BUDAWANGIA*

AN E-NEWSLETTER FOR ALL THOSE INTERESTED IN THE NATIVE PLANTS OF THE NSW SOUTH COAST

Contact: Dr Kevin Mills – kevinmillskma@gmail.com

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Aims: To connect those interested in the native flora of the NSW South Coast, to share up to date information on the flora of the region and to broaden the appreciation of the region's native plants.

Editorial

The region was so dry going into February, although there was some relief with rain in the middle of the month. The cooler temperatures of autumn are being felt so it is time to get back into the bush after the hot summer. If you feel like a bit of weeding, the Friends of Minnamurra meet on the First Tuesday of the month at the Minnamurra Rainforest Centre (contact Juliet Dingle on 4887 8256).

This edition contains Part 1 of a piece on the local Cone Sticks and Drum Sticks, confusing plants for some people. Other plants discussed are an introduced daisy from Robertson, the Ox-eye Daisy *Leucanthemum vulgare*, and a spiky native from the tablelands, Blue Devil *Eryngium ovinum*. Nancy and Rob Pallin of Jamberoo Mountain and their friends have been testing control methods for the introduced Coral Tree *Erythrina sykesii*; Part 1 of their report appears in this edition. Following a question from a reader, the term 'brush' is explored and the mystery plant from last month is also revealed. Another reader has sent in photos of a white fruiting *Notelaea venosa*.

The interactions and associations between plants and animals are extensive and integral to the functioning of natural ecosystems. Often there is a close association between a particular animals and a particular plant species. So it is with butterflies, which usually lay their eggs on a small range of plant species, upon which the larvae feed. This edition includes a photo from a Jamberoo resident who found butterfly larvae eating his lime tree.

"Botany, n. The science of vegetables – those that are not good to eat, as well as those that are. It deals largely with their flowers, which are commonly badly designed, inartistic in color and ill-smelling."
Ambrose Briece (1842 – c.1914), *The Collected Works of Ambrose Briece*, Vol. 7, The Devil's Dictionary, 1911.
(The author was an American editorialist, journalist, short story writer, fabulist, and satirist, but not a botanist.)

I would be pleased to receive appropriate articles, however small, on interesting observations, new discoveries, plant name changes, etc., up to two A4 pages, including some photographs. Deadline for copy is one week before the end of the month.

Kevin Mills, Jamberoo, NSW.
Tel. 02 4236 0620

* *Budawangia* is a monotypic, endemic genus restricted to the Budawang Range on the western edge of the South Coast region. The genus was named by Telford in 1992; the species *Budawangia gnidioides* (Ericaceae) was previously *Rupicola gnidioides*.

Sorting the Cone Sticks from the Drum Sticks – Part 1 the Cone Sticks

The common names Cone Stick and Drum Stick are given to two genera in the family Proteaceae, namely *Petrophile* and *Isopogon*, respectively. In NSW, there are four species of the former and seven species of the latter; our region contains four and three species respectively. As the common names suggest, it is the shape of the fruit (cone) that give the game away. Cone Sticks have a more elongated cone than the more rounded cones of Drum Sticks.

Petrophile: A shrub genus endemic to Australia; 42 species all except five are found in only in WA.
Petrophile canescens – Cone Sticks; widespread on tablelands; south to Nerriga district.
Petrophile pedunculata - Cone Sticks; widespread south to Milton (coast) and Marulan (tablelands).
Petrophile pulchella - Cone Sticks; widespread, south to Jervis Bay area.
Petrophile sessilis – Cone Sticks; widespread; south to Jervis Bay area.

Petrophile sessilis

Petrophile pedunculata

Cones of *Petrophile pedunculata.*

New growth on *Petrophile pedunculata.*

The Orchard Butterfly

Bob Craven (Jamberoo) sent in a photograph of a pupa attached to a branch on his lime tree. The pupa belongs to the Orchard Butterfly (*Papilo aegeus*). This large black and white butterfly is common around gardens during the warmer months. Small eggs are laid under the leaves of plants in the family Rutaceae; most commonly these days on garden citrus such as lemon and orange. On hatching, the larvae begin to feed on the leaves of the plant and soon appear brown, black and white in colour; these resemble bird droppings and so avoid being eaten by birds. Later the larvae turn green, much like the colour of the leaves of citrus trees. Native food plants include species is *Zieria, Eriostemon* and *Phebalium*, as well as the local rainforest trees *Geijera salicifolia* and *Acronychia oblongifolia*.

Right. The greenish pupa of the Orchard Butterfly. Relative to the limes it can be seen to be a fairly large pupa. After a few days, the pupa turns brownish to blend in with the branches of the plant.

Mystery Weed Answered

The weed in last month's newsletter is Hemlock *Conium maculatum*; Marcus Burgess quickly came back with the answer, followed by Jennifer Liney. This species comes to us from Europe, Asia and North Africa. As noted in the last edition, this species is related to common food plants in the same family (Apiaceae), such as Carrots, Fennel and Celery. However, this species is certainly not to be eaten. In ancient Greece, Hemlock was used to poison condemned prisoners; the most famous victim being the philosopher Socrates. After being condemned to death for impiety in 399 BC, Socrates was given a potent infusion of the Hemlock plant. The poisonous nature of the plant features in at least two of Shakespeare's plays. The plant is commonly found in European folk lore.

The Ox-eye Daisy

Some readers would have noticed the daisy-like 'wildflowers' along the roadside around Robertson this summer. The plant is the exotic from Europe known as Ox-eye Daisy *Leucanthemum vulgare*. This perennial herb was presumably introduced as a garden plant and has taken a liking to the cooler uplands of NSW and occurs throughout the tablelands. The white and yellow flowers extend above a clump of spoon-shaped leaves; the plant spreading outwards by rhizomes. The plant is also naturalised in the southern states of Victoria, Tasmania and South Australia. This is a major weed problem in Kosciuszko.

Leucanthemum vulgare, plant (left) and flowers (above).

The Blue Devil

Sea Holly *Eryngium maritimum* (Apiaceae), an exotic originating from Europe that grows on a few beaches in our region, was featured in *Budawangia* no. 15. So I thought I would show the native Blue Devil *Eryngium ovinum*, which grows on the tablelands in grassland and open woodland, although it has disappeared from many areas due to grazing. It is usually a feature of better quality native grassland.

Early records of the Illawarra Brushes

I was recently asked about the term 'brush'. In NSW brush was usually used to denote rainforest, or at least thick moist forest. Thus we have the Yarrawa Brush, referred to above, and in northern NSW, the Wingham Brush. The Australian National Dictionary records the earliest use of the term *brush* in 1798, in the book *An Account of the English Colony in New South Wales (Volume 1)* by David Collins (1756-1810), deputy judge advocate and lieutenant-governor.

The following quote comes from the book *The Garden of New South Wales. A History of Illawarra & Shoalhaven*, published in 1948 (reprinted 1994). It was written by Barron Field who visited the Illawarra in 1822.

"The cedar planks, as they are formed by the sawyer at the pit, are carried on men's backs up to the mountain summit, where carts convey the planks to all parts of the colony, or they are carted to the shores of Illawarra and navigated to Port Jackson in large open boats. The government has not (by reason of its ample supply from Hunter's River and Port Macquarie) secured any portion of these cedar grounds to itself, simply compelling each person to take out a permit from the colonial Secretary's office, which must specify the number of feet of timber required, as without which protection, the cart and horse, or boat, and the cedar are liable to seizure by any constable."

"In a new run in the wild forest, the sawyers have to perform the preparatory labour of clearing their path, and a fall for the trees, which would otherwise be prevented from reaching the ground by amazingly strong vines. They then pit the stem, cut into short cylinders of from eight to twelve feet in length, and cut them into planks of one or two inches thick."

The following appeared in the *Sydney Gazette* on 17 March 1832, and was written by a traveller who had used Hoddles Track. The track, cut in 1830, ran from Wingecarribee to Saddleback Mountain. The *brush* referred to here is what became known as the Yarrawa Brush; this was the dense rainforest that grew around what is now the town of Robertson.

"An Herculean task in making a road, or rather a path from hence to Illawarra, through a brush so thick that every yard in advance required to be cut through before a passage could be effected. The rays of the sun did not even penetrate its recesses, and when a tree was cut through at the stump, it was lashed at one side of the path with vines, the closeness of the creepers and branches over hear not allowing it to fall. Many weeks were laboriously passed by twenty men in making a pass sufficiently wide for a pack bullock to travel, but it was eventually completed, and some day or other it is probable a channel of communication will be opened between the two districts. At present it is attended with difficulty and peril."

White fruit on *Notelaea venosa*

Marcus Burgess of Dapto sent in some photos of unusually white-coloured fruit on a *Notelaea venosa* (Oleaceae). Fruit on *N. venosa* is usually bluish-black, sometimes with a whitish bloom on the surface (glaucous), although white fruit are occasionally reported.

It is interesting that flowers that are normally blueish to purplish will on occasion produce white flowers. In some years, this can be quite pronounced and I have seen this phenomenon on several different species in a season.

Coral Trees – Part 1

Nancy Pallin and Tein McDonald, January 2014.

The Coral Tree *Erythrina x sykesii* (Fabaceae) is an exotic hybrid of uncertain parentage. The genus is pan-tropical, with four native species occurring in Australia; see *Budawangia* Nos 12 and 15. The Batswing Beantree *Erythrina vespertilio* of Queensland, NT and WA produces hard reddish beans used by Central Australian Aborigines for ritual and decorative necklaces. Coral Trees were planted throughout the east coast of Australia, usually to provide shade for livestock in paddocks cleared of native vegetation. They are deciduous in autumn and winter, when they flower. Clusters of bright red flowers attract birds to the nectar.

As an exotic plant, Coral Trees should be removed. Apart from the many sharp thorns on trunks and branches, the trees drop branches which put down roots that can grow into an impenetrable tangle. Groves continue to expand in size, often taking up good grazing land or infesting native vegetation especially along creeks and rivers.

At Cloud Break on Jamberoo Mountain, on the property of Richard and Susie Ellicott-Darke, a row of 11 Coral Trees were treated in the following ways:

- Three trees were basal-bark treated with *Starane* and diesel (as per recommended dose) in February 2009.
- The other eight trees were stem injected with *Glyphosate*/water at 1:1 in February 2012.
- All of this row of trees except for tree number 3 (from the west) were treated a second time in 2013 with *Glyphosate* stem injection as the original treatment didn't completely kill all the trees. The fine branches in the crowns were still reshooting foliage, including new buds; between 10% and 50% of the canopy depending on the tree.

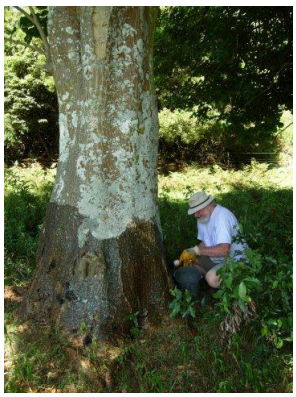
Observations on 23 January 2013

Pretty well all the previously treated trees had been ringbarked, in that there was a girdle of dead bark around the treated area, revealing bare, dry-looking sapwood. This was expected to have occurred after the basal bark treatment but was a bit of a puzzle in the case of trees only stem injected. We felt that the new growth on the trees might just be feeding on the starchy store in the trunks and that the ringbarking might eventually work without further herbicide injection – but we treated them anyway (although the ringbarking means that the success of further stem injection is dubious as the translocation tissue is severely damaged and so the herbicide is unlikely to circulate properly). The ringbarking also showed that the depth of the inner bark (to the xylem) was at least 5 cm. The lack of success of the original stem injection, which was not much more than about 5 cm depth, might be due to it being insufficiently deep to actually get the herbicide into the xylem (sapwood) where it was needed to absorb enough herbicide to kill the tree.

Grove near Misty Lane treated for the first time 2013

Learning from the observations, the team (8 people) started treatment on a new grove in the morning. We injected deeper to ensure herbicide got into the sapwood and filled each hole twice. Drill bit diameter varied from 10 to 12 mm. Speed bore bits were found to be unsatisfactory as they clogged with fibres more than the standard ones. The holes were similarly close (about 6 cm apart). After treating one large cluster, however, we noticed that the herbicide was running out of the holes and down the bark. Could this be the explanation for the unexpected dieback of the bark in the site previously treated with stem injection only? So for the second and third tree we tried to avoid filling the holes fully. Also, but perhaps too late, the affected bark on each stem in the clusters of trees was washed down with water using a sprayer. This may

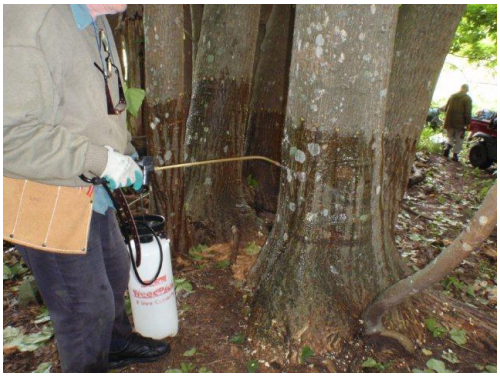
have been too late to be effective...but the goal was to avoid bark and inner bark damage as the xylem needs to remain intact to allow the circulation.
After lunch, more clusters were treated by (6 people), avoiding any spillage from overfilling the holes and washing off any spillage if it did occur. Results of these should be compared with the results of the ones treated in the morning.

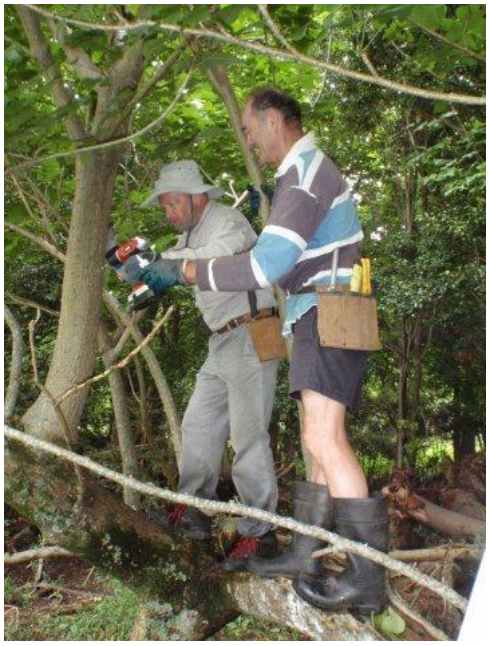


Far left: Basal bark treatment in 2009.
Near left: Inspecting western coral tree of the row in 2013.

Below far left: Craig and Richard drill and fill stems.

Centre: herbicide dribbling down bark.
Below right: washing stems.





From the results in 2014, it would appear that the best approach is to avoid overfilling drill holes as much as possible. Fill several holes and return to fill once herbicide is absorbed.

Below Left: September 2013 trees looked dead Below Right: January 2014 they are dead.