

## **GUIDELINES FOR PLANT SPECIMEN COLLECTION AND SUBMISSION TO THE BELL MUSEUM OF NATURAL HISTORY UNIVERSITY OF MINNESOTA HERBARIUM (MIN)**

This document outlines procedures and requirements for botanical specimens in accord with Museum collections management policy to ensure the “proper acquisition, care, preservation, management, development, and usage of all objects or specimens owned or borrowed by the James Ford Bell Museum of Natural History (hereafter “the Museum”) in such ways as to further the stated mission, specifically to enhance educational programs and to foster scholarly research.”

Specimens submitted to the Museum and accessioned to the herbarium collection become Museum property. Herbarium curators evaluate each submission for quality and potential to contribute to the Museum mission. It is also our goal to create a publicly available database record for each newly accessioned specimen. After specimens are accessioned, they are generally available for most kinds of research. It is not practical or desirable to accession every specimen that is received. If a specimen is deemed to be of insufficient quality, it may be returned to the collector, transferred to a teaching collection, or exchanged with other herbaria. *Sterile plants are generally unacceptable unless they have additional value as determined by the curators (e.g. new geographic records, unusual morphology, ecology, genetic resources, etc.).*

### ***Specimen requirements:***

- ✓ contain reproductive parts
- ✓ be completely dried and flattened
- ✓ care should be taken at the time of pressing to properly dry the material in a fashion that clearly presents the features of the plant and meets size requirements (see below)
- ✓ include a length of the stem with attached leaves displaying both upper and lower surfaces in the flattened condition (achieved by turning some leaves prior to drying)
- ✓ be cleaned of soil (as much as possible)
- ✓ fit within an area approximately 11 x 14 inches (larger specimens can be bent into a ‘V’ or a ‘Z’, or cut in portions but do not curl or wind stems. Also note that commercial plant presses are slightly larger than standard herbarium sheets.
- ✓ arranged prior to drying so that a specimen label may be located in the lower right hand corner of the herbarium sheet
- ✓ be identified to scientific name
- ✓ have a printed specimen label (handwritten labels are unacceptable)
- ✓ filmy aquatic plants are floated and dried on regular letter paper rather than newspaper or parchment as it is nearly impossible to remove specimens from such paper. The traditional method of preparing aquatics was to float the plants in the water directly onto herbarium paper, and then place in the plant press for extended drying. Such specimens tended to “stick” to herbarium paper or required special tape. Over time, however, such specimens often became detached making it difficult, if not impossible, later to glue these specimens, as is the general method of attaching specimens in the

US today. Botanist and curator, Adolf Ceska recommends that small aquatics be placed in plastic sleeves. We've applied this procedure to all filmy aquatics. We use archival-quality, polyethylene, self-closing specimen bags, which are completely inert, provide clear view of the specimen, and are also widely used for bulky fruits and seeds. Bags have the advantage of capturing fragments that detach over time. Bagging tends not to interfere with macro- or microscopic examination and the self-closing seals also allow for removal of material for special analysis.

***Label requirements:***

Labels should be printed on acid-free or quality bond and no wider than 4 inches. We require textual descriptions of locations and plant communities instead of abbreviations or codes because researchers who are not familiar with local geography and vegetation classifications often consult our records. Label information is also stored in the Museum specimen database and therefore it is important that a consistent format is followed. Data should be arranged on the printed label in a logical fashion such as:

<p><b>Project Name</b> (if applicable)</p> <p><b>Scientific name</b> (including author) Determiner (if other than the collector) Determined date (if other than collection date)</p> <p><b>Country</b> (if other than USA) <b>State and County</b> <b>Park, reserve, or other special area</b> (if applicable) <b>Locality</b> (a precise textual geographic description, e.g. X kilometers from the junction of highways Y and Z, etc.) <b>Township, range, and section</b> (if available) <b>Latitude and longitude and elevation</b> (in meters) <b>Coordinate system</b> (decimal degrees, degrees-minutes-seconds, or UTM, including NAD, etc.)</p> <p><b>Habitat</b> (environmental data and species associations here)</p> <p><b>Description</b> (noteworthy plant features such as abundance, flower color, plant height are included here)</p> <p><b>Collector(s) name and collection number</b> <b>Collection date</b> (spell the month and use 4 digits for the year)</p> <p><b>Collection permit # &amp; issuing agency</b> (if collecting involved permission)</p>
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***Submission requirements:***

- ✓ each individual specimen and an associated label are arranged between sheets of newspaper. It is not necessary to provide mounted specimens. Those who wish to do so are asked to contact a curator to learn our preparation protocols.
- ✓ duplicate collections (multiple specimens under the same collection number) are grouped and bundled together
- ✓ collections are sorted by collection number in an ascending numerical sequence

- ✓ if the quantity of specimens to be submitted is >25, a spreadsheet containing all and only the label data (see below) should be submitted at the same time. A template spreadsheet is available upon request ([herbarium@bellmuseum.org](mailto:herbarium@bellmuseum.org)). The spreadsheet filename should include the last name of the collector followed by the date of submission (e.g. Whitfeld\_07May2013.xlsx). It is important that a label bearing this same information be attached to the parcel containing the specimens. Specimen cataloging may take several months before data are available publicly at <http://search.bellmuseum.umn.edu/>
- ✓ the Bell Museum of Natural History University of Minnesota Herbarium (MIN) is to be acknowledged in all publications and reports and when data are shared with third parties
- ✓ copies of reports and publications that include reference to specimen collections are to be provided to the Museum
- ✓ contact [herbarium@bellmuseum.org](mailto:herbarium@bellmuseum.org) for further guidance regarding specimens and submission requirements

#### **Common mistakes:**

1. Insufficient material collected (e.g., a single flower or leaf).
2. Too much material is pressed and diagnostic characters are obscured. Pruning excessive foliage and stems when pressing improves specimen quality.
3. Plants wilted before they were pressed, resulting in a wrinkled specimen that obscures diagnostic characters.
4. Plants were not flattened with care such that crumpled material obscures diagnostic characters.
5. Specimen is larger than the mounting paper, requiring portions of the specimen to be removed and discarded during mounting.
6. Collector did not leave room for a label in the lower right hand corner.
7. Insufficient locality information is provided.
8. Duplicate specimens are not grouped together, resulting in multiple accessions of the same collection.