

ATTACHMENT C: MAKING YOUR OWN PLANT COLLECTION

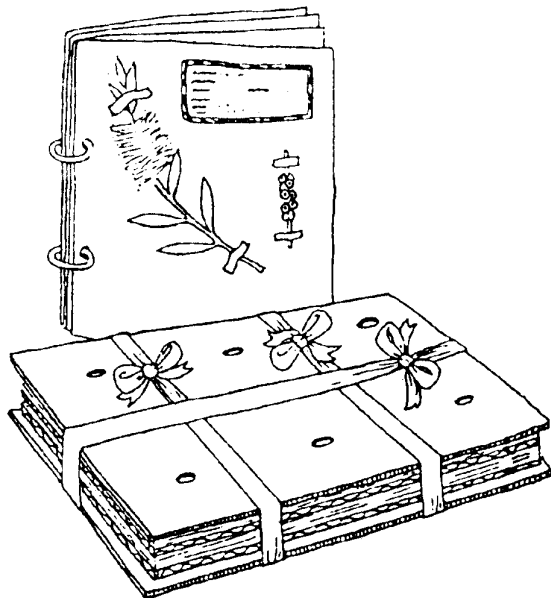
Compiled by Barbara Martin

Collecting samples of native plants is a valuable way to find out more about the scrub and plants in your local area. It helps to build a picture of the character of your district. Are the plants you collect typical for the soil for that region? Are they unusual or perhaps even rare?

This leaflet explains some ways to collect examples of the plants in your scrub or local area and to find out what they are.

Herbarium: A Dried Plant Collection

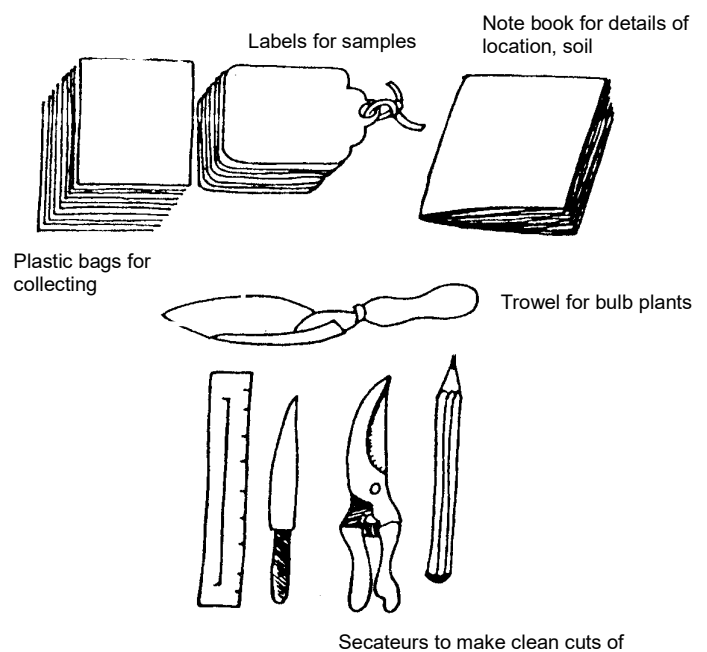
A dried plant collection is a herbarium. They can vary in size from a small personal collection, to the State Herbarium's eight hundred thousand specimens, or to the collection of more than six million specimens in the Kew Herbarium, London. Plant specimens are used for comparison and identification. Examples of variation and from a geographical range are kept.



Collecting equipment

You will need secateurs, adhesive labels or tags, a pencil, plastic bags and notebook. A knife, trowel and ruler will also be useful. When you come to dry and mount your specimen, you will need a stack of newspapers, cardboard, glue and plant press or some heavy objects.

Some tools you will require for collecting.

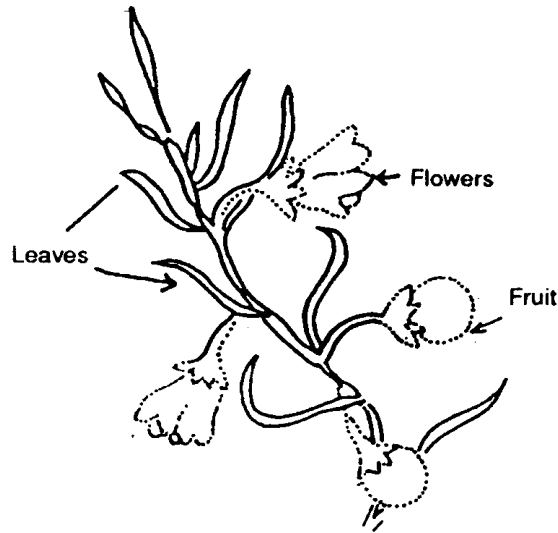


Before collecting specimens

Flowers and fruit are the main distinguishing details of a plant while the leaves are next in importance. Superficially, some different plant species will look alike; alternatively, you may find members of the same species appear quite dissimilar.

Take time to examine plants carefully, noting the colour of the flower, its shape, number of petals and number of stamens.

Example of reasonable specimen material needed for identification.



What to collect

The ideal specimen includes all parts of the plant. A stem with buds, flowers or fruit (including woody capsules) and leaves is the minimum requirement for an accurate collection. Bark, seeds and even roots can also be collected.

Several pieces of one plant can be used to show all features clearly. With plants such as grasses, sedges and small rushes, the whole plant can be included. When small plants are collected, a number of complete individuals can be taken. Collect enough material to cover the herbarium sheet.

To find all plant species in flower and fruit, you will need to collect regularly throughout the year.

Specimens can be placed in plastic bags at the time of collection to maintain their moisture level and flexibility until pressed into appropriate shape, but should be transferred to newspaper folders as soon as possible to speed drying and pressing.

What to record

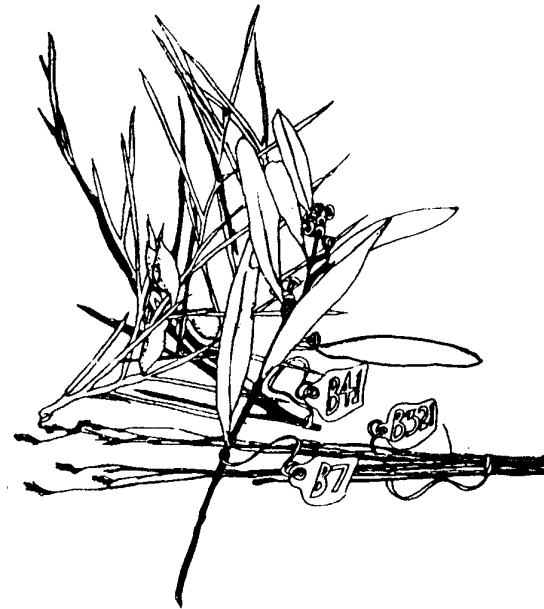
It is best to number each specimen at the time of collection. If several pieces are collected from the same tree or shrub at the same time (duplicates), they should bear the same number. If you collect duplicates, one can be sent to the State Herbarium for identification. Small herbs, which are clearly of the same kind from one small defined locality and

collected at the same time can also be given the same number.

It is advisable to select a sequential numbering system and not to repeat numbers used previously, even when returning to the same spot and collecting the same plant at another time.

The collection number should be recorded on a sticker or tag attached to the specimen. Other data can be recorded on the tag or in a notebook and transferred to a label when the specimen is mounted. A plant without the necessary information, although well collected and carefully prepared, has little value as a botanical record. Although familiar at the time, information about the plant and where it is growing is easily forgotten.

Number collected specimens sequentially.



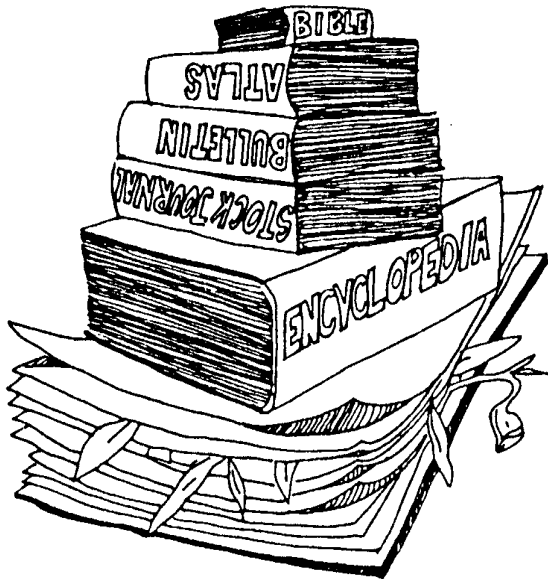
Later identification of a plant can be helped by knowing where the plant is growing. Is it a wet spot or a rocky outcrop, and what plants grow nearby? For trees, take note of height, shape of leaves and type of bark.

Other details to record are the date of collection, flower colour (this could change in the drying process) and any local names used for the plants. The local names for the area (for example 'Harvey's Swamp') as well as information such as section number or latitude and longitude are necessary to allow others to relocate the spot later.

How to press and dry plants

Arrange the specimen on one half of a sheet of newspaper, spreading or trimming it to show important details such as flowers or buds, avoiding crumpled leaves. When collecting grasses or herbs, long stems can be bent several times to fit onto one piece of card. Fold over the paper and continue to make a stack of specimens. Separate each specimen by several thicknesses of dry newspaper. Sheets of corrugated cardboard between groups of samples helps to ensure good drying. Cardboard cut from old boxes is suitable for this purpose. The stack can be enclosed between latticed frames of metal or wood and firmly secured with straps, twine or nylon tape. A lattice is used for increased aeration. You may be able to find material such as old refrigerator shelves to make your own plant press. Heavy books or house bricks are sometimes used for pressing. Use about 25 kg of weight for the purpose.

Plants can be pressed under a heavy weight.

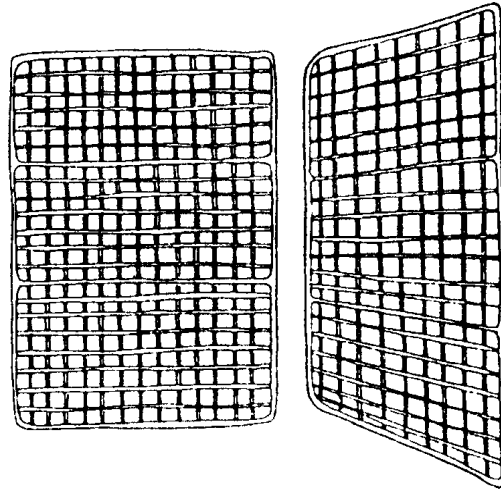


Use an envelope or packet to retain loose seeds and staple it to the herbarium card later.

Change newspapers in the stack regularly until the samples are dry. How often and when to change will depend on the moisture content of the plant and the absorbency and dryness of the paper used. Succulents will require a newspaper change of the specimen page and all surrounding pages every day to speed up drying and prevent mould. Specimens dried quickly under pressure will help to retain the colour of the flowers. It is not usually recommended that artificial heat be used in the SA climate, but you would do well to leave the stack in a non-humid environment.

Well prepared specimens can be preserved indefinitely, but they must be protected from insects and dampness and not left exposed to daylight.

Ideally, press plants within a lattice frame to increase aeration.



How to mount specimens

Lightly fix the specimen on heavy paper or light cardboard, using a clear glue such as Aquadhere. Mounted specimens can then be covered in plastic or slipped into a clear plastic bag that is then folded over and stapled through the card. Store samples in ring binders or cardboard boxes; arrange them alphabetically or in any other convenient order. Glue a clearly recorded label on the card with the specimen.

You could also attach a colour photograph or transparency.

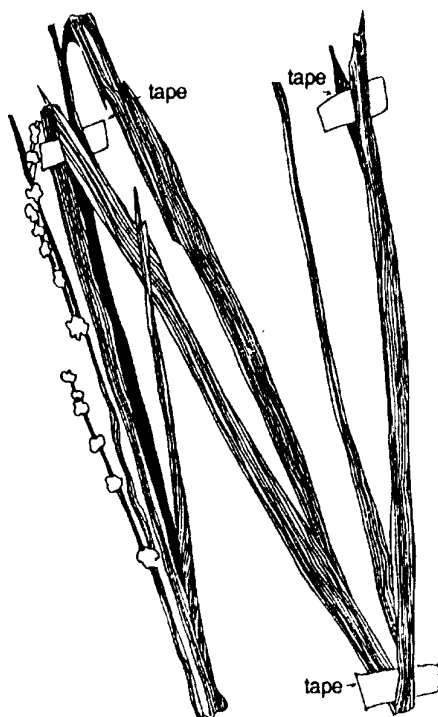
Wood glue is an ideal adhesive for fixing plant specimens to herbarium sheets.



Suggested pattern for a label.

NAME:	<i>Plantago varia</i>
FAMILY:	PLANTAGINACEAE
COMMON NAME:	Small leaf-wort
LOCATION:	Gum Lagoon Conservation Park
MAP NO.:	NABASCOOTE 250.090
A.M.G. REF.:	1.0NE 54 2175.72
HABIT:	low forb
HABITAT:	Acacia brachybotrys low shrubland fringing dry lagoon
COLLECTED BY:	P. S. LANGE
DATE:	7/12/1994
NUMBER:	A.H. 22731

When collecting grasses or herbs, long stems can be bent several times when being pressed.



How to identify specimens

Plants can be identified from books. You may be able to get help identifying plants from a local native plant enthusiast.

Alternatively, you could send a duplicate dried specimen to:

Chief Botanist
State Herbarium,
Botanic Gardens,
North Terrace,
Adelaide SA 5000

Include a copy of the tag notes giving details of the plant and location, and say that you would like to have the plant identified.

You may send a maximum of ten specimens, if you wish a reasonably quick response.

The State Herbarium is the final reference collection for SA. Sometimes they may wish to retain a specimen for their records, especially if the plant is rare or growing outside its suspected usual home range.

Some books that may be of help in naming plants are listed under Reference Material.

Tricky plants to collect

To complete your herbarium you may wish to collect plants that do not dry or press readily. Here are some ideas that may help.

Mushrooms and toadstools

Mosses, lichens and fungi should be collected in paper bags and not pressed. Each specimen must be separately wrapped. Dry them in their bags, and number and label them.

Wet collections

Sometimes delicate plants such as small orchids are stored in liquid in small bottles or phials. A storage solution of 70 per cent methylated spirits/30 per cent water is quite suitable. When flowers such as orchids are preserved in this way they still lose their colour, but it

BFL: Do not collect orchids or other delicate plants. Take photographs.

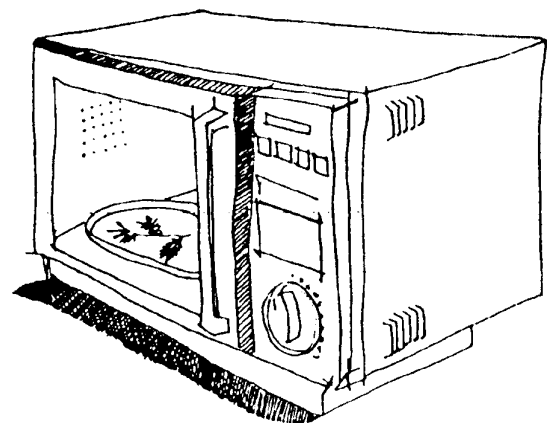
Delicate plants such as orchids can be kept in a methylated spirit solution.



Succulents

Succulents are probably the hardest plants to collect. Some succulents can be treated in the usual way. Sometimes, they can have the skin removed from one side so that they dry easier, or they can be frozen to rupture the cells. When unfrozen, liquid can then be absorbed by the newspaper more quickly. The problem with these techniques is they make the sample liable to mould. A possible solution to this problem is to use a microwave oven.

Microwave ovens can be used to aid in drying some types of plants.



You may have to experiment to correctly dry plants. Start with the recommendation in the owner's manual for drying parsley. Some collectors claim that microwave-dried specimens retain better colour, and the treatment certainly achieves a sterile sample. Never dry specimens of very rare plants in a microwave. When a plant is approaching extinction, herbarium collections have been used to provide seed and keep the species going.

A large fleshy succulent, such as pigface, can require one to one-and-a-half minutes for primary drying, followed by some pressing. Other more delicate plants, such as some of the chenopods (saltbush), may need only 30 seconds to one minute exposure.

Never rely on the microwave for complete drying because the plants can become brittle. It is best to reduce the moisture content in this way and then put them in the plant press. A microwave is not recommended for woody plants.

For further information contact:

Native Vegetation Management, Department of Environment and Natural Resources, ph 8204 8888, State Herbarium ph 8228 2311 and Natural Resource Centre, ph 8372 0100

Reference material

Bates, R. and Weber, J. (1990) *Orchids of South Australia*. Government Printer, Adelaide.

The most complete, botanically accurate book of the native orchids of South Australia.

Boomsma, C. D. (1981) *Native trees of South Australia*. Bulletin 19, 2nd edition, Woods and Forests.

Out of print, but the most complete, botanically accurate book of trees, mainly Eucalyptus species, of South Australia.

Clarke, I and Lee, H (1993) *Name That Flower: Identification of Flowering Plants*. Melbourne University Press. Carlton, Victoria.

A good introduction about how to identify flowers and flowering groups using taxonomic principles.

Costermans, L. (1981) *Native trees and shrubs of south-eastern Australia*. Rigby, Adelaide.

A useful comprehensive book of illustrations and photographs of species of higher rainfall parts of SE Australia and works well in the Mount Lofty Ranges and SE corner of South Australia.

Cunningham, G. M., Mulham, W. E., Milthorpe, P. L. and Leigh, J. H. (1992) *Plants of Western New South Wales*. Inkata Press, Melbourne, Victoria.

A useful comprehensive book of photographs of semi-arid species of NSW but works well in the arid and semi-arid part of South Australia. Best for this type of area but could be considered expensive.

Dashorst, G. and Jessop, J. (1990) *Plants of the Adelaide Plains and Hills*. Kangaroo Press Pty Ltd, Kenthurst, NSW.

Out of print, but contains fine colour illustrations of many of the plants of the Adelaide Region. Includes fungi, mosses, lichens, grasses, sedges, rushes as well as flowering plants.

Holliday, I., Overton, D. and Overton, B. (1994) *Kangaroo Island's Native Plants*. Ivan Holliday, Bev and Dean Overton, Adelaide.

A good sampling of colour photographs of common flowers on Kangaroo Island.

Jessop, J. and Tolkien, H. (1986) *Flora of South Australia*. Fourth edition, parts I, II, III, and IV. Government Printer, Adelaide.

The official four volume taxonomic reference book to the plants of South Australia. Could be considered expensive.

Lamp, C. A., Forbes, S. J. and Cade, J. W. (1990) *Grasses of temperate Australia*. Inkata Press, Melbourne.

A good photographic guide to the common grasses.

McCann, I. R. (1989) *The Mallee in Flower*. The Victorian National Parks Association, Mitcham, Victoria.

A good sampling of colour photographs of common mallee flowers in the Murray Mallee.

Mitchell, M. (1996) *Native Grasses: Identification Handbook for Temperate Australia*. Agmedia, East Melbourne, Victoria.

A good photographic guide to some of the common grasses of higher rainfall country. Can be used in SA in similar rainfall zones.

Prescott, A. M. (1994) *It's Blue with Five Petals: Wildflowers of the Adelaide Region*. Revised Edition, A Prescott Publishing, Adelaide. 400 pages, 1000 illustrations.

A comprehensive, easy to use guide sorted by flower colour and shape.

Prescott, A. M. (1995) *It's Blue with Five Petals Kangaroo Island Field Guide*. Anne Prescott and Associates Pty Ltd, Adelaide. 200 pages, 700 illustrations. A comprehensive, easy to use guide sorted by flower colour and shape.

Whibley, D. J. E. and Symon, D. E. (1992) *Acacias of South Australia*. Revised Second Edition. Handbook Committee of South Australia, Adelaide.

The most complete, botanically accurate book of the Acacias of South Australia.

Series of *Plant Identikits* for different regions.

- *Common plants of the Coorong*
- *Wildflowers of the Southern Flinders Ranges*
- *Wildflowers of Lower Eyre Peninsula*
- *Wildflowers of the Northern Flinders Ranges*

Available from: Society For Growing Australian Plants, SA

Inexpensive, pocket size booklets, showing the common plants for each area.

Acknowledgments

Native Vegetation Management, Department of Environment and Heritage and Ann Prescott.

Example herbarium page.

