

Guidelines for Managing Australasian Herbarium Collections

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Produced by Managers of Australasian Herbarium Collections (MAHC)



Council of Heads of Australasian Herbaria (CHAH) & Managers of Australasian Herbarium Collections (MAHC) (2020)

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Introduction

The '***Guidelines for Managing Australasian Herbarium Collections***' (referred as Guidelines hereafter) have been modelled on the '***National Standards for Australian Museums and Galleries***' (v1.5 2016).

The Guidelines are focussed on key areas of activity common to organisations that maintain [herbarium collections](#) and have been developed with the aim of supporting Australasian herbaria in carrying out their day-to-day activities, meeting their responsibilities to key stakeholders, attracting funding and achieving other organisational objectives. We are using Benchmarks as aspirational points of reference of best practice that are in no way mandatory or obligatory. It is not intended that the Guidelines be delivered through an accreditation scheme, or to monitor their use. Herbaria of all kinds are encouraged to use the Guidelines framework as a practical point of reference and are encouraged to provide feedback as the Guidelines continue to be developed.

The Australasian herbarium community is diverse and available funds and facilities of the institutions vary, as do staffing levels and levels of volunteer support. The development of these Guidelines has been guided by recognition of this diversity. The Guidelines are intended as a tool to improve management of individual [herbaria](#) and act as a guide for the establishment of new herbaria through development of policies, plans and procedures, and identification of priorities for improvement.

The Guidelines have been developed by the Managers of Australasian Herbarium Collections ([MAHC](#)) at the request of the Council of Heads of Australasian Herbaria (CHAH) and with input, where relevant, from the Herbarium Information Systems Committee ([HISCOM](#)).

[MAHC](#), will continue to review this document to ensure that it remains relevant to the needs of Australasian herbaria.

Structure and Scope of the Guidelines

The Guidelines have been developed around guiding [Principles](#). These principles are articulated through a series of [Guidelines](#) and [Benchmarks](#).

These principles are divided into three main Guideline sections.

Part A, 'Herbarium Governance' focuses on the overarching management, administration, resourcing and future planning of the herbarium.

Part B, 'Maintaining the Collection' focuses on collection management and preservation.

Part C, 'Access and Community Engagement' addresses the role the herbaria play as a significant part of national biodiversity infrastructure.

Supporting these Guidelines is a suite of documents and resources, for adaptation by herbaria to suit their local institutional policies and procedure.

These Guidelines focus on [object-based scientific herbarium specimen collections](#). [Many herbaria manage](#) large and significant library materials, artworks and other non-specimen collections, however these have been excluded from the Guidelines.

Using the Guidelines

Herbaria operate in different ways and settings, with varying levels of resources. It is understood that herbaria will use or address the Guidelines in a range of ways.

The Guidelines may provide guidance for:

- Understanding principles and guidelines of vital importance to herbarium development and management.
- Identifying what can be done towards meeting specific guidelines.
- Reviewing the herbarium.
- Advocating for resources to meet Guidelines.
- Gaining leverage to enhance access to resources.
- Helping make the herbarium more sustainable.
- Identifying potential improvements.
- Promoting achievements within the herbarium.
- Raising the herbarium's profile with local, state/territory or national governments.
- Enhancing the herbarium's credibility, recognition and status within its community.
- Increasing community confidence in the capacity of the herbarium.
- Increasing accessibility.

The Appendices provide resources with the links to the relevant supporting Guidelines and Benchmarks.

Acronyms and Abbreviations

AMaGA: Australian Museums and Galleries Association Inc

[CHAH](#): Council of Heads of Australasian Herbaria

[CITES](#): Convention on International Trade in Endangered Species of Wild Fauna and Flora

[DoA](#): Australian Government Department of Agriculture

[DISACT](#): 'Disaster ACT' is an alliance established by cultural and scientific collecting institutions in Canberra to improve disaster preparedness and provide local mutual assistance in the event of emergencies affecting public collections.

[DISNT](#): 'Disaster NT '

[EPA](#): Environmental Protection Authority

[HISCOM](#): Herbarium Information Systems Committee, comprised of database managers from herbaria in Australia and New Zealand.

[MAHC](#): Managers of Australasian Herbarium Collections, comprised of collection managers from herbaria in Australia and New Zealand.

[MPI](#): Ministry for Primary Industries, Manatū Ahu Matua

[NZMCH](#): New Zealand Ministry for Culture and Heritage, Manatū Taonga

[NZNHN](#): New Zealand National Herbarium Network

[SHC](#): Society of Herbarium Curators

[SPNHC](#): Society for the Preservation of Natural History Collections

[TDWG](#): Taxonomic Databases Working Group

[WHS](#): Work, Health Safety

Glossary

[Ancillary Collections](#)

In the herbarium context these are: wet collections, DNA collections, wood collections etc. that are housed separately but linked through a collector's number. May also include collections of important materials that are associated with an [object-based scientific collection](#), but only if the material is directly used for scientific research, such as research field notes. Excluded are historic and artistic collections that do not function as scientific collections, and library collections that do not directly support research objects. (Ref.: IWGSC 2009)

[Authority to hold](#)

Authority to hold refers to New Zealand institutions having custodianship of natural history material on behalf of the crown. The Crown represents iwi interests under its Treaty of Waitangi obligations.

[Benchmark](#)

Benchmarks are aspirational points of reference of best practice. They may be used to assist herbaria to demonstrate that they are working towards meeting specific goals or standards.

[Guidelines](#)

Guidelines are the criteria to be met as Herbaria put the Principles into action.

[Herbarium / Herbaria](#)

A herbarium is a scientific institution that has an administrative and research structure for managing, preserving and researching collections of algae, fungi or plant specimens, and often also maintains other research infrastructure such as specialist library collections, artworks, images, historical objects and laboratories.

[Herbarium collection](#)

A herbarium collection is an [object-based scientific collection](#) of algae, fungi or plant specimens. A collection is a long-term research asset, as opposed to an expendable research supply. A collection can be considered to be a set of specimens that are catalogued together in one database or numbering system. They are created for the purpose of supporting scientific research, rather than for their market value as collectibles or their historical, artistic, cultural or other significance. (Ref.: IWGSC 2009)

[Herbarium workers](#)

Staff, volunteers (including research associates), students and visitors.

[Herbarium community](#)

Includes researchers, students, honorary associates, volunteers, advisers, donors, sponsors and supporters, Friends groups, members of the governing body, field collectors.

[Iwi](#)

In New Zealand society, iwi form the largest social units in Māori culture. The word iwi means 'peoples' or 'nations', and is often translated as 'tribe', or confederation of tribes.

[Moveable heritage](#)

Movable cultural heritage includes objects that people create or collect and forms an important part of a nation's identity. These objects are known as cultural property and can be artistic, technological, historical or natural in origin. In Australia, national and international cultural property is protected through the *Protection of Movable Cultural Heritage Act 1986*.

[Object-based scientific collections](#)

Object-based scientific collections consist of physical objects that are preserved, catalogued and managed for research and other purposes. In general, the contents of these scientific collections are documented and publicized with the goal of making the specimens available to other members of the research community for study. (Ref.: IWGSC 2009).

[Preventive Conservation](#)

Preventive Conservation is the mitigation of deterioration and damage to collection items through the formulation and implementation of policies and procedures for the following: appropriate environmental conditions; handling and maintenance procedures for storage, exhibition, packing, transport and use; integrated pest management; emergency preparation and response; and reformatting/duplication. It is an ongoing process throughout the life of cultural property. [edited from the original online]

[Principle](#)

Principles are the core codes of herbarium practice addressed by the Guidelines.

[Significance Assessment](#)

The process of studying the meanings and values of objects and collections.

[Voucher](#)

A Voucher is a specimen on which critical analyses and observations have been performed, and from which research data has been gathered (e.g., samples, assays, laboratory and field notes). Vouchers are preserved for future research to corroborate published findings or to apply new analytical techniques. Vouchers may be considered as 'primary materials' as discussed by the NHMRC (2007).

Summary of principles and guidelines

Part A: Herbarium Governance

Principle A1: The herbarium has a sound legal and management framework that follows recognised herbarium protocols.

Supporting Guidelines

A1.1	The herbarium maintains contact with relevant bodies and networks.
A1.2	The herbarium abides by international, national and state/territory/regional protocols relating to herbarium practice and moveable heritage.
A1.3	The herbarium complies with national/state/territory/regional and local laws, by-laws and regulations.

Principle A2: The herbarium is effectively managed, sustainable and publicly accountable.

Supporting Guidelines

A2.1	The herbarium has a written Statement of Purpose/Mission Statement
A2.2	The herbarium works to formal, written policies and procedures that cover its management, responsibilities, programs and services, and reflect its Statement of Purpose/Mission Statement.
A2.3	The herbarium has a viable, current forward plan that covers all aspects of herbarium operations.
A2.4	The herbarium uses an effective information and records management system.
A2.5	The herbarium identifies and assesses risks and has strategies in place to manage them.

Principle A3: The herbarium is a secure, well-managed facility.

Supporting Guidelines

A3.1	The herbarium dedicates appropriate spaces and storage conditions to all activities.
A3.2	The herbarium and its activities are housed in a secure and suitable building.

Part B: Maintaining the Collection

Principle B1: The herbarium collection represents significant biodiversity research infrastructure.

Supporting Guidelines

B1.1	The herbarium develops its collection to support its purpose/mission and priorities.
B1.2	The herbarium understands and has documented the significance of its collection.
B1.3	The herbarium or its governing body aims to have unconditional legal ownership of its collection, but in some jurisdictions indigenous and other custodians may retain ownership.
B1.4	The herbarium has an effective system to record and retrieve information about its collection.

Principle B2: The herbarium preserves and manages its collections as a long-term research asset.

Supporting Guidelines

B2.1	The herbarium has identified, and is able to respond to, all potential threats to its collection.
B2.2	The herbarium makes decisions about preventive conservation based on current advice and practices.

B2.3	The herbarium actively strives to create and maintain an appropriate environment for storage of its collection.
B2.4	The herbarium has storage, materials and procedures aimed at minimising risks to its collection and workers.
B2.5	The herbarium has policies to support sustainable collections growth.

Part C: Access and Community Engagement

Principle C1: The herbarium is used, supported and valued by diverse communities as a significant scientific and educational resource

Supporting Guidelines

C1.1	The herbarium includes a range of people in its operations and programs.
C1.2	The herbarium's publications, media and events are based on sound research and/or knowledge.

Principle C2: The herbarium promotes research and use of its collections and data.

Supporting Guidelines

C2.1	The herbarium aims to have its collection accessible in digital formats and in online environments.
C2.2	The herbarium promotes research and use of its collections while also preserving them as permanent scientific objects.

The Guidelines

Part A: Herbarium Governance

Principle	A1	The herbarium has a sound legal and management framework that follows recognised herbarium protocols.
Supporting Guideline	A1.1	The herbarium maintains contact with relevant bodies and networks.
Benchmark	A1.1.1	<p>The herbarium subscribes to, or maintains contact with, relevant professional associations and networks. Relevant associations and networks include:</p> <p>International bodies e.g. TDWG, Index Herbariorum, SPNHC, SHC</p> <p>National bodies e.g. CHAH, DoA, MPI, EPA, NZMCH, NZNHN, AMaGA</p> <p>State or territory based bodies e.g. DISACT, DISNT</p> <p>Networks e.g. MAHC, HISCOM</p> <p>Other e.g. Iwi, scientific institutions</p>
Supporting Guideline	A1.2	The herbarium abides by international, national and state/territory/regional protocols relating to herbarium practice and moveable heritage.
Benchmark	A1.2.1	<p>Herbarium policies, procedures and programs are developed and carried out with reference to relevant, current protocols, treaties and conventions.</p> <p>There are protocols and conventions relating to:</p> <ul style="list-style-type: none"> • Commercialisation activities e.g. development of products from specimen extracts • Moveable heritage (e.g. Type specimens) • Endangered species e.g. CITES • Indigenous specimens and knowledge e.g. Nagoya Protocol, AMaGA Indigenous Roadmap, • Biosecurity and legal restrictions e.g. prohibited species.
Benchmark	A1.2.2	Workers are given appropriate information to assist them in understanding, and working with regard for, protocols relevant to Indigenous knowledge and cultures, and other relevant protocols. e.g. Nagoya protocol.
Supporting Guideline	A1.3	The herbarium complies with national/ state/territory/regional and local laws, by-laws and regulations.
Benchmark	A1.3.1	<p>The herbarium's policies and procedures demonstrate an awareness of all applicable laws and regulations relevant to its collection, site, management and programs.</p> <p>Laws and regulations may vary between jurisdictions. In the herbarium context, areas of activity that may have legal implications may include:</p> <ul style="list-style-type: none"> • advertising and publishing

		<ul style="list-style-type: none"> • building works • financial management • insurance and public liability • managing heritage buildings • managing staff and volunteers • work health and safety • Code of conduct • protection of moveable cultural heritage • biosecurity and quarantine • records management • equal opportunity • freedom of information • intellectual property • privacy provisions • land access and collecting activities • international exchange of native species for non-commercial, scientific purposes
Principle	A2	The herbarium is effectively managed, sustainable and publicly accountable.
Supporting Guideline	A2.1	The herbarium has a written Statement of Purpose/Mission Statement.
Benchmark	A2.1.1	<p>The Statement of Purpose/Mission Statement outlines the herbarium's:</p> <ul style="list-style-type: none"> • focus, scope or speciality • underlying philosophy • core functions • physical area • communities • audiences
Supporting Guideline	A2.2	The herbarium works to formal, written policies and procedures that cover its management, responsibilities, programs and services that reflect its Statement of Purpose/Mission Statement.
Benchmark	A2.2.1	<p>The herbarium's governing body adopts relevant written policies and procedures for the herbarium. These may be adopted from parent bodies or departments where applicable</p> <p>Essential documents:</p> <ul style="list-style-type: none"> • Business Continuity Plan • Collection policy, including accession and de-accession policy (see Guideline B1.1). • Disaster preparedness and response plan (see Guideline B2.1) • Information management policy • Work health and safety policy • Emergency Evacuation Procedure <p>Other useful documents and policies (relevance will depend on the nature of the herbarium):</p>

		<ul style="list-style-type: none"> • access policy • preventive conservation policy • education/public engagement policy • exhibition policy and schedule • record keeping and records management policy and guidelines • science and research strategy • succession/mentoring plan • sustainability policy • visitor services policy • volunteer policy
Benchmark	A2.2.2	The governing body and herbarium workers have access to, and an understanding of, relevant current policies and procedures and associated forms/agreements.
Benchmark	A2.2.3	Policies and procedures are reviewed regularly, and updated as required. If appropriate, relevant stakeholders may be consulted when policies or procedures are reviewed.
Supporting Guideline	A2.3	The herbarium has a viable, current forward plan that covers all aspects of herbarium operations.
Benchmark	A2.3.1	The herbarium's Statement of Purpose/Mission Statement should align with the organisation's forward plan. Examples include: a government forward plan e.g. NSW 2020, Queensland plan; ASBS decadal plan for biosystematics.
Supporting Guideline	A2.4	The herbarium uses an effective information and records management system.
Benchmark	A2.4.1	Legal and operational records are kept of herbarium programs, activities and workers. Records can be physical (paper) and/or electronic or digital. Operational records might include: <ul style="list-style-type: none"> • annual reports • financial records • evidence of key decisions affecting policies and ongoing operations (e.g. meeting minutes, and resolutions of the governing body) • key administrative files, e.g. loans records, records of donations and exchange • personnel files. Herbaria affiliated with government may have recordkeeping responsibilities under relevant government legislation e.g. Public Records Office Victoria (PROV). Materials that relate to the herbarium's history may also be worth retaining. These might include: <ul style="list-style-type: none"> • biographical files • photographs • audio and video recordings • media coverage, invitations, other evidence of herbarium events and community participation
Benchmark	A2.4.2	An effective system is in place to manage and retrieve organisational information.

		<p>Records should be:</p> <ul style="list-style-type: none"> • appropriately organised and clearly labelled • duplicated, backed up and stored appropriately • kept in accordance with operational policies, guidelines and relevant legislation • kept up to date • kept secure
Benchmark	A2.4.3	The organisation reports on its activities to the public eg. an annual report which may be included in that of the parent body or organisation.
Supporting Guideline	A2.5	The herbarium identifies and assesses risks and has strategies in place to manage them.
Benchmark	A2.5.1	<p>Risk management is part of the herbarium’s strategic and financial planning through up to date policies, procures and strategies. Risks can affect a herbarium’s:</p> <ul style="list-style-type: none"> • reputation • buildings • business • collection • data • finances • governing body • legal status • performance • resources • site • viability • visitors • workers.
Benchmark	A2.5.2	<p>Health and safety obligations are fulfilled.</p> <p>It is essential that herbaria have up-to-date WHS policies and procedures in place, based on current government legislation. WHS legislation is specific to each jurisdiction, and regional variation will apply. Key aspects include:</p> <ul style="list-style-type: none"> • providing workers and visitors with relevant information on, and training in WHS policies and procedures. • providing adequate supervision for workers and visitors • ensuring that risk assessments are carried out for specific tasks, and that safe work practices are documented and followed; these are subject to regular review
Benchmark	A2.5.3	Adequate and appropriate insurance cover is considered in accordance with organisation policies, and maintained for the site, buildings, workers, visitors, the governing body, and the collection as appropriate.

		<p>Insurance to cover the herbarium's governing body is sometimes necessary and, in some circumstances, it is appropriate to insure/value the herbarium's collection, or specific items within it. For insurance and recovery purposes, it is useful to identify, value and photograph:</p> <ul style="list-style-type: none"> • significant collection items • key items of equipment • other infrastructure.
Benchmark	A2.5.4	<p>All required certificates, licences and permits have been obtained and are kept current.</p> <p>Certificates, licences and permits may be needed for:</p> <ul style="list-style-type: none"> • equipment • biosecurity (importing and day-to-day containment operations) • hazardous materials • specimen collecting activities including land access
Principle	A3	The herbarium is a secure, well managed facility.
Supporting Guideline	A3.1	The herbarium dedicates appropriate spaces and storage to all activities.
Benchmark	A.3.1.1	<p>The herbarium dedicates appropriate space and facilities to all activities associated with herbarium collection storage and management, including future growth.</p> <p>This might include functional areas as identified in herbarium management manuals.</p>
Supporting Guideline	A.3.2	The herbarium and its activities are housed in a secure building
Benchmark	A.3.2.1	<p>The herbarium premises provide a suitable and safe environment for the collection, herbarium operations and activities. Buildings should be:</p> <ul style="list-style-type: none"> • solid and stable • dry • well ventilated/air conditioned for stable temperature and humidity • insect and vermin proof
Benchmark	A.3.2.2	The herbarium secures the collection and controls access to it.
Benchmark	A.3.2.3	The herbarium meets fire safety standards and has emergency procedures in place in compliance with relevant WHS legislation and Codes of Practice.

Part B: Maintaining the Collection

Principle	B1	The herbarium collection represents significant biodiversity research infrastructure.
Supporting Guideline	B1.1	The herbarium develops its collection to support its purpose/mission and priorities
Benchmark	B1.1.1	<p>Key collection areas and activities are based on the herbarium's Mission/ Purpose and forward plan.</p> <p>This may take the form of a Collection Development Policy that outlines procedures/strategies and criteria relating to:</p> <ul style="list-style-type: none"> • an appropriate plan that informs collection development e.g. research plan/science master plan • collection priorities for acquisitions e.g. geography, legislated species, taxonomic group etc. • coordinating collection effort with other institutions, organisations and individuals e.g. donation and exchange of specimens <p>specimen collecting guidelines, forms and information</p>
Benchmark	B1.1.2	<p>The collection management and curation policy documents explain procedures and criteria relating to:</p> <ul style="list-style-type: none"> • access • acquisitions • curation standards • cataloguing/accessioning and data management • curation/preventative conservation • copyright issues • de-accessioning, disposal • destructive sampling • donations • images • loans and exchange/donation • ancillary collections e.g. DNA, preserved liquid collections • storage
Supporting Guideline	B1.2.1	The herbarium has policies to support sustainable collections growth
Benchmark	B1.2.2	Decisions about acquisitions, de-accessioning and care of the collection are informed by reference to the Mission Statement/relevant legislation and other relevant documents.
Supporting Guideline	B1.3	The herbarium understands and has documented the significance of its collection.
Benchmark	B1.3.1 # Appendix 2 Significance Assessments	<p>A Significance Assessment may be useful for decision making. The significance of collections are investigated and documented, resulting in a <i>Statement of Significance</i>.</p> <p>It is useful to date significance assessments, and to update them as new information becomes available.</p> <p>See appendix for resources</p>

		See Reference: Significant Assessment 2.0
Supporting Guideline	B1.4	The herbarium or its governing body aims to have unconditional legal ownership of its collection, but in some jurisdictions indigenous and other custodians may retain ownership.
Benchmark	B1.4.1	Records and permissions are kept of the transactions accompanying each acquisition where appropriate e.g. Prior Informed Consent, Collecting Permits, donation receipts. This information is important for: <ul style="list-style-type: none"> • demonstrating legality of collecting • informing third party contracts and agreements such as Materials Use Agreement. Material Transfer Agreements • allocating resources • planning long-term collection development • prioritising curation activities
Benchmark	B1.4.2	If the herbarium does not have unconditional ownership of a collection item subject to display, publication (image) or third party use, or authority to hold the collection item, it has an appropriately written agreement outlining conditions under which it can be held and used.
Supporting Guideline	B1.5	The herbarium has an effective system to record and retrieve information about its collection.
Benchmark	B1.5.1	The herbarium collection documentation system should be electronic or digital but may include historical paper records. It should include: <ul style="list-style-type: none"> • a collection database • object files (donation receipts, research notes, drawings, significance assessments)
Benchmark	B1.5.2	The collection database should meet current HISPID standards and allow for interoperability; should allow for flexibility; allow for the data to be made publicly accessible; and consider sensitive data e.g. ethnobotanical information, sensitive species, personal information.
Benchmark	B1.5.3	Electronic records of the collection are stored securely, and backup copies are made at regular intervals.
Principle	B2	The herbarium preserves and manages its collections as a long-term research asset
Supporting Guideline	B2.1	The herbarium has identified, and is able to respond to, potential threats to its collection.
Benchmark	B2.1.1 # Appendix 2 Excel Audit tool	Current and potential threats to the collection are identified through regular risk assessments and reduced as far as possible. These might be conducted or reviewed on an annual or seasonal basis.
Benchmark	B2.1.2 # Appendix 2	The disaster preparedness and response plan is informed by a current risk assessment and is regularly reviewed.

	Disaster Preparedness	
Benchmark	B2.1.3	Workers have training in disaster preparedness on a regular basis and are familiar with the herbarium's disaster preparedness and response plan. <ul style="list-style-type: none"> e.g. Blue Shield Australia encourages herbaria to support its MayDay program by using the month of May each year as the occasion for training in, and review of, disaster preparedness.
Supporting Guideline	B2.2	The herbarium makes decisions about preventive conservation based on current advice and practices.
Benchmark	B2.2.1 # Appendix 1 link to professional conservator resource	Preventive conservation principles are reflected in the herbarium's policies and procedures. This should include: <ul style="list-style-type: none"> a commitment to using archival quality materials; professional conservators advice should be sought if required an integrated pest management (IPM) program that includes procedures for dealing with infestations a cleaning regime for the building and storage areas document particular conservation needs or incidents such as pest infestation or water damage in object files and on databases
Benchmark	B2.4.4	When significant conservation treatments are required, herbaria should: <ul style="list-style-type: none"> Seek appropriate advice from professional conservators. Maintain records of all non-routine conservation treatments (or restoration activities), including the materials used, who carried out the treatment, and any physical changes to the object. Photographs can be used to show the object before and after conservation treatment. Review storage environments for their suitability before returning treated collection items.
Supporting Guideline	B2.3	The herbarium actively strives to create and maintain an appropriate environment for its collection.
Benchmark	B2.3.1 # Appendix 1 Link to Resources # Appendix 2 Link to Guides and Templates	Approaches to storage demonstrate appropriate understanding and monitoring of the collection's condition and the environmental requirements of the collection. Recommended environmental conditions and standards can be found in linked resources.

	<p>Audit Spreadsheet</p> <p>IPM Guide for Monitoring</p> <p>Environmental conditions / standards</p>	
Benchmark	B2.3.2	<p>Procedures for cleaning and management of waste are implemented:</p> <ul style="list-style-type: none"> • Plant matter and floor sweepings placed in separate 'Biohazard' bins where applicable (e.g. New Zealand Containment Facility regulations). • A regular maintenance schedule is in place to help keep storage and staff areas free of pests and other hazards.
Benchmark	<p>B2.3.5</p> <p># Appendix 2 Link to Excel Audit Spreadsheet</p>	<p>Storage and display environments are maintained and upgraded as resources become available and in response to ongoing assessment of the herbarium environment and prioritisation of the collection's needs.</p>
Supporting Guideline	B2.4	The herbarium has procedures aimed at minimising risks to its collection and workers.
Benchmark	<p>B2.4.1</p> <p># Appendix 1 Collection Manual</p>	<p>Accepted methods and archival materials are used for collection preparation, storage and display as described in resources linked.</p>
Benchmark	B2.4.5	<p>Appropriate equipment and manual handling training are available to ensure that the collection is handled and moved in an appropriate manner.</p> <p>Appropriate equipment includes:</p> <ul style="list-style-type: none"> • boards, boxes • gloves • trolleys • safety ladders

Part C: Access and Community Engagement

Principle	C1	The herbarium is used, supported and valued by diverse communities as a significant scientific and educational resource.
Supporting Guideline	C1.1	The herbarium includes a range of people in its operations and programs.
Benchmark	C1.1.1	Where possible, efforts are made to represent the diversity of the herbarium's community in the governing body, management and workforce of the herbarium.
Benchmark	C1.1.2	<p>The herbarium builds and maintains collaborative networks or agreements with other specialist organisations and users of herbarium information for the exchange of skills, knowledge, and advice, and for beneficial collaborations. Organisations and communities might include:</p> <ul style="list-style-type: none"> • government departments or agencies environmental, scientific and cultural departments • education bodies • indigenous groups • service and community groups • schools and teaching institutions • science, natural history, arts, and environmental groups • individuals, including artists, scientists, amateur botanists, historians, scientific artists and educators <p>Depending on the organisation or community, it may be useful to work together to create a formal memorandum of understanding or other written agreement.</p>
Supporting Guideline	C1.2	The herbarium's publications, media and events are based on sound research and/or knowledge.
Benchmark	C1.2.1	<p>Research and herbarium activities are shared with the wider community through a variety of means, which may include:</p> <ul style="list-style-type: none"> • publications • an annual report • a website • social media • exhibitions and displays • presentations, conferences, workshops and tours • merchandising
Principle	C2	The herbarium promotes research and use of its collections and data.
Supporting Guideline	C2.1	The herbarium aims to have its collection accessible in digital formats and in online environments.
Benchmark	C2.1.1	Digital collections are created and maintained using recognised standards and protocols (e.g. HISPID, Darwin Core, ABCD, agreed image standards).

Benchmark	C2.1.2 # Appendix 1 National Archives	Digital collections are managed in keeping with the standards, procedures, policies and records management systems used for the herbarium's collections. Digital materials need to be 'future proofed' for long term storage and use. This has implications for computer hardware, software and storage space.
Benchmark	C2.1.3	Legal requirements are addressed, along with other protocols, before any digitisation process begins. Legal requirements include adhering to the laws of: <ul style="list-style-type: none"> • privacy • copyright and reproduction rights • intellectual property • licensing and permissions • moral rights. Protocols may relate to: <ul style="list-style-type: none"> • culture-specific sensitivities • international treaties and agreements • rights management.
Benchmark	C2.1.4	Digital collections are managed with sufficient accompanying information, in relevant formats, to allow for continuing access, future re-use and ongoing preservation. The accompanying information may include: <ul style="list-style-type: none"> • acknowledgements • captioning • metadata • permissions and restrictions (associated with rights management) • specific use agreements.
Benchmark	C2.1.5	Digitisation procedures are designed and managed so as to minimise the risk of damage to collection items.
Benchmark	C2.1.6	Digital collections are presented to the public in ways that meet accessibility standards and are compatible with adaptive technologies. <ul style="list-style-type: none"> • Access is not just about physical accessibility, but it is also about sensory accessibility, intellectual access, cultural access and emotional and attitudinal access.
Supporting Guideline	C2.2	The herbarium promotes research and use of its collections while also preserving them as permanent scientific objects.
Benchmark	C2.2.1 # Appendix 2 Guides and Templates	The herbarium has procedures and policies for the herbarium community to guide the utilisation of collections. Policies may include: <ul style="list-style-type: none"> • visitor access and induction • specimen handling guidelines • destructive sampling guidelines • use of annotation slips • loans and biosecurity/quarantine information • citation and acknowledgment • material transfer agreements

Benchmark	C2.2.2	The herbarium encourages researchers to undertake research on the specimens in accordance with the organisation's Mission Statement, Research Strategy and other relevant procedures and policies.
Benchmark	C2.2.3	<p>Researchers are expected to provide results back to the herbarium. Such results may include:</p> <ul style="list-style-type: none"> • research papers, reports • identification resources (e.g. on-line floras and interactive keys) • genetic sequences. <p>Specimens used in research add further value to the collections as permanent scientific objects, for example:</p> <ul style="list-style-type: none"> • vouchers for observations or new significant locational records e.g. for legislated species • type specimens
Benchmark	C2.2.4	<p>The herbarium is open to opportunities for its collections to be used for unanticipated research in fields other than the one for which they were originally collected and the use of new analytical techniques, while ensuring the long-term preservation of specimens.</p> <p>Consideration should be given to legal use and suitability for proposed usage, e.g.:</p> <ul style="list-style-type: none"> • changes in the intent of the original collection permit conditions, including mutually agreed terms (i.e. compliance with Nagoya Protocol) • specimen treatments (e.g. historical chemical treatment of specimens)

References

Code of Ethics for Art, History and Science Museums. (1999) Museums Australia Inc
<http://www.museumsaustralia.org.au/userfiles/file/Governance/maethics.pdf>

DNA Banking for the 21st Century Proceedings of the U.S. Workshop on DNA Banking
Edited by A.L. Applequist and L.M. Campbell
<http://horticulture.wisc.edu/wp-content/uploads/2014/07/Spooner-and-Ruess-DNA-2014.pdf>

Interagency Working Group on Scientific Collections (2009). *Scientific Collections: mission-critical infrastructure for federal science agencies*. Washington: Office of Science and Technology Policy. <https://www.whitehouse.gov/sites/default/files/sci-collections-report-2009-rev2.pdf>

National Health and Medical Research Council (2007) *Australian Code for the Responsible Conduct of Research*. <https://www.nhmrc.gov.au/guidelines-publications/r39>

National Standards for Australian Museums and Galleries, Version 1.5 September 2016
http://www.magsq.com.au/_dbase_upl/NSFAMG_v1.5_2016.pdf

Significance 2.0 a guide to assessing the significance of collections. (2009) R. Russell, & K. Winkworth, Collections Council of Australia Ltd.
<http://pandora.nla.gov.au/pan/112443/20101122-1236/significance.collectionscouncil.com.au/index.html>

Willing and Able Recruiting, Managing and Retaining Volunteers in Museums and Galleries. (2002) N. Bowbridge & M. Creyton
http://www.magsq.com.au/_dbase_upl/w_a_1-5.pdf

Books

Curating Biocultural Collections, A Handbook. 2014 Eds J. Salick, K. Konchar & M. Nesbitt
Kew Publishing

The Herbarium Handbook. 1992 Eds. D. Bridson & L. Forman Royal Botanic Gardens Kew

Preventive Conservation: Collection Storage. 2019 Eds. L. Elkin, & C.A. Norris SPNHC New York.
<https://spnhc.org/resources/preventive-conservation-collection-storage/>

Appendix 1: Resources

Government and International		Bench mark
Australian Government, Department of the Environment and Energy (Heritage)	http://www.environment.gov.au/heritage	
Australian Government – Department of Agriculture Biosecurity Import conditions for herbarium specimens (BICON database)	http://www.agriculture.gov.au/biosecurity http://www.agriculture.gov.au/import/bicon	
Australian Government – Department of Environment and Energy Scientific Exchange Registers Legislation for donation and exchange of scientific specimens.	http://www.environment.gov.au/biodiversity/wildlife-trade/trading/non-commercial http://www.environment.gov.au/biodiversity/wildlife-trade/non-commercial/research	
CITES – Convention on International Trade in Endangered Species of Wild Fauna and Flora	http://www.cites.org/	A1.2.1
CITES – Australian Government CITES Register of Scientific Institutions	http://www.environment.gov.au/biodiversity/wildlife-trade/non-commercial/research	A1.2.1
Convention on Biological Diversity (CBD) – International Protocol Nagoya Protocol on Access and Benefit Sharing	http://www.cbd.int/ https://www.cbd.int/abs/	
DISACT ('Disaster ACT') – training for disaster preparedness	http://www.cpbr.gov.au/disact/	
National Archives of Australia (NAA) online resources	http://naa.gov.au/ http://www.naa.gov.au/information-management/managing-information-and-records/storing/storing-digital/index.aspx	C2.1.2
Environmental Protection Authority Te Mana Rauhi Taiao	http://www.epa.govt.nz	

Governs restrictions around new organisms and hazardous substances in New Zealand		
Ministry for Primary Industries Manatū Ahu Matua Control permitting and importing of restricted material under Biosecurity New Zealand. Very easy site to navigate around and find documents in.	http://www.mpi.govt.nz/home	
Manatū Taonga Ministry for Culture & Heritage Governs heritage objects in New Zealand. The Minister appoints the board for the Museum of New Zealand Te Papa Tongarewa and funds half of the Museums	http://www.mch.govt.nz/	
WorkSafe New Zealand Mahi Haumarua Aotearoa	http://www.business.govt.nz/worksafe/	
Safe Work Australia	http://www.safeworkaustralia.gov.au/sites/SWA	
Herbarium Community		
CHAH – Council of Heads of Australasian Herbaria	https://www.anbg.gov.au/chah/	
Index Herbariorum A Global Directory of Public Herbaria and Associated Staff	http://sweetgum.nybg.org/science/ih/	
Resources of Australian Herbaria	https://www.anbg.gov.au/chah/resources/	
Society of Herbarium Curators	http://www.herbariumcurators.org/	
Museums, Galleries, Collections Resources		
Australian Copyright Council	http://www.copyright.org.au/acc_prod/ACC/Home/ACC/Home.aspx?hkey=24823bbe-5416-41b0-b9b1-0f5f6672fc31	
Australian Society of Archivists	http://www.archivists.org.au/	
Benchmarks in Collection Care 2.1	Website and Self assessment checklist: https://collectionstrust.org.uk/resource/benchmarks-in-collections-care-2-0/	

	Case study: https://326gtd123dbk1xdkdm489u1q-wpengine.netdna-ssl.com/wp-content/uploads/2016/11/BE_NCHMARKS-Case_Studies_FINAL_03.pdf	
Blue Shield Australia	https://blueshieldaustralia.org.au/	
First Peoples: a Roadmap for Enhancing Indigenous Engagement in Museums and Galleries	https://www.mgaindigenouroadmap.com.au/	
Museum & Gallery Services Queensland (M&GSQ) Resources, including manuals, policies, standards	http://www.magsq.com.au/cms/page.asp?ID=7587	B2.4.1
Museums & Galleries NSW Online resources	http://mqnsw.org.au/sector/resources/online-resources/	
Museums Australian Online publications and resources	http://www.museumsaustralia.org.au/site/	
Society for the Preservation of Natural History Collections International Society <i>Why Collections Matter</i>	http://www.spnhc.org/ http://www.spnhc.org/10/why-collections-matter	
The Australian Institute for the Conservation of Cultural Material (AICCM)	http://www.aiccm.org.au	
Volunteering Australia website	http://www.volunteeringaustralia.org	
Other Publications		
Canadian Conservation Institute (CCI) Detecting Infestations: Facility Inspection procedure and checklist, Canadian Heritage, Ottawa 1996	http://www.cci-icc.gc.ca/resources-ressources/ccinotesicc/3-2-eng.aspx	
Dakin, Helen, Galleries and Museums: A Copyright Guide – a Practical Guide, Australian Copyright Council, Strawberry Hills, NSW, 2005	http://trove.nla.gov.au/work/20334227?selectedversion=NBD40474446	
Dorge, Valerie and Jones, Building an Emergency Plan: A Guide for Museums, Getty Conservation Institute, Los Angeles, 1999	http://www.getty.edu/conservation/publications_resources/pdf_publications/emergency.html	

Elkin, L. & Norris, C.A. eds. (2019) Preventative Conservation: Collection Storage, SPNHC, New York.	https://spnhc.org/resources/preventive-conservation-collection-storage/	B2.3.1
Hudson, Emily & Kenyon, Andrew T., Copyright and Cultural Institutions: Short Guidelines for Digitisation [Legal Studies Research Paper no. 141], Melbourne Law School, University of Melbourne, Melbourne, 2006	http://www.ssrn.com/abstract=881700	
Ling, Ted, Solid, Safe, Secure: Building Archives Repositories in Australia, National Archives of Australia, Canberra, 1998	Can be purchased at: http://catalogue.nla.gov.au/Record/392070	
Museums Australia's Strategic Planning Manual	http://mgns.w.org.au/media/uploads/files/CAN_1998_Strategic_Planning_Manual.pdf	
NSW State Archives: Managing 'born' digital images - still photographs	https://www.records.nsw.gov.au/record-keeping/advice/managing-specialised-formats/born-digital-images	
Rabeler, R.K., Svoboda, H.T., Thiers, B., Prather, L.A., Macklin, J.A., Lagomarsino, L.P., Majure, L.C. & Ferguson, C.J. (2019) Herbarium Practices and Ethics, III. Systematic Botany 44(1): 7-13.	https://bioone.org/journals/systematic-botany/volume-44/issue-1/036364419X697840/Herbarium-Practices-and-Ethics-III/10.1600/036364419X697840.full	
Smithsonian Report - Scientific Collections: Mission-Critical Infrastructure for Federal Science Agencies	https://www.idigbio.org/content/scientific-collections-mission-critical-infrastructure-federal-science-agencies-report	
Standards Australia, Records management, Electronic Document management, Risk Management: AS ISO 15489-2004: Records Management Set, Standards Australia, Sydney, 2004	Can be purchased at: http://infostore.saiglobal.com/store/	
Webb, Colin, Guidelines for the Preservation of Digital Heritage, UNESCO, Paris, 2003	https://unesdoc.unesco.org/ark:/48223/pf0000130071	

Appendix 2: Guides and Templates

Destructive Sampling:

Guide for developing policies and guidelines for destructive sampling of specimens:

<https://cloudstor.aarnet.edu.au/plus/f/787221740>

MAHC Destructive Sampling Request_Template:

<https://cloudstor.aarnet.edu.au/plus/f/787224522>

Biosecurity:

Guide for developing Biosecurity policies and guidelines: [To be developed]

MAHC Biosecurity Guidelines_Template:

<https://cloudstor.aarnet.edu.au/plus/f/1036035854>

MAHC Biosecurity Parcel Label_Template:

<https://cloudstor.aarnet.edu.au/plus/f/1153522352>

MAHC Biosecurity Declaration_Template:

<https://cloudstor.aarnet.edu.au/plus/f/2852710149>

MAHC Biosecurity Guidelines purified plant DNA or RNA_Template:

<https://cloudstor.aarnet.edu.au/plus/f/2677214879>

MAHC Biosecurity Declaration purified plant DNA or RNA_Template:

<https://cloudstor.aarnet.edu.au/plus/f/2677214649>

MAHC Biosecurity Parcel Label purified plant DNA or RNA_Template:

<https://cloudstor.aarnet.edu.au/plus/f/2677214939>

Loan and Exchange:

Guide for developing Loan and Exchange policies and guidelines: [To be developed]

CHAH Loan Policy:

<https://cloudstor.aarnet.edu.au/plus/f/787224171>

MAHC Loan Agreement_Template:

<https://cloudstor.aarnet.edu.au/plus/f/787224821>

MAHC Loan Conditions_Template:

<https://cloudstor.aarnet.edu.au/plus/f/787225224>

Accessioning Vouchers:

Guide for developing policies and guidelines for accessioning vouchers for research projects:

<https://cloudstor.aarnet.edu.au/plus/f/787222169>

Disaster Preparedness:

Guide for developing a Disaster Preparedness and Response Plan: [To be developed]

Collection Audit tools:

Collection Audit and Benchmark Excel tool:

[Managers of Australasian Herbarium Collections/Herbarium Benchmarks/Excel_benchmarks_oct_2014.xls]

Collection Significance Assessments:

[Examples will be accessible on a future MAHC webpage]