

Australian Tropical Herbarium Information Kit

CSIRO Plant Industry



What is a herbarium?

A herbarium is like a warehouse of information about plant biodiversity. Plant samples are taken from the field by people with special collecting permits, then dried or otherwise preserved.

They are then carefully stored in archival conditions to ensure their longevity.

These specimens, including information about them, are kept to learn more about the plants and their habitat.

What are herbaria used for?

Herbaria are especially set up with laboratories and specialist facilities to allow scientists to study herbarium specimens and information about them for scientific research including:

- Mapping current and past ecological and geographic distribution of plants to help with land management and biodiscovery;
- Evolutionary history of plants;
- Existing and changing nature of plant communities and their habitats;
- Invasion biology and weed ecology;
- Products based on herbarium collections such as hard copy and electronic floras, and tools to identify plants including books and CDs, and web-based tools.
- Molecular phylogenetics; and
- Classification and naming of plants.

Many specimens in herbaria are unique. The Australian National Herbarium holds specimens from Captain Cook's 1770 expedition. These specimens are particularly valuable not just because of their cultural significance, but also because they are a snapshot of Australia's botanical history that can never be recaptured.

Owing to the precious nature of herbarium specimens they are not usually available for the public to view or handle and most herbaria have restricted access to minimise damage to their collections. Some have a secondary collection, often called a 'Public Reference Herbarium', of duplicate specimens for students and the public to use.

Dried herbarium specimens are expertly mounted on archival paper so that they can be preserved for hundreds of years.



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The Australian Tropical Herbarium

The Australian Tropical Herbarium (ATH) is a new herbarium in Cairns. It brings together herbarium specimens from the Australian National Herbarium previously housed in Atherton, Queensland Herbarium specimens from Mareeba and part of the James Cook University Herbarium collection from Townsville. The ATH serves as both the north Queensland node of the Queensland Herbarium and the north Australian node of the Australian National Herbarium.



The Australian Tropical Herbarium in Cairns contains an unsurpassed representative collection of north Queensland's flora.

Bringing these collections together has created an unsurpassed representative collection of north Queensland's flora available in the one location for researchers to study. The ATH includes a state-of-the-art molecular bioscience laboratory essential for modern plant research and is located within the Australian Tropical Forest Institute (ATFI), allowing scientists studying different aspects of north Queensland's native flora to work closely together.

The ATH is a joint venture between CSIRO, Queensland Department of State Development, Trade and Innovation, Queensland's Environmental Protection Agency, Australian Government Department of the Environment, Water, Heritage and the Arts, and James Cook University.

The combined resources and facilities of these institutions and the critical mass of a single comprehensive herbarium collection will create a research facility with potential to develop into the world's premier centre for discovering and building an understanding of the systematics of tropical forest systems. This will greatly increase north Queensland's ability to attract internationally renowned scientists and internationally focused biodiscovery industries to the region.

Future of the herbarium in Atherton

The 135,000 herbarium specimens from the Australian National Herbarium's collection in Atherton have been moved to the Australian Tropical Herbarium in Cairns.

Remaining in Atherton will be the Atherton Public Reference Herbarium which is open to the public for reference and research purposes. Access to resources and facilities in Atherton will not change for the general public.

A CSIRO technical assistant will be available in Atherton to assist with the management of, and public access to, the Atherton Public Reference Herbarium. For more information about how research on Queensland's native plants is delivered to the general public and special interest groups see the next section on delivering information.

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Delivering information on north Queensland plants

Information and research findings generated from herbaria are readily available in user friendly formats to other researchers, the public and special interest groups. Information from Australia's Tropical Herbarium is available to scientists and others interested in plants of north Queensland.

Three resources currently available are Australia's Virtual Herbarium, the interactive identification key titled Australian Tropical Rain Forest Plants: trees, shrubs and vines, and the Atherton Herbarium Reference Collection. These resources are available in Atherton.

Australia's Virtual Herbarium

Australia's Virtual Herbarium (AVH) is a collaboration between all major herbaria in Australia to make information on Australian native plants available over the internet.

All information about a herbarium specimen is incorporated into the AVH including what plant it is, date it was collected, who collected it, where it was collected, neighbouring plants and habitat.

Information on about six million herbarium specimens across Australia is recorded in AVH and users are able to find the geographic distribution, view images, read about and identify Australian native plants.

All the specimens held in the Australian Tropical Herbarium have been databased and will be put on the AVH.

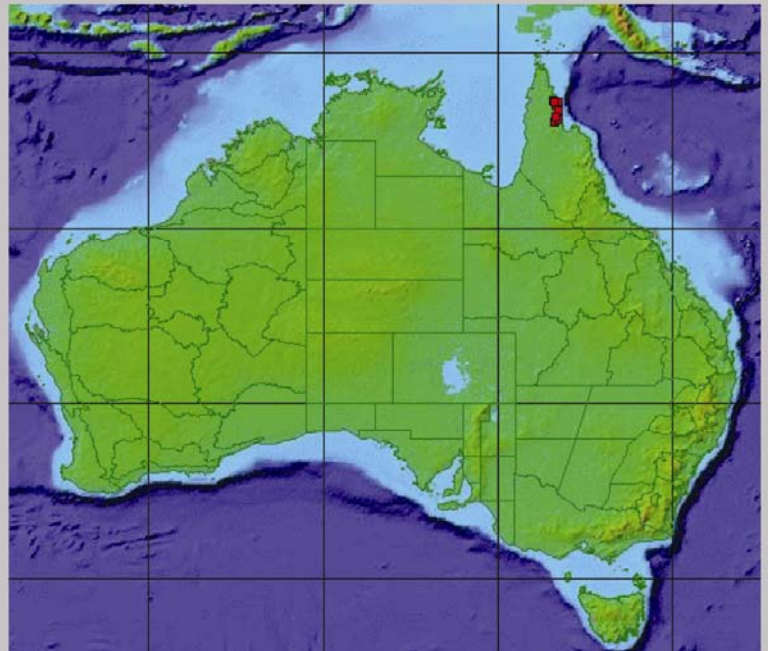
A computer is accessible as part of the publicly available Public Reference Herbarium in Atherton and AVH demonstrations can be arranged by contacting the Australian Tropical Herbarium Curator.

For more information on the AVH visit www.chah.gov.au/avh.

*Australia's Virtual Herbarium is particularly useful for mapping the distribution of plant species such as the Australian rain forest plant *Hoya macgillivrayi* shown here.*

Australia's Virtual Herbarium

Hoya macgillivrayi



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Australian Tropical Rain Forest Plants: trees, shrubs and vines

Available on CD, Australian Tropical Rain Forest Plants: trees, shrubs and vines is an interactive identification and information system for 2,154 species of trees, shrubs and vines of northern Australian rain forests. It includes species in northern Australia, from Broome in Western Australia to Townsville in Queensland and is based on the specimens of Australia's tropical flora held in Australia's Tropical Herbarium.

The CD is easy to use and provides a simple means of naming a rain forest plant using whatever information is available, such as leaves, flowers, plant shape etc.

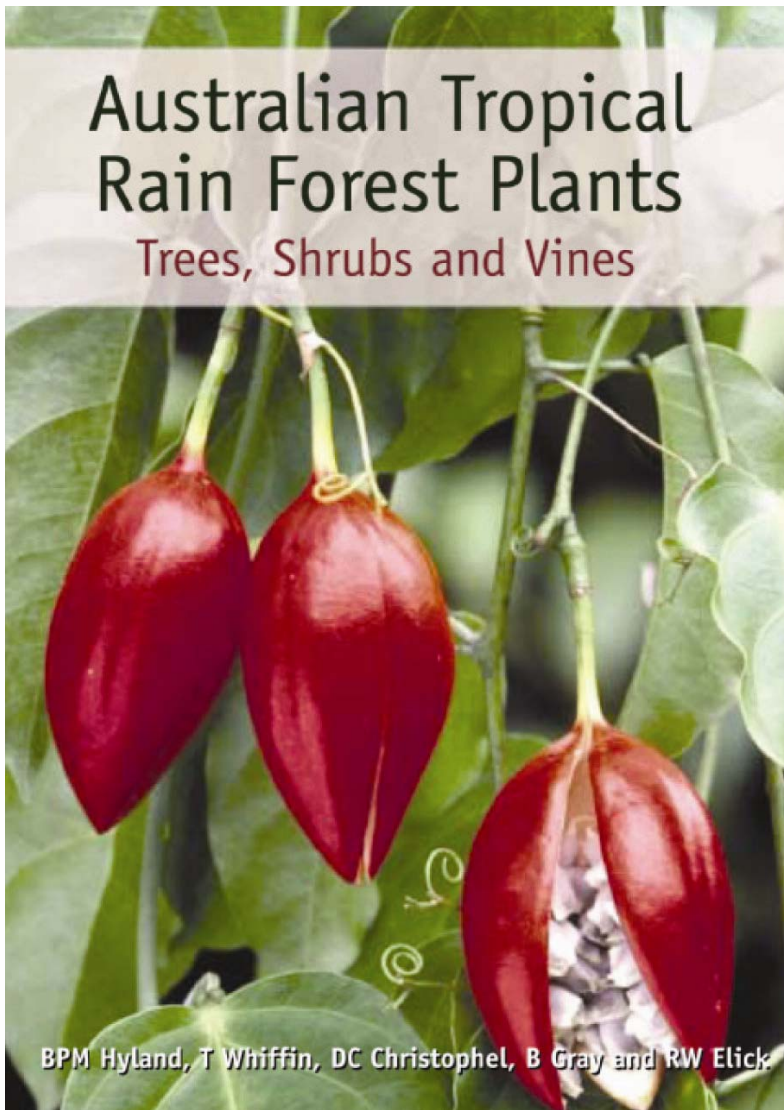
By selecting characters from the plant and responding to a series of choices, the user is able to achieve identification via a process of elimination. A total of 154 characters, covering the morphology – habit, bark, leaves, flowers, fruits, buds and seedlings – and some geographic and ecological information ensure reliability of the key is high. Interpretation of the character information is assisted with help notes and images featuring colour or line drawings.

A comprehensive information system for each species includes common name, scientific name, geographic and ecological information, distinguishing features and natural history notes. The descriptions are combined with high quality colour images for most species, leaf venation images and a map showing natural distribution.

Work is under way to expand the key further to include orchids, ferns, herbs, grasses, pandans, parasites and palms of Queensland's rain forests.

A copy of Australian Tropical Rain Forest Plants: trees, shrubs and vines is available for other researchers, the public and special interest groups to use at the Australian Tropical Herbarium. To arrange an appointment to use it please contact the Australian Tropical Herbarium Curator.

To order a copy visit
www.publish.csiro.au/pid/3400.htm



Australian Tropical Rain Forest Plants: trees, shrubs and vines is an excellent tool for people wanting to identify or learn about plants of Australia's tropical rain forests.

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Public Reference Herbaria

Some herbaria have reference collections that are available to other researchers, the public and special interest groups to use. Reference collections contain samples of specimens that represent species preserved in the main collection.

There are Public Reference Herbaria in Cairns and Atherton with specimens which represent most rainforest species of north Queensland and are duplicated from the Australian Tropical Herbarium.

These Public Reference Herbaria are available to assist in the identification of north Queensland's rain forest plants and for research purposes.

Specimens contained within the Public Reference Herbaria are specially mounted and covered in plastic so they can be safely handled by anyone without damaging the specimens.

Also available with the Public Reference Herbarium are maps of north Queensland and a computer terminal where visitors may access both Australia's Virtual Herbarium and the CD Australian Tropical Rain Forest Plants: trees, shrubs and vines.

The Public Reference Herbaria are currently available to members of the public and research scientists. To use the Reference Herbarium please make an appointment with the Australian Tropical Herbarium Curator.



Australian Tropical Herbarium

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The Public Reference Herbaria include specimens that represent plant species from the Australian Tropical Herbarium and provide access to maps and computers to assist with plant identification.

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