



Science Skills

Topic

How to sample mangrove habitats

To study the environment, scientists first divide it into smaller discrete parts, such as:

- >> a **habitat** — the living place of an organism, often named after the dominant plant species
- >> an **ecological community** — a group of organisms of different types occupying the same environment. Habitats are part of communities.

Sampling

This study must be done at low tide.

- >> Identify the **low water mark (LWM)**.
- >> Look for water-borne debris or flotsam to show you the location of the mean **high water mark (HWM)**. It is higher at spring tides.

Belt transect

A transect line allows you to study the mangroves in a sequence. By placing a 10 m x 10 m quadrat next to the transect line every 10 m, you can more easily compare one part of the community with another.

Some scientists set up their quadrats near the factor they think causes an impact on mangroves, then sample the habitat at defined distances from the factor using the same-sized quadrat.

Equipment list

(per group)

The size of quadrats used depends on the density of biotic factors you are measuring. A larger quadrat should contain about 25 mangrove trees.

- >> transect line of nylon string or fishing line with swivels or other markers placed every 10 m
- >> 40 m tape and poles for 10 m x 10 m quadrats (or 3 m x 3 m)
- >> a 50 cm x 50 cm (or 10 cm x 10 cm) quadrat of irrigation pipe or electrical conduit
- >> pH meter with spear-shaped or other robust probe
- >> gloves for handling soil
- >> plastic bags and markers for samples

Possible sampling method

1. Start your transect line above HWM, and at 90 degrees to the shore. This area is called the **supralittoral zone** (this means above intertidal), and in Queensland, *Sporobolus virginicus* grasses and succulents often grow here.
2. Run your 50 m transect line back through the mangroves to above the LWM.

Set out your 10 m x 10 m quadrat using posts and tape every 10 m along the transect line.
3. Name the habitat. In your quadrats, you should also test for environmental factors such as texture, soil pH and potential acid sulfate soils.



Avicennia tree growing near the low water mark at Nudgee Beach, south-east Queensland.
QM

