

Turning over a new leaf (Updated Post Cyclone Yasi)

When identifying plants, botanists first complete a “plant profile”, noting obvious features. Leaf characters are the feature most commonly used, as flowers and fruit may only be present for a short time during the year. Your tasks are:

1. Complete the plant profile for the nine plants around the Centre that are marked with tape (pp. 2&3).
2. Use this information to “key out” the nine plants, using the identification key on page 4.
3. Record your identifications in the table below.
4. Answer the questions below and sketch one leaf.

Common name	Scientific name (Genus) (using Key above)	Scientific name (Genus & species) (using online interactive key <i>Australian Tropical Rainforest Plants</i>)	Label on tree
Batwing Coral Tree	Erythrina		
Ironwood	Rhodomyrtus		
Northern Silky Oak	Cardwellia		
Buttonwood	Glochidion		
Bleeding Heart	Homalanthus		
Maple Silkwood	Flindersia		
Pink Ash	Alphitonia		
Grey Bollywood	Neolitsea		
	Pittosporum		

Q.1 The Pittosporum does not have a common name. Look at the tree and give it a name in the table above.

Q.2 Which other features and characteristics of rainforest plants could be used to help identify them?

Q.3 Foresters often identify rainforest trees by their bark.
 a) Name one tree you have “keyed out” that could have been identified by its bark.

b) Describes the characteristics of the bark of this tree.

Q.4 Select one tree and sketch a leaf, annotating your scientific drawing with the leaf’s characteristics.

PLANT PROFILE for plant identification using a dichotomous key

Curriculum intent (QSA Biology Guide 2004):






- Understandings are developed in terms of concepts inherent in the principles of biology. Concepts in this activity are – At every level of organisation in the living world **structure and function** are interrelated. Each level of organisation in the living world has its own unique aspects and there is continual interaction of structure and function between these levels.
- There is a minimum time commitment for field work of ten hours.
- The achievement level awarded each student on exit from the course will be based on information about student performance on the dimensions of **Understanding biology, Investigating biology, and Evaluating biological issues**, as outlined in the syllabus.

Leaf character drawings are copied from the [Australian Tropical Rainforest Plants online identification key](#).

Study site location details/ Geographic Area:	Date:
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Plant Features (Growth Habit) (T) tree or (S) shrub	Plant Specimen Number								
	A	B	C	D	E	F	G	H	I

Leaf Characters (✓)	A	B	C	D	E	F	G	H	I
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 <p>Simple leaves have buds or shoots in all forks formed by petioles and twigs</p>	 <p>Compound Leaves appear to have neither buds nor shoots in the forks formed by petioles or twigs.</p>	 <p>Leaves alternate or spirally arranged</p>	 <p>Leaves opposite</p>	 <p>Leaves whorled</p>
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1. Leaf types – simple or compound. Simple leaves have buds or shoots in all forks formed by petioles or twigs. The apparent “leaves” in compound leaves are in fact leaflets, each a part of the compound leaf.

1a Leaves simple	A	B	C	D	E	F	G	H	I
1b Leaves compound	A	B	C	D	E	F	G	H	I

2. Leaf arrangement. This is the positioning of the leaves on the stem. In the case of compound leaves, this refers to the whole leaf itself, not the leaflets.

2a Leaves alternate or spirally arranged	A	B	C	D	E	F	G	H	I
2b Leaves opposite	A	B	C	D	E	F	G	H	I
2c Leaves whorled	A	B	C	D	E	F	G	H	I

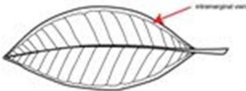

	<p>Compound leaf types</p> <p>Three leaflets</p>	 <p>Oil dots. You may need a <u>hand lens</u> to see them (if they are present and holding the leaf up to the light doesn't help). Oil dots are readily seen in the leaves of citrus trees.</p>
	<p>Pinnate arrangement of leaflets</p>	

3. Compound leaf type – arrangement of leaflets

3a Three leaflets	A	B	C	D	E	F	G	H	I
3b Leaflets pinnate	A	B	C	D	E	F	G	H	I

4. Oil dots are small translucent dots or cigar-shaped structures which are visible when the leaf is held up to the light.

4a Oil dots present	A	B	C	D	E	F	G	H	I
4b Oil dots absent	A	B	C	D	E	F	G	H	I

Leaf Characters (✓)	Plant Specimen Number								
	A	B	C	D	E	F	G	H	I
5. Undersurface colour of the leaf – the colour of the undersurface of the leaf (or leaflet) as compared to its upper surface									
5a Undersurface of the leaf is white									
5b Undersurface of the leaf is not white									
6. Undersurface texture of the leaf (or leaflet) is smooth or hairy (Not illustrated)									
6a Undersurface of the leaf is glabrous (smooth)									
6b Undersurface of the leaf is hairy or sandpapery (use a lens).									
7. Undersurface texture of the leaf (or leaflet) is waxy or not waxy(Not illustrated)									
7a Undersurface of the leaf is glaucous (waxy); easily rubs off with a fingernail									
7b Undersurface of the leaf is not glaucous or waxy									
8. An intramarginal vein is a vein of constant thickness (much thinner than the midrib) just inside the margin and extending from the base to the apex of the leaf blade.									
8a Intramarginal vein present 					8b Intramarginal vein absent 				
8a Intramarginal vein present									
8b Intramarginal vein absent									
Leaf Characters 9 to 15 - Other distinguishing features									
9. "Oak" grain in twigs/ numerous brown circular lenticels on twigs. Lenticels are small pustules on the stems of many rain forest trees.									
9a "Oak grain" evident even in twigs									
9b No "oak grain" obvious									
10. Spines or hooks on stem, leaf blades or petioles - but not for climbing									
10a Conical prickles/ thorns evident on trunk and/or branches]									
10b No prickles/ thorns evident on trunk and/or branches]									
11. Old leaves turn bright red. Petioles (leaf stems) are also often red.									
11a Old leaves and many leaf stems are red									
11b No old red leaves or red leaf stems									
12. The midrib or central leaf vein is raised above the upper surface of the leaf or is not									
12a Midrib raised above the upper surface of the leaf (use your thumbnail)									
12b Midrib not raised above the upper surface of the leaf									
13. "Drip tips" evident at the apex of the leaf									
13a Leaflets have a distinct "drip-tip"									
13b Leaflets do not have a distinct "drip-tip"									

KEY

- 1a Leaves simple.....Go to 2
 1b Leaves compound.....Go to 3
- 2a Leaves alternate or spirally arranged.....Go to 5
 2b Leaves opposite.....Go to 4
 2c Leaves whorled.....Go to 5
- 3a Three leaflets.....Go to 10
 3b Leaflets pinnateGo to 9
- 4a Oil dots present (confirm using hand lens).....Go to 6
- 5a Undersurface of the leaf is white.....Go to 6
 5b Undersurface of the leaf is not white.....Go to 11
- 6a Undersurface of the leaf is glabrous (smooth).....Go to 7
 6b Undersurface of the leaf is hairy or sandpapery (confirm using hand lens).....Go to 8
- 7a Undersurface of the leaf is glaucous (waxy); easily rubbed off with a fingernail...**Neolitsea**
 7b Undersurface of the leaf is not glaucous (waxy).....**Alphitonia**
- 8a Intramarginal vein present.....**Rhodomyrtus**
 8b Intramarginal vein absent.....Go to 10
- 9a “Oak grain” evident in twigs (look for lenticels using hand lens).....Go to 13
- 10a Conical prickles/ thorns evident of the trunk or branches.....**Erythrina**
- 11a Old leaves and many leaf stems (petioles) are red.....**Homalanthus**
 11b No old red leaves or stems.....Go to 12
- 12a Midrib (middle vein) raised above the upper surface of the leaf (check with your thumbnail).....**Glochidion**
 12b Midrib (middle vein) not raised above the upper surface of the leaf.....**Pittosporum**
- 13a Leaflets have a distinct “drip tip” at their apex.....**Flindersia**
 13b Leaflets do not have a distinct “drip tip”**Cardwellia**