

Collecting and pressing plant specimens.

Be sure to collect adequate material. The object is to have a nearly full but not crowded herbarium sheet, showing reproductive parts, arranged attractively. The roots, foliage, and flowers are generally the minimum needed. For some groups of plants, like pheasant's eye (*Adonis*), and most mustards, fully ripe fruits are essential, as well as flower color, roots and foliage. It is ok to wait for ripe fruits and seeds, even if the majority of the flowers are fading at that point. It is also acceptable to make a flowering collection and later in the season prepare a fruiting collection. Check your flora and see if the key characters demand flowers or fruits, and collect appropriately. Carefully dig up the fertile plant, and press it in a newspaper. Always choose a typical plant, not a runt or a giant or one that is malformed. Look around. If the plants are small, collect several. If it is too tall or wide for the newspaper, prune off excess branches and fold it smartly once or twice so it fits easily. Trim off anything that hangs outside the newspaper. Remove all dirt gently to reveal the roots. Make sure the upper and lower sides of leaves are visible. Make careful collection notes that include details of the plant, the habitat, its associates, and the location. These notes, for your label, are what makes your collection valuable to other botanists.

What to avoid:

Avoid dirt. Remove all soil from the plant before pressing it. If you can not gently knock it loose or pry it off, rinse it off with water.

The tips of the leaves and roots should all be inside the newspaper, not sloppily hanging over the edges. When the specimen dries these will break off, and your careful work may be ruined.

Avoid "top-snatching," which is yanking loose a bit of the plant and not carefully gathering the basal leaves and root system. A top-snatch means your hawkweed or mustard specimen can not be identified, and will not be of any use to taxonomists in the herbarium. Carefully and gently collect the bottom of the plant with its roots and rosette leaves. Of course for woody plants like tamarisk, the roots are not needed, but woodiness and height should be noted and the parts collected should be both flowering and leafy shoots.

Hikers! Avoid the unscientific practice of stuffing plants in plastic bags and trying to sort out their locations later. Your impatience will result in poor notes, and mixed specimens from different localities. If you insist on bagging, get the dirt off first, never put more than one plant in a bag, take notes before you leave the site, and include a collection number in the bag so you are sure where it was gathered. Press as soon as possible.

Make your collecting notes in the field, not later in the day when the details are not fresh in your mind, or worse, confused with several other collecting locations. Keep a notebook with all your collecting notes, and number your collections sequentially so you can look up the notes easily when you label them.

Handy hints.

Newspaper: Press your plants in ordinary newspaper. Choose paper for its size. The maximum size is 11 × 17 inches. If your plant fits comfortably in the newspaper, then it will fit as

a dried specimen on archival herbarium paper, which is a standard size of 12 × 18 inches. Leaving at least a one inch margin allows space for the label, as well as a fragment packet, an accession number, the official stamp of the herbarium, and annotation labels by specialists in later years. Write your name and collecting number on each newspaper, for each specimen, including duplicates. Extra newspapers can serve as replaceable and reusable blotters.

Plant notes: Record if the plants are clumped like a bunchgrass (cespitose) or have runners (rhizomes or stolons); note height (especially important if a shrub or tree), flower color and diameter, fruit shape and color when fresh. Check for whitish waxy (glaucous) stems or leaves. You are trying to record unusual features lost when the plant is dried (strongly blue rather than green leaves, for example, or hollow stems, dangling instead of upright flower clusters, or succulence). Record abundance in general terms (e.g., common, uncommon, or rare).

Habitat notes: Observe the site and note dry or wet ground, in shade or sun, flat or sloped, note direction of slope (N, S, E or W), and elevation (in meters or feet).

Associates: Note a few of the most important plants surrounding your collection, such as two or three dominant trees and shrubs, or nearby wildflowers, grasses, or sedges. Latin names only, please.

Location notes: Precision is important. Someone may wish to revisit your site, based on your herbarium label. The minimum data are state, county, direction and air distance in kilometers to the nearest geographic landmark, a concise description of the collecting locality, elevation, and either latitude/longitude or Township Range Section. There are now available small GPS (Geographic Positioning System) units that provide a nice estimate of lat/long and elevation. Or one can use a DeLorme Atlas (1998), which is gridded in minutes of latitude and longitude, as well as in TRS, for the entire state. Maps produced by the U. S. Forest Service are marked with TRS. The U. S. Geological Survey also has a web site which can provide lat/long for any named site on the U.S.G.S. topographical maps, and it is available on-line.

DeLorme. 1998. Washington Atlas and Gazetteer. DeLorme, Yarmouth, ME. 120 p.

U. S. Geological Survey web site.

http://geonames.usgs.gov/pls/gnis/web_query.gnis_web_query_form

Pressing the plants until dry and flat. Press between cardboards until completely dry. On a cardboard, stack one specimen in a newspaper, then another cardboard, then another specimen, building a sandwich. Use stiff boards or frames on either end. Tie or strap the entire "press" so there is considerable pressure on the specimens in each layer, and allow to dry. Encourage dry air circulation around the press (sunny windows are good, dank basements are hopeless). If the specimens dry without pressure, they wrinkle and pucker, and then they will break in storage, shipment, or when handled in the herbarium. Over time poorly pressed and wrinkled specimens fragment and disappear, so they are worthless. Discard molded specimens and recollect.

Daily changing of newspapers helps blot dry the specimen(s) without molding. Don't forget to put your name and collection number on the fresh newspaper. Retighten the press at

intervals to maintain pressure as the plants dry and loose volume. Commercial plant presses (with cardboard ventilators, blotters, foam, endboards, & straps) are available from biological supply houses and some college bookstores, if you desire one. Using heat to dry your press runs the risk of fire.

Storing your specimens. When they are flat and completely dry the leaves and extremities will no longer be flexible, and you can remove the specimen from the pressure of your press. Store in a dry protected place. Dried specimens are fragile, but permanently preserved. When handling do not bend them or pick them up so they are unsupported at the bottom of the stack.

Labeling your specimens. Include all those carefully gathered collection and location notes. Type the collection data in a two or three column format and print the labels on plain white paper with a high quality printer, not in dot-matrix output. At the herbarium this will be photocopied onto 100% rag acid-free archival label paper, so your text must be crisp and clear. Set your type size at 10 or 11 point. A sample label is below. Make sure the county and state are prominent. Include the scientific name and the author of the binomial (these are in Hitchcock & Cronquist 1973), as well as the plant family. At the bottom of the label should be your name as the collector, your collection number (the same one on the newspaper with the specimen), and the complete date. To avoid confusion do not ever write the month as a number. Write 5 June 2005, not 5/6/05 or 6/5/05. In general avoid abbreviations. "RD" means road to some, Ranger District to others, and is completely inscrutable to foreign botanists examining herbarium labels. Convert your notes to metric measurements if possible.

Print two copies of your labels. One label copy you will cut up and insert in each newspaper with a specimen. The second copy will serve two purposes: include it in your shipment to the herbarium, as a "packing list," and it will also be a template for photocopying the data onto archival acid-free label paper.

Sample label. The corresponding newspaper with the plant is labeled: Zika 22487

PEND OREILLE COUNTY, WASHINGTON

Cirsium arvense (L.) Scop. Asteraceae

Rhizomatous, pink flowers, common weed
on dry gravel roadside, full sun, with *Conyza canadensis* and *Tragopogon pratensis*, junction
of Routes 211 and 2, at 5 air kilometers SW of
Diamond Lake; elevation 730 meters, 48° 5.9' N,
117° 16.6' W, T30N R44E S17

Coll. Peter F. Zika 22487 5 October 2005

Shipping. Insert your typed label data in each newspaper with a collection. All collections are numbered individually and uniquely, with the corresponding number on the label. Bundle your plants together firmly in a folder or in additional newspaper, and then wrap it like a large Xmas

present in large sheets of newspaper, and tape the bundle closed. Place sheets of cardboard on either end of the bundle, and attach with string or more tape, so the bundle is armored. Attach a typed note with your name and address, and list of specimens. Now enclose all parts in a stiff cardboard box, padded to keep it from sliding within the box, and address it to the herbarium.

Ship to:

David Giblin, Collections Manager
Noxious Weed Project, Herbarium
Box 355325
University of Washington
Seattle, WA 98195-5325

Upon arrival, the herbarium staff will fumigate your collections in the freezer, then permanently mount the plants on heavy archival paper, with your label data attached. Herbarium stock is acid-free and will last centuries, as will your pressed and dried plant specimen. Duplicates will be circulated to other institutions.