Drawing the Line

Mapping plants along a transect

by Robert Powell

A group of students in metropolitan Perth have been stretching lines of coloured tape through areas of remnant vegetation. Why does this help them as budding ecologists?

Students from City Beach Primary School in Perth recently ventured into a nearby remnant of varied vegetation. They carefully laid out a line along a partially worn track, down a slope and across a larger track to a point halfway up a slope on the other side. They then placed markers at one-metre intervals along the line and began to sketch and note the positions of the trees, shrubs and other plants that lay along the line, or, to use its proper term, the transect.

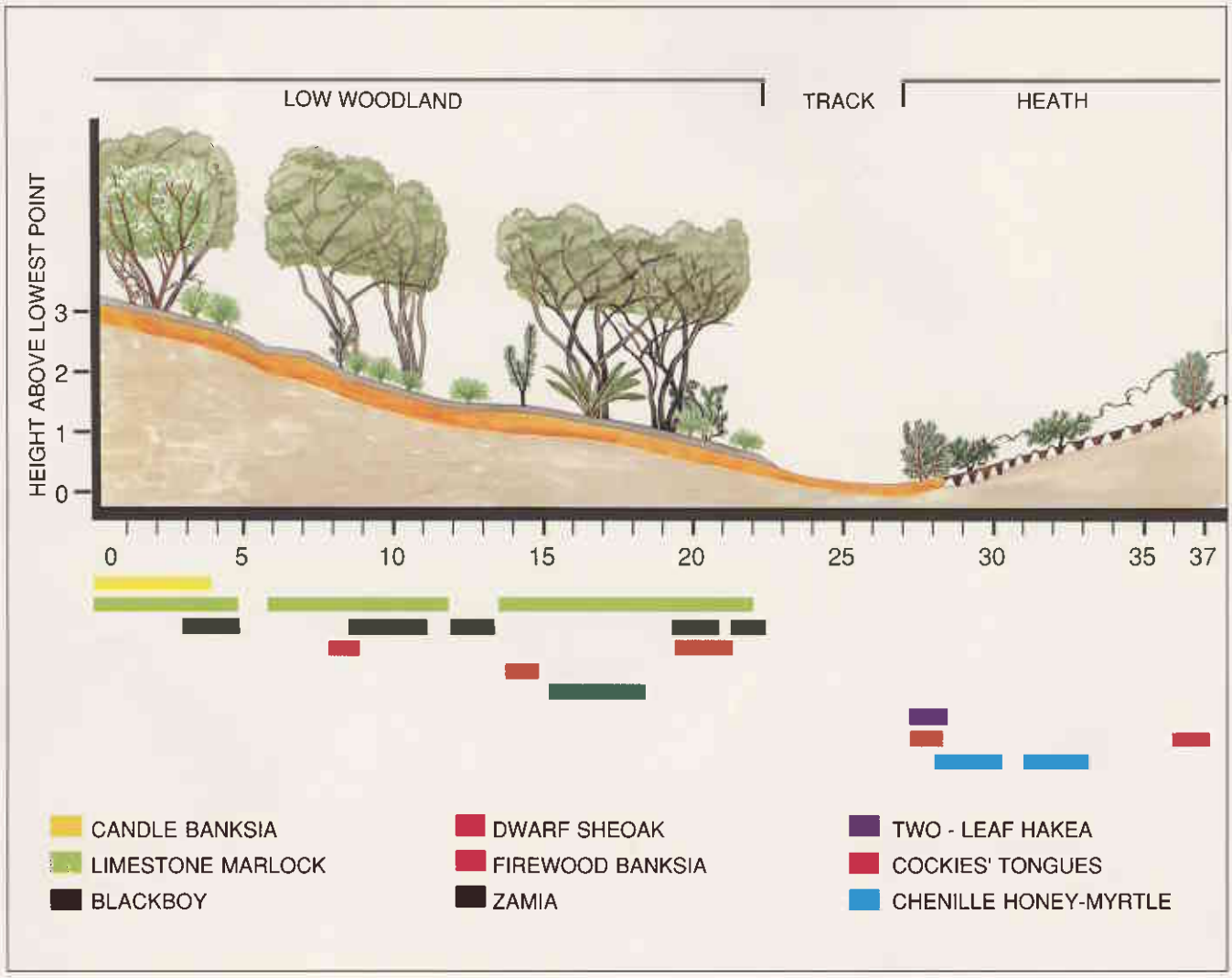
By mapping, measuring and sketching the plant species, noting such characteristics as outline, shape, structure, and distribution of foliage, the students acquired valuable knowledge and skills vital to any plant ecologist: skills in observation, drawing, graphing, and using basic surveying and mapping instruments. They were able to observe the general character of the vegetation and its variation along the transect, and learnt to recognise nine of the plant species. They graphed the canopies of these species and recorded the slope of the land and the type of soil as they moved along the transect. From these recordings and measurements the students were able to draw a profile of the land and vegetation, and they discovered how dramatically the vegetation changed, both in species and in structure, where sand gave way to limestone.

Such an example of the hands-on approach to conservation and environmental awareness shows an emphasis that was lacking in the education many of us received. It will surely help give today's young more opportunity to treat their natural environment with understanding and care.

The study of natural vegetation is one of the best ways to learn about nature. Vegetation is varied and fascinating in itself; it is vitally important as habitat for animals; and it closely reflects the

Students laid the tape along the track and placed markers at every metre.
Photo - David Gough

Previous page:
Flowering stems of cockies' tongues (enlarged).
Photo - Michael Morcombe
Inset:
Students sketching the cockies' tongues.
Photo - David Gough



Here, on the west side of Garden Island, the vegetation in the background changes from low heath to moonah forest as one heads inland. Such sites are ideal for transects.
Photo - Robert Powell ◄▲

An Abney level was used to map the rise and fall of the land.
Photo - David Gough ▲

physical environment in which it occurs. Changes in vegetation often indicate changes in the geology or soil. In this way vegetation helps us locate minerals, and in past decades it helped us decide which land to release for agriculture. Moreover, today's remnants of vegetation often show us clearly the impact humans have had on our natural surroundings.

Mapping plants along a transect is a useful exercise for students of almost any age. From direct experience, they learn not only about the types of vegetation encountered - how many layers they comprise, for example, and which species are commonest or dominant - but also about how the vegetation relates to aspects of the environment such as slope, soil, water-table, salt winds, fire, weeds and human disturbance.

These factors can best be studied if the transect is located where vegetation changes. For example, if we begin the transect near the ocean, say at the top of the beach, and head inland, the vegetation changes markedly over a short distance. Wetlands too are very suitable for transects; so are sites where the soil varies in type or depth, such as on the Darling Scarp or on the coastal limestone.

By recording the plant species (either all of them or just a selected few) and also some of the environmental factors listed above, a transect diagram can be drawn, showing how the vegetation reflects the physical environment. If the typical sizes of the different species are noted and simple sketches of them are made, the vegetation can be represented pictorially, providing a diagram that is especially meaningful and easy to interpret.

In preparing and conducting their field excursion, the students from City Beach Primary School made use of a Resource Note entitled *Mapping Plants along a Transect* (No. 22: February 1991), published by the Department of Conservation and Land Management (CALM). This explains in detail how to plan and carry out the activity. It includes several very useful references for identifying plant species and to help understand the many factors that determine our different types of vegetation. It also includes a page of graph paper for recording plants along the transect, and examples of other sorts of recording-sheets.

When planning a mapping exercise, permission should be sought, from the body that controls the land concerned, to conduct the excursion and to collect any plant specimens needed. For any specimens collected on public land, one also needs a licence from CALM.

Furthermore, plants should be treated with care. An untrained group can quickly degrade vegetation by inadvertently trampling through it, especially where the soils are sandy. However, such damage can be minimised by splitting the group into smaller groups, each of which is assigned to a different part of the transect.

Also, as in the case above, running the transect along an established path and keeping students to that path, as far as possible, will help to minimise damage. Repeated excursions to the same transect line should be avoided. When the survey is finished, all tapes and pegs must be collected and taken home.

There are many long-term benefits from taking part in projects to map plants. By learning to recognise some of the natural plant species of an area, we begin to notice those species elsewhere and we get to know them. We learn where they occur, how they are affected by events in their natural environment (e.g. fire), and to what degree they are able to cope with changes imposed on their environment by human beings. Furthermore, having studied the vegetation of a particular site, we begin to observe things about other remnants of vegetation: their structure, their composition, and how they relate to their particular environment.

Perhaps the most important benefit for many of us is that our local vegetation will no longer be 'foreign' to us, but will become meaningful and interesting: we shall begin to develop a feel for it and a sense of belonging to it. ▣

Robert Powell is the author of the book *Leaf and Branch*, the authoritative and comprehensive guide to Perth's trees and tall shrubs.

A wave of colour is spreading from Shark Bay to Jurien and inland to Meekatharra. Our story on page 10 takes you into Wildflower Country.

LANDSCOPE

VOLUME SEVEN NO. 1 SPRING EDITION 1991

The WA Museum is 100 years old. It houses a staggering four million specimens of insects, marine animals, fish, birds, reptiles and frogs. Page 22.

Seven species of microscopic dieback-disease fungi are attacking WA's unique wildflowers. See page 28.

The rugged Pilbara landscape has some hidden delights. On page 16, go up hill to Hamersley Range, then down Dales and other spectacular gorges.

How does WA's conservation heritage look to the people who look after it? Turn to page 26 for some great photographs from a recent competition run for CALM staff.

FEATURES

REGULARS

SPECIALS

COVER

Out now! Wildflowers are blooming in the vast tracts of country north of Perth, especially in the northern sandplains and Murchison, which is experiencing a bumper wildflower season following heavy winter rains. Philippa Nikulinsky's illustration shows some of the wildflowers for which WA is justly famous: the splendid everlasting, buttercup, red leschenaultia, Sturt's desert pea, catspaw, wattle, native wisteria, black kangaroo paw, flame pea, and scaevola - all covered in the newly released book Wildflower Country. *See page 10.*

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