

Part 542 – Acronyms

542.3 Guidelines for Preparing Botanical Specimens

Preparing Botanical Specimens

The collection and pressing of plant materials that are to be released by a PMC is an important part of the formal release process. Plant mounts need to be prepared for all of the five release types recognized by NRCS. Botanical specimens prepared for cultivars or varieties should include a "standard" specimen. The standard is the official botanical mount which identifies the unique features of the cultivar release, and can be used to differentiate one cultivar from another. Standards are usually deposited with the registrar for a species or in the National Arboretum's standards collection.

Plant mounts can assist in supporting the identification of superior phenotypic characteristics that may be present in a plant release (e.g., leaf width, color, etc.). Desirable specimens may only be available during a particular season of the year. If a large number of plants are collected and pressed when the opportunity occurs, they can be identified later when more time is available. Another reason for collecting plants is so that the identification may be checked by submitting the specimen to an authority. Most experts are willing to check material if the specimen is well collected and pressed and has complete and accurate data attached. (Harrington 1985)

Collection

The first consideration when starting a plant collection is to ensure that representative specimens of the species are collected and that the specimen includes all the plant parts needed for proper identification. Select an average plant or collect several specimens to show the range in variation. Collect a plant with both flowers and fruits if possible, or make collections of different plant parts over the growing season. Whenever possible, the entire plant should be collected, including the roots if the plant is herbaceous. The roots may contain important identifying features, such as bulbs, corms, and rhizomes, and give clues as to whether the plant is an annual or perennial, or is a bunch-type or rhizomatous.

Appropriate tools are necessary in order to conduct field collections. A digging tool such as a pick, shovel, hand trowel, or a strong hunting knife is necessary for digging the roots of some species. A pair of clippers or a sharp knife is needed to cut off twigs and other parts of woody plants. If plants are not being pressed immediately in the field, then a container is necessary to prevent desiccation. The most convenient method is to place specimens into Ziploc™ type plastic bags. A special container called a vasculum, which is specifically made for this purpose, can be purchased from forestry or herbarium supply catalogues. Another option is to place the plant at once into a temporary press called a hand press. A hand press consists of many single sheets of paper within a stiff cover, supported by straps, attached to a handle for convenience in carrying. Once the specimens are brought back to the laboratory, they may be transferred to a full size press until ready for mounting. (Harrington 1985)

Field Preparation

Large plants may be folded to fit the press, or representative portions can be selected when dealing with very large plants. For instance, when preparing woody specimens such as Pinus, a representative sample would include the leafy branches, seed-producing and pollen-producing cones, and bark (Benson 1979). Another important point to make is that the plant be placed in the press immediately upon collection because it is impossible to make a good

specimen from a wilted plant. Accurate collection information needs to be kept about each plant, preferably with the plant specimen, as most of this information will appear on the label. If a label is misplaced or its information is inaccurate, it can cause a great deal of trouble and confusion later on. (Harrington 1985)

Mounting Permanent Specimens

To prepare for permanent mounting, the plant specimen should be arranged to show distinguishing features and thoroughly dried. To start, the specimen should be placed in a once-folded newspaper sheet approximately 16.5 x 11.5 inches in size. The accession number or other identifier for the plant should be noted on this sheet. The plant should be arranged so that the floral parts and other distinguishing features are well displayed. If necessary, you may bend the stem one or more times and/or remove some leaves. Place the folded newspaper sheet containing the pressed specimen between two more sheets of folded newspaper, which act as blotters to soak up moisture from the plant. Replace these blotters with dry ones as needed. If the specimens are needed in a hurry or if the air is humid, then it is necessary to use artificial heat to dry the fresh specimens. Although more expensive than newspapers, some botanists prefer to use soft felt blotters, which can be ordered from a herbarium supply store, such as Pacific Papers™.

When the plant has been pressed flat and is completely dry, it is placed onto a thin cardboard sheet 11.5 x 16.5 inches in size and mounted. The pressed specimen is then glued or taped to the sheet to hold it in place, leaving space in the bottom right-hand corner for the label. Herbarium supply stores sell acid free mounting paper and acid free herbarium glue and tape. These materials allow specimens to be preserved indefinitely, but they can be expensive and are generally only used in a herbarium setting. (Harrington 1985)

Labeling

Having accurate and complete information on the label is essential. The following information **must** be on the permanent label:

- Scientific name;
- Common name;
- Cultivar name (if applicable);
- The NRCS accession or Plant Introduction number;
- Collection location information, such as State, county, city/town, road names, and landmarks so that the original site may be relocated if needed;
- Details of the collection site including latitude and longitude, elevation, aspect, and soil conditions at the site;
- Date collection was made; and
- Collector's name and address.

The following information may be optional depending on the species being collected:

- Color of the flowers, as they may be partially or completely obscured in the pressing;
- Height of the plant if only a portion of the plant was collected;
- The location of the plant the sample collected from, such as whether from decumbent, prostrate, or ascending branches; and
- Any technical information that is needed to identify the plants but does not show up well on pressed specimens. This may be floral characteristics such as the depth of indentation in the lobes of the calyx or the relative lengths of the stamens.

Storage

The pressed and mounted specimens should be stored in a place that is easily accessible and away from excessive heat and moisture and potential insect damage. Specimens should be deposited in a herbarium for long-term preservation.

The most common practice of arranging specimens in a herbarium is to place the species of a genus in a folded cardboard cover and to arrange the genera by families. These folders can be stored in cabinets or cases, but they should be monitored to prevent damage from insects. (Harrington 1985)

Literature Cited

Benson, L. D. 1979. Plant Classification. Lexington, Mass.: Heath.

Harrington, H. D. 1985. How to Identify Plants. Athens, Ohio: Swallow Press.

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Detailed information for preparing herbarium specimens, and for preparing “hard to prepare” herbarium specimens may be found in:

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This publication may be obtained from the National Plant Materials Center or from the Southern Illinois University, Carbondale Web site at:

“<http://www.siu.edu/~ebl/prepare.htm>”