

primefacts

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REPLACES AGNOTE DPI-492

Collecting and preparing plant specimens for identification

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The key to accurate identification of plants is to supply the agronomist or botanist with good quality specimens and sufficient information about the plant, including details of the area from which it was collected and, if possible, supplementary photographs of the plant growing in its habitat (see figure 1).

Supplying inadequate information or poorly preserved and presented specimens often leads to plants not being identified or being misidentified.

Before collecting specimens, check with local authorities whether specimens may be collected. Collecting specimens from national parks or state forests in NSW requires a permit. Laws vary from state to state.

Always collect several sets of the same specimen so that, following correct identification, you can retain a specimen for later reference. When you send a specimen to a herbarium for identification, it won't be returned. Good quality specimens may be kept for herbaria reference collections.

Materials recommended for successful plant collecting

- A digging implement such as a mattock or spade to ease small plant specimens from the soil, leaving the roots and other underground organs intact; never just pull the plants from the soil;
- secateurs or a small saw for removing small branches from trees and shrubs;
- plastic bags, rubber bands and a portable cooler if the weather is hot, or non-gloss newspaper and a portable plant press;
- pencil or permanent marker and tie-on tags (jeweller's tags) (to record the name and collection number) to tie to individual specimens;
- notebook for recording details;
- camera for recording plants in-situ and their habitat;
- GPS for accurate location of collection site.

Collection details

Supply enough information about the size and habitat of the plant to help in identification. By completing the plant identification template at the end of this Primefact you will be providing sufficient detail.

What to collect

General

Many plants have similar characteristics and it is not possible to identify them from leaves alone. Therefore, it is important to supply representative portions of the plant for correct identification, particularly flowering parts and seedpods.



Figure 1: A well-prepared specimen of Acanthus mollis mounted and in a herbarium box. Large specimens can be dissected and mounted to show the main distinguishing characteristics. Many species require basal leaves, stem leaves and flowers for correct identification. Photo A. Storrie.

Identification of perennial species will often require bark or underground parts such as rhizomes or corms to be included.

For plants with separate male and female flowers collect both sets of flowers.

Record flower colour, as this may change when specimens are dried.

Submit multiple specimens of small (immature) plants as leaf shape may vary within a species.

Grasses, sedges and small plants

Include roots, basal leaves, flowers and fruits.

Examples of basal leaves are the rosette leaves of brassicas. Always include, if present, underground parts such as rhizomes, corms, tubers, and bulbs.

Larger plants such as shrubs and trees

For shrubs collect a portion of stem that shows the branching pattern, preferably with flowers and fruits. If flowers and fruits are not present on the same stem collect several samples.

Eucalypts require collection of buds, fruits, juvenile and mature leaves plus a written description of the bark. Juvenile leaves are often on young plants, so keep this material separate.

Record the dimensions of the plant and, for trees, note the trunk diameter at a height of 1.2 metres.

Specimen preparation

All specimens should be free of soil. Gently wash the roots to remove wet soil. Hard-set soil may need to be soaked off to prevent damage to the roots.

Large plants such as tussock grasses and sedges can be carefully pried apart and a few tillers with seed heads can be kept for identification (see figure 2).

There are two methods of preparation depending on whether the specimens will be identified locally within a few days of collection or have to be either sent away or stored longer term.

Storage for a few days

1. Put plants or plant parts in a plastic bag with a few millilitres of water, with roots toward the bottom of the bag.
2. Tag plants with specimen number, date, collector and locality.
3. If the specimen is in sections give each sample the same number.
4. It is preferable to have a written label in the bag as, even if written with a waterproof pen, the writing on the bag will often rub off.
5. Tie off the top of the bag. This will maintain humidity and help keep the specimens fresh.
6. Keep the specimens out of the sun. Most specimens can be kept in a refrigerator for a few days. The main exception would be specimens with large, soft flowers.

Longer-term storage

Use this method when sending specimens for identification or storage in a collection.

1. Place the specimens between several sheets of A3 newspaper or folded broadsheet.
2. Arrange the samples so that leaflets/leaves and flowers can be clearly seen, i.e. not overlapping (figure 3).
3. Larger specimens can be bent into a zigzag to fit the sheet.
4. Multiple samples in newspaper can be laid upon each other. These are then placed between rigid boards with weights such as bricks or books supplying enough pressure to flatten them (see figure 4).
5. Change the newspaper daily for the first few days then weekly until the specimens are dry.

Fleshy or succulent specimens such as cacti may need to be frozen for a few days before pressing. This ruptures the plant cells and aids drying.

Aquatic plants should be gently washed then placed in 70% alcohol (30% water). Ethanol is preferred but methylated spirits is the second choice. Thin specimens of low mass (e.g. a single piece of cabomba or egeria) should be placed in alcohol overnight. Bulky specimens need to be placed in the ethanol or methylated spirits for one to two days. Remove from alcohol and place in a well-sealed plastic bag before mailing. Never post aquatic specimens without first treating them as described.



Figure 2: A mounted, large-grass specimen. Note the bending of the specimen to fit the page. This is done at the start of pressing. To prevent a loss of the seeds they are placed in a small plastic bag. Photo A. Storrie.



Figure 3: Small plants before pressing. Note how leaves are spread apart to give the correct plant shape. Photo A. Storrie.



Figure 4: This press consists of layers of cardboard and foam separating specimens in newspaper. These are then held between two frames with the use of simple tie-down straps. Photo A. Storrie.

Specimens should be individually tagged during drying to keep track of the collection details.

Sending specimens to the herbarium

1. Keep the specimens between sheets of newspaper.
2. Insert a completed plant identification sheet such as the one in this publication and place it all between two pieces of firm cardboard.
3. Attach a covering letter outlining your request for identification.

Send collection specimens and the completed form to one of these herbaria.

National Herbarium of New South Wales

Botanic Gardens Trust
 Mrs Macquarie Road
 SYDNEY NSW 2000
 Phone: (02) 9231 8111
 Fax: (02) 9251 4403
 Website: www.rbgsyd.nsw.gov.au/science/nsw_herbarium

Australian National Herbarium

GPO Box 1600
 CANBERRA ACT 2601
 Phone: (02) 6246 5533
 Fax: (02) 6246 5249
 Website: www.cpbr.gov.au/cpbr/herbarium

For further plant collecting information see

www.anbg.gov.au/cpbr/herbarium/collecting

Plant Identification

Submit a separate form, in duplicate, for each specimen.

Send only specimens which have been pressed flat between sheets of newspaper.

Name		
Postal Address		
Phone	Date submitted	Specimen of file no.
Information required: (Identification only will be supplied unless otherwise requested).		
Collection details: Fill in relevant sections		
Collector:		Date collected:
Locality: (Distance and direction from nearest town)		
Latitude	Longitude	
Habitat: Crop: (specify)		<input type="checkbox"/> Pasture <input type="checkbox"/> Roadside <input type="checkbox"/> Garden
Native vegetation: (specify)		
Occurrence: <input type="checkbox"/> Growing naturally <input type="checkbox"/> Cultivated		
Habit: <input type="checkbox"/> Annual <input type="checkbox"/> Perennial <input type="checkbox"/> Tree <input type="checkbox"/> Shrub <input type="checkbox"/> Herb <input type="checkbox"/> Vine <input type="checkbox"/> Other (specify)		
Height: (m) Trunk diameter @ 1.2 m (trees) (m)		
Abundance: <input type="checkbox"/> Rare <input type="checkbox"/> Occasional <input type="checkbox"/> >10 <input type="checkbox"/> > 100 <input type="checkbox"/> > 1000		Area covered (ha)
Flower colour:		
Bark colour and texture:		
Substrate (rock type):		
Soil type:		
Remarks:		
Herbarium response – Plant identification:		
Identified by:		Date:

Acknowledgements

Information for this Primefact was taken from:

Collecting and preparing plant specimens for identification Agnote DPI-492.

New England Herbarium specimen recording book

J Milson, *Plant identification – preparing samples for identification*, DPI note, 2001, Department of Primary Industries, Queensland.

C Rose, *Plant collecting and identification on the farm*.

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Disclaimer: The information contained in this publication is based on knowledge and understanding at the time of writing (May 2009). However, because of advances in knowledge, users are reminded of the need to ensure that information upon which they rely is up to date and to check currency of the information with the appropriate officer of Industry & Investment NSW or the user's independent adviser.

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