

BUDAWANGIA*

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

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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 early onset of the fire season saw a major fire in the northwest of the region in the Bargo area towards the end of the month, along with large fires in the Blue Mountains and one in the Budawang Ranges. Our thoughts go to the people of those areas, and those coping with losses unimaginable to most of us. We live in a fire prone environment and subject to increasingly erratic climatic events that, whatever your view about human-induced climate change, society has to come to terms with.

This edition contains the final chapter in the seed dispersal story. Also within, is a photographic piece on native/weed look-alikes. The usual sections on 'plant of the month' and the 'mystery weed' are also here. Leaf variation in *Streblus pendulinus* (syn. *S. brunonianus*) shows how variable leaves can be in a single species at one location. Following pieces in the last edition, two more readers have sent in comments about their experiences with *Pittosporum undulatum*.

A new section has been added to answer readers' questions; this will appear as required from now on. So send in your queries; I would even accept interesting answers without questions.

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. The NBN has come to Jamberoo and as a consequence my email has changed to kevinmillskma@gmail.com.

Many readers are gardeners, so I found a few quotes for us gardeners:

"To forget how to dig the earth and to tend the soil is to forget ourselves." Mahatma Gandhi (1869-1948).

"Gardening is the purest of human pleasures." Francis Bacon, philosopher, author, scientist (1561-1626).

"I perhaps owe having become a painter to flowers." - Claude Monet, painter (1840-1926)

"I have never had so many good ideas day after day as when I worked in the garden." John Erskine, educator and author (1879-1951).

"The botanist learns much from tending a garden." Kevin Mills.

"All gardeners are botanists to a degree but not all botanists are gardeners." – I just made that up to.

Kevin Mills, Jamberoo, NSW.

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* *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*.

Seed Trek – The Next Generation – episode three

I started this series on seed dispersal by referring to seeds that attached to socks after bushwalking or crossing a paddock. Humans have become the major disperser of plant seeds around the world. Whether by deliberate introduction or through accident, humans have changed the flora of most regions around the world through the introduction of plants that are exotic to those regions. I use the word weed here to denote any plant outside its natural range. Humans have over millennia introduced plants to new regions for food, fodder for stock, building materials, medicines, aesthetics, religious beliefs and various other reasons. Many weeds arrive outside their natural range by passive means, inadvertently introduced through human activity.

The Polynesians carried useful plants throughout the Pacific during their wide ranging travels by large sea-going canoes and these may have become so well established it is now difficult to know for sure whether they are native or not. Islands are particularly susceptible to invasion by alien plants. My work on Norfolk Island shows that the naturalised plants (weeds) outnumber the indigenous species by two to one. Other islands have had their floras almost completely replaced by an exotic flora; such is the case on Easter Island.

Studies have shown that seeds can be moved several kilometres on the shoes and socks of walkers and a study in Canberra many years ago demonstrated that the motor vehicle was an efficient dispersal agent for plant seeds. It is the responsibility of all to take care not to transport weeds into natural bushland, national parks and islands that we may visit.

Plant of the Month – *Olearia ramosissima*

The small shrub *Olearia ramosissima* (Asteraceae) is widespread in NSW, mainly in the north and west. In our region, the species appears to be very restricted, representing an outlying population well away from the main distribution of the plant. It is confined to the escarpments of the Shoalhaven River gorge near Tallowa Dam. Of about 54 species in NSW, some 18 species of *Olearia* occur in our region; all are shrubs to small trees, the largest being Musk Daisy-bush *O. arophylla*, a species of moist forests on the highlands.



Above/left: *Olearia ramosissima* photographed on an escarpment near Tallowa Dam.

Tree Trivia – if you believe Google

The deepest roots recorded in the world are from a Wild Fig Tree in South Africa. The roots reached 400 feet (122 metres) into the ground.

The fastest-growing tree in the world is *Albizzia falcata* from Malaysia. This tree can grow more than an inch (2.5 cm) every day. This is nothing compared to the fastest growing plant; certain species of bamboo can grow up to 91 cm per day.

Trees make up an estimated 80% by weight of the 49 trillion tons of green plants on the planet.

Readers' Questions - Elkhorn Ferns

John Prior (Figtree) has asked about the genus *Platycerium* and whether it occurs outside Australia. The genus is primarily of southern hemisphere occurrence, with some species also in Southeast Asia, including the Philippines. Species number about 15 and also occur in South America (1 species), East Africa/Madagascar, New Guinea, as well as eastern Australia (2 species). Elkhorn *P. bifurcatum* is the common NSW species; this taxon also occurs naturally on Lord Howe Island and is almost certainly introduced and now naturalised on Norfolk Island. The species reaches its most southern limit of distribution at Bunga Head in Mimososa Rocks National Park on the South Coast of New South Wales.

The genus name is from the Greek *platys* meaning broad and *keras*, a horn and is in reference to the broad, flat and horn-shaped fronds. The species name is from the Latin, *bi* –two and *furcatus* – forked, in reference to the fertile fronds (see photograph below). The species was named in 1799 based on a specimen from Port Jackson. The common name, not surprisingly, refers to the fertile frond that looks like an elk antler.

P. bifurcatum grows as a 'colony' of plants one to top of the other. These clumps can grow to a large size, and become so heavy that they fall to the ground because of their weight. In our region, the fern occurs in rainforest, often on rocks in drier types of forest, and on Swamp Oak *Casuarina glauca* along the coast. Most plants have been stolen from accessible bushland.



Platycerium bifurcatum colony
in an escarpment rainforest.



Under-side of a fertile frond, showing the broad brown-coloured area of spore-containing sori.

More Feedback on *Pittosporum undulatum*






From Geoff Long (Foxground): Without the addition of water and nutrients/fertilizer and normal regime of natural fires, *Pittosporum undulatum* is a normal component of rainforest and rainforest edges (height to 15 metres and diameter at breast height 250mm in rainforest) and stays that way. However, the prevention of fire and the addition of water and nutrients/fertilizers cause it to become a plant that's growing in the wrong place i.e. a weed. In such circumstances it needs the normal control mechanisms of weedy shrubs and trees.

Les Mitchell of Kangaroo Valley writes: Thanks for a very interesting issue, particularly the detailed comments about *Pittosporum undulatum*. I've no complaints about *Pittosporum undulatum* here, even though it comes up everywhere. It was the first 'rainforest' tree to regenerate on this site when we

first occupied what was a paddock 20 years ago. But now there are many other rainforest species (*Alectryon subcinereus*, *Myrsine howittiana*, *Cryptocarya glaucescens*, *Claoxylon australe*, *Syzygium smithii*, *Ficus coronata*, *Synoum glandulosum*) that have become established, though *Pittosporum undulatum* is still the dominant mesophyll tree.

Native - Weed Look-a-likes

Weeds can sometimes masquerade as natives; these weeds may or may not be in the same family as the native. Below are a few examples of natives that could be mis-identified as weeds. Bush regenerators should be aware of this issue and become familiar with identifying the weedy intruder. The rule is, if in doubt don't pull it out. The species I am most asked about is the difference between the native *Commelina* and the weed *Tradescantia*; see photographs below.

Native	Weed
<p data-bbox="263 607 655 636"><i>Senecio pinnatifolius</i> Coast Daisy</p> 	<p data-bbox="954 607 1385 636"><i>Senecio madagascariensis</i> Fireweed</p> 
<p data-bbox="225 1084 695 1113"><i>Marsdenia rostrata</i> Common Milk Vine</p> 	<p data-bbox="999 1084 1337 1113"><i>Araujia sericifera</i> Moth Vine</p> 
<p data-bbox="272 1547 647 1576"><i>Trema tomentosa</i> Native Peach</p> 	<p data-bbox="1018 1547 1318 1576"><i>Lantana camara</i> Lantana</p> 



Above left. *Commelina cyanea* Wandering Sailor with blue flowers.

Above right. *Tradescantia fluminensis* Wandering Jew with white flowers; commonly known as Trad.

Left. The leaves of *Commelina*, left, and *Tradescantia*, right.

Mystery Weed

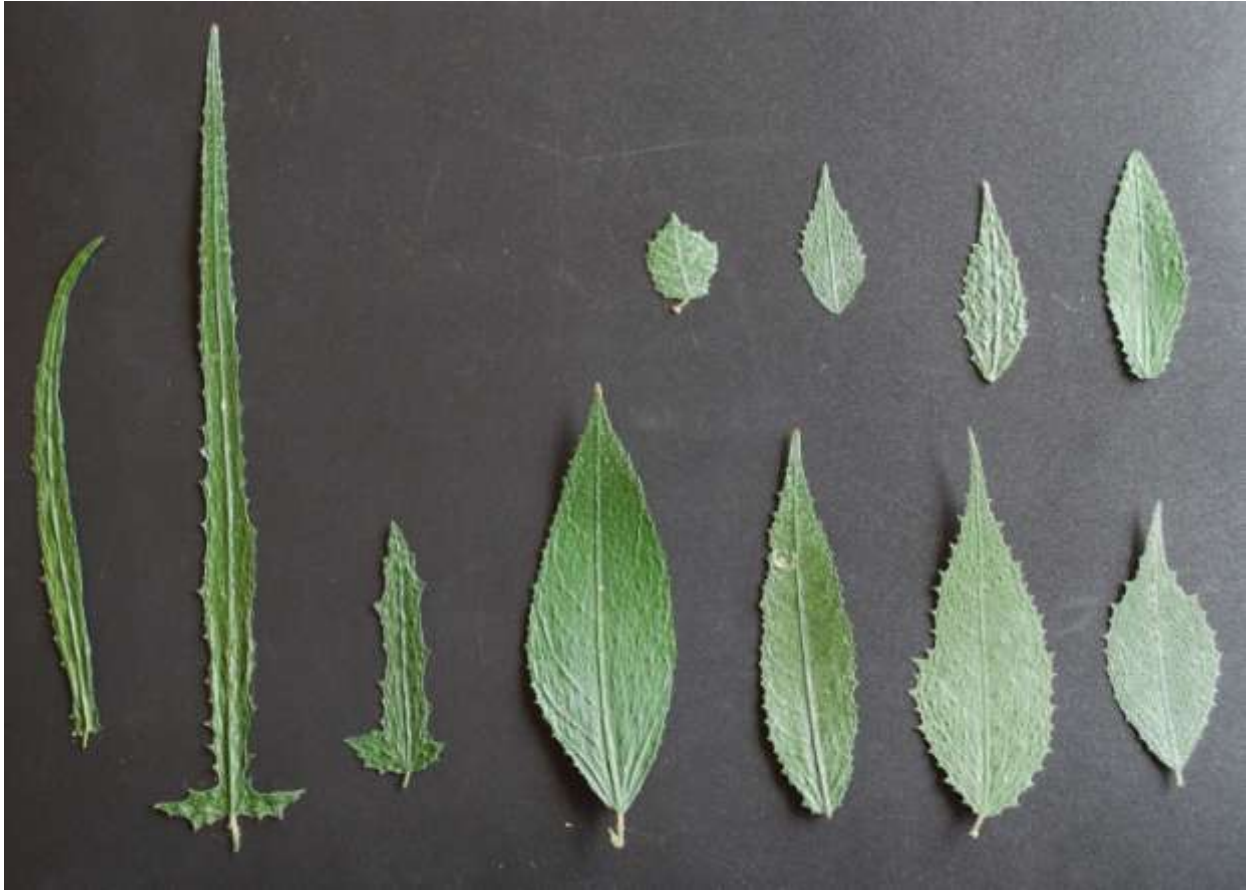
The mystery weed from last edition is Indian Barberry *Berberis aristata* (Berberidaceae), which is native to the Himalayan region. The flowers are an attractive yellow and the fruit is a bluey-black with a whitish bloom (sometimes reddish to start with). Steve Douglas was close with *B. vulgaris*, which is very similar but produces red fruit.

This spiky species was used as a hedge plant, from where it has become naturalised on the highlands of NSW. It is common along the track in Cecil Hoskins Nature Reserve.



Leaf variation in *Streblus pendulinus*

The leaves of some plants vary greatly and to consistently identify the species correctly requires familiarisation with this variation. A fairly extreme example in leaf variation is the local rainforest tree *Streblus pendulinus* (syn. *S.brunonianus*) (Moraceae). This species is very common in the subtropical rainforest on the Permian volcanic soils around Kiama and Jamberoo Valley. The species reaches its southern limit in the rainforest remnants growing on the Milton Monzonite near Ulladulla.



Variation in leaf size and shape in *Streblus pendulinus*.

All leaves were collected in a small area of rainforest at Jerrara in Jamberoo Valley. The long juvenile leaf on the left is the reason for the common name Whalebone Tree.

Yet another new word from readers

Ann Long (Foxground) sends us another unusual word: **agnotology** - the study of the cultural production of ignorance and doubt. The intention of the production of doubt is to delay or stop effective action. Its pertinence to botany is that it was employed by the tobacco companies in the selling of the Solanaceous plant *Nicotiana tabacum*. It is presently being employed to stop effective action to slow Climate Change. From the Greek *agnos* - lack of knowledge; *-ology* - the study of. For further reading try Oreskes and Conway *Merchants of Doubt* (2011).

As an aside, we also have the word *agnostic* - someone who does not know, or believes that it is impossible to know, if a god exists. The word was coined by Thomas Huxley, known as "Darwin's Bulldog" for his strong support for Charles Darwin and his idea of evolution. Our region has a connection to Huxley, as he married Henrietta Heathorn who lived at Jamberoo. (KM)