A FIELD GUIDE TO THE PROTEACEAE OF SOUTH-WESTERN AUSTRALIA – by Rica Erickson

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PROTEACEAE (Pro tee ay see)

The letters ACEAE at the end of the word denotes a plant family. The Proteaceae family of plants is named after the Greek god of the sea, Proteus, who could change his form at will. If anyone caught and held him he had to grant a wish, but he could change suddenly into a bull or a bird, or a beetle or a snake, and so on, until he escaped.

The name Proteaceae is therefore very appropriate for a family of plants which includes those so diverse in appearance as Banksias, Smoke-bushes (Conospermum) Hakeas and Bush Honeysuckles (Lambertia). At first glance these do not appear to be related, but the size of a plant or the shape of its leaves are not the parts which are taken into account. Relationship is determined by the structure of the flower and the kind of seed vessel (or fruit) which it produces.

Look carefully at a single flower from any of those mentioned above. It is most unusual, for there are no petals or sepals, as such, but a perianth (a fusion of sepals and petals), which, in this case, is a single tube split into four segments which are called 'tepals'. When the bud splits open it exposes the style with the stigma at its tip. The four anthers, or pollen packets, are joined to the tepals. Pollen transferred from the anthers to the stigma fertilises the embryo seed and the fruit then develops.

There are hundreds of species (or kinds of plants) in Proteaceae. They are sorted into groups called genera (genus is the term for a single group) according to the structure of the single flowers.

It will be seen that some of the flowers when split open, hold the anthers in cupped hollows at the tips of the tepals. Some anthers are hidden inside the flower tube while others expose the anthers on short threads. These characteristics determine the genera. Subdivisions within the genera are made according to the kind of fruits the plants bear, or the grouping of the flowers, whether single or in heads, or in spikes or *racemes* (single stems with many flowers) or *panicles* which are composed of many branching flowering stems.

Look at the charts for clues to recognise which genera of Proteaceae you may find.

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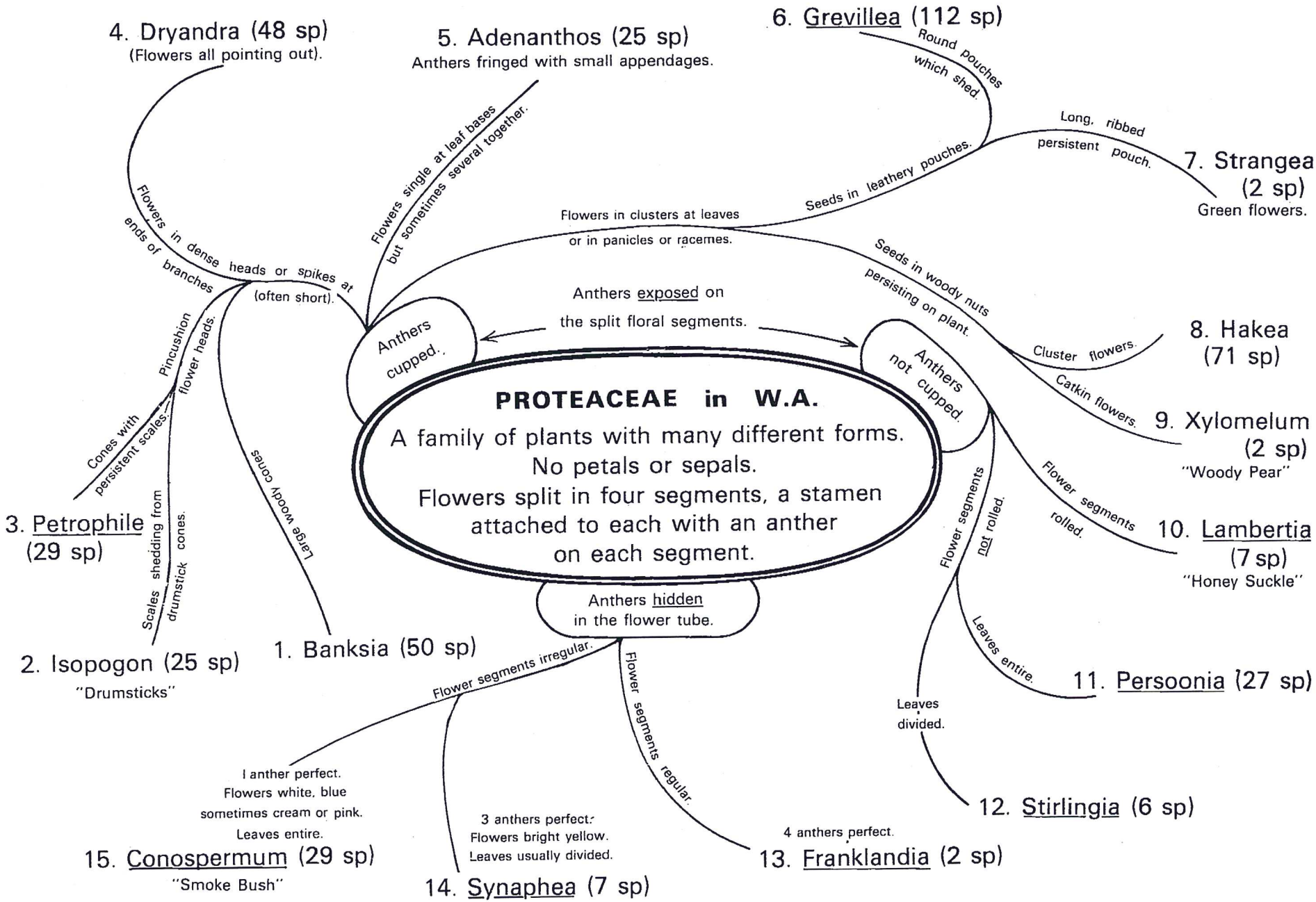

PROTEACEAE in W.A.
A family of plants with many different forms.
No petals or sepals.
Flowers split in four segments, a stamen attached to each with an anther on each segment.
Anthers cupped.
Anthers not cupped.
Anthers exposed on the split floral segments.
Anthers hidden in the flower tube.
Flowers in dense heads or spikes at ends of branches (often short).
Flowers single at leaf bases but sometimes several together.
Flowers in clusters at leaves or in panicles or racemes.
Pincushion flower heads.
Cones with persistent scales.
Scales shedding from drumstick cones.
Large woody cones
Round pouches which shed.
Seeds in leathery pouches.
Long, ribbed persistent pouch.
Seeds in woody nuts persisting on plant.
Cluster flowers.
Catkin flowers.
Flower segments rolled.
Flower segments not rolled.
Leaves entire.
Leaves divided.
Flower segments irregular.
Flower segments regular.
4. Dryandra (48 sp)
(Flowers all pointing out).
5. Adenanthos (25 sp)
Anthers fringed with small appendages.
6. Grevillea (112 sp)
7. Strangea (2 sp)
Green flowers.
8. Hakea (71 sp)
9. Xylomelum (2 sp)
"Woody Pear"
10. Lambertia (7 sp)
"Honey Suckle"
11. Persoonia (27 sp)
12. Stirlingia (6 sp)
13. Franklandia (2 sp)
4 anthers perfect.
14. Synaphea (7 sp)
3 anthers perfect.
Flowers bright yellow.
Leaves usually divided.
15. Conospermum (29 sp)
"Smoke Bush"
1 anther perfect.
Flowers white, blue sometimes cream or pink.
Leaves entire.
1. Banksia (50 sp)
2. Isopogon (25 sp)
"Drumsticks"
3. Petrophile (29 sp)

Heavy cone fruits

Scale fruits

Pouched fruits

Woody fruits

1. Banksia 2. Isopogon 3 Petrophile 4 Dryandra

Flowers in dense heads

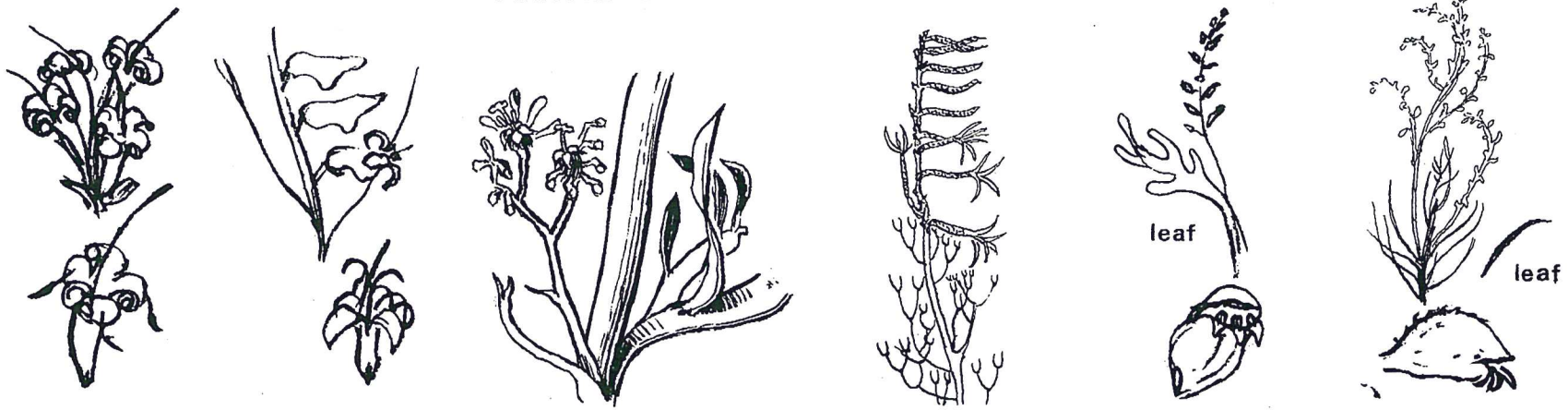
5 Adenanthos

mostly with single flowers

6 Grevillea 7 Strangea 8 Hakea 9 Xylomelum

cluster flowers, racemes

ANTHERS EXPOSED AND CUPPED



10 Lambertia 11 Persoonia 12 Stirlingia

13 Franklandia 14 Synaphea 15 Conospermum

3 Anthers perfect 1 Anther perfect

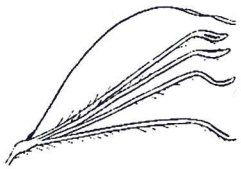
Regular flowers

Irregular flowers

ANTHERS EXPOSED – NOT CUPPED

ANTHERS HIDDEN

1. Banksia



A flower from a cone showing 4 cupped anthers

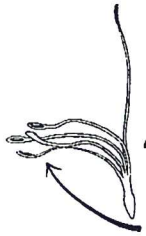
2. Isopogon

Flower showing 4 cupped anthers

3. Petrophile

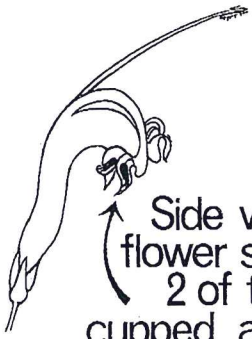
Flower showing 4 cupped anthers

4. Dryandra



Flower showing 4 cupped anthers

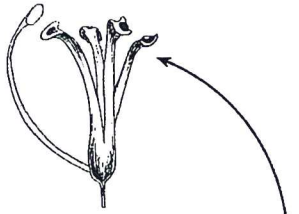
5. Adenanthos



Side view of flower showing 2 of the 4 cupped anthers

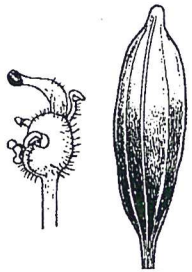
ANTHERS EXPOSED and CUPPED

6. Grevillea



Side view of flower showing cupped anthers

7. Strangea

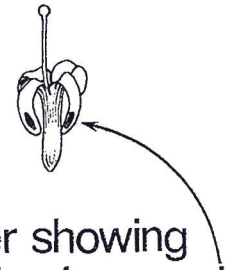


Ribbed tough fruit not woody

8. Hakea

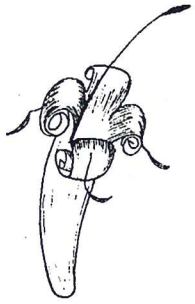
Front view of flower showing cupped anthers

9. Xylomelum



Flower showing 2 of the 4 cupped anthers

10. Lambertia



Flower showing rolled segments. Anthers not cupped

11. Persoonia

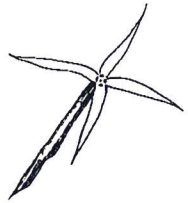
Flower showing 4 anthers (not cupped)

12. Stirlingia

Flower showing 4 anthers (not cupped)

ANTHERS EXPOSED NOT CUPPED

13. Franklandia



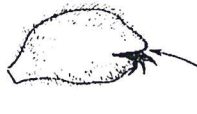
4 anthers inside tube of flower

ANTHERS HIDDEN

14. Synaphea

Flower showing 3 perfect anthers

15. Conospermum



1 perfect anther hidden

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