioxidant and cytotoxic actions. Their potential as chemopreventative agents against breast, colon and other forms of cancer is under investigation (Singab et al., 2011). This tannin is widely distributed, also occurring in Australia's Casuarinas, as well as in oak bark and other Northern Hemisphere plants (Williams, 2011).

Eucalyptus is in the Myrtaceae family, and I believe that most plants in this very large family contain significant levels of tannins in their leaves and bark. Examples of some of the most well-known plants in the family are *Melaleuca, Syzygium* and *Backhousia*.



Chebulagic acid



Punicalagin

For example, anise myrtle (*Anethola anisata*) and lemon myrtle (*Backhousia citriodora*) leaves contain high levels of ellagitannins, while all three species are shown to have significant antioxidant capacity (Konczac, 2017). A tea made from the leaves of any plants belonging to this family can be taken, the combination of carminative effects from the essential oils present (leaves of these plants are all aromatic) combined with tannin-induced astringency, make an excellent remedy for digestive upsets and diarrhoea. Another aromatic leaf (and fruit) plant (though not from the Myrtaceae) with high levels of ellagitannins, is the popular flavour plant, mountain pepper (*Tasmania lanceolata*).

Native food and beverage tannins

There has been a resurgence of interest in fruit from the Australian bush, both from the marketing and consumer interest to research of their nutrients and phytochemicals. It turns out that several of our fruit demonstrate higher total phenolic levels and stronger antioxidant capacity compared to the global standard, which is blueberry (Netzel et al. 2017, Konczak, 2017). These properties are not all due to tannins, much is attributed to anthocyanins, phenolic pigments which give the fruit their rich colours.

These properties are not all due to tannins, much is attributed to anthocyanins, phenolic pigments which give the fruit their rich colours. In the case of the Kakadu plum (*Terminalia ferdinandiana*), notable for having the highest vitamin C content of any known plant, it also has high levels of tannins, such as the ellagitannins corilagen, castalagin and the benzopyrene chebulagic acid. The very high tannin levels are thought to be the main constituents responsible for the broad-spectrum anti-microbial activity reported for this species, particularly against bacteria responsible for some severe auto-immune inflammatory diseases (Courtney et al., 2015).

Kakadu plum

Terminalia ferdinandiana

Images from www.fruitipedia.com

While Kakadu plum may appear to be in a league of its' own, it is but one of many *Terminalia* species that grow across the tropical woodlands of Northern Australia, some whose distribution extends into Asia and the Pacific Islands. India in particular has several species of its' own, including some of their most highly-rated medicinal plants.

Most of the research in Australia has focused on *T. ferdinandiana,* however all species contain high levels of tannins in their bark and leaves, these include the wild peach (*T. carpentarie*), beach almond (*T. catappa*), rainforest damson (*T. macrocarpa*) and *T. grandiflora*. Most or all of these species are used in traditional Aboriginal medicine, particularly as topical applications for wound healing (Williams, 2011).

Beach Almond (*T. catappa*) growing as a weed on Fraser Island, Qld. Image from finia.org.au

Herbalists will be familiar with the Ayurvedic combination known as Triphala, the name literally meaning 3 fruits. Two of these fruits are from Indian species of *Terminalia, T. bellerica* and *T. chebula.*

Triphala is widely used as a digestive tonic and bowel regulator in India and elsewhere (look for it in your local health food shop or herbal clinic). The ingredients are all very rich in tannins, vitamin C and fibre, the uses for Triphala extend beyond the digestive system to eye disorders, dental and oral health, cardiovascular disorders and liver protection and diabetes (Upton & Mukherjee, 2020). I believe that Australia could easily produce an equivalent combination, based on the Kakadu plum and other *Terminalia* species.

Conclusion

Tannins comprise one of the largest categories of phytochemicals, and they are particularly well-represented in iconic Australian plants such as Acacia, Eucalyptus and other members of the Myrtaceae. The astringent action of tannin-containing plants has been well-understood by Aborigines, who make use of their localized effects on the mucous membrane of the dietary tract, along with wound-healing action on the skin.

Research over the last 2-3 decades has revealed the action of tannins in the body goes far beyond the localized effects previously acknowledged, and that these large macromolecules are not only amongst the most potent antioxidants, but they are also responsible for wide-ranging pharmacological effects. Hence, they are now being utilized for prevention and treatment of the deadliest of diseases, including cancer, diabetes and heart disease. In addition, their antimicrobial effects are proving useful against antibiotic resistant bacterial infections and viruses. In recent years Australian native fruits and leaves have come under investigation, and we now know they include some of the most tannin-rich and potent antioxidant plants in the world. Australians are blessed to have such ready access to these plants, many of which can be incorporated into our diets to help protect us against chronic diseases, and generally contribute towards good health.

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Roadside weeds with medicinal properties

By Rob Santich

I'll admit it; I'm a danger to drive with along country roads because my eyes are always attracted to the plants growing near the road. Being a manufacturing herbalist, in other words a herbalist who prepares his own medicines, I am always on the lookout for medicinal herbs growing wild. Although Australia is not as rich in this department as other parts of the world there is still an abundance of certain medicinal weeds spread throughout the country. I am personally most familiar with New South Wales and will be writing from that perspective.

Dandelion, *Taraxacum officinale*

This is a widespread herb in Australia and one that was covered in a previous article on liver toning herbs, where the focus was on the root part of the plant. To recap, the root of dandelion increases bile production and flow, cleanses the liver and supports its work as the major detoxifying organ in the body.[1] However the leaves are also very useful. The leaves have an influence on the kidneys and are probably the strongest herbal diuretic. The French name for dandelion "*pis-en-lit*" or "piss the bed" is reference to this diuretic effect.

All images from wikepedia.org

While most pharmaceutical diuretics deplete potassium from the system, dandelion leaf is rich in potassium which replaces any potassium lost through increased urination.[2] The leaves can also be consumed as a bitter green salad leaf and is a popular practice in Southern Europe. The bitter taste stimulates digestive secretions including those of the liver, thus aiding in the digestion of food and therefore general health. Ingesting bitter greens such as dandelion leaves is an important practice at the beginning of spring as the energy changes from a winter denseness to a lighter energy which activates the liver and gallbladder meridians.

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Nettle, *Urtica dioica, Urtica urens*

This widespread weed is a fundamental remedy in Western folk herbalism. The leaves are an excellent nutritive tonic similar to a herbal vitamin/mineral supplement. The leaves are rich in vitamins A and C as well as the minerals iron, silica and potassium.

They have been used throughout history as a spring time tonic as well as a nourishing tonic for anaemia, weakness and debility and are particularly useful for convalescence, where it is mostly taken as a tea prepared from the dried leaves.[1] The leaves also stimulate the liver and kidneys aiding in the removal of toxins from the system which is the reason behind the use as a spring tonic. Nettles have an astringent effect and are useful for internal and external bleeding; it is particularly useful for nose bleeds. In the old days the part paralysed, the arthritic and the gouty person would be whipped with the fresh picked nettle, restoring function and providing pain relief through what is known as a counter irritant effect.

Yellow dock, *Rumex crispus*

Often seen growing near nettles, which is interesting because dock leaves, crushed and rubbed on, are the antidote to the nettle sting. The roots can also be useful as a yellow dye.

According to herbal tradition the roots of yellow dock have alterative (blood purifying), tonic and laxative properties.[3] This latter action is fairly mild compared to cascara or senna though and is best compared to its cousin rhubarb in terms of laxative effect. The plant is rich in iron as evidenced by the rusty spots on the leaves which makes it useful for a range of blood disorders. In the treatment of skin conditions it combines well with dandelion root.

According to William Smith[4] the roots are useful for those with low spirits with irritability and a disinclination for mental effort… sounds like me at times!! The leaves can be eaten steamed, although these are best in early spring. Yellow dock root is the primary remedy in the treatment of heat in the digestive tract when the tongue is red. The roots are slightly sour and bitter which cools the digestive tract in cases of reflux and colitis.

Chickweed, *Stellaria media*

This shade loving plant is spread throughout the world's temperate regions and can be found in the shady parts of backyards and is more of an autumn/winter time plant. The small star like flower opens in the mornings at around 9am and closes in the late evening. Of special significance, Chickweed is a good predicter of rain, if the flower remains shut in the morning, then you can expect rain.[1] Birds and particularly chickens are very fond of this plant and it is highly nutritious, containing iron and vitamins A and C. A lot can be said about this humble herb. The herbalist Jethro Kloss writing in his classic book *Back to Eden* writes that it heals and soothes anything that it comes in contact with.

By this he means that it is great topical remedy, soothing and healing anything on the skin that is irritated, itchy and red. About 20 year ago, I was preparing a succus of chickweed, which is a fresh juice preserved in 25% ethanol. I had picked quite a lot, I didn't weigh it but maybe 30 kilos or more, anyway it took me all day to juice the plant by hand with a wheat grass juicer. Later that evening I experienced a homeopathic proving of chickweed as my skin broke out in a hives-like rash. In other words, over the course of the day and handling chickweed all day I had received almost a toxic dose that manifested the very same symptoms for which the plant is used to heal albeit in much smaller doses, consistent with the "like cures like" philosophy of homeopathy. Chickweed is also very soothing when taken internally mainly as a succus preparation and is very useful for peptic ulceration.

Shepherd's purse, *Capsella bursa-pastoris*

The ripe seed pods of Shepherd's purse resemble a traditional shepherd's purse made from the scrotums of rams, ouch! *Capsella* is a remedy most suited to conditions affecting the uterus and bladder particularly if the tone of these organs is poor and if there is bleeding. While these organs may be weak, the mind and will of these women are often very strong. Matthew Wood writes "It works best in those women that are of a high strung, ambitious nature, who generally do the work of two or three ordinary women."[5] I often use *Capsella* on women who are perimenopausal where the uterus is weak, maybe fibroids and profuse bleeding of dark clotty blood.

Conclusion

Although many of these herbs grow beside the road, they of course should not be picked for medicinal use from these areas, for obvious toxic reasons. However roadside identification will improve your botanical skills so you can easily locate these valuable remedies growing in other less toxic areas.

References

[1] McIntyre A. 1996, *The Complete Floral Healer,* Hodder & Stoughton, Rydalmere, Australia

[2]Mills S., Bone K. 2000, *Principles and Practice of Phytotherapy,* Churchill Livingston, Edinburgh

[3]Smith W. 1983, *Wonders in Weeds,* Camelot Press, Southampton

[4]Kloss J. 1939, *Back to Eden,* Woodbridge Press, Santa Barbara

[5]Wood, M. 2003, *The Admirable Secrets of Herbs, Roots and Barks,* self published

2 examples of Indigenous plants related to Stinging Nettle in this big family ...

Left: Small Shade Nettle.. *Australina pusilla* Gaudich. Photo J. R. Hosking

Centre & Right: Giant Stinging Tree, Gympie-Gympie. *Dendrocnide excelsa* Photo T.M. Tame ©The Royal Botanic Gardens & Domain Trust

Photos https://www.alltrails.com/parks/australia/queensland/wolston-creek-bushland-reserve

Wolston Creek Flora Survey— highlighting native health-promoting species, Part 2

By Andrew Pengelly PhD

This 2-part article is divided along alphabetical lines. Part 2 coincides with the completion of the survey in early February 2021, one year since the survey was initiated. Wolston Creek Flora Survey, Part 1 was published in the December 2020 IPHA Newsletter *#11/12. Anyone who would like a copy of the complete survey can contact the author.*

The Wolston Creek Bushland Reserve in southwestern Brisbane, is bordered at the narrow western end by the Brisbane River, with Wolston Creek acting as the southern boundary. These zones are characterized by narrow river-creek flats with alluvial soils, behind which are steep terraces that gradually flatten out towards the northern edge of the reserve. The northern boundary is characterised by a wide-open grassy strip dominated by powerlines, with an electrical sub-station and dog park at the north-western end, while the south-eastern end is bordered by a housing development. Geologically these higher zones consist of sandstone outcrops and shales. The regional ecosystems by broad vegetation groups are 12.3.11 Eucalypt open forests to woodland on flood plain (along the Brisbane River and Wolston Ck.); 12.3.16 a small patch of rainforest and scrubs along parts of Wolston Creek; and, 12.9-10.12 Eucalypt woodland to open forest on the higher sites, back from Wolston Ck. The grassy area along the power line easement has little or no remnant vegetation and is not considered in this survey.

In keeping with the objectives of IPHA, Andrew has added key information to the flora list focusing on plants with health-promoting properties, using the existing system of icons or symbols for different uses. Only native plants were considered, and grasses are excluded from the current list.

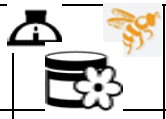
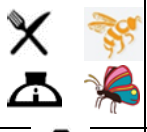
Note: plant species with no reported uses are still included. While it seems reasonable that we value plants with significant or multiple uses, we should not disregard those species that lack information on possible uses. Traditional uses for food or medicine might exist that has not yet been recorded, and there may be biological activity in a species not yet subjected to research investigations. Such plants may also have important roles in the ecosystem that we do not yet understand.

Key to plant use icons:

Medicinal- edible aromatic topical use bee forage butterfly attract

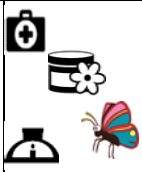
Chart

Myrsinaceae	Aegiceras corniculatum	river mangrove		Host to the White-banded line-blue butterfly
Myrtaceae	Angophora leiocarpa	smooth bark apple		Trunk exudate source for medicinal grade kino, astringent, antimicrobial. Food source for lycaenid butterfly larvae
Myrtaceae	Angophora subvelutina	broad leaf apple		Trunk exudate source for medicinal grade kino, astringent and antimicrobial
Myrtaceae	Corymbia citriodora ssp. variegata	spotted gum		Trunk exudate medicinal grade kino, astringent, antimicrobial. Leaves produce essential oil of variably quality
Myrtaceae	Corymbia intermedia	pink bloodwood		Leaves produce low yield of essential oil high in a-pinene. Trunk exudate source of medicinal grade kino
Myrtaceae	Corymbia tessellaris	Moreton Bay ash		Trunk exudates are source of low medicinal grade kino
Myrtaceae	Corymbia torelliana	cadaghi		
Myrtaceae	Decaspermum humile	silky myrtle		Leaves produce low yield of essential oil high in a-pinene. Small fruit are edible
Myrtaceae	Eucalyptus carnea	broad leaf white mahogany		Leaves contain an essential oil consisting mainly of 1,8-cineole and a-pinene
Myrtaceae	Eucalyptus grandis	Flooded gum		Presence most unlikely
Myrtaceae	Eucalyptus major	Queensland grey gum		Leaf and flower extracts shown to have antibacterial activity
Myrtaceae	Eucalyptus moluccana	gum topped box		Leaf produces essential oil 80% 1,8-cineole and 10% cryptone. Flowers good source of nectar for bees
Myrtaceae	Eucalyptus propinqua	small fruited grey gum		Leaves produce low yield of essential oil high in a-pinene. Flowers good source of nectar for bees
Myrtaceae	Eucalyptus seeana	fine leaf red gum		Leaves contain an essential oil consisting mainly of 1,8-cineole and a-pinene

Myrtaceae	Eucalyptus siderophloia	grey ironbark		Trunk exudate original source of 'Botany Bay kino', good astringent. Leaves produce low-yielding essential oil consisting mainly of a-pinene, with antimalarial activity. Leaves contain ursolic acid, an anti-inflammatory agent, and macrocarpals with antiviral properties.
Myrtaceae	Eucalyptus tereticornis ssp. tereticornis	Queensland blue gum		Trunk exudate source of medicinal grade kino. Leaves produce essential oil high in 1,8-cineole and a-pinene, with antimalarial activity. Leaves also contain ursolic acid, anti-inflammatory agent, and macrocarpals with antiviral properties.
Myrtaceae	Lophostemon confertus	brush box		Leaves contain an essential oil consisting mainly of a-pinene and aromadendron
Myrtaceae	Lophostemon suaveolens	swamp box		Leaf produces essential oil with 80% 1,8-cineole and 10% cryptone. Flowers are a good source of nectar for bees
Myrtaceae	Melaleuca bracteata	black tea tree		Leaves contain an essential oil consisting mainly of 1,8-cineole and a-pinene. Flowers are a good source of nectar and pollen for
Myrtaceae	Melaleuca nodosa	prickly paperbark		Leaves contain an essential oil consisting mainly of 1,8-cineole
Myrtaceae	Melaleuca viminalis	weeping bottlebrush		Leaves contain an essential oil high in 1,8-cineole and pinene. Leaf infusions are used for gastroenteritis, diarrhoea, skin diseases and haemorrhoids.
Myrtaceae	Sannantha collina	Baeckia		Aromatic leaves, attracts bees and butterflies
Myrtaceae	Syzygium francisii	giant water gum		Aromatic leaves and edible fruit. Attracts bees and butterflies
Oleaceae	Jasminum dianthifolium	narrow leaf jasmine		Used to treat stomach disorders
Oleaceae	Notelaea punctata	native mock olive		Previously Notolea longifolia var. glabra

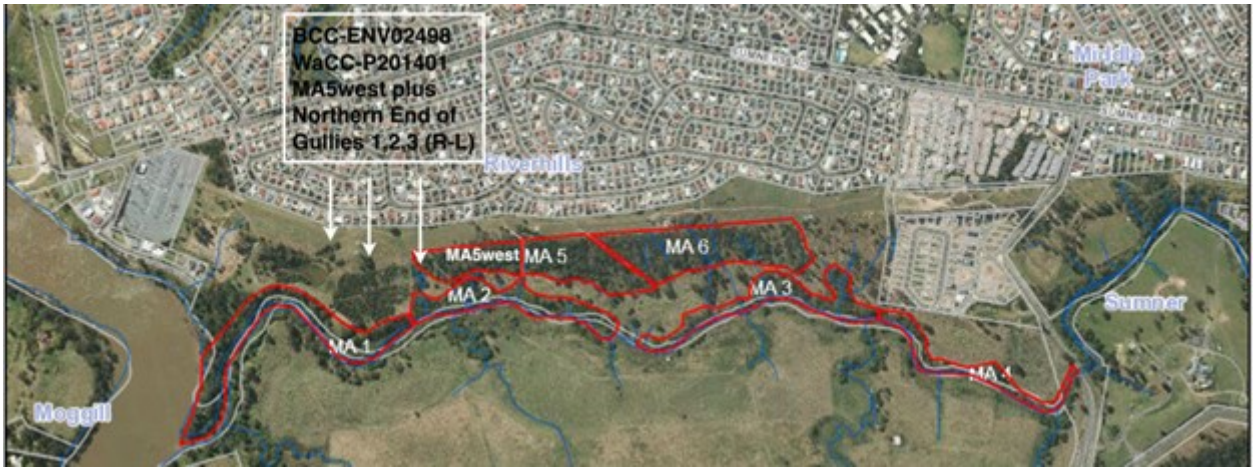
Onagraceae	Ludwigia peploides subsp. Montevidensis	water primrose		Leaf extracts shown to have antioxidant and antimicrobial properties, beneficial for treatment of acne
Onagraceae	Ludwigia octovalvis	native willow primrose		Leaf extracts shown to have antioxidant and antimicrobial properties
Oxalidaceae	Oxalis radicosa	a wood sorrel		Leaf and stem used in Ethiopia to treat malnutrition (children) diarrhea, toothache and to stop bleeding from cuts
Oxalidaceae	Oxalis thompsoniae	a wood sorrel		

Phormiaceae	Dianella caerulea	paroo lily / blue flax lily		Roots are palatable when baked, fruit edible in moderation. Roots are Aboriginal medicine for dysentery and genitourinary disorders
Phormiaceae	Dianella revoluta	a blue flax lily		Fruit is edible in moderation. The roots are Aboriginal medicine for colds and general sickness
Phormiaceae	Dianella breviped-unculata			
Phyllanthaceae	Breynia oblongifolia	breynia		Host to the large grass-yellow butterfly and species of moths
Phyllanthaceae	Cleistanthus cunninghamii	cleistanthus		
Phyllanthaceae	Glochidion ferdinandi var. ferdinandi	cheese tree		
Phyllanthaceae	Phyllanthus gunnii	shrubby phyllanthus		Inhibits HIV virus in vitro. Caterpillars of several butterfly species favour plants of the Phyllanthaceae as food sources
Phyllanthaceae	Phyllanthus tenellus	leaf flower		
Phyllanthaceae	Phyllanthus virgatus	twiggy phyllanthus		Traditionally used as eye wash for inflamed eyes, topical applications for mammary abscesses
Phyllanthaceae	Sauropus hirtellus	thyme spurge		Caterpillars of several butterfly species favour plants of the Phyllanthaceae as food sources
Phytolaccaceae	Phytolacca octandra	inkweed		
Piperaceae	Peperomia blanda var. floribunda	common peperomia		Used in traditional medicine to treat skin diseases, burns, eye infections, and asthma. Research reports indicate promise as a source of anticancer and antimicrobial drugs
Pittosporaceae	Pittosporum multiflorum	orange thorn		Aphrodisiac -seeds dried and ground into powder, infusion of twigs, seeds, leaves taken internally for stomach cramps or pain. Host to bright copper butterflies
Pittosporaceae	Pittosporum revolutum	forest pittosporum		

Pittosporaceae	Pittosporum undulatum	Native mock orange		A gum produced from the bark has been used as a topical salve. The fragrant flowers are pollinated by butterflies
Plantaginaceae	Plantago debilis	native plantain		Leaves may be used as substitute for common plantain, wound healer and venous topic. Host for larvae of the meadow argus butterfly
Poaceae	Cymbopogon refractus	barbed wire grass		Leaves can be used for mild citrus-flavour in cooking and teas. Host to larvae of the evening brown and no-brand grass-dart butterflies
Poaceae	Imperata cylindrica	blady grass		Rhizomes, shoots and young flowers are edible. Host to larvae of the evening brown, dusky knight and grass-dart butterflies
Poaceae	Oplismenus aemulus	creeping beard grass		Host to the wonder brown, orange bush-brown and grass-skipper butterflies
Poaceae	Oplismenus imbecillis	pademelon grass		Host to the wonder brown orange bush-brown and grass-skipper butterflies
Poaceae	Ottochloa gracillima	graceful grass		Host to the wonder brown, brown ringlet and grass-skipper butterflies
Poaceae	Themeda triandra	kangaroo grass		Seeds are edible, high protein grain. Host to the common, evening and shoulder-brown and ringlet butterflies
Polygonaceae	Persicaria attenuata	a smartweed		Contains a resin which is a cardiac depressant. Leaves used for treatment of rheumatism and swellings. Leaves are edible.
Polygonaceae	Persicaria orientalis	prince's feather		Used in Traditional Chinese Medicine to treat rheumatoid arthritis and cardiovascular disorders. Rich in flavonoids. Young shoots are edible when cooked
Polygonaceae	Persicaria strigosa	prickly smartweed		
Portulacaceae	Portulaca oleracea	purslane		
Proteaceae	Grevillea robusta	silky oak		
Putranjivaceae	Drypetes deplanchei	yellow tulipwood		
Rhamnaceae	Alphitonia excelsa	soap wood		Attracts a wide variety of insects including the small green-banded blue butterfly
Ripogonaceae	Ripogonum album	white supplejack		
Ripogonaceae	Ripogonum brevifolium	supplejack		This may be R. album, mid-identified in original survey
Rubiaceae	Psydrax odorata forma buxifolia	shiny-leaf canthium		
Rubiaceae	Cyclophyllum coprosmoides var. copros-	coast canthium		

Rubiaceae	Cyclophyllum longi-petalum	brush canthium		
Rubiaceae	Opercularia diphylla	narrow leaf stinkweed		
Rutaceae	Melicope micrococca	Doughwood		Leaves contain pharmacologically -active flavonoids, and an essen-tial oil consisting of a-pinene and sesquiterpenoids. Butterfly food plant. Orchard swallowtail observed.
Rutaceae	Citrus australis	native lime		Fruit used for a lime flavouring, leaves aromatic. Citrus spp. Are host to several swallowtail butterfly species
Rutaceae	Flindersia australis	crow's ash		Contains an alkaloid, flindersine, with antifungal, antibacterial and cytotoxic action. Leaves contain essential oil consisting mainly of sesquiterpenoids. Butterfly attractor.
Rutaceae	Flindersia collina	leopard ash		Contains an alkaloid, flinder-siamine.
Samolaceae	Samolus valerandi	brookweed		The species is widely distributed outside Australia; it has been used as a cooked vegetable and as a topical for ringworm and skin rashes in South Africa.
Sapindaceae	Alectryon connatus	wild quince		Fruit is edible. Host to line-blue, glistening and pencilled blue butterflies
Sapindaceae	Alectryon tomentosus	hairy bird's eye		Fruit is edible. Leaf extracts have potent antiinflammatory, analge-sic, antiulcer and antioxidant ac-tivity in vivo. Host to line-blue, glistening and pencilled blue butterflies
Sapindaceae	Arytera foveolata	pitted coogera		Fruit edible but not tasty. Host plant for caterpillars of six blue line butterfly
Sapindaceae	Cupaniopsis anacardi-oides	tuckeroo		Fruit high in antioxidant phenolic compounds. Host to the common pencilled-blue and bright cornel-ian butterflies
Sapindaceae	Cupaniopsis parvifolia	small leaved tuckeroo		Butterfly host plant
Sapindaceae	Elattostachys xylocarpa	green tamarind		
Sapindaceae	Guioa semiglauca	wild quince		Flowers produce honey that is rich in the flavonoid tricetin
Sapindaceae	Jagera pseudorhus var. pseudorhus	foambark		Flowers are a good nectar source for bees. Plant used as fish poison
Sapindaceae	Toechima tenax	steelwood		

Scrophulariaceae	Myoporum boninense subsp. australe			
Scrophulariaceae	Veronica plebeia	trailing speedwell		
Siphonodontaceae	Siphonodon australis	ivorywood		
Smilacaceae	Smilax australis	barbed wire vine		
Solanaceae	Solanum stelligerum	devils needles		
Ulmaceae	Aphananthe philippinensis	axe handle wood		Fruit is edible
Ulmaceae	Celtis sinensis	Chinese elm		
Urticaceae	Urtica incisa	native stinging nettle		Leaves are edible and nutritious, must be cooked. Taken as tea has anti-inflammatory and diuretic actions. Host to caterpillers of the yellow admiral butterfly
Violaceae	Afrohybanthus stellari-oides	spade flower		Food for caterpillars of the glass-wing butterfly
Violaceae	Viola hederacea subsp. hederacea	native violet		Leaves and flowers are edible
Viscaceae	Notothixos incanus	silver mistletoe		
Vitaceae	Cayratia clematidea	slender grape		Fruit and tubers are edible. Host to the Joseph's coat and day-flying moths
Vitaceae	Clematicissus opaca	forest grape		Fruit edible, low palatability
Xanthorrhoeaceae	Xanthorrhoea johnsonii / X. latifolia	a grass tree		Flower nectar makes a refreshing drink, also attract bees and butterflies. Tubers, roots and young leaves are edible. Leaf extracts are cytotoxic and anesthetic, may have therapeutic potential
Zingiberaceae	Alpinia caerulea	native ginger		Young rhizomes can be used like ginger. Pulp around seed is edible. Leaves used for wraping food. Attracts bees and butterflies. Diterpenes extracted from fruit are antiangiogenic (prevent tumors from spreading). Leaf

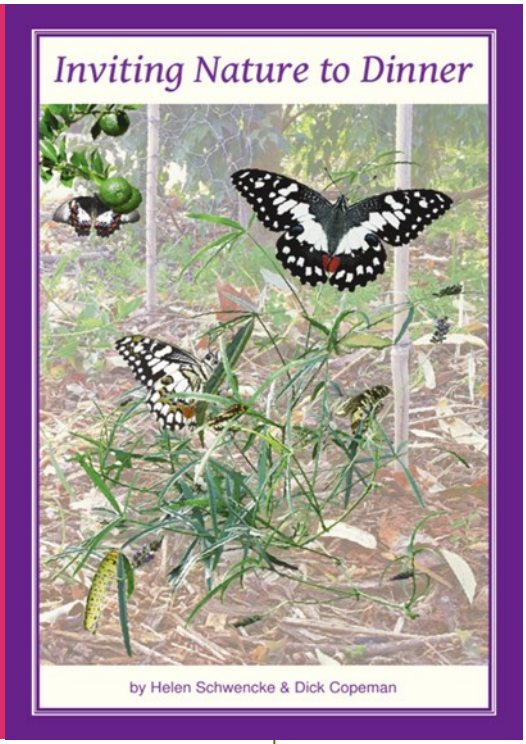


Indigenous plants for butterflies — by Andrew Pengelly PhD

Readers of the Wolston Creek Survey articles may have noted an extra feature in the survey list, alongside the usual health-promoting icons, there is now an icon for butterfly host. While the connection with butterflies isn't obviously health-promoting in the way that medicinal, edible or even bee foraging clearly are, many would agree that apart from aesthetic appeal the presence of butterflies is a good indicator for biodiversity. Without biodiversity and a healthy ecosystem, there will be a scarcity of health-promoting plants in general. Of course there are other indicators of biodiversity, such as birds, amphibians and other categories of insects, but it would be a huge task to incorporate these into my survey lists.

The other inspiration was first encountering the butterfly walk at Woodfordia, where I am also conducting a plant survey. A series of colourful signs are placed alongside host plants on the well-trodden pathway to the Folk Festival entrance, along with the butterflies for which they are host. In small print at the bottom of these signs, we learn that the photographer is Helen Schwencke of Earthling Enterprises.

It turns out that Helen not only designed these posters but she is also a regular presenter in the citizen science portal at Woodfordia events such as "The Planting" and "Bushtime". In addition, Helen is co-author of a few books on the subject, including *Create more Butterflies* and the more recent *Inviting Nature to Dinner* both published by Earthling Enterprises. These books feature an array of butterfly species found in the Brisbane region, along with their host plants, and other good information.



Having sat in on one of Helen's presentations, I arranged for her to accompany me on a visit to the Wolston Creek Bushland Reserve in Brisbane, the site of the flora survey. While impressed with the range of butterflies feeding on various flowering species, Helen emphasised that the true sign for butterfly hosting plants is the presence of larvae on the leaves. These tend to be species specific, whereas nectar feeding is not specific to any plant.

These and other books can be ordered from https://earthling.com.au/

One example of a hosting plant that we spotted was the doughwood, Melicope micrococca, of the Rutaceae family. While no sign of larvae for this butterfly was present, we found larvae on the leaf of a nearby tree, the native round lime, Citrus australis, also in the Rutaceae family.

Orchard swallowtail at Wolston Ck. Reserve

Round lime – *Citrus Australia*

Subsequently I was invited to visit Helen's insect friendly garden in an inner Brisbane suburb. It is amazing to see how many plants can grow and thrive in a small garden. Of the many plants that caught my attention was the native mulberry – *Pipterus argentus.* While the fruit are a poor substitute for the true mulberry, they are nonetheless quite palatable, and the plant is host to numerous insects, including the jezebel nymph butterfly.

Helen in her backyard at West End

Larvae of orchard swallowtail on Citrus leaf

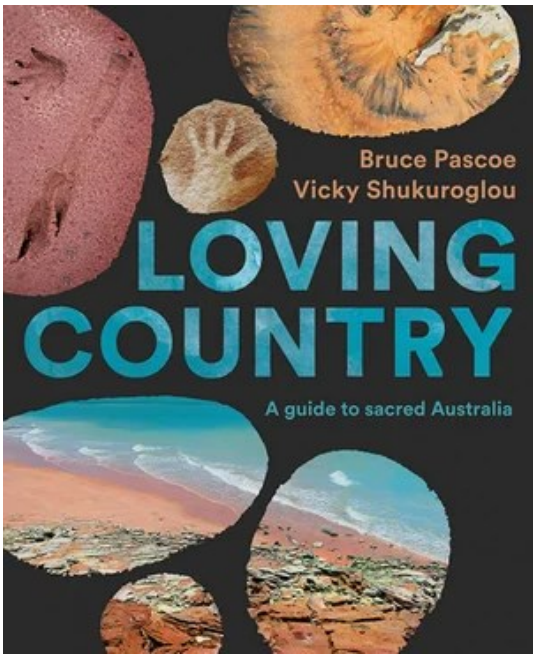
I will close with a quote from Helen, "the only good leaf is one that is being eaten".

You may expect to find more butterfly icons in future plant surveys.

Native mulberry – *Pipterus argentus*

Book Reviews

Loving Country: A guide to sacred Australia
by Bruce Pascoe and Vicky Shukuroglou (2020)



This is another high-quality production by Hardie Grant Travel, and it is indeed a travel guide—but one with a difference. This is a travel guide to sacred places, most of them in remote corners of the Australian continent.

The only previous travel guide from an Aboriginal perspective that I know of is Burnam Burnam's *Aboriginal Australia: A Traveller's Guide* (1989). This coffee-table sized book is out of print, but second-hand copies are available for a good price, and well-worth the search. While Burnam's tome focused more on regular and accessible tourist destinations from all around Australia, this new book is more selective in its choice of destinations.

I won't mention them all, but there are chapters on Namadgi National Park and Brewarrina in NSW; Grampians National Park and Point Ritchie in Victoria; Bruny and Kangaroo Islands in Tasmania and South Australia respectively; Albany and the Katherine region in WA; Alice Springs and Katherine in the Northern Territory; and Laura and the Carnarvon Gorge in Queensland. Each chapter is written primarily in a narrative style, combining ancient knowledge of each region with a contemporary perspective, with stunning photographs on almost every page. At the end of each chapter there are resources for the traveller—Indigenous cultural experiences, tours and relevant organisations, other things to see and do and further reading.

I haven't had the opportunity to visit any of these places in recent years, most of them are a day's drive or more from SE Queensland, however one of my ambitions is to visit at least a few of these sites, with travel guide in hand. We live in country so rich in scenery and culture; with this book we have legends and stories that teach us some of the meaning and significance of these places, places that are worthy of protection from the kind of exploitation that has no consideration for the sacred.

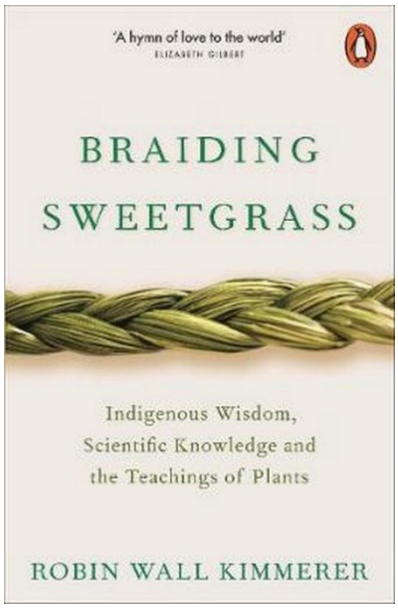
Barwon River

Brewarrina

Photo © Vicky Shukuroglou 2020

Braiding Sweetgrass: Indigenous Wisdom, Scientific Knowledge and the Teaching of Plants

by Robin Wall Kimmerer (2013 Penguin)



I had been told of this book for some time, and perhaps I felt that sweetgrass braiding isn't really my thing, hence it took me until 2021 to give it a go, and I'm very glad that I did.

With this book we are taken to North America, where sweetgrass is the common name for *Hierochloe odorata*, a grass whose fragrant odour comes about due to the presence of the phytochemical coumarin. In the language of the author, a Native American botanist, the plant is called *wiingaaskh*, which translates as the sweet-smelling hair of mother earth.

In *Braiding Sweetgrass* we are taken on a journey that depicts events from the author's life, however rather than presenting a chronological account of her life, each chapter tells a story, in which plants play a central role. What better theme for the opening chapter than a creation story, featuring Skywoman who fell from the skyworld, to be rescued from the ocean by birds and animals to ultimately create Turtle Island, the earth. You can hear the author tell the story on this short video:

https://vimeo.com/397856500

Notably the two main reactions by the story's protagonists are gratitude and reciprocity between human and animal—a far cry from another creation story that comes to mind.

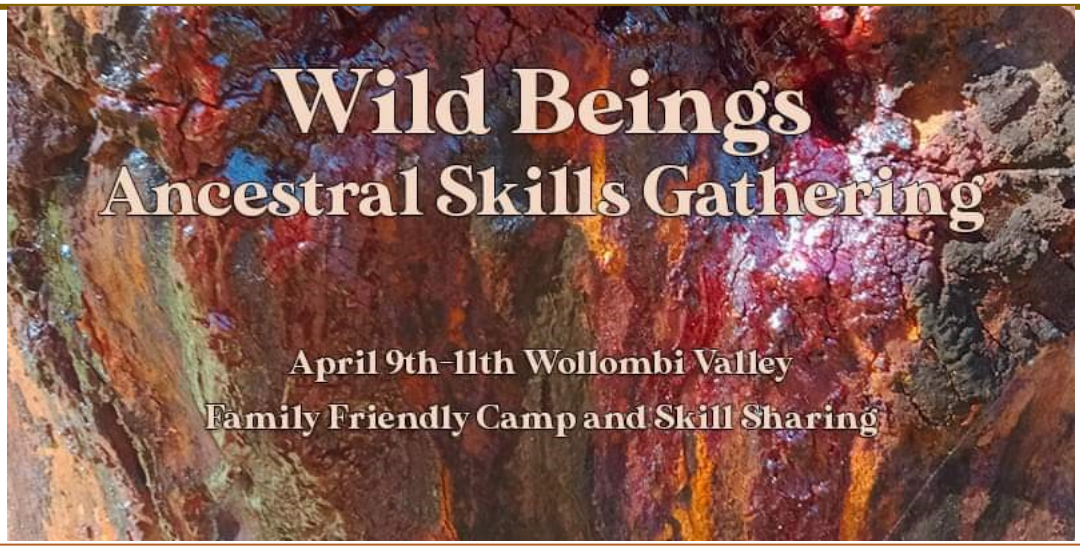
Other plants that contribute to the author's stories and analogies of life include pecan nuts, sugar maples, wild strawberries, water lilies and the three sisters. These are not the rocks you may have glimpsed when visiting the Blue Mountains, rather they represent the staple crops of Native Americans—corn, bean and squash. Many gardeners are familiar with this method of cultivation, where the corn (elder sister) acts as a support for the middle sister, the bean, while the late blooming squash (or pumpkin) covers the ground around the older sisters, shading the soil and keeping out the weeds.

A major theme in this book concerns the ethics of harvesting wild plants (and animals), and the consequences of over-harvesting. Using the example of wild leeks, the author passes on guidelines for the Honourable Harvest, some of which are listed here:

> *Know the ways of the ones who take care of you, so that you may take care of them.*
>
> *Introduce yourself. Be accountable as the one who comes asking for life.*
>
> *Never take the first, never take the last.*
>
> *Take only what you need.*
>
> *Never take more than half, leave some for others.*
>
> *Give thanks for what you have taken.*
>
> *Sustain the ones who sustain you, and the earth will last forever*.

If you are seeking pearls of wisdom, this is your book. I like to write down quotable quotes when I'm reading, however I found it impossible to do with *Braiding Sweetgrass*, in which the contents of whole chapters are worthy of quoting and abiding by, as an instruction manual on how we can live in harmony with the biological kingdom.

Other Events of interest …



Wild Beings creates spaces on land for humans to be.. humans!
The gathering will be a 3 day 2 night immersion in sand stone wilderness, enabling participants to develop deep relationship with the re-connection of their innate wild humanness through the ancient ways of wild skills and primal living practises.

Kids journeys and Adult journeys run simultaneously to give parents opportunity to connect to these Earth ways kid free.

All are welcome! Solo adults, couples, etc

30 minutes North West of Wollombi, on a property called Nanga Mai in Paynes Crossing.

Backing straight onto Yengo National Park.

https://www.facebook.com/events/2849668818642824/

Earth Market Maitland

- Protecting biodiversity
- Supporting local producers

Good clean and fair food for all

1st & 3rd Thursday of the month
from 8:30am at The Levee, Central Maitland

Slow Food MAITLAND Earth Market

2021 MARKET DATES		FEB 4th 18th	MAR 4th 18th
	APR 1st 15th	MAY 6th 20th	JUN 3rd 17th
JUL 1st 15th	AUG 5th 19th	SEP 2nd 16th	
OCT 7th 21st	NOV 4th 18th		DEC 2nd 16th

www.slowfoodhuntervalley.com.au/earth-market-project

Indigenous Plants for Health Association Inc.

MEMBERSHIP APPLICATION FORM

Set out below are my membership application details for Indigenous Plants for Health Association Inc.

Enclosed/transferred is the sum of $20 annual membership fee. The amount has been paid by:

Cheque

Cash

Paid by Bank Transfer (Important flag your name with payment)

Post Membership Form and cheque to:

IPHA Treasurer, 196 Bridge St. Muswellbrook, NSW 2333 OR if paying by transfer you may scan and email the completed and signed form to Patricia Collins (patcollins196@hotmail.com)

Bank Details for Payments: BSB 637000 Account 722660722

Name: _____

Address: _____

_____Postcode_____

Tel: Home_____ Mobile_____

Email: _____

Please share skills and interests with regard to indigenous and health-promoting plants.

I agree to abide by the Constitution and any policies, rules or regulations established within the association. These are listed on the website www.indigenousplantsforhealth.com

Signed_____Date_____

IPHA Committee Members

President, Newsletter editor in chief: Andrew Pengelly

Vice President, Treasurer: Patricia Collins

Secretary, Newletter editor: Reesa Ryan

Web, projects coordinator: Kathleen Bennett

Research Director,: Richard Carney

General members: Rob Santich

Vacancy
note we have a vacancy for one general committee member

https://indigenousplantsforhealth.com/