



## **PALM BEACH-CURRUMBIN MANGROVE STUDY**

### **‘MANGROVE IDENTIFICATION USING A KEY’**

(This study should be conducted at low tide)

## **INTRODUCTION**

Mangroves are angiosperms that grow where the land meets the sea. They live between the mean sea level and the highest tides on a substrate of mud and sand. The continual rise and fall of the tide means constant change. They have evolved a number of unique adaptations that enable them to overcome the problems of changing tides, changing temperature and salinity. Other problems that are faced by these trees are water-logged soil and lack of oxygen.

The animals such as fish, crabs, snakes and birds living amongst the mangroves have also adapted in special ways to cope with the unusual conditions of this ecosystem. Together they form an intricate food web that is very easily disturbed.

Mangrove forests are among the world’s most productive ecosystems but the transfer of energy from producer to consumer depends on the activity of **decomposer** organisms. The organic matter in the soil originated from decomposition of plant litter produced by the mangrove trees themselves. The debris is slowly broken down under slightly acidic conditions by microscopic bacteria and fungi which release sulphuric acid (rotten egg gas). This leads to the unusual smell in the mangrove environment.

Angiosperms – flowering plants



◆ Your task today is to investigate the different species of mangroves which are growing in the Palm Beach- Currumbin area.

## **AIMS**

1. To use a dichotomous key to identify three species of mangroves
2. To observe and record the parts of a mangrove that make it unique

## **EQUIPMENT REQUIRED**

Sunscreen and Hat  
Mosquito repellent  
Water Bottle  
Old sandals  
Clipboard folder  
Notepad, pen and pencil

## **PROCEDURE**

### **ACTIVITY 1**

Refer to the Key to the Mangroves of South-east Queensland and the diagrams supplied to assist you to identify and classify the plants and animals.

\*All drawings must be completed in a sharp 2B pencil and should be large enough to show detail. Please label each drawing and add an approximate scale (e.g. x3) and a title.

### **ACTIVITY 2**

You are to set up a 10 metre transect through the mangroves. Begin at low tide mark and bring the rope back approximately 10 metres to the high tide mark. You may have to go a little further depending on the site you choose. The ideal site will have a wide variety of vegetation.

Draw a transect line, identifying the different vegetation that occurs in each metre section. You should include plants that are within half a metre on each side of the rope. Use symbols to represent each plant type and then draw a key to simplify species identification.



## ACTIVITY 1 – Mangrove Classification

As you move through the mangrove area, classify three different mangrove species using the key provided. Complete the table and use the space for relevant sketches.

Key steps used & name of species	Description of leaves plus drawing	Description of roots plus drawing	Flowers & seeds plus drawing
1.  Species			
2.  Species			
3.  Species			



## KEY TO THE SPECIES OF MANGROVES IN SOUTH-EAST QUEENSLAND



- 1
  - a Leaves alternate.....go to 2
  - b Leaves opposite.....go to 4
  
- 2
  - a Sap milky; a pair of glands at junction of leaf blade and petiole.....  
.....Excoecaria agallocha
  - b Sap not milky.....go to 3
  
- 3
  - a Leaf broadest towards the tip; a gland on underside near the leaf apex;  
salt crystals absent from leaf surface.....Lumnitzera racemosa
  - b Leaf broadest about the middle; no gland on underside; salt crystals  
usually present on leaf surface.....Aegiceras corniculatum
  
- 4
  - a Plants with conspicuous stilt roots; leaves with numerous specks on  
under surface; bud cover has 4 lobes.....Rhizophora stylosa
  - b Plants lacking stilt roots.....go to 5
  
- 5
  - a Plants with erect, cylindrical aerial roots, projecting from the mud;  
leaves grey on the underside.....Avicennia marina
  - b Plants with knee-like aerial roots projecting from the mud.....go to 6
  
- 6
  - a Stems distinctly buttressed; bud with cover of 4-6 lobes.....  
.....Ceriops tagel
  - b Stems lacking buttresses; bud cover with 10 or more lobes.....  
.....Bruguiera gymnorhiza



## ACTIVITY 2 - Mangrove Transect

Begin your transect at low water mark and take the rope straight back to high water mark. You may need to use a book for identification of the plant species that occur along your transect.

- Complete the rough copy of your transect in the space below.

Low water mark

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

High water mark



**Activity 2** (continued)

1. Discuss the distribution of plants from low water mark to high water mark. Please note any general trends.

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2. In the space provided see if you can explain the changes in vegetation which you noted above. Can you see distinct animal or vegetation **zones** emerging from the lowest to the highest points in the mangroves?

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