



Reference Herbarium User Guide

The **Reference Herbarium** is a special-purpose, public access facility housing representative specimens of Western Australia's native and naturalised species. It provides the most comprehensive reference for the identification of the State's plants.

Located in the Keiran McNamara Conservation Science Centre (KMCSC), the Reference Herbarium is open to visitors during normal working hours Monday – Friday, 8.00 am to 5.00 pm, except Public Holidays. To use the Reference Herbarium outside these hours, you will need permission from the Curator (John Huisman) or Collections Manager (Karina Knight).

Please sign the Reference Herbarium register located just inside the Reference Herbarium each day when you come in, and again when you leave. **By signing the register you acknowledge that you have read and accepted the terms and conditions of use of the Reference Herbarium as set out here.** Signing the register is also important as it allows the Herbarium to track usage of the facility and to provide resources to the Reference Herbarium proportionate to its use.

General Information

Eating food or drinking beverages is not permitted in the Reference Herbarium; water is permitted.

The door to the Reference Herbarium must remain closed at all times.

Smoking is not permitted in the Reference Herbarium or within 5 metres of any part of the Keiran McNamara Conservation Science Centre building.

Please consider other users of the Reference Herbarium at all times:

- Speak in quiet tones
- Switch mobile phones to silent
- Take phone calls outside
- Wear appropriate clothing
- Don't monopolise resources at the expense of others
- If other users' behaviour seems inappropriate, please inform Reception.

Quarantine Procedures

Reference Herbarium specimens are vulnerable to damage from a range of insect pests. For this reason, specimens and associated packaging must be insect-free when entering. Treat the specimens in one of the following ways:

1. Freeze specimens and associated packaging (recommended when more than 5 specimens are entering at any one time)
2. Seal specimens separately in snap-lock bags (recommended when less than 5 specimens are entering at any one time) – leave the associated packaging outside the Reference Herbarium.

Freezing specimens: only specimens frozen on site may be taken into the Reference Herbarium. Please leave specimens for freezing on the bench outside the Reference Herbarium and prepared in the following manner:

- Specimens must be dry otherwise specimens will mould on thawing.
- Boxed within a standard sized Herbarium cardboard box, or in a plastic storage box with a tight fitting lid (if not tight fitting the box must be sealed with tape)
- Labelled, attach at one end of the box (do not attach to the bag).
- Cardboard boxes must be bagged and taped closed, a plastic box with a tight fitting lid does not require bagging. Push as much air out of the bag as possible and securely tape closed. The plastic bags must be sturdy (100um thick or more), new (to ensure there are no holes) and long enough to turn the end of the bag three times prior to taping down. Bagging prevents moisture condensing on specimens whilst freezing or on thawing which can result in mould.
- Complete the Freezer Register – an important process to track boxes through the freezer.
- Place the box/s on the trolley.

Freezer bags and other requirements for the freezing process are available at no charge in the drawers located under the bench outside the Reference Herbarium. Bags are also available for purchase from the Herbarium at \$70 per 100 bags.

Specimens dropped off prior to 10 am enter the freezer the same day. Specimens left on the trolley after 10 am enter the freezer the following day. Specimens will be available three working days after entering the freezer from the allocated shelving on the back wall of the Reference Herbarium.

Freezer rotation timetable

Drop off (before 10 am)	Available (at 10 am)
Monday	Thursday
Tuesday	Friday
Wednesday	Monday
Thursday	Tuesday
Friday	Tuesday

Snap-lock specimens: enclose each specimen in a separate bag. The bag must remain closed at all times whilst in the Reference Herbarium. If dissection of a bagged specimen is required contact the Collections Manager to arrange access to a microscope in the Accession Preparation Laboratory which is near the Reference Herbarium.

Snap lock bags are available at no charge in the drawers located under the bench outside the Reference Herbarium. Snap-lock bags must be a minimum of 50 um thick and may be purchased in a range of sizes from Vital Packaging (sales@vitalpackaging.com.au; 9317 1888).

Other items which must not enter the Reference Herbarium include field backpacks, presses, cardboard boxes, newspapers and corrugates unless they have been through the Reference Herbarium freezer rotation. These items can be left for the day in the drawers under the bench outside the Reference Herbarium. Please leave the area outside the Reference Herbarium tidy at all times.

Sanitation

The Herbarium is registered as a Quarantine Approved Premise with the Department of Agriculture and Food Western Australia (DAFWA) and accredited to receive and handle plant material. Compliance with DAFWA requires that all plant material is disposed of in a way that minimises the risk of diseases or seeds escaping into the environment. For this reason, all plant material and associated packaging in the Reference Herbarium must be treated in the following way:

- Users of the Reference Herbarium must take away with them their plant material, newspapers, corrugates and snap-lock bags containing specimens.
- Sweep up plant debris and fragments and place into the yellow MediCollect bin.
- Plastic Bags used in the freezing process **must not be reused**, place in the recycle bin in the Reference Herbarium.

Handling specimens and files

Please take care when handling the files and specimens:

- Pick the file up with both hands (do not lift the folder by the ring or the top of the spine).
- Ensure hands are clean so dirt is not transferred to the herbarium sheets.
- Place specimens back in the correct folder and in the correct order.
- Specimens and folders must not be tipped upside down or bent.
- Do not place heavy objects on, or lean on, specimens or files.
- Place the specimens face up and lock the clip before re-shelving a file.
- Place files back with care, do not drop or force them.
- Place specimens and files back on the shelf as soon after use as possible to ensure the resource is available to others.
- Do not alter specimen labels or file information, or annotate specimens.

Arrangement of specimens within folders

To locate a family or genus in the Reference Herbarium refer to the W.A. Herbarium Vascular Plant Index.

- Genus and species are alphabetically arranged within a family.
- Subspecific taxa are arranged alphabetically within a species.

- Phrase named taxa are alphabetically arranged at the end of the genus.

Photographing Reference Herbarium specimens is permitted.

If a taxon is unavailable in the Reference Herbarium and you need to view a specimen please contact the Collections Manager.

Short-term storage area

The short-term storage area is for users of the Reference Herbarium to store specimens being worked on. Contact the Collections Manager should you have a need to store specimens for longer than this. This area is for the storage of specimens which have been frozen, specimens in snap lock bags must be removed daily. The shelving is regularly monitored and boxes of specimens will be removed if they've been stored for longer than a month, or when the box label is missing.

Feedback and Comment File

The Herbarium encourages users to provide feedback, particularly when irregularities are noticed, such as damaged or insect-attacked specimens, incorrect names, missing specimens, missing resources or broken equipment.

Resources

Systematic sequence: The systematic sequence followed at the Herbarium for vascular specimens in both the Research Collection and Reference Herbarium follows the ordinal phylogeny of the Angiosperm Phylogeny Group (APGIII 2009). This sequence can be viewed on the wall in the Reference Herbarium or at the following link <http://florabase.dpaw.wa.gov.au/articles/sequence/>

Western Australian Herbarium Vascular Plant Index: Lists every family and genus represented in the Research Collection (non-WA taxa in grey). The list is a guide to the file number on the shelves to locate a genus or family in the Reference Herbarium, and also an address to locate the genus or family in the Research Collection. Not every family or genus listed in the Index is currently represented in the Reference Herbarium but there will be a file number to allow for future expansion.

Bench space and microscopes are self-allocated on a first-come basis. During busy periods patrons will need to share these resources.

The **Index of WA Botanical Taxonomic Literature** is an index of references recommended to aid the identification of WA plants and alphabetically arranged per genus. Refer to the front page of the index for further instructions on how to use this resource.

Books including Floras, journals etc, are held in a small library in the Reference Herbarium. Do not annotate books.

Electronic keys prepared by the Herbarium staff and volunteers are loaded on each computer; others are available from the reference shelves.

Computers are available for accessing FloraBase and using interactive keys. Users are unable to install software, modify configurations or files or save anything to hard discs or other drives.

Lockable drawers outside the Reference Herbarium are available for daily use to protect valuables or to store items that cannot be taken into the Reference Herbarium (i.e. field backpacks).

Please place resources back on the shelf as soon after use as possible for the convenience of other users.

Access to the Research Collection

Regular users of the Reference Herbarium may request access to the Research Collection to help with the identification of specimens. Information on how to access the Research Collection is available on the Herbarium's home page at <http://dpaw.wa.gov.au/plants-and-animals/wa-herbarium>

Only snap-locked bags and red plastic trays to support specimens can be taken from the Reference Herbarium into the main Herbarium building. Lockable drawers are available outside the Reference to leave valuables whilst visiting the Research Collection.

Images of Herbarium Specimens

The Herbarium can provide high resolution digital scans of Herbarium specimens at \$20 plus GST per species. Images will be provided on a CD, emailed (in the case of a small number), printed and/or laminated. Requests may be emailed to herbarium@dpaw.wa.gov.au listing the taxa and providing details for invoicing. Scans are usually provided within a week.

Acknowledgements

The Reference Herbarium is a community resource, established in its present form in 1984 and maintained by the Western Australian Herbarium (Department of Parks and Wildlife).

We acknowledge the invaluable contribution of past and present Herbarium Volunteers Barbara and Bob Backhouse, Alison Cawley, Jean Lovelock and Val Preston in the maintenance and upkeep of the collection.

The organisations listed below have kindly provided resources for the Reference Herbarium:

Microwave oven (2002): Biota Environmental, Dinky Goble-Garrett, GF Craig & Associates, Landcare Holdings (decommissioned).

Computers (now decommissioned) & Interactive Keys (2006): ATA Environmental, Bennett Environmental Consulting, Biota Environmental, GF Craig & Associates, Mattiske Consulting, Outback Ecology Services, Western Botanical & Woodman Environmental Consulting.

Microscopes (2007): Biodiversity Protection W.A. <http://www.biodiversityprotection.org.au/>

Computers (2012): Biodiversity Protection W.A. <http://www.biodiversityprotection.org.au/>

Computers (2013): Environmental Consultants Association

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