

PROCEDURE FOR COLLECTING AND PRESERVING HERBARIUM SPECIMENS

Cedarville University Herbarium

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Text Resource: Read/scan Chapter 7, *Murrell Vascular Plant Taxonomy*, 6th ed.

A. FIELD STUDY

MATERIALS: Field guide(s), field journal, pencil, plastic bag(s) (at least 18" x 18"), pocket knife, hand lens, trowel

Identification -- Select representative plant(s) and perform identification using appropriate field guides; alternately, identification can be performed in the lab from collected specimens (see "Collecting").

Journal -- record details concerning:

1. Names – Genus species (underlined), technical name of plant family, family common name, and journal entry # (page/specimen number) as well as date collected.
2. Locality - Record Township, County, State, distance and direction to nearest town or highway intersection detailed so others could determine general location of the site.
3. Plant Community – biotic community type and substrate where plant tends to grow; be observant and precise in journal records. e.g. "...found mainly along stream banks in a marsh community." Include other pertinent data such as abundance/distribution. e.g. "rare/clumped", "rare/scattered"
4. Distinguishing Characteristics – note or sketch any features that help you identify this species.

Collecting:

Endangered (E) or threatened (T) species should not be collected. Instead, you may complete a "Plant Data Sheet" based upon your field observations. Species classified as *endangered* are known to occur in ≤ 3 locations or quad. maps in Ohio. *Threatened species* are known in 4 to 10 locations.

CAUTIONS: Do NOT collect a plant specimen...

1. without permission of owner or park official.
2. when you count only five (5) or fewer individuals (or ramets) in said plant community.
3. when listed as "threatened" or "endangered".

Select representative individuals or ramets – avoid the odd looking ones. Note extent of genetic variability, possible effects of environmental stress, etc.

Specimen should be a representative plant and all plant parts should be included--vegetative (including roots, rhizomes if possible); use trowel to lift roots from soil if necessary; woody specimens should include a representative branch showing leaf arrangement and size, flowers or fruits.

Transport your specimens within a closed plastic bag to retain moisture (add moisture within you bag if necessary) until proper drying can be initiated.

Wash Plant roots and rhizomes to remove soil and other extraneous debris. Please follow these guidelines:

1. Work only in a designated area of the laboratory away from dry, clean herbarium work.
2. To keep soil from entering the lab plumbing as you are washing it from roots and rhizomes, place a container within the lab sink so that soiled water can be discarded outside the lab in a designated location.
3. Remove excess water from washed plant specimens using a paper towel. Avoid excessive exposure and wilting of your specimens before placing into your plant press (see below).
4. Show others consideration by cleaning up after yourself. Trowels and other shared equipment should be kept in a common lab location when not in use.

“Pressing Matters”

1. Newsprint – tear or cut double-page sheets of newsprint in half; then fold each page in half
2. Arrange each specimen to fit within one folded page in a neat, representative fashion; expose undersides of at least one leaf; see your text for specifics. Record specimen name or journal entry number, and your name on the folded newspaper for reference.
3. Press the specimens as they dry by placing the newspaper-enclosed specimen into the plant drying press with alternating corrugate, blotter, specimen (in newspaper), blotter, corrugate ...[repeat]. Assemble drying press and tighten straps or ropes firmly. Be sure newspaper does not extend beyond the edges of the corrugates and blotters and hence, block air passage.
4. Plant Dryer – place your plant press on edge within the plant dryer. Normally 48 hours should suffice unless your specimens are bulky in which case you should allow more time. Bulky organs will supply water to the leaves until completely dried. See your text for details.
5. CAUTION: Before mounting plants, be sure the specimens are dry. Properly dried specimens feel warm and hold their shape fairly well. Poorly dried ones feel cool, and should be given another 24 hours in the dryer. In all cases, the pressure should not be released permanently until the specimens have cooled. Warm specimens will absorb moisture as they cool and may curl if pressure has already been released.

Mounting:

Mounting Equipment with suggestions for use:

Herbarium sheets

Glue bottle and brush– supply of glue and applicator for brushing glue lightly onto specimen
Herbarium glue – in supply bottle from which it can be poured onto glue plate

Glue plate - a ≥ 11 "x16" piece of flat glass or acrylic;

Microscope slide - use the slide to form thin layer of glue on plate

Flat spatula, razor blade, forceps -- as "manipulators"

Cheese cloth -- 1 ft²; dampen for dabbing excess glue

Newsprint-- to hand press each specimen onto herbarium sheet after gluing and positioning

Soapy water -- (tub or squirt bottle) for hand cleaning

Shallow tray --larger than glue plate for soaking plate prior to washing

1. Arrange the above equipment on a lab table for easy access; open your drying press.
2. Spread glue in a thin layer on the glue plate, covering an area sufficient to match the size of your specimens. If you are only mounting one or two specimens, use the glue bottle and brush.
3. Arrange the unglued specimen on a fresh herbarium sheet, allowing space around the edges and in lower right corner for the herbarium label. Decide surface to be glued.
4. Carefully lay the specimen on the glue plate to expose one surface of stem, leaves, etc. to glue. Avoid excess.
5. Carefully lift specimen with forceps and spatula from the glue plate and lower it onto the herbarium sheet.
6. When specimen is positioned and held by glue in most key locations, cover it with a clean folded newspaper and press with slow, sliding hand motion over the newspaper. Slowly peel the newspaper up off the specimen. Add glue with brush or spatula to parts that need securing.
7. Place the sheet and specimen aside for safe keeping; add weights to the specimen if necessary during glue drying. Consult your instructor to assure that your work is acceptable.

Herbarium -- Labels and Storage:

1. Herbarium labels prepared in an accurate fashion are essential to the value of a collected plant specimen. Labels should be typed, or printed with the following format:

CEDARVILLE UNIVERSITY Herbarium	
NAME:	<i>Galium aparine</i> L.
COMMON:	Cleavers
FAMILY: Rubiaceae	
COLLECTOR:	Sarah Raszeja
DATE:	5-7-03
NUMBER:	581
LOCATION: Cedarville, Ohio, Greene Co. Indian Mound Reserve, U.S. Route. 42. approximately 400 ft. west of foot bridge on Cedar Cliff Trail on left hand side of trail.	

2. Use recorded data from your field journal to complete each label. Place thin fingertip-size smears of glue to each corner and midway between the corners of the back side of the label. Press the label to the lower right corner of the herbarium sheet. Be sure corners are glued down well.
3. You will be assigned space for storing your herbarium sheets for safe keeping while drying. Genus covers (folders) will be provided for temporary storage. When herbarium sheets have been completed and allowed to dry, they can be filed in the herbarium as instructed.