



**Banksias -  
Selection, Design,  
Cultivation  
&  
a little bit of botany**

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Rare and Extraordinary Plant  
Lecture Series  
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**UCSC Arboretum  
and  
Botanic Garden**

*Banksia cirsioides*



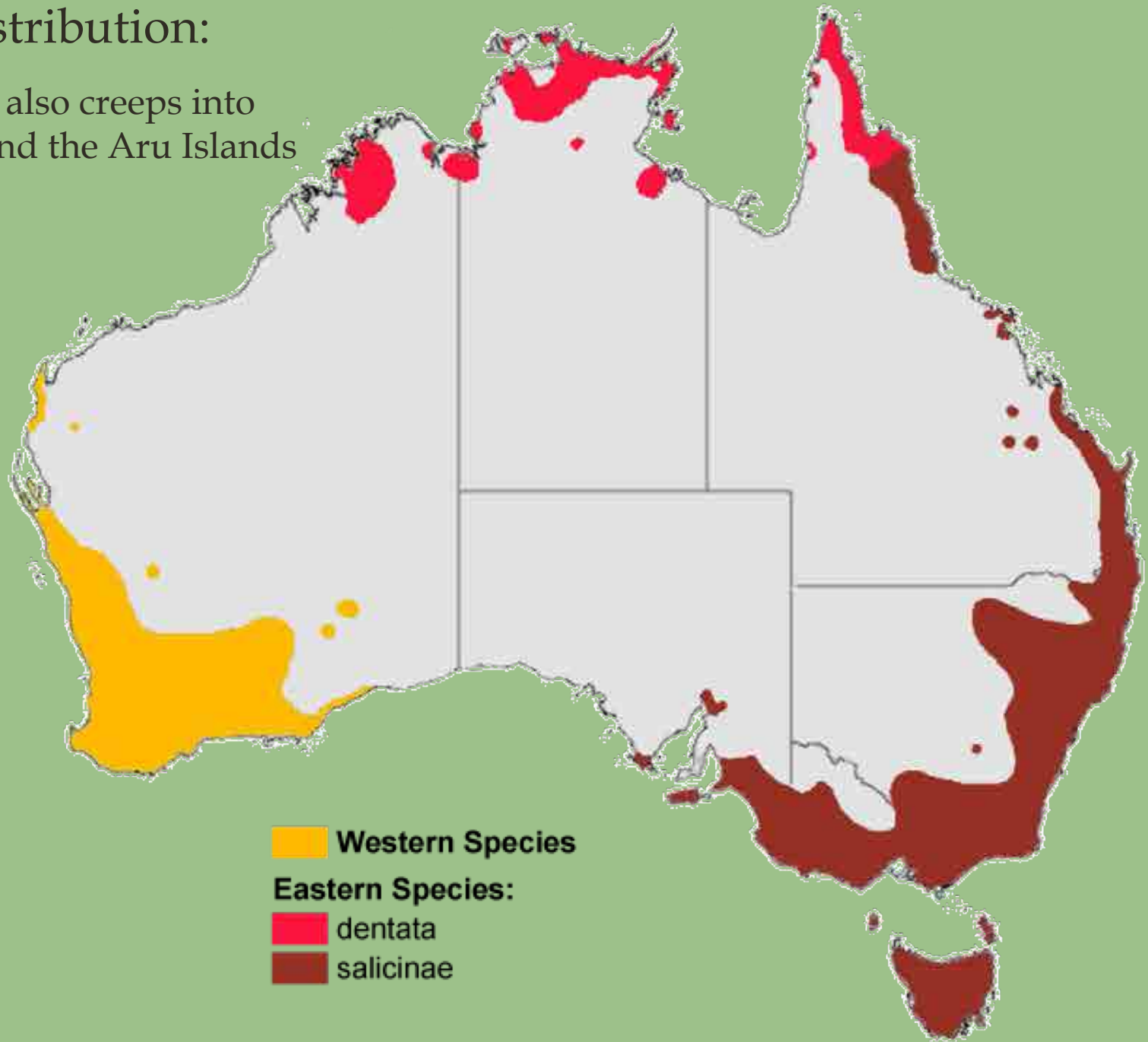
*Banksia blechnifolia*





# Banksia distribution:

*Banksia dentata* also creeps into  
New Guinea and the Aru Islands



# One of the first Banksia's new to Science

- *Banksia serrata* collected in Botany Bay, New South Wales by Joseph Banks and Daniel Solander in April 1770 was named by Carl Linnaeus, Swedish botanist and father of the binomial system.
- It was selected as the 'Type species'; chosen as a basis for naming and describing the new species to which the botanical genus name is always attached.

If you are confused about 'types' refer to this webpage;  
<https://www.floridamuseum.ufl.edu/herbarium/types/abouttypes.htm>







## Who is Joseph Banks?

Born into a wealthy family, 1743;

English naturalist, botanist & patron of the natural sciences

Made his name on the 1766 natural-history expedition to Newfoundland and Labrador

Became famous after Cook's 1768-71 voyage to Brazil, Tahiti, New Zealand & Australia

Sent botanists around the world to collect plants, he made Kew the world's leading botanic gardens

He is credited with introducing Acacia, Eucalyptus and Banksia (named after him) to the western world

Around 80 species of plants bear his name

Died 1820



# Why do Banksias appeal?

- Can have large 'specky' flowerheads
- Many have interesting foliage, especially the new growth
- Visits from birds, insects and animals to gather nectar from flowers
- They are just bizarre!
- Snugglepots & Cuddlepies & Big Bad Banksia Men!
- Excellent cut-flowers
- Iconic!
- Some are rare and endangered
- A challenge to cultivate!
- Can be utilised for art & craft
- Just plain appealing!



But before we explore the plants.....

.....About 12 years ago – Controversy!!!

A Joint US & Aussie Endeavour –

or was it a conspiracy of the Big Bad Banksia Men!

In 2007 **Kevin Thiele** from the Western Australian Herbarium and **Austin Mast** from the University of Florida created a botanical storm.

They suggested *Banksia* and *Dryandra* should become one genus!!

(which under the International Code of Botanical Nomenclature must be named the older genus, *Banksia*).

To effect the merge, all *Dryandra* species (94) have been renamed as species of *Banksia*.





**Austin Mast**



**Kevin Thiele**



These are all original  
Banksias but they do  
look like Dryandras!



*Banksia ilicifolia* (entire leaves)



*Banksia cuneata*



*Banksia ilicifolia* (serrated leaves)



These were all originally  
Dryandras but they are  
now Banksias!



*Banksia polycephala* (*Dryandra polycephala*)



*Banksia drummondii* (*Dryandra drummondii*)



*Banksia glaucifolia* (*Dryandra glauca*)



## Evolution of *Banksia* and *Dryandra*

- ✧ To understand the significance of the results that Mast and Thiele obtained;
- ✧ Figure 1 represents what most taxonomists would have drawn twenty years ago for a family tree of banksias and dryandras.
- ✧ Studies by Theile & Mast suggest that instead of being a sister branch, *Dryandra* is a branch that 'springs out' of the greater *Banksia* branch.
- ✧ Dryandras are modified and specialized banksias as shown in Figure 2.

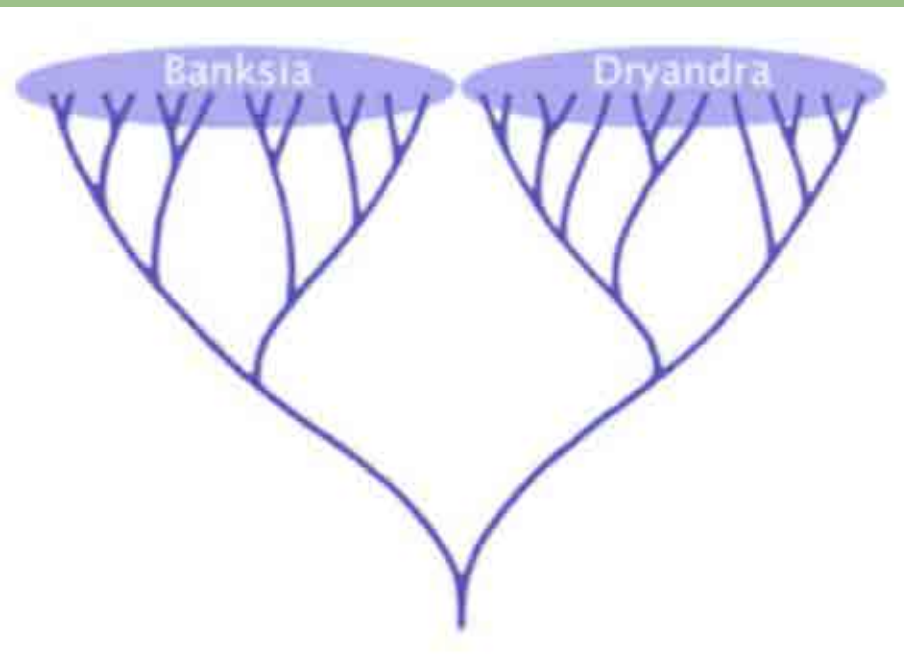


Fig 1

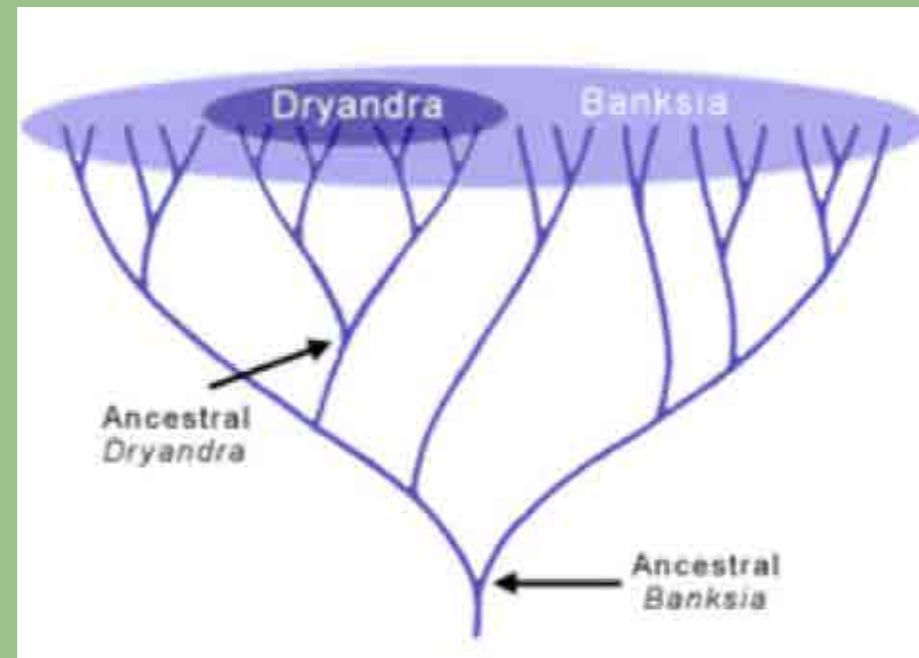
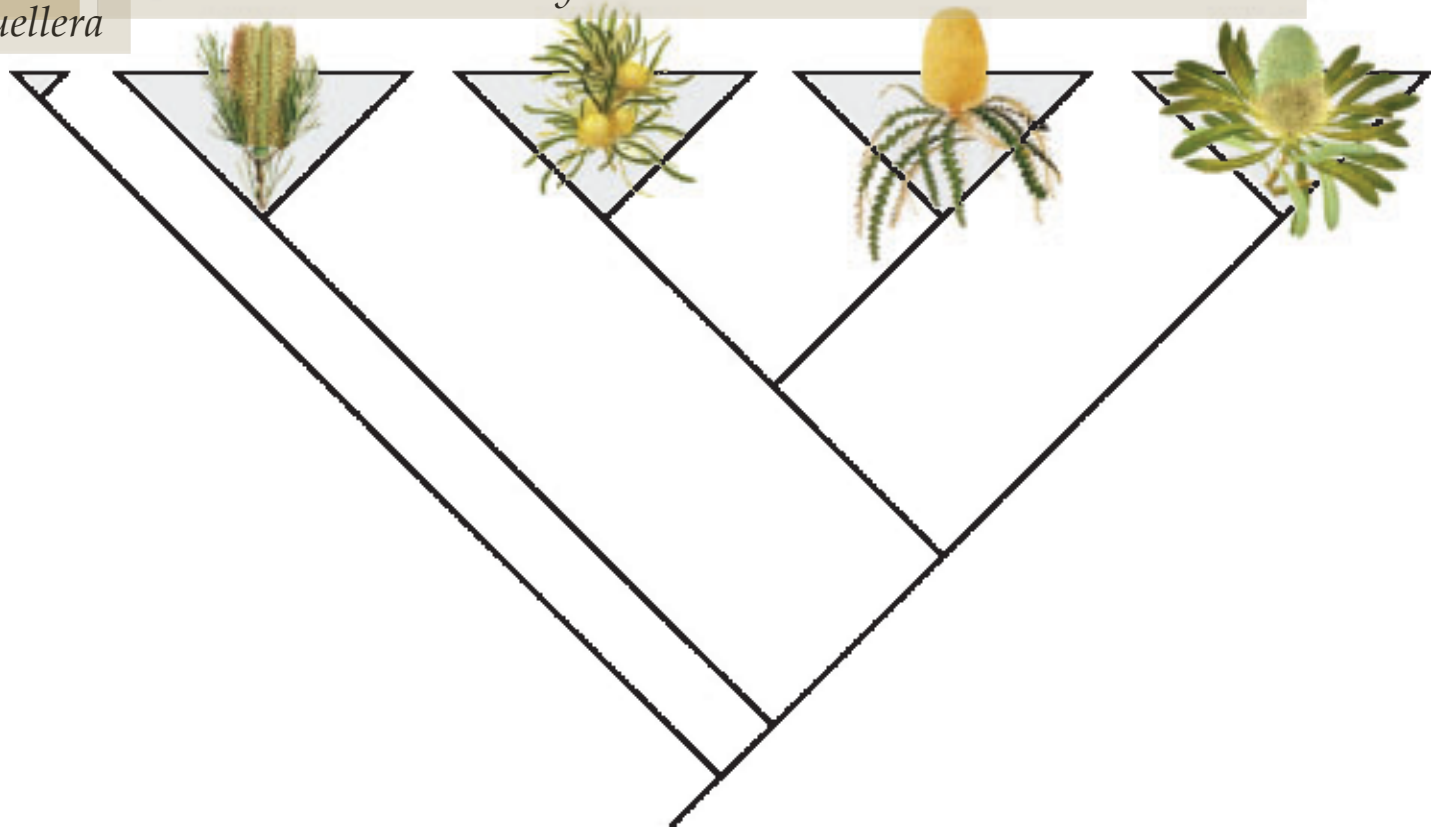


Fig 2

Banksia

*Musgravea* +  
*Austromuelleria*

*Dryandra* & *Banksia*





After that small diversion

Let's consider some Banksia  
attributes

# Consider the **Foliage**

*Banksia lullfitzii*



*Banksia petiolaris*





*Banksia alliacea* , (*D. nervosa*) with young new growth





*Banksia dallaneyi* subspecies *media*, (*D. lindleyi* subspecies *media*) young growth





*Banksia blechnifolia* young growth in a western Victorian garden





*Banksia heliantha* (prev. *Dryandra quercifolia*) young growth





*Banksia integrifolia* displaying undersides of leaves in windy conditions





*Banksia spinulosa* 'Golden Candles' has ornamental leaves; in Forest Garden at Cranbourne Gardens RBG Victoria





*Banksia marginata* young growth



*Banksia drummondii* ssp. *drummondii*  
with young growth





*Banksia caleyi* foliage on plant in UCSC Arboretum & Botanic Garden







*Banksia solandri* underside of leaves at UCSC



*Banksia robur* leaves on plant in Australian Garden, Cranbourne Gardens





**Perhaps not one of their Attributes! — What do you do with dead leaves?**

*Banksia blechnifolia*



*Banksia calophylla*





# Consider the **Flowerheads**

*Banksia media*



*Banksia speciosa*





*Banksia marginata*



*Banksia robur* opening on **north side** first!





*Banksia prionotes*



*Banksia victoriae*





*Banksia baueri*, Teddy Bear Banksia is as soft as a cuddly teddy bear





*Banksia baueri*, Teddy Bear Banksia from south-west WA can have pale to brown flowerheads





*Banksia baxteri*



*Banksia blechnifolia*





*Banksia goodii* a critically endangered species from near Albany, WA. Pic taken in 1960s





*Banksia sphaerocarpa* subspecies *scabrella*



*Banksia spinulosa* 'Schnapper Point'





*Banksia spinulosa* var *cunninghamii*



*Banksia occidentalis*





*Banksia menziesii*







*Banksia menziesii*



*Banksia coccinea*



*Banksia ornata*



*Banksia elderiana* is one of the number of Banksias which have pendent flowerheads





*Banksia splendida* (*D. speciosa*), Shaggy Dryandra belies it's outer appearance





*Banksia caleyi*, buds open yellow but often hard to find!



*Banksia lemanniana*, developing flowerhead





*Banksia ilicifolia*, Holly-leaved Banksia, a tree or large spreading shrub of 5 – 15 m x 3 – 8 m





*Banksia obovata*, (*D. cuneata*)



*Banksia squarrosa* (*D. squarrosa*)





*Banksia falcata* (*D. falcata*) displays its flowerheads well, while *Banksia erythrocephala*, (*D. erythrocephala*) flowerheads tend to be slightly hidden within the foliage





*Banksia glaucifolia* (*D. glauca*)



*Banksia undata* (*D. praemorsa*), a pinkish-flowered variant





*Banksia heliantha* and *Banksia formosa* flowerheads are highly valued in the cut-flower industry because of their long-lasting qualities







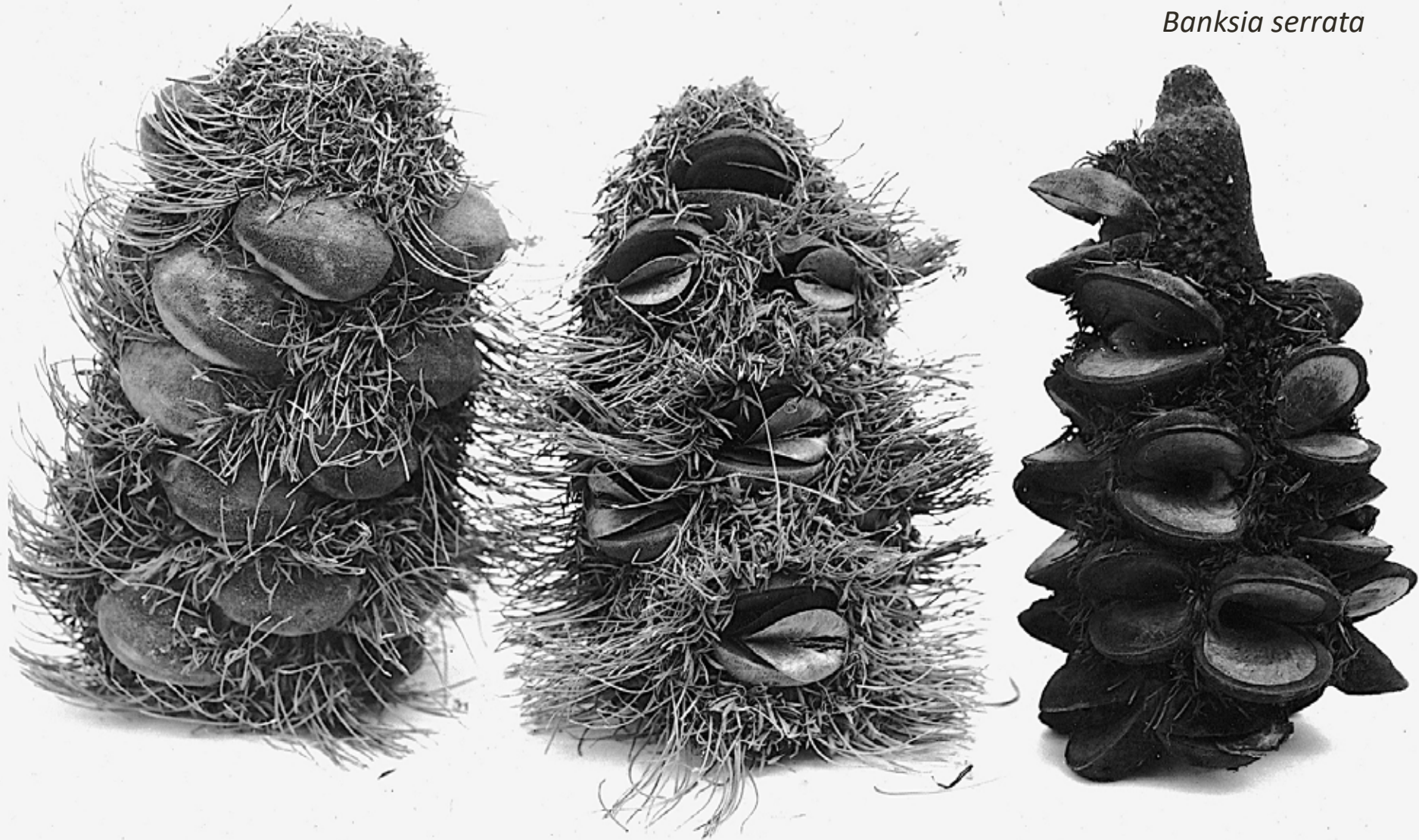
*Banksia robur*  
flowerheads on trunk  
(termed as cauliflory) in  
the Australian Garden at  
Cranbourne.

Cauliflory can also occur  
on lignotuber-bearing  
*B. spinulosa* varieties.



# Consider the **Fruits** – they are amazing

*Banksia serrata*

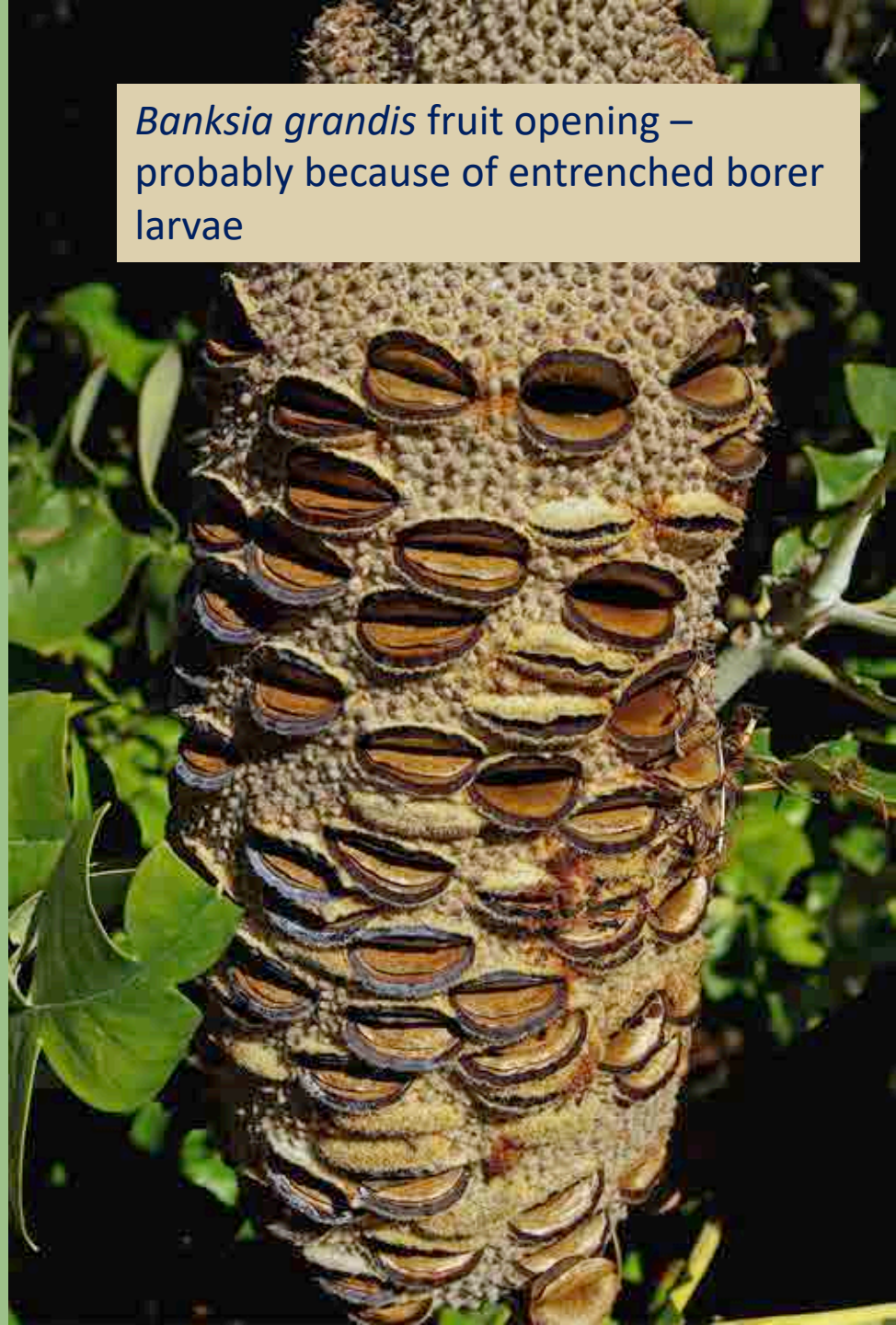




*Banksia integrifolia* young fruit – note rust



*Banksia grandis* fruit opening – probably because of entrenched borer larvae





*Banksia speciosa* fruit



*Banksia menziesii* fruit





*Banksia laricina* fruit



*Banksia canei* fruit





*Banksia baxteri*; young follicles





*Banksia ericifolia*

Can we grow all of the 170 plus species?

Possibly!

Depends a lot on prevailing climate and soil types





Most Eastern Banksias occur in or near coastal areas but others can also occur inland, where they mainly grow in heathland and woodland.

Eastern Australia Banksias are more likely to succeed in cultivation.

Species from Western Australia are another story but UCSC Arb results are counter to this theory.





*Banksia ornata* from arid regions  
of Western Victoria and South  
Australia



# What do they like?

- Most like acid soils
- Many like lots of sunshine
- Some like dryness
- Most like excellent drainage
- Few like constant moisture
- pH 5 – 7; mildly acid to neutral





## What don't they like?

- Waterlogging – most
- High pH – most
- Phosphorus – most
- *Phytophthora cinnamomi*,  
Cinnamon Fungus – most
- Eriophyid mites

Results of *Eriophyid* mites on *B. marginata* fruit



Need to understand our soils;  
there is a great variation.

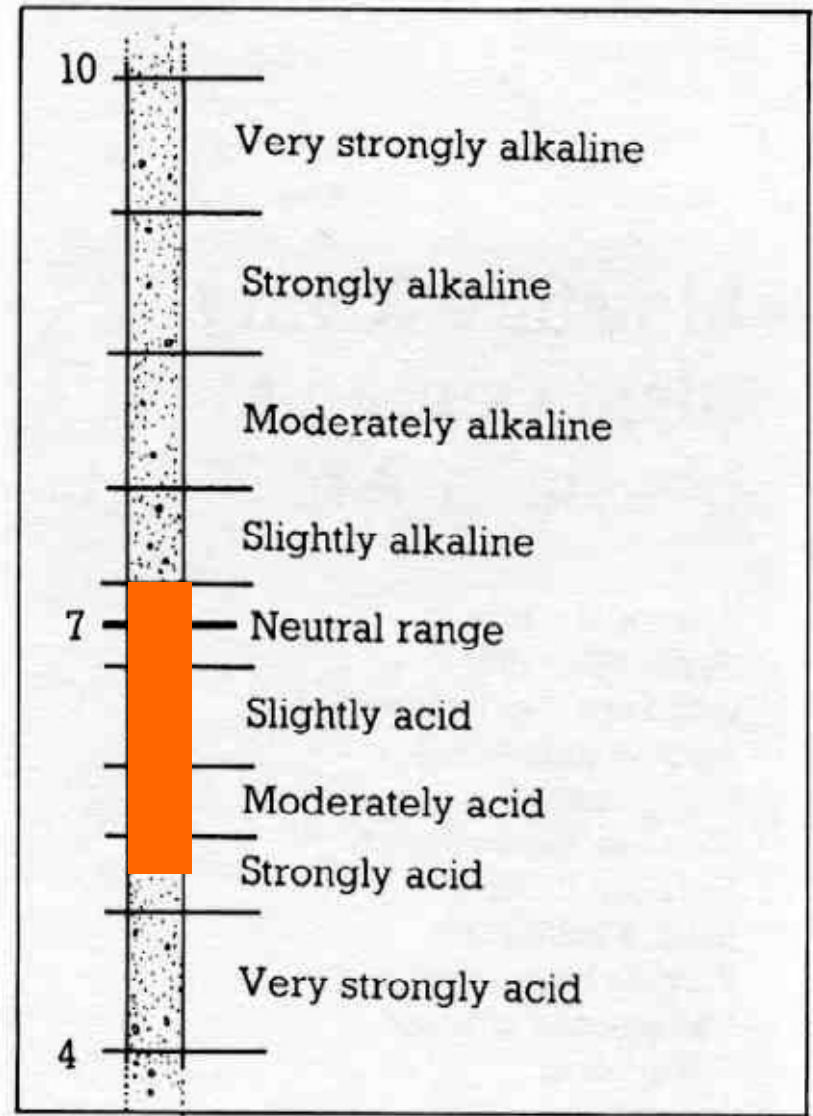
Do we have sand or clay  
or somewhere between or is  
sand overlying clay?

Need to know our soil pH.

Is it acid?

Is it limey or alkaline?

Is it neutral?



pH Scale  Best range for Banksias





*Banksia integrifolia* showing leaf chlorosis.

Chlorosis usually results from plants growing in soils with a high pH.

Applications of Iron chelates can rectify the problem.

Choose EDTA form of Iron chelates for quick results without damaging plants.

Six monthly or yearly applications of agriculture sulphur may help to lower pH of alkaline soils.

Yellowing foliage may also be a result of growing plants in waterlogged sites.



*Banksia media* showing leaf chlorosis. It is interesting that only some plants in this area are showing chlorosis! **Heaven knows WHY!!!!**





# What do they tolerate?

- Some tolerate shade, Many tolerate frost
- Some tolerate extended dry periods
- Some tolerate chainsaw pruning!



*Banksia ericifolia*



# Some cultivation generalisations

- Most eastern species adapt more easily to cultivation
- Western Australian (WA) species from lateritic soils usually easier to cultivate than those from sandy soils
- WA groundcover species adapt better than WA shrubby/tree species
- About half of species have lignotubers – they can respond well to hard pruning.

Listing provided near end of Powerpoint.



# Planting & growing them: Low spreading plants



*Banksia spinulosa* var. *spinulosa* 'Birthday Candles'





*Banksia spinulosa* var. *spinulosa* 'Birthday Candles' at UCSC Arb



There are many dwarf selections of *Banksia spinulosa* varieties.

*Banksia spinulosa* var. *spinulosa* 'Coastal Cushion' happy in semi-shade





*Banksia spinulosa* var. *spinulosa* 'Stumpy Gold'





*Banksia spinulosa* var. *spinulosa* 'Schnapper Point' plants thriving in a large container at Australian Garden, Cranbourne Gardens.





Young *Banksia petiolaris* (from SW Western Australia) in the Australian Garden, flowerheads at a very early stage of development







Multiple *Banksia petiolaris* plants thriving in a large container in a Beaumaris, Victoria coastal garden with a semi-shaded eastern aspect



*Banksia serrata* 'Pygmy Possum',

Plants usually remain prostrate for a number of years; may gain height with age





*Banksia serrata*, a low coastal variant from south-eastern New South Wales in the Diversity Garden at Cranbourne Gardens.

It is worth propagating seed collected from the dwarf selections.

Resultant seedling plants may have a range of growth habits.

So you never know what might eventuate!





*Banksia integrifolia* 'Roller Coaster' **BEWARE!!!!**

Mature plant over 20 years old, 8ft plus tall



Young plants in Australian Garden, Cranbourne



Developing plants in The Australian Botanic Garden, Mt Annan, West Sydney



*Banksia nivea* and *Banksia ideogenes* (both from WA and previously Dryandras) growing beneath the shade of a *Brachychiton*, west of the Grampians, Victoria – excellent foliage plants





One plant of *Banksia nivea* planted in the 1970s has spread to over 6 m across at Karwarra Garden, Kalorama in the Dandenong Ranges east of Melbourne





*Banksia repens* from southern WA; flowerhead & young growth; must have excellent drainage & plenty of sunshine. They do well here at UCSC Arb.





*Banksia candolleana*, known as the Propellor Banksia occurs on the sandplains north of Perth and needs maximum sunshine and excellent drainage.

It develops as a low mounding shrub and may reach 2 m plus across. Flowers Sept – Jan



*Banksia candolleana*: quaint shaped fruit



[Muséum de Toulouse](#)

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Planting &  
growing them:

Taller plants:

Some of the easiest  
first!



*Banksia robur*, *B. spinulosa* and *B. ericifolia* in a 'Green Garden' at Ashwood, eastern Melbourne







*Banksia robur*  
flowering plant in Ian  
Potter Precinct  
Cranbourne Gardens.

Plants adapt to a  
wide range of  
conditions and can  
have a mind of their  
own. Like water!

They usually develop  
a lignotuber.



*Banksia robur* flower  
colour changes from  
metallic green in bud  
often showing pink to  
burgundy shades as  
they open and finally  
they become golden.



*Banksia robur*







*Banksia ericifolia* variants. Huge variation within the species – from shrub to tree, some compact, others with quite open growth.

Flower colours are cream, pale yellow to golden brown with gold, orange and orange-red.

Excellent nectar producer that attracts honeyeaters.





*Banksia ericifolia* variant from Hat Head, NSW





*Banksia ericifolia* plants in UCSC Arb with lower branches removed to become tree-like





*Banksia spinulosa* var. *spinulosa* 'Carnarvon Gold' many moons ago, Karwarra Garden, Kalorama in Dandenong Ranges east of Melbourne. Flowers Fall – Winter.







*Banksia spinulosa* var. *cunninghamii* can develop into a small tree.

Indigenous in Dandenong Ranges also in Wilsons Prom and further east as well as many other locations in eastern NSW and SE Qld.

Flowers mainly Fall Winter.

This variety does not have a lignotuber. Therefore plants are killed by fire.

The other varieties, var. *collina* and var. *spinulosa* do have lignotubers and can be rejuvenated through very hard pruning.





*Banksia 'Giant Candles' is regarded as most likely hybrid between B. ericifolia & B. spinulosa.*

Plants will adapt to most soils and can withstand very wet soils.

Can flower from Fall – Spring.

However they are very prone to chlorosis which can be difficult to correct

**Plants can become very large!**



*Banksia integrifolia* being hardy to salt spray is perfect for coastal sites. It adapts to sandy or clay loam soils. Responds well to pruning.

Excellent for wildlife. Mainly flowers Summer – Fall

At Wacky Bay, near Scotts Head, Central NSW





Tree forms of *Banksia integrifolia* can grow large



*Banksia integrifolia* with *Rhagodia spinescens*







*Banksia serrata* occurs in coastal and near coastal sites in SE Qld, eastern NSW, SE Victoria and NW Tasmania.

Flowers thru Summer & Fall.

It adapts to a range of soils and can develop into a majestic tree – therefore needs plenty of space.





Difference between *Banksia serrata* (below) and the closely allied *B. aemula* (r) is in the club-shaped pollen presenter!





*Banksia seminuda* from south west Western Australia can develop into a stately tree. Also yellow-flowered Variants.





*Banksia praemorsa* on coastal granite, The Gap near Albany Western Australia and a person trespassing who shall remain nameless. No, it is not Brett!





*Banksia praemorsa* can have flowerheads of various colours and may have purple tonings too.





'Mercilessly butchered'  
*Banksia media*



Hope you like the aroma  
of rancid meat pies on a  
sunny day!





Yellow-flowered variant of *Banksia media* at UCSC Arb





*Banksia prionotes* thriving on sand near  
Horsham, western Victoria



Planting &  
growing them:

Now to the  
challenges!

Maybe some  
success!



*Banksia coccinea* near Bremer Bay, WA



*Banksia coccinea* can be a challenge in cultivation.

Best results with good drainage and not too dry.

Flowering mainly December – July.

Marvellous flowerheads on a regularly pruned plant in a Stokes Bay garden, Kangaroo Island SA.





*Banksia burdettii* in Australian Garden, Flowers July – Nov. (between Enabba & Mogumber WA). Must have excellent drainage.



*Banksia hookeriana* has similarities and requires similar conditions, usually flowers October – April, from south of Geraldton, WA





*Banksia speciosa* from sandy soils in southern WA is certainly beautiful but it is certainly not small! Does very well here at the Arboretum.

Special grey-leaved variant with brownish hairy stems depicted. Prized in cut flower industry. Can flower during June – March. Mature plants can be pruned with chainsaws!





*Banksia grandis* bud; at UCSC Arboretum & Botanic Garden, California; note grey leaves.



*Banksia grandis* is commonly a small forest tree but in south-western WA coastal regions it is often of dwarf dimensions.

All variants need excellent drainage but will adapt to exposed or semi-shades sites.

Usually flowers March – July.







If plants die, dead *Banksia grandis* branches make excellent sculptures!





Do you have limited space  
for cultivating Banksias?

Then you could try Bonsai/Penjing



*Banksia serrata* can develop into a  
alluring sculptural plant when  
trained and managed well



*Banksia serrata* trunk





*Banksia marginata*



*Banksia integrifolia*: note the lichen covered trunk





# Banksias for Specific Conditions

## Tolerating Alkaline soils

- *B. epica*
- *B. media*
- *B. petiolaris*
- *B. praemorsa*

## Tolerating Coastal Conditions

with strong winds and salt spray:

Best if plants originate from coastal sites

- *B. attenuata*
- *B. integrifolia* 'Roller Coaster'
- *B. marginata* selections
- *B. media*
- *B. paludosa*
- *B. praemorsa*
- *B. serrata*
- *B. praemorsa*
- *B. speciosa*





# Banksias for Specific Conditions contd.

## For Screening and Windbreaks

- *B. ericifolia*
- *B. integrifolia* (shrubby variants)
- *B. marginata*
- *B. media*
- *B. praemorsa*

## Tolerating High Humidity

- *B. aemula*
- *B. aquilonia*
- *B. conferta*
- *B. ericifolia*
- *B. paludosa*
- *B. robur*
- *B. serrata*
- *B. spinulosa* var. *collina*



*Banksia paludosa*



# Banksias with Special Characteristics

## Selection of species with Lignotubers

(D) Previously included in *Dryandra*

- *B. armata* (D)
- *B. attenuata* (some)
- *B. audax*
- *B. bipinnatifida* (D)
- *B. borealis* subsp. *borealis* (D)
- *B. candolleana*
- *B. chamaephyton*
- *B. cynaroides* (D)
- *B. elderiana*
- *B. epimicta* (D)
- *B. erythrocephala* (D)
- *B. fraseri* var. *fraseri* (D)
- *B. fraseri* var. *ashbyi* (D)
- *B. gardneri*
- *B. goodii*
- *B. grossa*
- *B. horrida* (D)
- *B. incana*
- *B. lepidorhiza* (D)
- *B. lindleyana*
- *B. lullfitzii*
- *B. marginata* (some)
- *B. meganotia* (D)
- *B. menziesii*
- *B. micrantha*
- *B. mimica* (D)
- *B. nana* (D)
- *B. oblongifolia*
- *B. paludosa* (some)
- *B. preissii* (D)
- *B. pteridifolia* (D)
- *B. robur*
- *B. rufa* (some) (D)
- *B. sclerophylla* (D)
- *B. serratuloides* (D)
- *B. shuttleworthiana* (D)
- *B. spinulosa* var. *spinulosa*
  - var. *collina*
  - var. *neoanglica*
- *B. tridentata* (D)
- *B. vestita* (D)
- *B. violacea* (rarely)
- *B. xylothemelia* (D) often suckering



# Banksias with Special Characteristics contd.

## Selection of fire tolerant species

(D) Previously included in Dryandra

- *B. aemula*
- *B. arctotidis* (US)
- *B. attenuata*
- *B. aurantia* (US)
- *B. blechnifolia* (US)
- *B. calophylla* (US)
- *B. cypholoba* (US)
- *B. dallaneyi*  
(all subspecies) (US)
- *B. dentata*
- *B. elegans* (US)
- *B. grandis*
- *B. ilicifolia*
- *B. integrifolia* (US) with underground stems
- *B. lepidorhiza* (US)
- *B. littoralis*
- *B. menziesii*
- *B. nana* (US)
- *B. obtusa* (US)
- *B. porrecta* (US)
- *B. pteridifolia* (US)
- *B. repens* (US)
- *B. rufa* subsp.  
*chelomacarpa* (US)  
subsp. *flavescens* (US)
- *B. stenoprion* (US)
- *B. tortifolia* (US)
- *B. tricuspis*



Now to finish on a different slant:

A quick look at two of the world's greatest botanical artist's depictions of Banksias.

Ferdinand Bauer:

from the 19<sup>th</sup> century

Celia Rosser:

from the 20<sup>th</sup> – 21<sup>st</sup> centuries

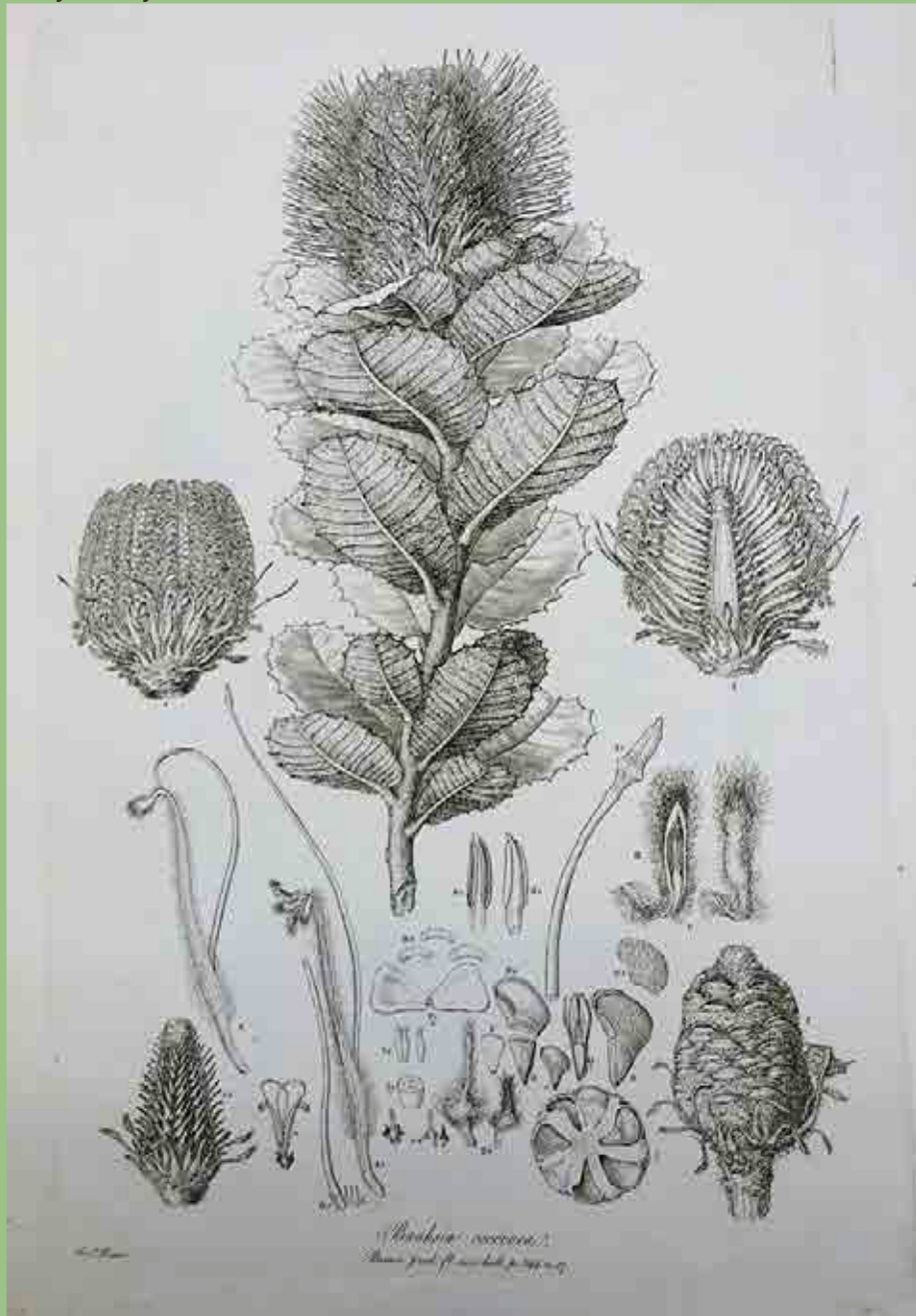


*Banksia speciosa*, collected by Robert Brown at Lucky Bay, WA in 1802. Illustration by Ferdinand Bauer, begun in the field and finished in 1810. *Banksia speciosa* by Bauer with colour chart: colour chart came from Painting by Numbers, Life and Art of Ferdinand Bauer by David Mabberley, UNSW Press 2017; the Image of the Speciosa came from The Australian Flower Paintings of Ferdinand Bauer by William Stern, Basalisk Press 1977,





*Banksia coccinea* by Ferdinand Bauer; copper etching, hand coloured print. *Banksia coccinea* copper etching and coloured print: these images came from the Kew Library archives. They are photographs of the original works taken with permission by Larry Hills





Banksia coccinea Bauer coloured print alongside Rosser B. coccinea: The Bauer image comes from the State Library of Victoria and the Rosser image comes from Vol 1 The Banksias, 1981



Bauer *B. coccinea*



Rosser *B. coccinea*









*Banksia robur* by Celia Rosser 1973 Rosser  
*Banksia robur* from Vol 1 The Banksias 1981.



Fin



*Banksia spinulosa* var *spinulosa* 'Coastal Cushion'



