

The State Herbarium of South Australia

*'South Australia's key centre for the preservation
and generation of knowledge of native and
naturalised plants, algae, lichens and fungi.'*



The State Herbarium of South Australia

Our herbarium contains collections that are the foundation of recognising South Australia's plant biodiversity.

Our collection includes flowering plants, gymnosperms, bryophytes, algae, fungi and lichens, hereafter referred to as 'plants'.



Since June 2010, our collection contains more than one million specimens.

Specimens held in a herbarium are 'vouchers' for the presence of species in a particular place, at a particular time.

The collection contains around 5000 'type' specimens—particular specimens on which scientific names are based—which are essential reference material for species descriptions.

Vouchers enable us to recognise new species when our understanding of taxonomy improves.



Having vouchers means that when new species have been described, we can determine if they are present in our collections and therefore in South Australia.

Building with a history

The building that currently houses the herbarium was retro-fitted in to one of the old tram barns situated in the Adelaide Botanic Gardens and the current collections were moved in 2000.



Today, the building contains the collections of the State Herbarium of South Australia along with the majority of staff associated with DENR's Science Resource Centre making it a hub of scientific expertise in Adelaide city.

Collections are contained in specially structured vaults

Within the Herbarium, there are a series of 'vaults' which house specimens in compact shelving and a controlled environment. Considerable efforts are made to prevent insect invasion. The vaults are protected by a fire suppression system and fire doors.



Data collected about specimens is made available to a wide variety of other users. The latest development is the launch of the *Flora of South Australia* online.

One million specimens

In June 2010, the one millionth specimen was lodged with the State Herbarium of South Australia.

Pam Catcheside, one of our Honorary Research Associates, along with our Collections Manager Helen Vonow and David Catcheside, observed an unusual, delicate fungus growing on damp, very rotten wood which had been burnt in the 2007 fire on Kangaroo Island.



Fruiting body of specimen in the field

Detailed observations of this specimen revealed it to be an unusual form of an unrecorded species in Australia, differing enough it is likely a new species.

This one millionth specimen, along with more than 100 others collected on this Kangaroo Island field trip led by Pam, reflect important acquisitions curated at the Herbarium about the fungal flora of Kangaroo Island.



Field notes and fresh material photograph

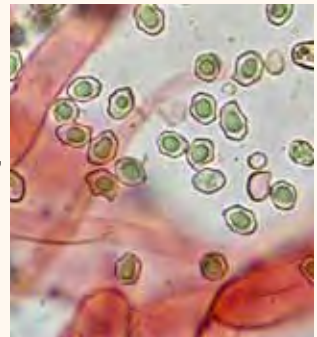
Specimen details:

Entoloma ?parasiticum (Qué.) Kreisel 1984
syn. *Claudopus parasiticus* (Qué.) Ricken
1913, may be new species.

Collectors: Catcheside PS, Catcheside DEA,
Vonow HP, Collector's number: PSC3331

Location: Ravine des Casoars Wilderness
Protection Area, Flinders Chase National
Park, Kangaroo Island.

Date collected: 24th June 2010



Microscope view of
spores

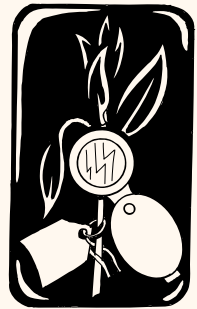


Dried specimens held in collection

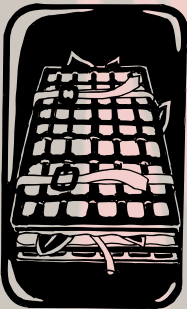
Plant specimen collection,



collect representative piece of plant



identify species and label specimen



press and dry between sheets of paper



mount onto archival sheet with unique label

preservation and curation



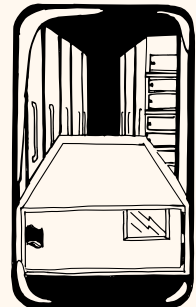
confirm identification



*plant name, location and field notes
added to database and sheet label*



*specimens stored in systematic order in
environmentally controlled vaults*



Vouchers provide a wealth of material for use at a later time

Specimens in our herbarium have been used for many things such as:

Extraction of DNA for phylogenetic analysis and DNA barcoding

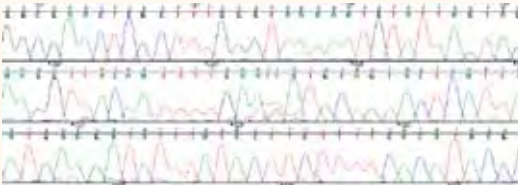
The detection of unusual chemicals such as toxicants or phytochemicals

Stable isotope analysis to determine changed climatic conditions

Determining if certain insects are associated with particular plants such as gall midges

Observing plant morphology of a species over time to detect the affect of climate change

As the basis for botanical artwork



Specimens are held as vouchers for:

- Taxonomic descriptions of new species (including type specimens)
- Ecological surveys
- Species list associated with Environmental Impact Assessments
- Scientific analysis of species characteristics such as cytology, breeding systems or ecophysiology
- Seed collections for species preservation
- Cataloguing rare species distributions



Data collected with our collections are used for:

- The online web resources of the Atlas of Living Australia (ALA)
- The Australian Virtual Herbarium (AVH)
- The determination of species distributions to aid in detection of rare or threatened species
- Wide range of applications in research, management and education

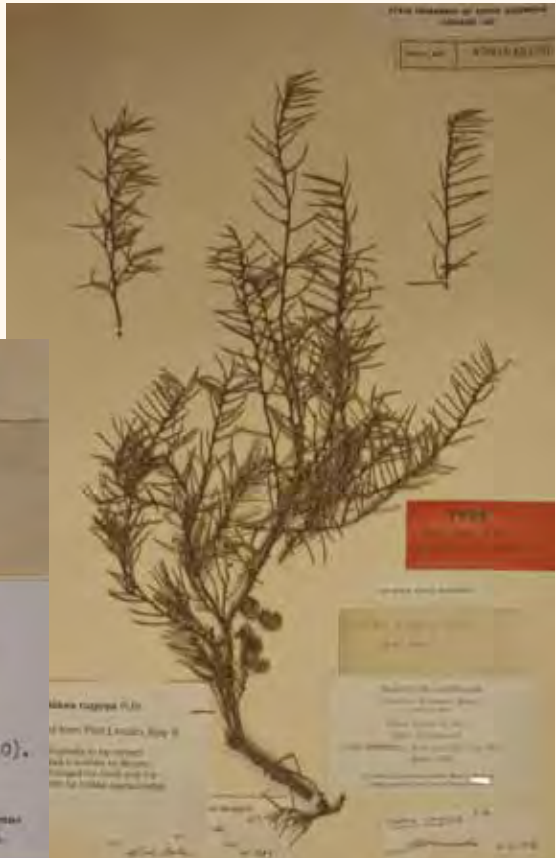
Important collections

Old specimens are important historical records

The early explorers across southern Australia collected specimens that were shipped back to England where eminent botanists, such as Robert Brown, named a great number of Australian species.

Our herbarium holds a duplicate of the type specimen of *Hakea rugosa*, a local member of the *Banksia* family—Proteaceae, which was named by Robert Brown in 1810 but collected on the voyage of the HMAS Investigator led by Matthew Flinders.

This means that the first herbarium specimen of this species was collected from Port Lincoln in 1802 and then this was used to describe all its taxonomic features, since then all other species of *Hakea* are compared to this specimen to determine if they are the same species or not.



Invaluable people

The Herbarium inspires many committed volunteers

Like many other long standing musea and herbaria around the world, our herbarium has a group of committed volunteers who are an essential part of our day to day operations.

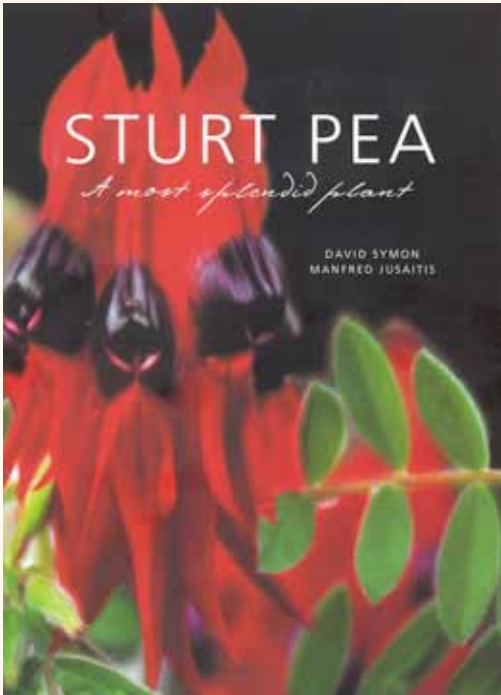
For example, David Symon, has been a volunteer Botanist at the Herbarium for more than 25 years. David, recently turned 91, has continued to collect and identify specimens, publish scientific papers and popular science books. David has been a great supporter of training a new generation of taxonomists and is an important part

of new work on expanding our understanding of weed invasions into South Australia.

An internationally recognised botanist, David's contribution is extremely highly valued.

Other volunteers help with everything from mounting specimens on sheets, entering data, preparing materials for DNA extractions and assisting with plant identifications.

If you are interested in volunteering, contact us (see back page).



Research, training and publishing

Botanists in the Herbarium are involved with diverse research projects such as:

The identification of new species in the Australian flora
Identification of new weeds and changing weeds distributions
Improving our understanding of plant biodiversity and ecological change



Climate change biology
Conservation of rare and threatened species
DNA barcoding and molecular phylogenetics
Evolution of the Australian flora and plant–animal associations

Research, training and collaboration

Several key staff at the Herbarium are joint appointments with the University of Adelaide and SARDI. Many Herbarium botanists are involved with the supervision of post-graduate students.

The Herbarium is actively involved with training the community in botanical skills and collaborating with NRM groups such as with the

Herbarium Challenge launched by Adelaide and Mount Lofty Ranges NRM Board.

The Herbarium has a public collection where anyone may come and look at a special collection of specimens to assist with working out species they are interested in. Botanical staff are on call for assisting the public with plant identifications.

Publishing

Scientific publishing is an important part of the work botanists at the Herbarium undertake.

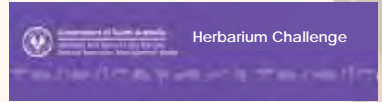


The *Journal of the Adelaide Botanic Gardens* has a long history of publishing research into the South Australian flora.

Additional publications, published under the auspices of the Board of the Adelaide Botanic Gardens and State Herbarium are varied and include the recently published: *Sturt Pea: A most splendid plant*. A wonderful synthesis of knowledge about South Australia's floral emblem.

The publication of the Flora of South Australia, in the latest incarnation an electronic document, is a critical resource for the identification of species present in South Australia.

The publications team is highly professional and works to keep knowledge regarding our flora both up to date and available to the wider community.



Collect it, Press it, Share it

Creating your own herbarium is a great way to learn more about your local plants. By sending your pressings into the State Herbarium you will help create history.

Collect it: Get out and about collecting samples of plants. Be sure to follow the guidelines for plant collection to see preserve our native plants, including obtaining a permit for the collection of native plants.

Press it: Use your plant press, cardboard and newspaper to press your specimens. Handy hints can be found in the factsheet: *Making a herbarium* and the *Herbarium Challenge Guidelines*.

Share it: Take or send a copy of your pressing (NOT MOUNTED) to the State Herbarium along with a copy of your field notes and 'Plant Specimens for Lodgement/Identification'. Ensure you have correctly labelled your specimens.

Most importantly - share what you have discovered!!!

How to hear your story: We have three \$30 State Flora vouchers by telling us about your Herbarium Challenge experience!

Write a short story (up to one page) plus photos on:

- Why did you make a herbarium for your site?
- Why is identifying plant species on your site important to you?
- What did you learn about your site through making a herbarium?
- How did you share the knowledge you gained from this challenge?

Stories to be submitted to one of the Project Officers listed below by Friday 3 February 2012.

A prize will also be awarded for the best quality pressed specimen!

If you're up for the challenge - contact us and we'll tell you how you can get your hands on a herbarium kit (only a limited amount are available to genuine challengers!)

For more information or to obtain your Herbarium Challenge kit:

Mail: Suey (Contact) - 8346 4352 or suey@sa.gov.au

to: NRMHS (M495) - 8528 0742 or www.environment.sa.gov.au

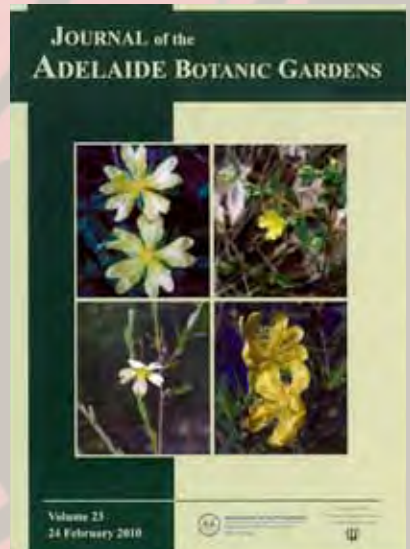
See: Michael (Search) - 8278 0003 or www.environment.sa.gov.au

Herbarium kits contain:

- A plant press
- A display book plus paper
- Statewide self-addressed envelopes to send to the State Herbarium
- Making a herbarium factsheet & field notes templates
- Plant Specimens for Lodgement/Identification Form

Other items you will need:

- Cardboard
- Newspaper
- Scissors, Glue
- Glue or tape
- Enthusiasm!



How do you contact the Herbarium?

email: staterbsa@sa.gov.au

web: www.flora.sa.gov.au

telephone: (08) 8222 9457

post: Chief Botanist

State Herbarium of South Australia

GPO Box 1047

Adelaide, SA 5001



Government of South Australia

Department of Environment
and Natural Resources

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D. Catcheside, J.K. van Dijk.
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