Herbarium Specimen Preparation

Level

4

Key question

How should plant samples be prepared for later identification by a herbarium or for display?

Key outcome

Identify features of plants that determine their classification into major groups.

Adapted from *Field notes for Stradbroke Island*, Rochedale High School, Brisbane.

When collecting plant materials, enough information must be recorded to permit classification of the specimen accurately. Reproductive structures are important in classifying plant species. The pieces collected must be typical of all plants of that species in the area.

What you need

Absorbent paper, for example, paper towels
A4 envelopes or plastic bags to hold specimens
Sticky labels to mark bags
Plants to study (seaweeds or terrestrial)
Pen, paper

What you do

You can work in small groups to cover a dune or coastal forested area (don't rip the plant out by the roots or break whole branches off). Collect for each plant:

- flowers seed pods, capsules, fruits
- leaves (attached to stems so that you can identify whether arrangement is opposite or alternate)
- bark, if possible.

Record in the field on paper or sticky label:

- the locality
- type of environment
- the habit (vine, herb, tree, shrub)
- other special features.

Press immediately.

In the field, place the specimens between pieces of absorbent paper and slide into an envelope in a folder for safe-keeping. Seed pods, fruits etc. may be kept separately but must be named appropriately so they can later be re-united accurately.

Herbarium Specimen Preparation

Take note to:

- Avoid collecting on a wet day or after heavy dew. Get the driest sample possible.
- Press evenly and flat.
- Place leaves up the same way.
- Press flowers so petals may be seen for shape, number, arrangement.
- Label envelope or bag.

Drying specimens

Most specimens need to be pressed between several layers of paper (e.g. newspaper) under a heavy weight for two or three weeks, or use a plant press. Change paper after two weeks. If plants are wet, they may go mouldy and will have to be discarded. Keep labels with plants. Old telephone books make convenient size plant presses.

If plants cannot be identified, the pressed specimens should be spot-glued onto white A4 stiff paper or cartridge paper, labelled with locality, habitat and date and forwarded to the herbarium (in each capital city) for identification. There may be an identification charge if you have many samples, though small numbers may be free.

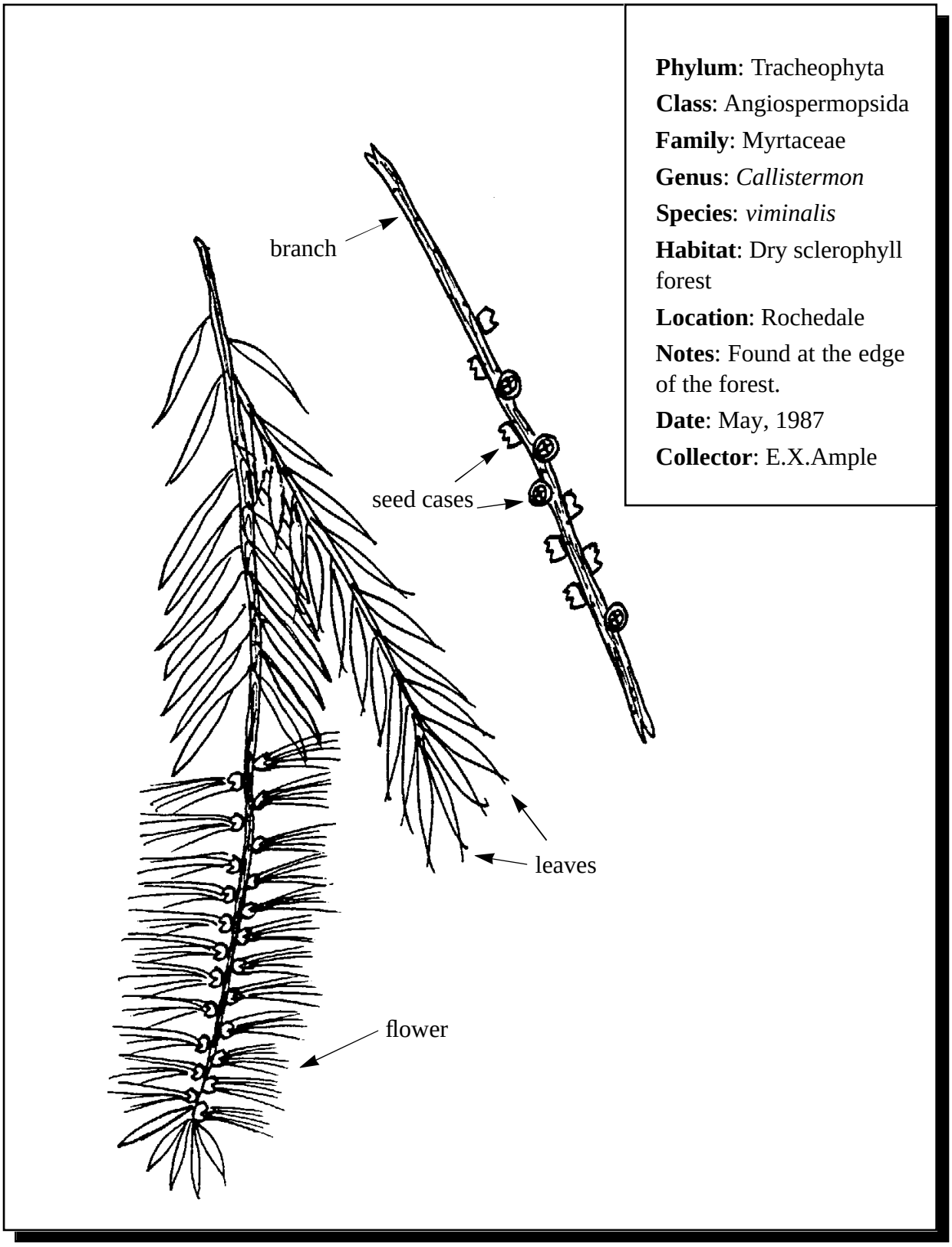
After pressing, the specimens can be mounted on card in a folder to serve as a local field guide (see Figure 1). They can be stored in plastic sleeves in folders (with their labels).

Remember!

Plants are precious! DO NOT DESTROY any plants. Collect material with great care so as not to damage the specimen.

Herbarium Specimen Preparation

Figure 1. An example of a herbarium specimen which shows you how to mount your specimen and display information about it



Comparing Different Plant Communities

Level

7-8

Key questions

What do you notice about the different plant communities?

Can you explain why some of the factors differ from each other?

Are there other factors which could be used to compare vegetation?

Key outcomes

Record observations about different plant communities (e.g. dune, estuary, up-stream).

Define why/how plant communities differ.

Adapted from field sheets from Rochedale High School, Brisbane, Royal National Park Field Studies Centre, Sydney, and Griffith University, Brisbane.

This activity provides an alternative approach to surveying different communities of vegetation and does not require transects or quadrat studies. As such, the method is more appropriate for obtaining data for quick comparisons (such as those required for the 'Bird Diversity Indices') or when the vegetation community is too fragile or valuable to allow a class group of students to tramp through it, or when time is short.

What you need

Light or exposure meter

Field sheet, pencil

What you do

Students should be divided into small groups or pairs, and issued with equipment. They then complete the field sheets, choosing at least two different habitats or communities.

Comparing Different Plant Communities

Field sheet 1

Available Light

Using a light meter or exposure meter devise a five point scale (equivalent to ASA 64 film) where these combine, for example:

Full sun	Hazy sun & distinct shadow	Weak sun & soft shadow	Shady but bright, no shadow	Open shade to full darkness
f16	f11	f8	f5.6	f4
(Number equivalents equivalent to ASA 64 film)				
5+	4+	3+	2+	1+

Wind Exposure

Continual exposure	Show signs of adaptation to wind	Affected during storms, etc	Wind present but not important	Completely sheltered
5+	4+	3+	2+	1+

Comments can be made concerning reasons for the degree of exposure to wind.

Depth of Soil

Very shallow	Shallow	Some depth	Deep	Very deep
0-0.5 m	0.5-2 m	2-5 m	5-10 m	10m +

Comments could be made about the amount of ‘topsoil’ in any of the above

Comparing Different Plant Communities

Field sheet 2

Type of soil

Soil could be described on a one to five scale according to how coarse it feels.

Very coarse) and gritty (sand)	Holds together but still gritty (sandy-loam)	Easily worked good' soil (loam)	More slippery than gritty (clay-loam)	Very slippery and fine (clay)
5	4	3	2	1

Water in soil

Soil constantly wet (swamp)	Soil holds water for long period after rain	Soil wet enough for good plant growth	Soil only wet immediately after rain	Soil constantly dry (sand dune)
5	4	3	2	1

Type of vegetation

This can be expressed as the percentage in an area, say, 10 metres by 10 metres.

Trees	Shrubs	Herbs	Grasses	Other
(%)	(%)	(%)	(%)	(%)

The comparative height of the vegetation can be shown by using diagrams which show a 'profile'of the vegetation compared to the height of a person.

Type of leaf

This can be expressed as the percentage in a given area.

Small	Small & prickly	Hard &grey green -	Soft & dark green	Other (%)
(%)	(%)	(%)	(%)	

Ground cover

This can be expressed as the percentage in a given area.

Fully covered with plants & leaves	Intermittent spaces & complete coverage	Leaf litter only	Plant only	Bare ground
(%)	(%)	(%)	(%)	(%)

Canopy

This can be expressed as the percentage in a given area.

Full canopy	Fairly complete	Half canopy	Sparse canopy	No canopy
(%)	(%)	(%)	(%)	(%)

Type of animal

This can be expressed as a percentage after calculating the total number in each group.

Insects include other Anthropods	Amphibian	Reptiles	Birds	Mammals
(%)	(%)	(%)	(%)	(%)