



EDITION NO. 1

☞ HEAD ED (that's you!).....

Aussie survivors



CANBERRA Today —

See survivors from prehistoric times in your walk along the Gardens Main Path. Some of them remain much the same as they were in the time of the dinosaurs, while others have had to adapt to survive the changes in Australia's climate. Since the break-up of Gondwana, Australia has become drier and more prone to fire. So you'll see plants that are almost fire proof, and actually benefit from being burnt! You'll see plants that rely on birds in order to survive. You'll see plants that climb over others, plants that are shape-shifters... and many more!

Welcome to the Australian National Botanic Gardens in the national capital.

1. DON'T PICK
FLOWERS, LEAVES,
SEEDS OR
FRUIT



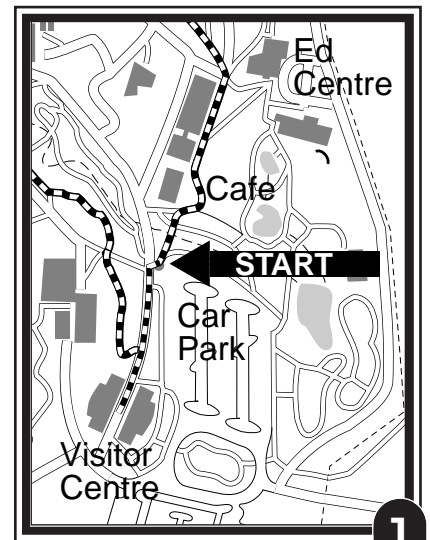
3. DON'T LITTER
OR BIRDS
WILL
THROW
UP



**2. STAY
ON THE PATH**



**4. LOOK FOR
PATH MARKERS**



From the bridge over the Rainforest Gully, look down on the beautiful fronds of the Tree Fern (*Dicksonia antarctica*).



Fern fronds begin life as a coiled mass (called 'croziers') that unfurl as they grow. **This is an important adaptation.**

Can you think why?

(Now I'm Con Fused!
What does .5 mean?)

Bark is another feature of many Myrtaceae plants. Stop and observe the soft papery bark on the *Melaleuca* species. This gives them their common name, paperbark.

What would be a reason for these *Melaleuca* trees having layers of papery bark?



The path now enters an area displaying a group of plants of the family Myrtaceae. This family includes gum trees (*Eucalyptus* species), bottlebrushes (*Callistemon* species), tea trees (*Leptospermum* species) and paperbarks (*Melaleuca* species). Myrtaceae dominate Australian vegetation with around 1700 species.

LETTERS TO THE EDITOR

Dear Head Ed,

I noticed that most of the Myrtaceae family produce lots of little seeds in woody capsules.

Why do they do this and why so many?

Signed,

Con Fused

ON THE BUS...



Write your reply to Con.

Dear Con,

Signed,
Head Ed



At the Crimson Bottlebrush (*Callistemon citrinus*), look through a leaf toward the light to see lots of tiny oil glands. These leaves smell slightly of lemon.



Suggest how oil glands assist in the survival of *Callistemon* and other Myrtaceae plants.

Here you can see the grass tree (*Xanthorrhoea*).



If you were a kangaroo, would you eat leaves from a grass tree?

Yes or No?

Why?



Suggest how grass trees survive bush fires.

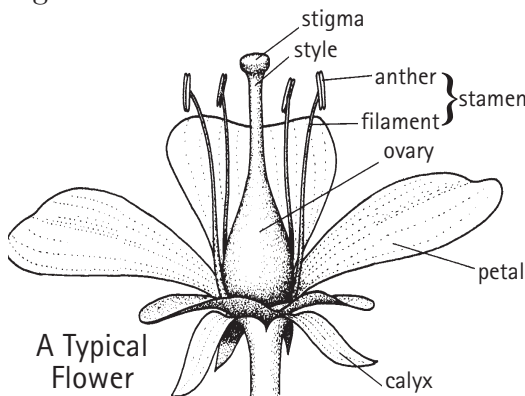


RUDE



bits!

Flowers display their rude bits to passing birds and insects who, while drinking the plant's nectar, pick up a bit of pollen and then pass it on to the next flower that attracts them. Those birds and insects like a bit to drink and don't really mind where it comes from, so they are attracted by all sorts of rude bits — and after so much drinking and carousing, they sometimes drop the pollen on the right bits for fertilisation to occur.





In this area, the plants displayed mostly belong to the Proteaceae family — also strongly represented in the Australian bush.

It includes such well-known genera (groups) as *Grevillea*, *Banksia*, *Hakea* and *Telopea*. You may have some in your garden at home or back at school.

There are many different leaf shapes, sizes and textures, but despite their differences in size and shape, notice the similarity of their flowers.

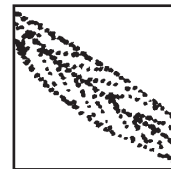
(Head Ed comment: Con probably won't notice it, though!)



See how many different leaf shapes you can draw before you reach marker [48]. To draw them you might use some of these techniques: dots, lines, hatching, solids.



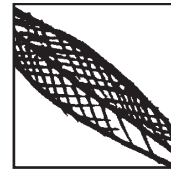
dots



lines



hatching



solids

LOOK
CLOSE**ON THE BUS...**

Like Myrtaceae, many of the Proteaceae have extremely tough, leathery leaves.

Suggest how this feature could assist plants to survive in harsh environments.



39.3

(How is your approximation of 0.3 going?)

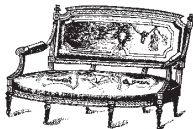


Hakea cycloptera shows a fine example of a developing **lignotuber**: a swollen stem base containing many dormant buds.



What could be the reason for a plant having a lignotuber?

44.5



Pause at the seat. Here you can add more leaf shapes to your set and observe the variety of plant forms amongst the grevilleas.



When in flower, these plants produce large quantities of nectar. **What's the evidence?**

49

Like grevilleas and bottlebrushes, the Saw Banksia (*Banksia serrata*) has grey-green flower spikes that are also nectar-laden.

The large seed follicles on the banksia fruit have not opened yet.

Why?

When would they open?

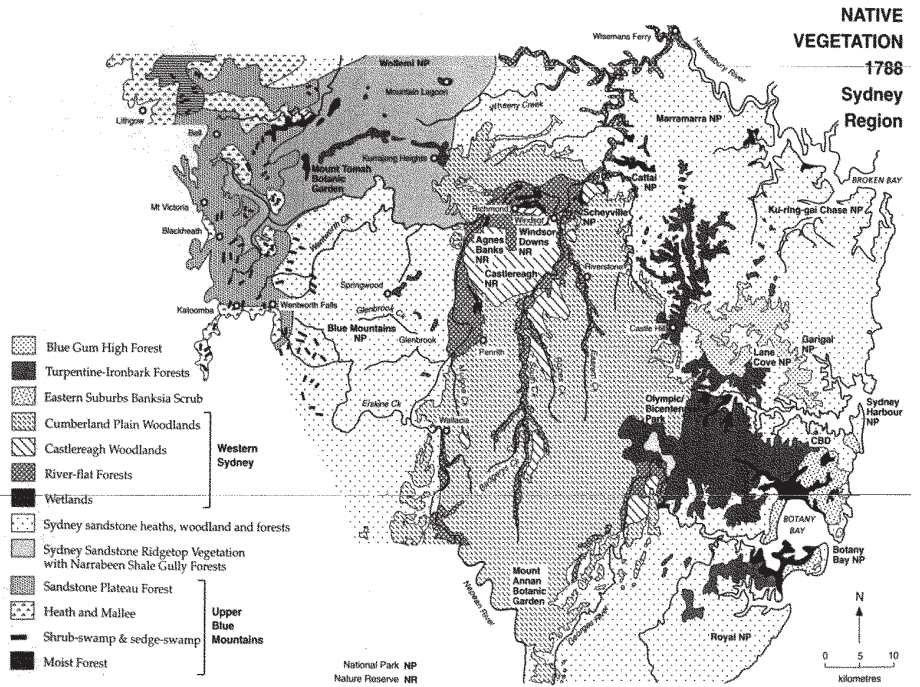
52

67

PUBLIC ANNOUNCEMENTS

Sydney Region- Divisional Winner of Rich & Diverse Flora Category!

This is what it looked
like in 1788.

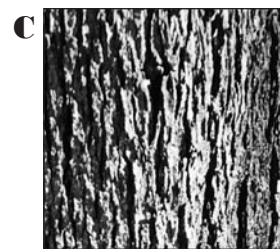
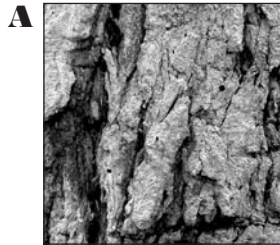


69

79

Not chewing 'gum',
Eucalyptus is a better
name! See some of
Australia's most widely
distributed, large tree
genus (group).

Match these three barks
to their Latin name and
common name.



1. *Eucalyptus eximia*
Yellow Bloodwood

2. *Eucalyptus multicaulis*
Whipstick Mallee Ash

3. *Eucalyptus patens*
Western Australian Blackbutt

LOOK
CLOSE



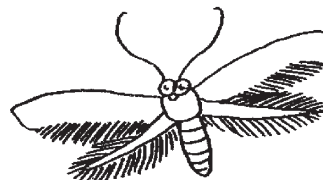
ON THE BUS...

Suggest how it might be an advantage
if some leaves hang downwards —
especially in inland Australia.

67.2

Graffiti in the Gardens!

This is what the
culprit turns into.



81



86

They're everywhere — from ocean to desert, lowlands to the high country — as trees, bushes and ground-covers! Wattles, with their distinctive fluffy yellow flowers and pea-like seed pods, belong to the largest and most widely distributed Australian genus *Acacia*.

Can you find any Acacia seed pods containing the hard, shiny black seeds?



SUGGEST WHY THE SEEDS ARE SO HARD.

85

THE LEAF YOU HAVE WHEN YOU'RE NOT HAVING A LEAF!

Acacia parvipinnula on one side has retained its true leaves in contrast to *Acacia caroleae* on the other, which has modified leaf stems called 'phyllodes'.

How can you tell which is which?

96

Winter in Canberra is not always cold. The Rock Garden exhibits plants that might not otherwise grow in Canberra because

- it's too cold in winter.
- the clay soils provide poor drainage.

The large rocks absorb heat and maintain a higher soil temperature throughout the year. The imported soil is highly porous and has been used for increased drainage.

Suggest some characteristics of plants that would grow well here, but not in the nearby clay soils.

How could this be advantageous to the plants?

WHERE'S 'WOLLI'?

WHY IS 'WOLLI' IN A CAGE?



102.4

IT'S SO EASY BEING GREEN!

FEELING TIRED? HUNGRY?



If you're a growing plant, it doesn't matter where you are, **YOU'RE GOING TO NEED CHLOROPHYLL.**

Together with air, water and light, chlorophyll concentrate helps make yummy sugar to create healthy growth!

Chlorophyll is the green in your leaves that says,

'Hey, I'm alive and I'm healthy!'

And the miracle process that creates this sugar from light?

It's an age-old process with a funky new name:

photosynthesis (sold separately)!



**Plant sugar.
A natural part of life.**



ON THE BUS...

Australia's MOST WANTED!

**'Here is the wattle,
The symbol of our land.
You can stick it in a bottle,
You can hold it in your hand.'**

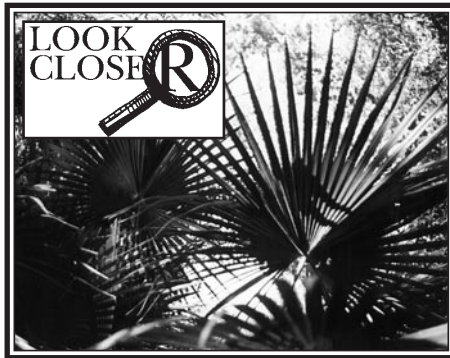
Now you have a go at a second verse:

108.5

TRUE RAINFORESTS DON'T USUALLY HAVE GUM TREES!

The Rainforest Gully is 30 years old and totally fake. Around 2000 misting sprinklers keep the gully damp and humid.

If true rainforests don't have gum trees, why were they planted here in the first place?



Check out the Cabbage Tree Palm (*Livistona australis*). Palms (family Arecaceae) are one of the distinctive features of rainforests in warmer areas.

Suggest why these leaves are:

- dark green
- big and flat
- horizontal.

112.8

SEE THE STRANGLER IN ACTION!

At the Commemoration Seat, observe the climbing plants.

Find the murderer and explain the crime. Spot the victim. Is it murder? You be the judge.



115

Dinosaur alive!

The tall Antarctic Beech (*Nothofagus moorei*), like 'Wolli', has ancient relatives found as fossils in Antarctica. Many primitive or 'relic' plants live in rainforests and give us clues to the types of plants that lived millions of years ago.



Suggest why this plant hasn't changed significantly from its ancient relatives.

116

The tree trunk on the forest floor is home to a Bracket Fungus (*Trametes versicolor*). Fungi aren't green and don't use light energy.

So how do they get their food?

123.5

FOOD FOR THOUGHT! A POO STORY...

Many birds relish the bright red berries of the Brush Cherry or lilly pilly (*Syzygium australe*). Though we can't eat all fruits, you may have tasted lilly pilly jelly.

Lilly pilly belongs to the Myrtaceae family, but doesn't have the hard, woody seed capsules that you saw earlier — so they rely on other ways to scatter their seeds.



On the bus



Write an advertising slogan or jingle that will attract birds and animals to the lilly pilly berries.



Australian Government

Australian National Botanic Gardens