

WHAT ARE VOUCHER SPECIMENS AND HOW ARE THEY USED IN RESEARCH?

Guidelines for Collecting Herbarium Voucher Specimens during Fieldwork

University of Melbourne Herbarium (MELU)

“Accessible voucher specimens are critical for accurate identification and subsequent verification of species. Species are the raw material of biodiversity research, whether the focus of that research is taxonomic, evolutionary, ecological, genetic, behavioural or physiological.”¹

Why do I need to collect plant specimens during fieldwork?

- As a voucher specimen, so you have a verifiable record of your research data/study organisms. A herbarium voucher specimen allows you to confirm the identity of the plant at a later date. This is extremely useful if you get odd/misleading results, perhaps you do not actually have the species you think you have!
- Add dots to maps!
Detailed species distribution maps have to come from somewhere. Herbarium specimens provide verifiable collection records of species through space and time.
- To help other researchers by making material available for study and sampling. Below are some examples of how herbarium specimens have been used by researchers:
 - Seed mass measurements
 - DNA sampling (e.g. for systematic, phylogenetic, population genetic or evolutionary studies)
 - Lead isotope analyses to trace the change in lead concentration and composition around Australian capital cities from the late 1800s until the present day.
 - Morphological variation assessment
 - Identifying populations/areas to target their fieldwork
 - Change in flowering times in response to climate change
 - Track the spread of weeds over time to identify to inform management of future spread

What do I need to collect?

Voucher specimens should include as many identified taxa as possible from across the range of habitats, seasons, treatments or other variables examined in the study¹. The number of specimens per site/trip will be variable depending on your project and site. Please talk to the Herbarium Curator prior to going in the field for advice on collecting voucher specimens for your specific project.

- You must have permits and/or permission from the land holders before you collect plants (see School of BioSciences permit officer for research permit)
- The plant material you collect should be fertile and include all parts of the plant (i.e. fruits, flowers and buds, as well as bark, leaves, juvenile or coppice foliage, etc.). Incomplete specimens will not be accepted for accession at MELU. It is often useful to collect two samples of the plant, one for dissection and identification, and another for the herbarium specimen. Material for one specimen should fit into one newspaper fold (i.e. between front and back page of Herald Sun).
- Take photos (e.g. habit, close ups of flowers/fruits/etc.). These can be added to the herbarium database if you are able to match the collecting number to the photo.
- Record detailed notes on the plant in your field notebook. Your notebook can be hardcopy, electronic or a phone app, but will need to be in an excel spreadsheet or the Specify mobile workbench to be lodged at MELU. See the “MELU Specify Database Template.doc” for further information about data requirements.

What do I need to do after I collect them?

- Press and dry the specimens.
- Mount the specimens on archival card.
- Record the specimen collection data in the MELU specimen data template spreadsheet
- Lodge your data and specimens at the herbarium (labels for your specimens will be produced from your data).

Contact Herbarium Curator (biosciences-herbarium@lists.unimelb.edu.au; ph: 8344 5040) if you have any questions.

See how to [Make Your Own Herbarium Specimen](#) document on the University of Melbourne Herbarium website for more detailed information on collecting and preserving specimens.

¹ Wheeler, T.A. (2003), The Role of Voucher Specimens in Validating Faunistic and Ecological Research, *Biological Survey of Canada (Terrestrial Arthropods) Document series no. 9*.