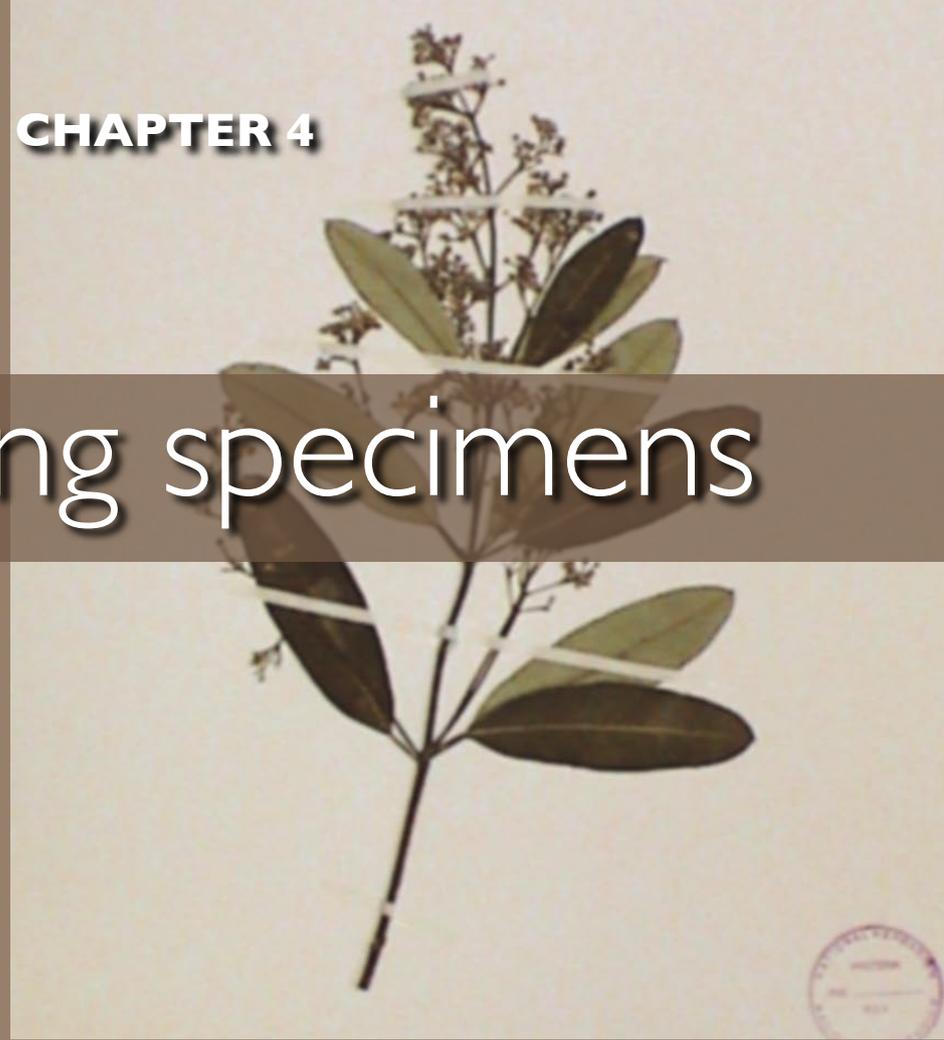


## CHAPTER 4

# mounting specimens



*Only those who have the patience to do simple things perfectly, will acquire the skill to do difficult things easily.*

*—Friedrich von Schiller*

It might seem easier to handle unmounted specimens, but normal handling easily damages them—dried plant material tends to be very brittle. The practice of mounting dried specimens reduces such damage. This is important because many specimens are irreplaceable and damage or loss of fragments would render them scientifically worthless. If you take care of them, well-mounted specimens can last indefinitely.

## Main aims

When mounting plant specimens, your aims should be to

- Make the specimen easier to handle and more accessible for study or reference.
- Display the specimen to allow maximum observation of all characters.
- Display all labels clearly.
- Prevent damage and to preserve the specimen by attaching it firmly to strong acid-free paper or board.
- Use attachment materials that can be removed and replaced easily. This allows clearer observation of the specimen and makes it easier to remove small parts for more detailed study.

## Material and equipment

- White mounting boards of good quality, preferably acid-free, of a standard size (270 × 420 mm) and weight (300 gsm and 400 gsm).
- Glue and applicator (for example, the nozzle of the glue bottle, a paintbrush, or a scalpel).

**TIP**

White glue, wood glue, and poly(vinyl acetate) (PVAC) adhesives are strong. They are also acidic, and may damage specimens over time.

Methylcellulose is not as strong as white glue types, but does not damage specimens and is completely removable.

- Firm paper (230 gsm) for bryophyte and lichen envelopes.
- Envelopes for small (or extra) flowers, fruits, leaves, and seeds.
- White gummed paper or self-adhesive paper cut into strips, used to attach specimens to mounting boards.
- Paper towels for mopping up excess glue.
- Thick sheets of corrugated cardboard, slightly larger than mounting boards (280 × 420 mm), for supporting specimens while glue is drying.
- Wax paper (slightly larger than the mounting board) stapled to drying paper; this is placed on top of freshly glued specimens to prevent the glue from sticking to the sheet above

while it is drying.

- Labels for indicating that a specimen consists of more than one mounting board, for example, “Sheet I” to “Sheet IV”.
- Scissors, knife, forceps, and scalpel.
- Small, flat, steel weights for holding down parts of the plant while mounting.
- Small paintbrush for removing dirt from the specimen.
- Thick needle and thread such as raffia, for attaching extra-bulky parts.
- Sandbags, weighing about 5 kg (made of dense material like canvas, to avoid sand from filtering through), for putting pressure on a stack of specimens while the glue is drying.
- Firm, rigid surface (such as wood or plastic) of the same size as a mounting board, to place underneath the sandbag to ensure that the weight is evenly spread.
- Sponge and saucer with water to wet gummed paper straps.
- Pen with waterproof ink, pencil, and a good quality eraser.
- Herbarium name stamp and pad, self-inking stamp, or label with herbarium name. The specimen is stamped or labelled on the right, above the main data label, to indicate that it belongs to a specific herbarium.

**TIP**

Once a plant is dry, it becomes brittle and very difficult to rearrange for mounting purposes without damage. You can, however, try soaking dry material in boiling water and then re-press it once it has softened.

## Mounting procedures

Start by deciding whether you want to mount all the material, or only the best specimen(s) from the duplicates that show all the characters and variations of the plant in the collection. Next, select mounting boards of the appropriate weight: lighter for delicate specimens, and heavier for specimens that are more robust. Then, mount the specimen in the following sequence (described in more detail on the following pages):

- Arrange the specimen.
- Store small loose parts in paper envelopes.
- When attaching the specimen to the board, ensure that there is enough space for the main label to be glued in the bottom right-hand corner.
- Glue the label to the board.

## Arranging the specimen

Clean off sand and dirt adhering to the specimen, using a fine paintbrush, or by gently blowing on the specimen. Arrange it on the mounting sheet; do not merely show the most pleasing or artistic arrangement, but keep the scientific purpose in mind,

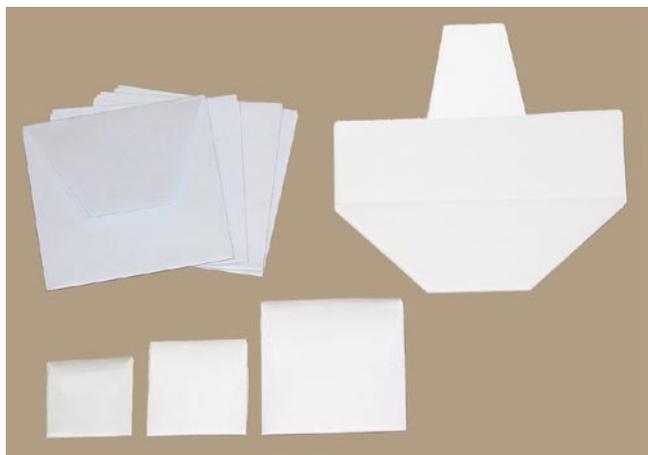
presenting the specimen to display all its characters.

- Display both sides of leaves and flowers, and for ferns, both sterile and fertile surfaces.
- Expose hidden flowers or fruits by removing excess leaves and placing them in a paper envelope, together with any other small, loose parts.
- Do not clump parts together for easier and quicker mounting. If necessary, larger parts can be mounted separately on the sheet.
- If parts of the specimen have to lie on top of each other, try to mount the more delicate parts below the bulkier ones.
- Specimens should not protrude over the edges of the mounting board.
- Specimens should not be mounted underneath or over the main label.
- Try to keep all specimens on one sheet aligned in the same direction. If possible, always place the largest or heaviest specimen at the bottom to prevent the sheet from bending when it is handled.
- Larger specimens are best arranged diagonally.
- Trim plants only if there is no other way to fit them on a standard mounting board.
- Trim lumpy specimens with projecting spines or branches that could damage adjacent sheets in the herbarium cupboard.

### Envelopes

Small loose parts (including important parts trimmed from the plant), tiny plants too small to mount, and very delicate specimens or parts, should be placed in an envelope.

- Envelopes containing tiny plants should be placed centrally



Different types of envelopes used for holding loose plant parts, or very small plants.

on the sheet with one or two plants mounted outside the envelope, if possible, as examples.

- Write the collector's name and number on the envelope in case it becomes detached.
- Envelopes containing loose parts are usually glued to the top left of the mounting board, but the position depends on the space available.
- There are a number of different designs and sizes of envelopes. When folded and glued to the board, the envelope should stay closed to keep small seeds or parts from falling out. It should fold open flat to allow observation without damaging the plant.
- Dissected material, seeds, or other parts that become detached from the specimen, should also be placed in an envelope.

### Glueing

Keep the following guidelines in mind when glueing specimens to the mounting board:

- Glueing is irreversible and often covers important characters. Therefore, use as little as possible. Do not apply much glue to the base of plants as it may cover important features like scales or hairs. This is especially important in the case of ferns. Excess glue also prevents easy removal of parts for study purposes.
- Wood glue is long-lasting and dries clear. Delicate parts, or those often needed for dissection, should preferably not be glued. If it is absolutely necessary to use glue, use a water-soluble adhesive, such as methylcellulose.
- Apply the glue to the back of the specimen. Take special care that it remains invisible from above.
- Wipe off any excess glue with a paper towel or toilet paper, and then place the specimen on the mounting board.
- Work fast and apply the glue in one go to prevent delicate leaves from absorbing water from the glue and curling up.
- Cover each specimen with wax paper to prevent any excess glue from sticking to other specimens or sheets. Stack the glued specimens between corrugated boards, with a sandbag placed on top as a weight to ensure that the specimens are pressed flat while the glue dries. Support the sandbag with a wooden board or similar object. Leave the specimens like this until the glue has dried. Keep unevenly bulky specimens separate from the main stack.
- Handle specimens on which glue is drying with care, since movement may cause a specimen to shift or break.
- Often a small tag bearing the collector's number is attached to the specimen by a thread. This tag must be glued onto the sheet and preserved with the specimen. If there is writing on

# materials and equipment for mounting



A staff member with all the materials and tools used during mounting. Note the metal weights on the specimen in the foreground.



metal weights



gummed paper



sponge



Fixing a gummed paper strap.



paper towels

## materials and equipment for mounting

raffia and needle



typical label



instruments



paint brushes



A sandbag placed on top of a stack of mounted specimens ensures that the specimens remain flat while the glue is drying.

specimens interleaved with wax paper while glue is drying



rubber stamps and ink pad

both sides of the tag, leave it loose, tucked under a part of the specimen.

### Strapping

When the glue has dried, fasten all loose parts with gummed paper straps. Strapping is reversible, allowing for easy removal of parts for detailed studies.

- Straps of suitable width should be used (2 mm, 3 mm, or 6 mm). Use narrow straps on finer parts of the specimen and wider straps where extra strength is needed, for example, over thick stems.
- Place straps across the specimen at regular intervals and stick both ends to the sheet. Apply enough straps to hold the specimen firmly in place, should the glued parts come unstuck, but do not overstrap so that the specimen is obscured.
- Straps should extend 10–15 mm beyond the part of the specimen that is to be strapped down.
- Straps should be tucked in under the plant parts to hold the specimen firmly in place. Use forceps to tuck straps firmly around and under stems.
- Avoid strapping over important details such as flowers, small inflorescences, or the base of a plant. Exceptions to the rule are large flowers or flowering heads and very long, delicate inflorescences that obviously need extra support to prevent damage. In such cases, place the straps near the base and along convenient points.
- Individual straps should not cover large amounts or different thicknesses of material, as it is difficult to stick the strap properly. Consequently, the plant will not be held firmly.
- Wherever possible, align the straps in one direction, preferably parallel to the bottom of the mounting board.
- Do not over-wet straps, as they will fail to stick to the sheet.
- Gently feel to make sure all the parts have been fastened down.

### Stitching

Sewing with needle and thread is used to attach very bulky parts of a specimen to the mounting board. Thread that is strong, but not very thick, or natural raffia is suitable. Stitches are knotted off on the back of the mounting board and the knots are covered with gummed paper. This prevents the thread from catching on underlying specimens when filed in the herbarium.

### Mounting labels

The following pointers will guide you when mounting labels on the herbarium sheet:

- Labels can be glued to the herbarium sheet either before or

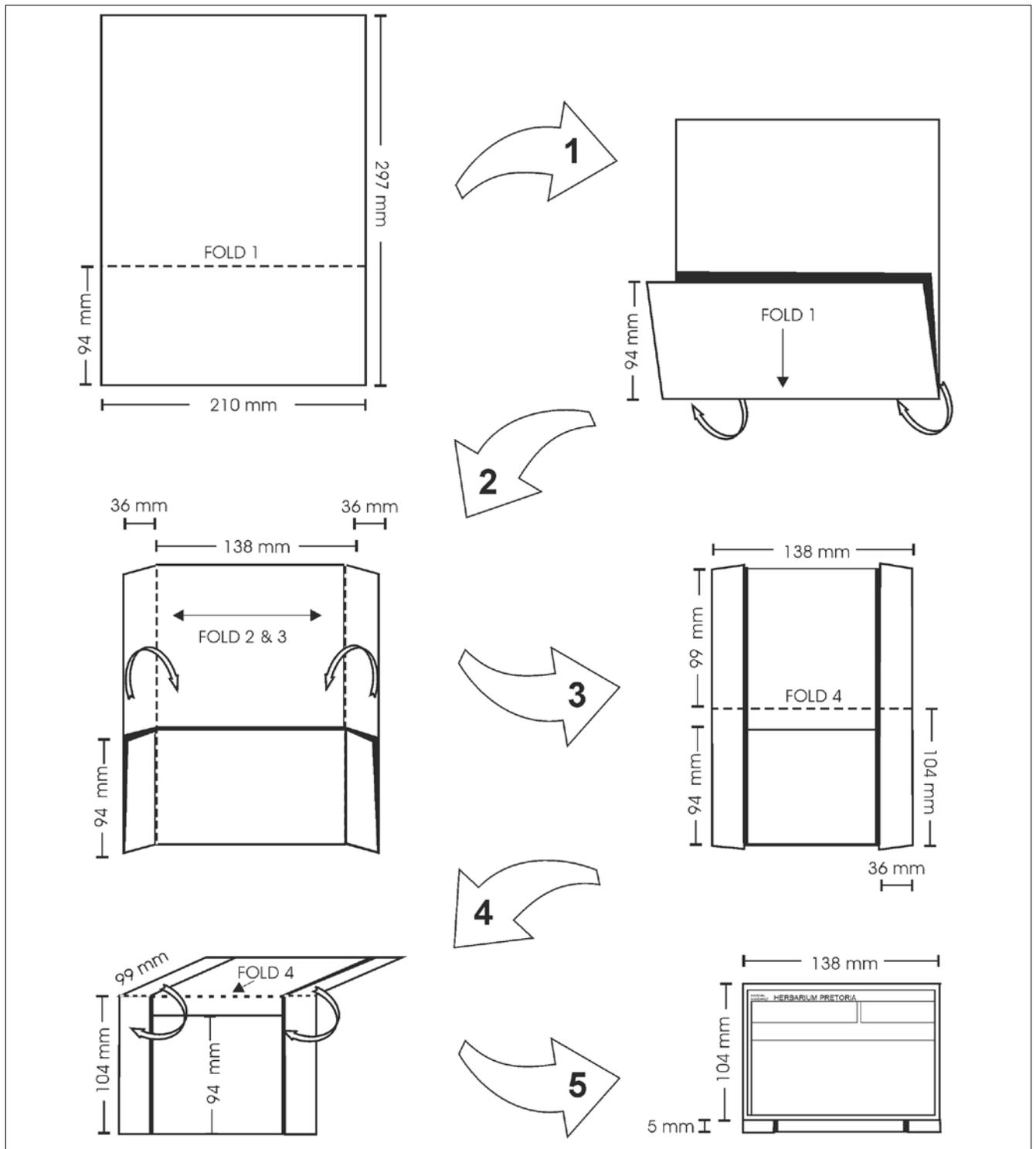
after mounting the specimen.

- New labels should be typed or copied if the main labels are of a poor quality, but the originals must be retained with the specimen. You can mount the originals in the top left-hand



A well mounted specimen sewn to the board.

**P** Inflorescences of *Typha* species (bulrushes) tend to explode on the herbarium sheet after some time. To prevent this, wrap the inflorescence in polyester film (for example, from a cooking or oven bag) when mounting, tying both top and bottom to prevent the minute flowers from spreading if the inflorescence does explode. Ordinary plastic bags and cellophane are not archival materials and should not be used.



Pattern for folding envelope from A4 sheet.

corner, either directly on the sheet or in an envelope. Glue the main label in the bottom right-hand corner.

- Do not place the label across any part of the specimen or underneath it.
- Daub glue sparingly round the edges of the entire label, place it on the mounting board and smooth it out with a paper towel or piece of flat, clean cardboard. Never glue only one edge of a label. Wipe off excess glue.
- Leave a space above the main label for the herbarium stamp and any other labels.

### Preparing bryophytes and lichens for storage

Bryophytes and lichens are not mounted and stored like most other plants. The following guidelines will help you to handle these delicate specimens correctly:

- Remove excess soil and leaves from bryophytes using a fine sieve: soil sliding around in envelopes can damage specimens. *Do not wash.*
- Envelopes should be made from stiff paper to protect the specimen from being squashed. Envelopes can be made to fit the inside of any available box or cabinet; a useful standard envelope (104 × 138 mm) can be folded from an A4 sheet of firm paper. (Pattern on page 37.)
- Paint wood glue onto the underside of lichens lifted from soil; this prevents fragmentation of the specimen.
- Place very small and delicate specimens in smaller envelopes or wrapped in tissue paper before placing them inside the herbarium envelope.
- Mount lichens that are attached to rock chips on a piece of card, and put the card in a slightly larger envelope.
- Write collecting data on the envelope, or glue a label to the outer flap.
- If the specimen is attached to bark or branchlets, put it straight into the envelope, unmounted.
- File envelopes vertically in a metal card-filing cupboard or in drawers. ▲

**TIP** Once dry, bryophytes and lichens are rarely attacked by insects, making fumigation or other anti-pest measures unnecessary.



## packing and storing bryophytes and lichens



The herbarium worker uses envelopes folded from A4 sheets. (Pattern on page 37.)



The specimen is placed on the opened envelope, which is then folded again to secure the specimen.



Placing a lichen specimen on a rock chip in a small box.