

Progress Report CF 2011-105

Herbarium collections management

BCS Plant Science and Herbarium

Project Core Team

X X **Supervising Scientist** Shelley . A. James
Data Custodian Shelley . A. James

Project status as of Nov. 6, 2023, 10:24 a.m.

X X Update requested

Document endorsements and approvals as of Nov. 6, 2023, 10:24 a.m.

X X
Project Team granted
Program Leader granted
Directorate required

Herbarium collections management

S James, C Parker, J Huisman, J Percy-Bower, S Coffey, E Wood-Ward, M Hislop, R Davis, S Sinha, R Gugiatti, C Ely

Context

The Western Australian Herbarium houses the State's botanical physical and digital collections, the core resource for knowledge of the State's plants, algae, fungi, and slime moulds. The collection is growing constantly and consistently through accessions of specimens from internal and external sources. New taxa are documented as voucher specimens and digital records. The collections are maintained to the highest standard utilising international natural science collections and archival best practice, and provide the department and the community with the fundamental resource that provides knowledge of the diversity, temporal and spatial distribution, and abundance of the flora throughout Western Australia.

Aims

- Document and audit the diversity of Western Australia's plants, algae, fungi, and slime moulds.
- Maintain, in perpetuity, a comprehensive and representative research and reference collection of specimens of all taxa in groups occurring in, and adjacent to, Western Australia.
- Contribute to, support and service the biodiversity research, conservation and decision-making activities of the department and stakeholders.
- Contribute to, support and service taxonomic and other research by the local, national and international scientific community.
- Provide digital resources enabling open access to the botanical collections.

Progress

- The Western Australian Herbarium added 10,015 specimens to collections, including 933 specimens of priority taxa and 181 specimens of threatened taxa, increasing the size of the collection to 843,021 catalogued items representing more than 18,789 taxa.
- The Western Australia Herbarium shared specimens with nine national and seven international institutions, and shipped 260 specimens in six loans for scientific research. A total of 3710 exchange specimens were sent to collaborating institutions, and 16 requests for 270 tissue samples from herbarium specimens were processed for molecular and other scientific analyses.
- Major activities within the collections included substantial and targeted reduction in unprocessed specimens (all collections pre-2014 now processed), incorporation of specimens returned to the Western Australian Herbarium from Manjimup (390 specimens), processing and incorporation of Herbarium Lowerianum (700 specimens), Robert Brown Iter Australiense historical specimens (165), Bush Blitz specimens (460 specimens), and completion of the incorporation of specimens received from the South West Regional Herbarium (1920 specimens).
- Specimens and data were cited in more than 130 publications; the collection and associated data have been cited 3025 times since the early 1900s.
- A collection of Type specimen photographs continues to be developed (currently >1375 items), increasing the space within the Types Vault and improving care of the physical (true) Type specimens.
- With the assistance of volunteers, 9400 specimens were mounted.
- Volunteer participation continues to be a significant and invaluable resource, totaling 3725 hours - equivalent to approximately 2.4 full time employees. The Herbarium was assisted by 30 regular volunteers and 14 Research Associates.
- The Reference Herbarium was accessed 2450 times by visitors, volunteers and industry consultants for plant identifications and other scientific purposes.
- The Research Collection was accessed 1600 times by visitors for the study and identification of taxa.
- The Herbarium Identification Program provided identifications to a range of clients, including departmental staff, other government agencies, environmental consultancies, regional herbaria and the public. More

than 2309 specimen identifications in 48 transactions, along with more than 50 image-based identifications, were undertaken for external clients.

- Educational programs consisted of 12 herbarium tours and monthly induction sessions for departmental staff, tertiary institutions, environmental consultancies, community groups and the media (approximately 300 participants). A display in the Atrium is regularly updated to highlight the work of the Western Australian Herbarium. The Herbarium also trained two UWA Work Integrated Learning interns, one UWA McCusker intern, and one Notre Dame intern.
- The Western Australian Herbarium facebook page, with more than 7300 followers, shares a monthly 'Plant of the Month' and other interesting botanical announcements.
- The herbarium currently has an estimated 41,000 uncatalogued specimens dating back to 2014.

Management implications

- Maintenance and curation of the Western Australian Herbarium botanical collections provides an authoritative inventory of the biodiversity of Western Australia, which underpins flora conservation and State, national, and international biodiversity research programs.
- The collections are drawn upon constantly by DBCA staff, consultants and policy makers to validate specimen records from biological surveys, environmental impact assessments, assess the conservation status of native taxa, and document the introduction of invasive species.
- The curated collections data is a much utilised digital resource for systematic and taxonomic research, collections management, environmental assessment, ecological and other scientific research, restoration and remediation projects, biosecurity management and planning, educational uses and citizen science.

Future directions

- Develop curation workflows and volunteer programs that enable the imaging of physical collections and field notes for online delivery and sharing.
- Continue to significantly reduce and make available the currently unprocessed and uncatalogued specimen items in storage.
- Support implementation of a new collections management system (Specify) that will increase scope for the extended specimen initiative and improved and efficient management of the specimen collections.
- Scope gap analysis for collections, and participate in Bush Blitz expeditions.