



Department of **Biodiversity,
Conservation and Attractions**

Western Australian Herbarium

Western Australian Herbarium Research Collection User Guide

The Western Australian Herbarium (PERTH) is critical research infrastructure of the Department of Biodiversity, Conservation and Attractions. The Herbarium is responsible for the vouchering of floral biodiversity of Western Australia, and the description and documentation of the botanical (plant, algal, fungal and slime mould) biodiversity of Western Australia. More information about the Herbarium can be found on our website (<https://www.dbca.wa.gov.au/science/research-tools-and-repositories/wa-herbarium>).

The Western Australian Herbarium is located at the Keiran McNamara Conservation Science Centre (17 Dick Perry Drive, Kensington, WA 6151).

The Western Australian Herbarium consists of two major collections:

Reference Collection, publicly accessible during normal working hours Monday – Friday, 8.00 am to 4.30 pm, except Public Holidays, during a twice yearly scheduled intensive cleaning (approx. March & September), and a December-January holiday closure.

Research Collection, restricted access, Monday – Friday, 8.30 am to 4.30 pm, except Public Holidays, during a twice yearly scheduled intensive cleaning (approx. March & September), and a December-January holiday closure. The Research Collection should be accessed only when the resources of the Reference Herbarium have been exhausted or for approved research visitor access.

The Reference Herbarium is the primary resource for both the community and industry consultants for identifying specimens. While the Reference Herbarium is not complete and will at times be insufficient to finalise an identification, it is generally sufficient for most stakeholder needs. Please see the [PERTH Reference Herbarium User Guide](#) for more information.

The Research Collection is a valuable and irreplaceable resource which underpins flora conservation, biodiversity surveys, and taxonomic and other scientific and cultural research. Scientific botanical specimens are managed to protect their value indefinitely. Many specimens are fragile, and the Herbarium must balance the needs of users with the long-term safety of its specimens. This is best served by ensuring that unnecessary and inappropriate handling is avoided wherever possible.

Identification and Incorporation services are available; please see the [PERTH ID and Incorporation Services](#) documentation.

Visitor information.

Visitors to Australia will require collecting permits for any State to be visited, and export permits for the transport of biological material from Australian shores. The Western Australian Herbarium does not authorise collecting permits and national and international

The Western Australian Herbarium acknowledges the Custodians of the lands and waters from where our collections have been gathered, and are housed, and pays respect to their Elders past and present.

visitors wishing to collect should visit the website of the relevant State or Federal regulatory agencies (for Western Australia - <https://www.dbca.wa.gov.au/licences-and-permits/flora>).

Visitors intending to export specimens from Australia are required to follow Australia's export regulations for biological specimens. Export of all specimens of native Australian plants including cryptogams and tissues for destructive sampling must be covered by a CITES export permit or registration for facilitated exchange between scientific institutions. For export of scientific biological specimens from Australia see <https://www.dcceew.gov.au/environment/wildlife-trade/non-commercial/research>. With prior agreement the Western Australian Herbarium may assist with the export of specimens to registered institutions.

By signing the Consultant or Visitor Register you acknowledge that you have read and accept the conditions of use of the Research Collections as set out here, including agreeing to the following Code of Conduct:

- Treat other Reference Herbarium users, colleagues, volunteers and staff with respect, courtesy, sensitivity, honesty and fairness, and have proper regard for their interests, rights, safety, welfare and diverse backgrounds;
- Sign in and sign out every day the Reference Herbarium is used;
- Work safely at all times, and avoid unnecessary risks to yourself and others;
- Report any hazard, hazardous practice or incident in a timely manner to DBCA staff;
- Not use inappropriately, or tamper with, DBCA infrastructure or property;
- Accept and comply with directions from DBCA staff and seek guidance if there is any uncertainty regarding what is required when using the Reference Herbarium;
- Approach a DBCA staff member as the first point of contact if there are any issues, queries or concerns, or email herbarium@dbca.wa.gov.au for non-confidential concerns;
- Ensure conduct reflects a commitment to a workplace that is free from bullying, discrimination or harassment and where all people have equal opportunity;
- Ensure interactions with DBCA staff, other Reference Herbarium users, volunteers, students, are respectful, courteous, honest and fair;
- Understand the consequences of misconduct and actions that may be taken if this Code of Conduct is not followed, which may include a period of suspension or a total ban on access to the Reference Herbarium and other Western Australian Herbarium facilities.

Disclaimer.

Some material found in the Western Australian Herbarium, on specimens and in data, contains terms or descriptions that reflect authors' views, or those of the period in which the item was written or recorded, but may not be considered appropriate or are culturally sensitive today. These views are not necessarily the views of the Department of Biodiversity, Conservation and Attractions and the Western Australian Herbarium. While the information provided may not reflect current understanding and might not normally be used in certain public or community contexts, it is provided in an historical context. Aboriginal and Torres Strait Islander people should be aware that the Western Australian Herbarium contains names of deceased persons.

Access.

Unsupervised access to the Research Collection is available to visitors who need to intensively study the collection or regularly cannot satisfy their identification requirements using the Reference Collection or the Herbarium's Identification Service. Unsupervised use of the Research Collection is a privilege and requires prior approval from the Curator or the Collections Manager. Use of the Herbarium Collections outside regular hours is only permitted in exceptional circumstances and requires advanced permission from the Curator or Collections Manager and is dependent on staff availability.

All users of the Research Collections will be required to sign the Herbarium Access Agreement (see Appendix 1 for an example).

Visitors who require single or infrequent access to the Research Collection may request access when needed; an escorted visit will be arranged in these cases. Please make an appointment at least 24hrs in advance at herbarium@dbca.wa.gov.au.

Visiting national and international scientists are requested to contact the Curator or Collection Manager in advance of travel to ensure availability of space in the Research Collection.

Induction training for all users covers specimen handling procedures, quarantine, security, and evacuation protocols. Inductions are offered to stakeholders who need frequent or extended access to the Research Collection several times in January and once a month thereafter (see <https://waherbariuminduction.eventbrite.com.au> for upcoming dates and to register for an induction).

Access for documented regular users is granted for two calendar years and may be terminated if the terms and conditions of use are breached. Access is provided upon signing the Herbarium Register at the kiosk on the first floor each day on entry and exit.

The Collections Manager will allocate temporary bench space and equipment for visitors.

Herbarium specimens are vulnerable to damage from a range of insect pests. Visitor's specimens required for study in the herbarium are to be frozen for a minimum period of 7 days by the Herbarium or placed in a snap lock bag. Refer to the [PERTH Integrated Pest Management Plan](#) for further details.

The Type Room and Loan Storage Rooms can be accessed only with the permission of the Curator or Collections Manager. These rooms have gas fire suppression; ensure you move quickly out of these areas in times of emergency.

Ancillary collections available at PERTH include nomenclatural type, historical (pre-1896), spirit, microscope slide, photograph, and carpological specimens. The carpological specimens are housed at the end of each family. Please contact the Collections Manager if you require access to other ancillary collections.

Herbarium specimen label and other biodiversity data.

The Western Australian Herbarium is completely databased. Digital data is available from Florabase (<https://florabase.dbca.wa.gov.au/>) and the Australasian Virtual Herbarium

(https://avh.ala.org.au/occurrences/search?q=collection_uid%3Aco75). Please email herbarium@dbca.wa.gov.au if you need assistance with a specific query.

Threatened and Priority Flora data available on herbarium specimens, and particularly specific locality information, are regarded as confidential and should be treated as such by all users of the collection and data. Any data gathered from specimens must not be provided to any other individuals or organisations, nor be used for any purpose other than for the project for which access has been originally granted. Species and Communities Branch is to be contacted for guidance on the reporting of information.

The Department of Biodiversity, Conservation and Attractions respects the privacy of private landowners who may have Threatened and Priority Flora on their property. Such localities should be treated in confidence and contact with property owners must only be made through the Department of Biodiversity, Conservation and Attractions.

Acknowledgement of the Western Australian Herbarium as the source of specimen data is to be made in any published material and cited as 'Western Australian Herbarium (*date accessed*)'.

Identifications, locality information, and geocoordinates of Herbarium specimens may require verification, and have a level of accuracy, precision and uncertainty. While every effort has been made to prevent errors and omissions in data, they may be present, and the Western Australian Herbarium accepts no responsibility for this.

Images of Herbarium Specimens The Western Australian Herbarium can provide high resolution digital scans of Herbarium specimens upon request; please note that a minimum of five (5) working days lead time is highly recommended. Please see <https://bit.ly/PERTHimaging> for more information.

Type specimens have been imaged and are available via [JSTOR Global Plants](https://www.jstor.org/stable/2372372), with all functionality accessible while at the Western Australian Herbarium.

Type specimens and any other PERTH specimens that have been imaged are available using the static URL: <https://herbarium.dbca.wa.gov.au/> with the PERTH number. For example, https://herbarium.dbca.wa.gov.au/PERTH_09350098.jpg. Please note: it is critical that the space is present in the PERTH catalogue number. You can right click to save the image to your desktop. Please note: very few specimens are currently available, and sensitive information has been hidden from images. The Western Australian Herbarium's specimen images are freely available for use with attribution ([CC-BY](https://creativecommons.org/licenses/by/4.0/)) for biodiversity assessment, systematic botanical research, ecosystem conservation, policy development, for educational and other outreach tools.

Comfort.

Food and beverages (including water bottles) are not permitted in the Research Collection Vaults or Vestibules. A café is available on the ground floor, pleasant outdoor seating surrounds the building, and a table area is available on the first floor. Kitchenette access is available in the café or within the quarantine area upon request.

Smoking and vaping are not permitted in the building or within 5 metres of any part of the building.

As part of our Integrated Pest Management protocols, the Herbarium Vaults are maintained at around 16°C and 45-50% relative humidity, with some areas experiencing high levels of air movement. Vestibules are maintained at around 20°C. These temperatures may be uncomfortable

for some people, particularly for extensive periods. Please bring something warm to wear and wear enclosed shoes for safety.

If you are working in the collections, seating and ergonomic mats are provided for your comfort and to avoid fatigue. Anti fatigue mats, provided on request, are only to be used when standing. Chairs/stools are not to be placed on the mats as this reduces the free movement of the chair and may cause injury.

Extra desk-top lighting is provided in all work locations should it be needed.

While we are not a library, please consider other patrons of the Herbarium at all times.

- Speak in quiet tones.
- Switch mobile phones to silent.
- Take personal phone calls outside of the Quarantine area (reception is often limited).
- Wear appropriate clothing and maintain appropriate personal hygiene. Clean field clothing is acceptable.
- Don't monopolise resources at the expense of others.
- If the behaviour or actions of other users seems inappropriate or not following these guidelines, please inform Herbarium staff.

Safety considerations.

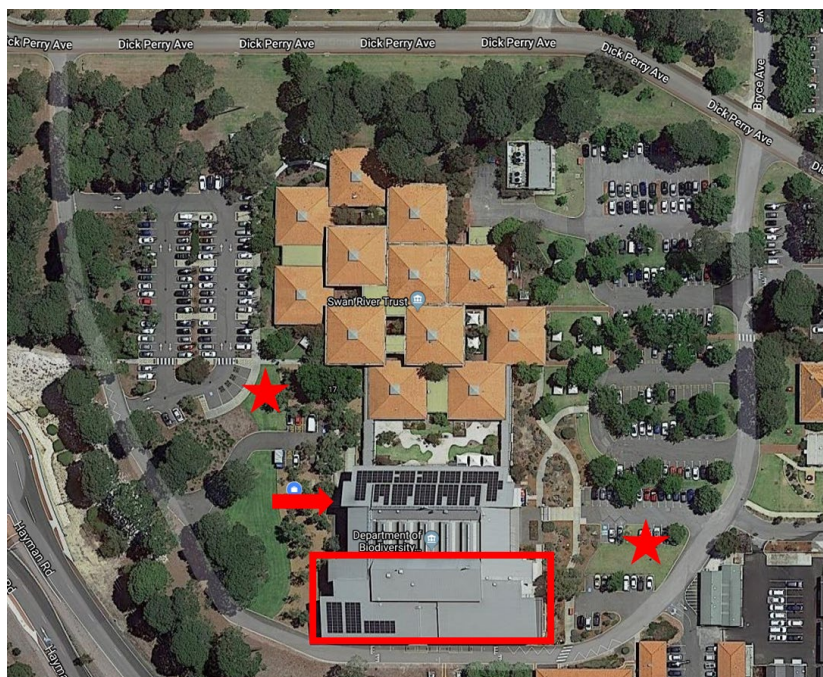
Corridors should always be kept clear. Please do not leave trolleys, ladders, kick stools or stacks of boxes where people can trip or where access pathways can be blocked.

Freezer and drier access is not permitted; please request assistance.

Please familiarise yourself with Appendix 2: Hazardous Herbarium Specimens.

Familiarise yourself with the emergency exits and evacuation routes, signed with the green pictogram. In an emergency follow the directions given by fire wardens, moving as quickly as possible to the nearest exit and assemble in the demarcated Evacuation Assembly Areas. If you are not able to navigate stairs, please indicate this to the fire wardens.





Department of Biodiversity, Conservation and Attractions Kensington campus. The red rectangle is the Western Australian Herbarium, arrow indicates reception, stars indicate Evacuation Assembly Areas.

Any unusual noxious smells, smoke, spillages of chemicals, etc., must be reported immediately to any available staff member.

In case of emergency, do not use the lift/elevator. Do not stop or go back to collect belongings. Do not re-enter building until told to do so by a staff member. Do not leave the vicinity unless directed.

Do not open alarmed fire exits unless there is an emergency – DBCA staff are alerted even if there is not an emergency.

Should you be required to use a lift/elevator during normal operation, please preferentially use the glass lobby elevator. The freight elevator is reserved for herbarium staff use.

If an emergency should arise while in an elevator, please follow this procedure:

- Press and hold the telephone button for 5 seconds: the alarm will be activated.
- A connection to Schindler will be made; wait for an operator and provide your details.
- Wait patiently; available Herbarium or DBCA staff will try to communicate with you.
- Should the lights go out in the freight elevator, a push-on safety light is installed to the left of the doors.

Should you need medical assistance please immediately inform a Herbarium staff member.



A First Aid Station and supplies housed in a mounted metal box and marked with large green signs are located on each of the three floors of the Herbarium (typically by kitchenettes) and throughout the Kensington facility. An emergency eye wash and shower station are located on the ground floor in the Preparation Laboratory. A defibrillator and oxygen are located on ground floor by the Reception.

Emergency First Aid Contact	
Position	Phone Number
Ambulance, Fire, Police	000
Health and Safety Officer	9219 9778
Collections Manager	9219 9130

Integrated Pest Management (IPM).

Please ensure your shoes, clothing, and belongings are free of plant material and soil.

Entry and exit to the Vaults is through the Vestibules only (except in emergency situations). Please do not use the Emergency Exit doors. Please do not leave doors to the Vestibule or Vaults open.

Please do not move specimens out of Vaults/Vestibules without permission. No specimens are to be left outside of boxes overnight.

Please do not bring into the Collections areas the following items:

- Food and beverage items,
- Field gear, including field notebooks,
- Any tobacco products,
- Corrugated cardboard and other paper products, and
- Fresh or dried plant material (e.g., plant cuttings, potted plants, fresh flowers, seeds, dried herbs, tea).

Please report any beetle, booklice, silverfish, or other insects found in the building immediately to a member of the Collections Team and the Collections Manager.

See the [PERTH Integrated Pest Management Plan](#) for further information

Use of specimen driers and other facilities located in the Preparation Laboratory require prior arrangement with the Collections Manager.

Specimen and box handling.

Due to their fragile nature, please do not touch the Herbarium specimens directly.

The Research Collection is housed in four separate Vaults on the first and second floors. Cryptogams are housed in Vault 1; fungi, slime molds, lichens, algae, and bryophytes are arranged alphabetically by genus then species. Ferns are arranged according to Pteridophyte Phylogeny Group I (PPGI) and are in Vault 1. Gymnosperms follow the family arrangement of Christenhusz et al. (2011) and are in Vault 1. The systematic sequence for angiosperms in both the Research Collection and Reference Herbarium follows the ordinal phylogeny of the Angiosperm Phylogeny Group (APGIV 2016). Genera within families-species-infraspecific taxa are arranged alphabetically. In both Reference and Research Collections, indexes of families and genera are available, providing the Vault number and row number for the START of the taxonomic group (and start of the columns for each family). See *Nuytsia* 33: 113 (2022) for more information (<https://florabase.dbca.wa.gov.au/science/nuytsia/1027.pdf>).

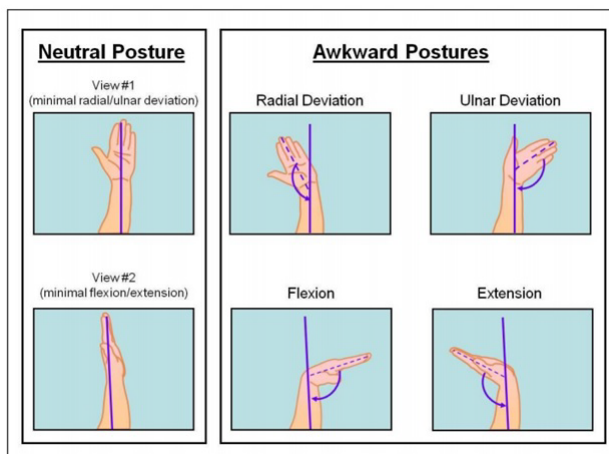
At PERTH the specimen folders are housed in the Research Collection boxes in the following order within a species:

- Subspecific taxa are housed alphabetically within a species.
- Specimens from WA are enclosed in a thick white folder.
- Specimens from other states within Australia are enclosed in a coloured folder (each state is represented by a different colour) after WA. Order preferentially SA, NT, QLD, NSW, VIC, TAS
- Specimens from outside Australia including some Australian territories (e.g., Christmas Island) are enclosed in a black folder after the State folders.
- Specimens that have an affinity to the taxon (e.g., preceded by ?, aff., cf.) are placed in a folder at the end of the taxon.
- Phrase name taxa (species level) are located at the end of each genus; subspecific alphabetically after the species.
- Indeterminate (unidentified) taxa are located at the end of each family and genus.

Specimens in the Research Collection are housed in sealed plastic boxes to reduce the possibility of insect and water intrusion.

Please note the following safety considerations in **handling PERTH boxes**.

- Full boxes may be heavy and weigh as much as 7-10 kg.
- Remove the box from the racks and place on flat surface before opening the lid. Take care and try to avoid using thumbs to open the lids.
- Prior to moving a box, ensure the front lid is in the locked position.
- Use a locking safety ladder to remove a box from the specimen racks if the box is above shoulder height. Maintain three points of contact at all times (two feet and hip or hand) and if possible work in pairs to pass down boxes. Please advise a Herbarium staff member if you are unable to easily access specimen boxes, and particularly if you find the boxes too heavy to manage.
- Use proper lifting technique (squat or semi-lunge) for boxes below mid-thigh.
- The box is to remain horizontal at all times.
- Carry the box holding the sides and bottom, with long-edge supported against your body. Avoid extended gripping using thumbs.
- Carry one box at a time or move multiple boxes using a trolley (available in Vestibule).
- Place the box back in the same position as removed (checking the location address on the label).
- Check the lid is in the locked position; this can be confirmed by ensuring there is no gap between lid and box along front bottom edge.
- Be gentle when opening, closing, handling and moving boxes; abrupt, heavy and rough movement can damage specimens.
- For repetitive hand and wrist actions ensure a neutral posture to avoid injury.



Please take care when handling specimens:

DO

- Wash your hands with soap and water before and after handling specimens.
- Maintain sheets within their flimsy, folder and box, specimen side always up.
- Place specimens with care when free of flimsy, rather than sliding them between or across other specimens.
- Ensure the specimens are aligned neatly.
- Hold specimens horizontally; slowly and carefully place all the way into the box before closing the lid.
- Always use a red support (plastic tray) when carrying specimens removed from boxes.
- Ensure the tray tag is within the box upon closing the lid.
- Ensure the lid locks shut; check to ensure there is no gap along the front edge of the box (indicating it is not fully closed).

DO NOT

- Use hand moisturizers or hand sanitizers.
- Handle or touch biological materials; hold the edges or bottom of sheet.
- Remove specimens from the Vestibule.
- Bend, twist or flex specimens.
- Turn specimens over like the pages of a book.
- Place heavy objects on, or lean on, specimens.
- Drop or knock piles of specimens.
- Try to insert top flaps into the square packets.
- Separate duplicate material from behind a PERTH specimen (in newspaper or old folders) from the flimsy.
- Separate duplicates or multisheets; they should be contained within a single flimsy, with the first sheet on top (within outer flimsy but without individual flimsy).
- Overfill a box. A box is considered full when the top folder within a box is gently resting on the top inside of the box (this may not be obvious from the front of the box). If any resistance is met when placing a folder into a box then the box is overfull, incorporate into another box or alert Collections staff.

If you hear cracking, you have done damage!

When in doubt, folders and specimens should be left on the side table in the Vault or in the Vestibule and the Collections Team be alerted. Remember: Misfiling is worse than not filing.

Permission must be sought from the Curator or the Collections Manager before:

- *Removing specimens from the Vestibule.*
- *Removing any part of a specimen for morphological or anatomical study.* All dissected portions of specimens are to be placed in packets. Place these specimens aside for the Collections Team to further curate.
- *Removing fragments of specimens for destructive sampling.* Destructive Sampling **MUST** be approved prior to removal of any part of the specimen. Refer to the [PERTH Destructive Sampling Guidelines and Agreement](#) for further details.

Please notify the Collections Team if you notice irregularities, damaged or insect attacked specimens, or consider a specimen to be type material.

Annotation slips can be generated, upon request, by members of the Collections Team.

DO

- Write interpretations of the primary data or redeterminations on slips, when necessary.
- Write legibly with permanent ink (provided - preferred) or pencil.
- Ask the Collections Team to generate personalized slips, as needed.
- Place slips sticking out from under a label or stem to avoid loss.
- Set aside annotated or damaged specimens for the Collections Team to curate.

DO NOT

- Write on a specimen sheet or box directly.
- Alter, correct or remove information on labels or slips.
- Glue down slips.

For determination slips, please include the taxonomic name with author, reference, your name and the date of determination. Where a specimen is a nomenclatural Type, please include the current name as well as the basionym, the publication details, and the category of type specimen on the annotation slip.

Specimens required for loan or destructive sampling can be set aside and the Collections Manager notified. Loan requests are between institutions, not individuals, and an official loan request is required from an [Index Herbariorum](#)-registered and approved institution before specimen loans can be processed. See [PERTH Specimen Loan Policy](#). Refer to the [PERTH Destructive Sampling Policy and Agreement](#) for information and guidelines for destructive sampling of PERTH specimens.

Contacts.

Curator: John Huisman, John.Huisman@dbca.wa.gov.au, 9219 9137

Collections Manager: Shelley James, herbarium@dbca.wa.gov.au, 9219 9130

General Herbarium enquiries: herbarium@dbca.wa.gov.au

Appendix 1: Herbarium Access Agreement form.

OFFICIAL



Department of **Biodiversity,
Conservation and Attractions**
Western Australian Herbarium

AGREEMENT TO ACCESS TO THE WESTERN AUSTRALIAN HERBARIUM RESEARCH COLLECTION

Induction year **2025-2026**

NAME _____ ORCID or Wikidata ID: _____

ORGANISATION / EMPLOYER (IN FULL) _____

EMAIL CONTACT _____ PHONE NUMBER _____

MANAGER / SUPERVISOR NAME _____

PROJECT _____

I acknowledge and agree to the following:

- ☐ I have completed an induction consisting of an orientation to the Western Australian Herbarium Research Collection, safe handling of herbarium collections, and emergency procedures (see the [PERTH Research Collection User Guide](#)).
- ☐ I understand that this application is valid for two calendar years for documented *regular* users of the Research Collection, and 1 year for non-regular users.
- ☐ Access to the Research Collection is permitted for scientific, educational, and identification purposes. Access for commercial projects is only with the prior written agreement of DBCA.
- ☐ Access to the Research Collection is subject to the following conditions and I understand that my access may be terminated if any of the following conditions are breached:
 1. Compliance with the conditions of facility use as outlined in the [PERTH Research Collection User Guide](#) and any social distancing requirements when accessing the Research Collection.
 2. Access is granted only to the above-named individual.
 3. Access is strictly 8:30am – 4:30pm M-F, except for public holidays and scheduled closures.
 4. Sign-in upon entry to the Research Collection is mandatory.
 5. Outside fresh or dry specimens must not be brought into the Research Collection unless placed in a sealed bag prior to entry and must remain therein, or frozen on-site for 7 days at -20C. Personal items are to remain outside the Vaults.
 6. Specimens and storage boxes must be cared for and handled in accordance with the [PERTH Research Collection User Guide](#) and the [Integrated Pest Management Plan](#).
 7. Specific locality information for conservation-listed flora is regarded as confidential and should be treated as such.
 8. Assistance of Herbarium staff is by prior arrangement only, except in emergency situations.
 9. Access to the Types and other ancillary collections is by prior written permission from the Herbarium Collections Manager.
 10. Photographing of specimens in the Research Collection is not permitted without the written permission of the Herbarium Collections Manager. Requests for images of specimens may be made via the online form: <https://bit.ly/PERTHimaging>.

SIGNATURE OF APPLICANT: _____ Date: ____ / ____ / 2025

SIGNATURE OF COLLECTIONS MANAGER/CURATOR: _____ Date: ____ / ____ / 2025

The Western Australian Herbarium acknowledges the Custodians of the lands and waters from where our collections have been gathered and are housed, and pays respect to their Elders past and present.

Version: May 2025

Appendix 2: Hazardous Herbarium Specimens.

Do not work with specimens if you have a known allergy to a plant group (e.g., grasses, fungal spores), and report to Collections staff if you experience discomfort or symptoms.

Avoid scratching your skin, touching your mouth, or rubbing your nose or eyes whilst working with specimens.

Always wash hands before and after handling specimens.

Optional Personal Protective Equipment (PPE) includes: laboratory coat, gloves, mask. Please contact the Collections Manager if PPE is required.



Boxes with recognized hazardous specimens are stamped with a red skull-crossbones icon.

Prior to commencing work in the Collection:

- Wash hands with soap and water.
- Be aware you may be working with hazardous specimens in the Herbarium.
- Take care in handling specimens and avoid contact with plant material at all times.
- Forceps are available for use with herbarium specimens, but use with care.

Chemical Treatment

Prior to integrated pest management procedures, specimens were treated with various chemicals to prevent insect attack. The concentration within the collections of these chemicals is low.

Mercuric chloride - Any older specimens (pre-1974) may have been treated with mercuric chloride. Mercury vapour can accumulate in tightly closed boxes. Mercury could accumulate in the blood stream leading to heavy metal poisoning. The concentration of mercury vapour in this well ventilated herbaria is extremely low, and all backing sheets have largely been removed.

LaurylPentaChlorPhenate (LPCP) – organochlorine compound used as a pesticide from 1930's to 1974.

Methyl bromide - an ozone depleting substance used as a fumigant for quarantine purposes.

Naphthalene - both the solid and the vapour states are toxic. Naphthalene can be found as flakes or a solid block (white crystals, moth-balls). Suspected of causing cancer. While the Western Australian Herbarium never actively used naphthalene for pest management, specimens from collectors and other institutions may have been exposed to this chemical. *Camphor* has also been used to protect collections from insects and is a neurotoxin.

DichloroDiphenylTrichloroethane (DDT) – used as DDT dust, toxic on contact and suspected of causing cancer. All older Australian agricultural specimens (pre-1987) should be regarded as potentially contaminated.

To reduce your exposure to harmful chemicals, there are recommended routine practices to follow whilst working in the Herbarium:

- Thoroughly wash hands before and after handling specimens.
- Open box in well ventilated area, remove specimens and allow approximately 5 minutes for gaseous vapours to disperse. If easy to do so, move to another location for a short time.

- If concerned about chemicals used on specimens or on the paper, wear disposable gloves (lab coat optional) and wash hands with soap and water regularly.

Hazardous plant groups

Hazards may be common to a plant family or genus, or unique to a plant part. At all times, handle only the backing sheet and with care to avoid injury to yourself and the specimen. Some of the more prominent hazardous plant families are listed below. Please note: this list is by no means exhaustive, and prior assessment should be taken before undertaking work in any part of the Herbarium.

Plant group	Hazard	Safety controls – PPE is optional
CYCADACEAE	Neurotoxins; gastrointestinal irritation.	Handle with gloves.
FERNS FUNGI mould on specimens	Potential for inhaled spores.	Dust mask.
URTICACEAE (esp. <i>Dendrocnide</i> , <i>Laportea</i> , <i>Urtica</i>)	All parts have stinging hairs which causes irritant dermatitis and respiratory irritation. Pain can last for hours or months.	If necessary to handle the plant material, wear gloves and dust mask. Boxes containing specimens may be annotated “handle with caution”. See below for first aid.
CUNONIACEAE FABACEAE MALVACEAE MORACEAE	Irritating hairs which can cause contact dermatitis.	Handle with caution – no need for gloves if care taken.
CACTACEAE	Spines may penetrate skin.	Use tools not hands. If necessary to handle the plant material then wear heavy duty gloves.
ASTERACEAE CHENOPODIACEAE FABACEAE PROTEACEAE ROSACEAE SOLANACEAE VERBENACEAE	Species with thorns/spines or prickles which may penetrate or puncture skin.	Handle with caution – no need for gloves if care taken.
ANACARDIACEAE ASTERACEAE CANNABACEAE EUPHORBIACEAE MORACEAE RANUNCULACEAE	Potential for skin irritation.	Known hazard with fresh sap, unlikely to encounter a hazard when dry. Disposable gloves are available if required.
PROTEACEAE (notably <i>Grevillea</i>)	Pollen can cause skin irritation (contact dermatitis).	If sensitive wear disposable gloves to protect from pollen.
GRASSES	Respiratory allergy due to pollen, contact allergy.	If sensitive wear appropriate PPE.

Other hazards

Excrements of herbarium insects are especially irritant to the respiratory system of humans. Be aware that extended exposure to partially eaten specimens that are contaminated with fine powder of frass and insect faeces may cause violent allergic reactions in some people.

First Aid

For Urticaceae and other stinging hairs:

- Do not scratch or rub the affected area, as this can cause the hairs to break off and make them very difficult to remove.
- Remove visible hairs with tweezers.
- Alert a Herbarium staff member and they will provide wax strips. Apply adhesive tape or warmed wax hair removal strips to area and quickly rip off to remove the finer hairs.

Alert Herbarium staff if you suffer from allergies. You may wish to discuss where your medication is kept in case of emergency.

If you suffer from asthma or other respiratory illness, ensure you have your medication with you before working in the Collection.

If you notice your eyes are itchy, wash eyes thoroughly with water without rubbing your eyes. An eye wash station is located on the ground floor in the Preparation Laboratory.

All other first aid injuries, render your own first aid. If more serious, or you are in doubt, ask for a Herbarium first aid officer or the Health and Safety Officer. In emergency, dial 000 for emergency services.