

Wisconsin Invasive Plants Project

How to Make **VOUCHER SPECIMENS of PLANTS**

What is a Voucher?

A **voucher** is evidence used to confirm a plant's identity and to prove it was found in a particular location. Even if you are reasonably sure of the name, documented evidence is still needed before a plant can be entered into the permanent records of the State Herbarium. You can submit either:

- 1) **Physical evidence** (pressed or fresh plant specimens)
- 2) **Photographic evidence** (showing key parts to confirm identity).

Once received, vouchers are checked by plant experts at the herbarium. For each voucher submitted, a Plant Report Form (or its equivalent) is required that provides details on location, date of collection, habitat, and other information related to the specimen.

This document gives instructions for preparing three types of vouchers:

1. Herbarium vouchers (pressed and dried plant specimens)
2. Photographic vouchers (electronic or film images)
3. Fresh plant vouchers (must be delivered promptly!)

How to Decide?

Regardless of method chosen, it is important to **provide enough evidence** to assure correct identification. The State Herbarium prefers a complete plant specimen that is dried and pressed. This specimen can then be deposited in the collection if needed. However, a fresh or dried sample or photos of key diagnostic parts of the plant (distinctive leaves, flowers or fruit, for example) may be all that are needed to confirm identity.

Positive identification is important, especially if the plant is a new invasive in Wisconsin or new to a county or region of the state. The sooner identification is confirmed that sooner that control work can begin on invasive plant populations. It is also important to be sure that valuable native plants are not mistakenly targeted and eradicated.

To become more familiar with both native and non-native species, check the Herbarium website (www.botany.wisc.edu/wisflora/) and search by either common or scientific name. You can also view herbarium records and see if a species has been collected in your county or area.

1. Herbarium Vouchers (*pressed plant specimens*)

A **herbarium voucher specimen** is a dried plant sample consisting of pressed leaves, stems, flowers, fruits and/or roots. A key part of the specimen is the written data that shows location, date of collection and other information. Vouchers are valuable because they provide the physical evidence to confirm the presence of plant species at specific locations. They have a variety of uses, such as documenting the occurrence of rare plants or revealing the geographic spread of invasive plants over time. Once received by a herbarium (a plant specimen "library"), vouchers may be mounted, labeled and kept for future reference and research.

For photos and instructions for making and using a full-size (12 x 18 inches) press, see <http://www.uwgb.edu/biodiversity/herbarium/voucher02.htm>

Making vouchers is easy and fun. Plus, if the specimen is entered into the permanent collection of the Herbarium, the collector's name will be permanently associated with the record. You can become part of botanical history in Wisconsin!

Equipment needed

1. **Plant press** (or equivalent), **tools, and notebook** (tools may be needed to dig or cut specimens)
2. **Invasive Plant Report Form** (or equivalent record of specimen-related data)

Basic steps for preparing vouchers

1. Collect plant in the field.
2. Record specimen data in a notebook, and later on Plant Report Form
3. Press immediately, or transport temporarily in a plastic bag and press ASAP.
4. Dry completely.
5. Send specimen and completed Report Form to the Wisconsin State Herbarium at UW-Madison.
Make sure the sample and its data stay together! Send to address on last page.

PREPARING TO COLLECT

Before collecting, plan how you will transport and preserve your specimens. Know the dimensions of your plant press, or carry a large plastic bag to keep specimens fresh temporarily. Be mindful of hot sunshine, which can cook samples in an enclosed bag. Always carry paper and pencil.

WHAT TO COLLECT

Select one or more healthy plants that are typical of the population. Take samples of the whole plant, if possible, or enough **leaves and stems** to show leaf shape and size, opposite or alternate **branching**, and **buds**. If possible, include **flowers** and **fruits**, which may be needed to confirm a plant's precise identity. For grasses and grass-like plants, try to include roots. For large specimens, bend stems into a V, N or W shape. Thick stems may be cut in half lengthwise. For small plants, collect several and press together. Show upper and lower surfaces of leaves and flowers. Press flowers with the blossom open, and if possible slice one in half lengthwise to show internal structures. Be sure to press the plant before it wilts.

PRESSING PLANTS

If you have one, use a standard-sized (12 x 18 inch) plant press. Herbarium specimens are typically mounted (glued) on standard 11.5 x 16.5 inch sheets of heavy paper. Specimens must not exceed this size (though large plants often are divided up and glued to multiple sheets).

For this invasive plants project, dimensions can be as small as **9 x 12 inches**. This makes it easy to carry the press in a backpack, and specimens can be mailed in large, business-size envelopes.

MAKING A PORTABLE PLANT PRESS

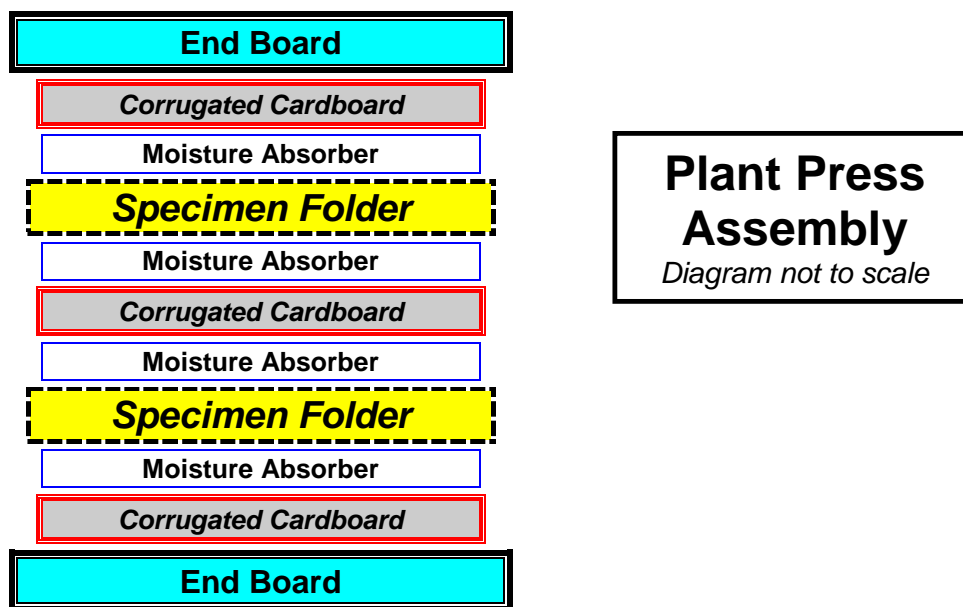
1. End Boards. Prepare two 9 X 12 inch rectangles of a rigid material. Use plywood, masonite, pegboard, the backs of two clipboards, the covers from a 3-ring binder, or even cardboard (several sheets glued together for rigidity). Between the end boards – and cut to the same dimensions -- place alternating layers of corrugated cardboard, moisture-absorbers, and newspaper specimen "folders." See diagram below.

2. Corrugated Cardboard. Cut from corrugated boxes. If possible, cut so the lines of corrugation run across the shortest distance. This will enhance air flow through the press.

3. Moisture Absorber. To wick moisture away from the drying specimens, use sheets of newspaper or paper-toweling. Sheets of thick blotter paper work well, if available.

4. Newspaper Specimen "Folder." Specimens are arranged carefully within a folded piece of newspaper (like placing a document in a file folder). NOTE: Be sure to label each specimen with a post-it note, or some sort of label or code number linking it to its data in your notebook.

Assembling the press. When putting plants in the press, each newspaper specimen folder is sandwiched between moisture-absorbing layers and cardboard. For bulky specimens, extra layers of moisture absorber and cardboard may be needed. Tie the press together tightly with rope, bungee cords, elastic or buckle straps. You may need to adjust tightness as plants dry and flatten out. For thick or succulent plants, add extra layers of cardboard and absorber, or change the folder and absorbing layers at least once. Include 5 to 10 (or more) specimen folders – and surrounding layers – in your press, or as many as you can comfortably carry. More than one specimen folder can go between cardboards, if not too bulky.



SPECIMEN DATA

For each specimen or photograph, basic information about the occurrence is needed. For all specimens collected, make sure that all documentation stays with, or can be linked to, the sample. Some collectors write data on the newspaper specimen folder or on a sheet enclosed with the sample. Others use a notebook with numbers that correspond to a specific sample.

Use the **Invasive Plant Report Form** to submit information. Or create your own – but make sure it covers the same categories. Start with state, county, location, date collected, and plant name (common or scientific). Provide the collector's name, address, phone and email. Note landmarks and distances, such as city name, roads, intersections, power lines, lake edges and other natural and cultural features. Estimate the size and density of the infestation. Provide a habitat description, such as forest interior, forest edge, old field, prairie, wetland, lakeshore, crop field, pasture, disturbed ground, urban setting type. Tell if found on public or private land. If known, provide name and contact information for the landowner or land manager. Enclose a completed form with each specimen.

Accurate information about **location** is essential. Try to provide **exact geographic coordinates** using a GPS unit, topographic map, or the Wisconsin Gazetteer. If you have access to the internet, you can use <http://www.TopoZone.com> to find the precise location on a digital topographic map. When you click the cursor on the exact collection site, its coordinates (choose UTM or Latitude/Longitude) are automatically printed in the text above the map. Along with the report form, include a **map** (printed or photocopied) with a colored dot showing the spot.

2. Photographic vouchers (*electronic or film images*)

A **photo voucher** is an image that shows enough plant characteristics to allow identification by plant experts. The herbarium prefers actual plant specimens which, when properly preserved, can last for centuries. Photographs can be very useful, however. Although they are relatively short-lived media, they offer a quick and clear way to identify and report an invasive plant occurrence. They can also accompany a dried or fresh plant specimen, to help with identification and to show the habits of plants in the field. As with all vouchers, all relevant data must be kept for each plant photographed. Use a notebook to record information (see Specimen Information above) and make sure it remains associated with a specific plant.

WHAT TO PHOTOGRAPH

Try to get close-ups of flowers (from two or more angles), inflorescences, fruits, seed heads, leaves (upper and lower surfaces), branching patterns, buds, roots, and other details. Take photos of the whole plant and of the infestation in the field. Try to include a scale, using objects of known size, such as a pencil, coin, shoe, fingers, or a person. This will not only help confirm identity, but it also shows the extent of infestation, habitat invaded, stage of growth and more.

EQUIPMENT NEEDED

Digital cameras are widely available, and photo files can easily be emailed. With internet technology, images can be “delivered” to the Herbarium within minutes, and plant identity confirmed almost instantaneously. Be sure to use the camera’s review function to ensure that the photos are in focus. Film cameras can take excellent images as well, and often with more certainty of clear focus. There is a time delay for film-developing, of course. Prints or slides are equally useful, and can be mailed along with the appropriate plant report form. Pictures can be scanned and sent electronically, too.

3. Fresh plant vouchers (*deliver promptly!*)

It may be easier to mail or hand-deliver fresh plant specimens – especially for high-moisture aquatic plants. But speed is important, so store plants in plastic bags and refrigerate to keep fresh. If mailed, pack the bagged sample in a sturdy box with bubble-wrap or crumpled newspaper for insulation. Avoid sending if delivery could fall on a weekend or holiday. Or bring the plant to the State Herbarium, Room 160 Birge Hall on the UW-Madison campus, during weekday work hours.

WHAT TO COLLECT

Select plants that are typical of the population. Take samples of the whole plant, if possible, or enough **leaves and stems** to show leaf shape and size, opposite or alternate **branching**, and **buds**. If possible, include **flowers and/or fruits**, which may be needed to confirm a plant’s precise identity. For grasses and grass-like plants, try to include roots. Use a zip-top bag or tie securely with a twist-tie. Poke a few air holes to allow gases to escape the bag.

WHERE TO SEND? Mail specimen with report form to:

Invasive Plants Project
UW Herbarium – Botany Dept. (Room 160 Birge Hall)
430 Lincoln Dr., Madison, WI 53706
c/o Senior Academic Curator: Ted Cochrane

Phone: 608-262-2792

Website: <http://www.botany.wisc.edu/herbarium>

Or e-mail photographs to: **InvasivePlants@mailplus.wisc.edu**

Questions? Contact: Invasives of the Future Project Coordinator
Email: InvasivePlants@mailplus.wisc.edu
Phone: (608) 267-7438
or see website <http://dnr.wi.gov/invasives/futureplants>