Introducing Australia's Virtual Herbarium (AVH) 3

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What is AVH?

- In concept, AVH began as an electronic flora of Australia
  - Taxon names, specimens, descriptions, illustrations
  - We decided that the specimen feature would be completed first
  - First prototype built in 1999
  - Latest is version 3, nearing public release
- Collaboration between Commonwealth, State and Territory governments of Australia

Participants

Government of South Australia

Department for Environment and Heritage

State Herbarium of South Australia

Queensland Government

Environmental Protection Agency

Centre for Plant Biodiversity Research

Northern Territory Government

Tasmania

Royal Botanic Gardens Melbourne

National Herbarium of Victoria

Department of Environment and Conservation Western Australian Herbarium

Botanic Gardens Trust SYDNEY

Council of Heads of Australasian Herbaria

ABRS

Australian Government

Department of the Environment, Water, Heritage and the Arts

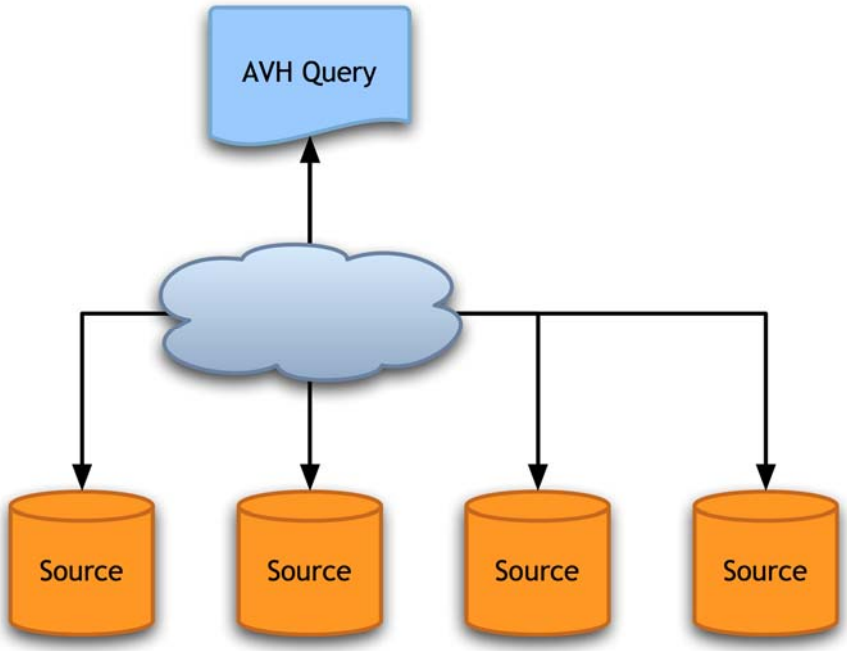
Funding

- Australian Commonwealth, State and Territory Governments
- Charitable Foundations:
  - John T. Reid Charitable Trust
  - Thyne Reid Foundation
  - The Myer Foundation
  - The R E Ross Trust
  - The Ian Potter Foundation

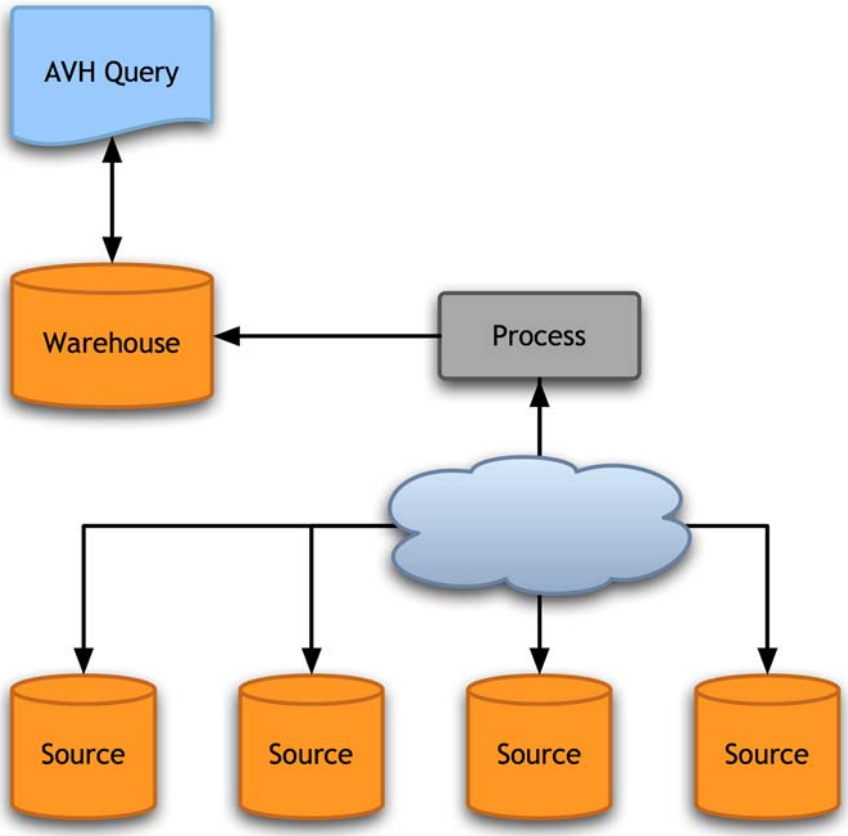
Development

- eResearchSA (formerly SAPAC)
  - (South Australian Partnership for Advanced Computing)
- HISCOM
  - (Herbarium Information Systems Committee)
  - Data, web service clients, project management

Design of AVH 2



Design of AVH 3



Design of AVH 3

- Servlet/JSP application with clients for:
  - BioCASE
  - TAPIR
- Consumes ABCD data to build the data warehouse for direct queries

Why ABCD?

- At the time
  - ABCD contained almost all the data elements required by the project
  - Ontologies: All too new

Why BioCASE?

- At the time
  - BioCASE was the only web service capable of delivering ABCD data
  - TAPIR was in early development

Why AVH?

- Plant distributions ignore borders
- Many studies (esp. statistical) benefit from access to more data
- Decrease the effort required by clients to build a comprehensive dataset

Why AVH?

- Clients need this!
  - Environmental impact assessment
    - What specimens are/were known to occur in an area?
  - Research and development, education
  - Horticulture, agriculture
    - Where are the weeds? Has the geographical range of any changed recently?
  - Ecotourism
  - Conservation
  - And more…

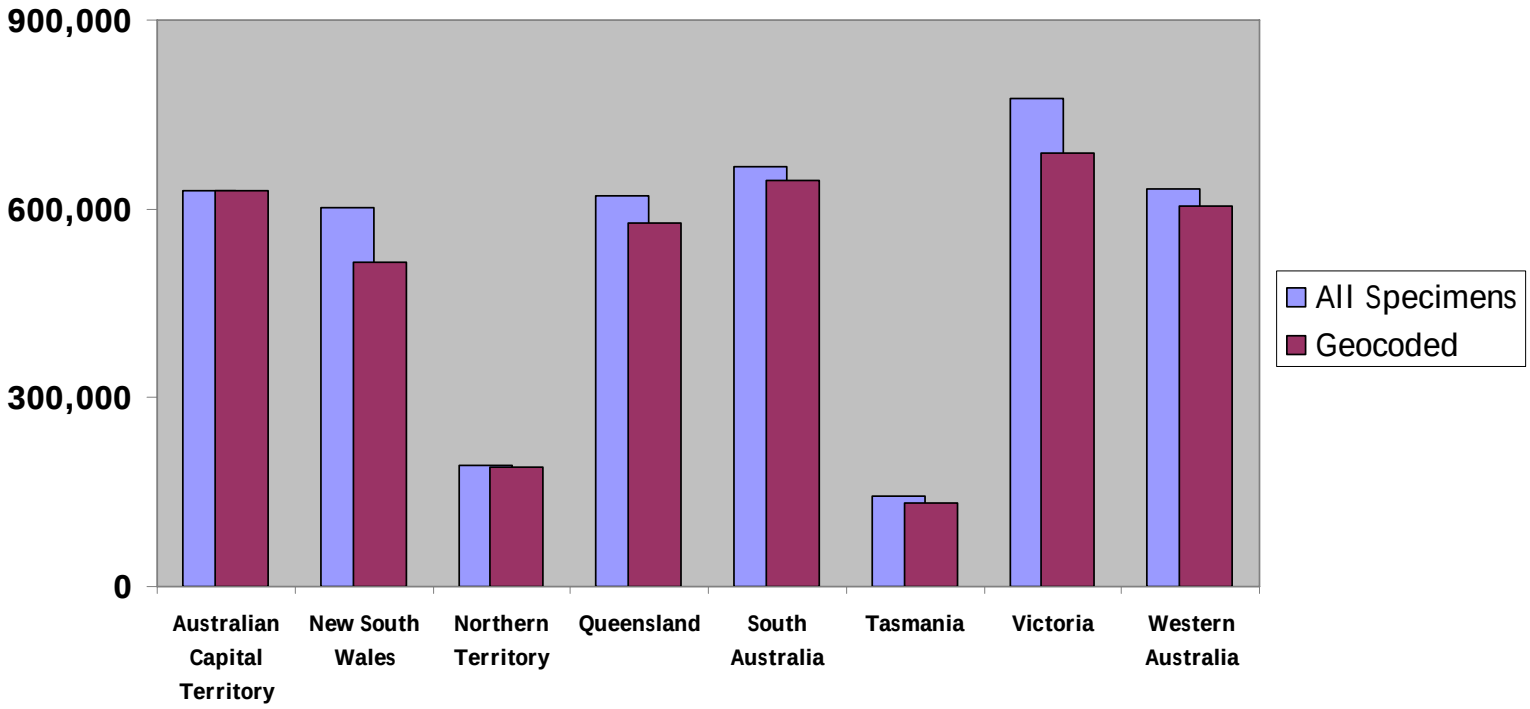
Why AVH?

- We (herbaria) need this!
  - Validation of data
  - Discovery of collecting gaps
  - To act as a catalyst for the modernisation of herbarium databases (for better standards support)

Status

- All herbaria are at least 85% databased and validated for their vascular plant collections
- Some important non-vascular collections are being added

Status



4.3M records

Data Consistency

- Infraspecific Rank
  - Subspecies, subsp., ssp.
- Spatial Datum
  - GDA94, AGD66, “Bloodwood to 9m, …”

Data Consistency: Synonyms

- We needed a better way to handle synonyms
  - A name may be recognised in some jurisdictions but not all
  - Users of AVH would want data for all synonyms in use
  - Australian Plant Census

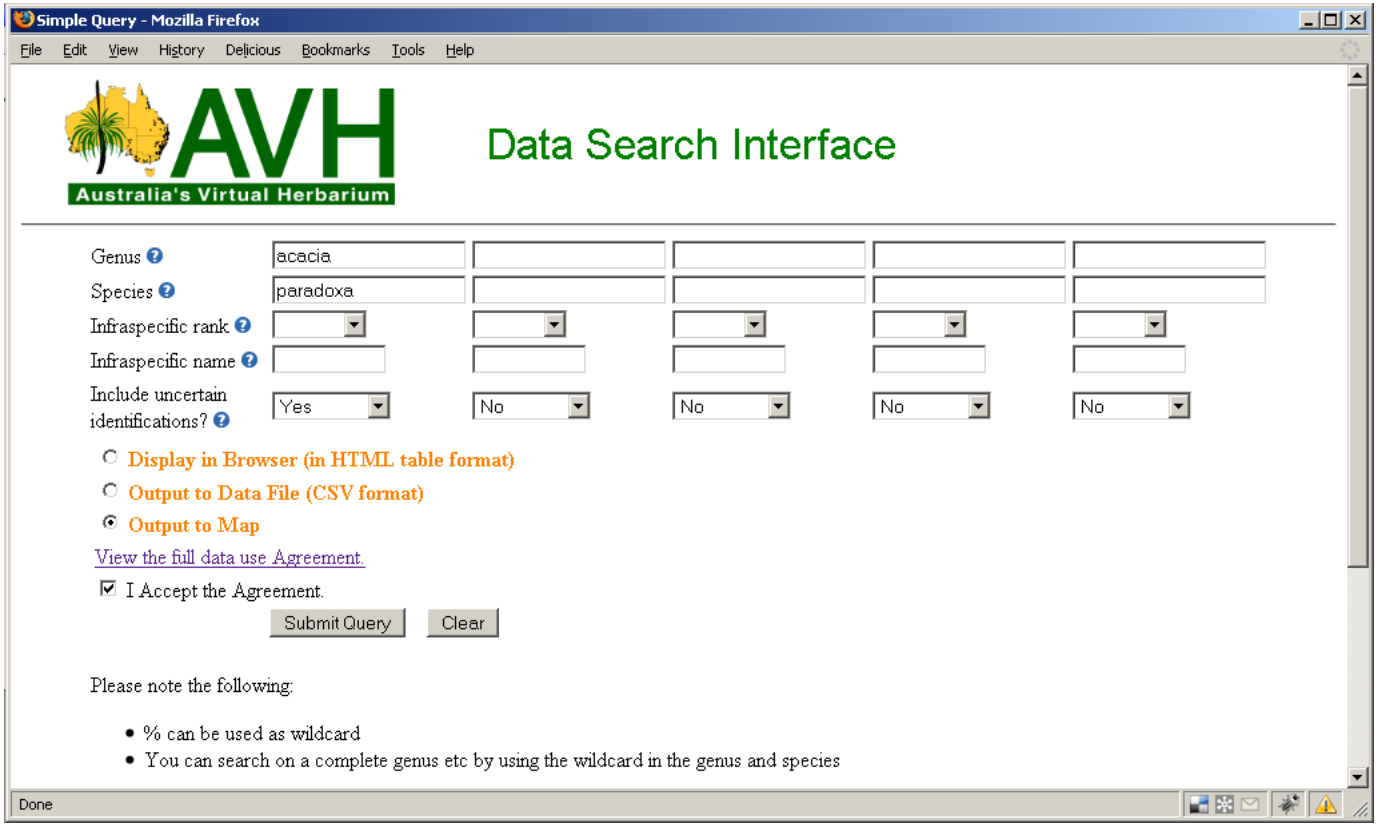
Two Access Classes

- Public access
  - Fewer options, clearer choices
- Extended query
  - More options for clients with specific requirements

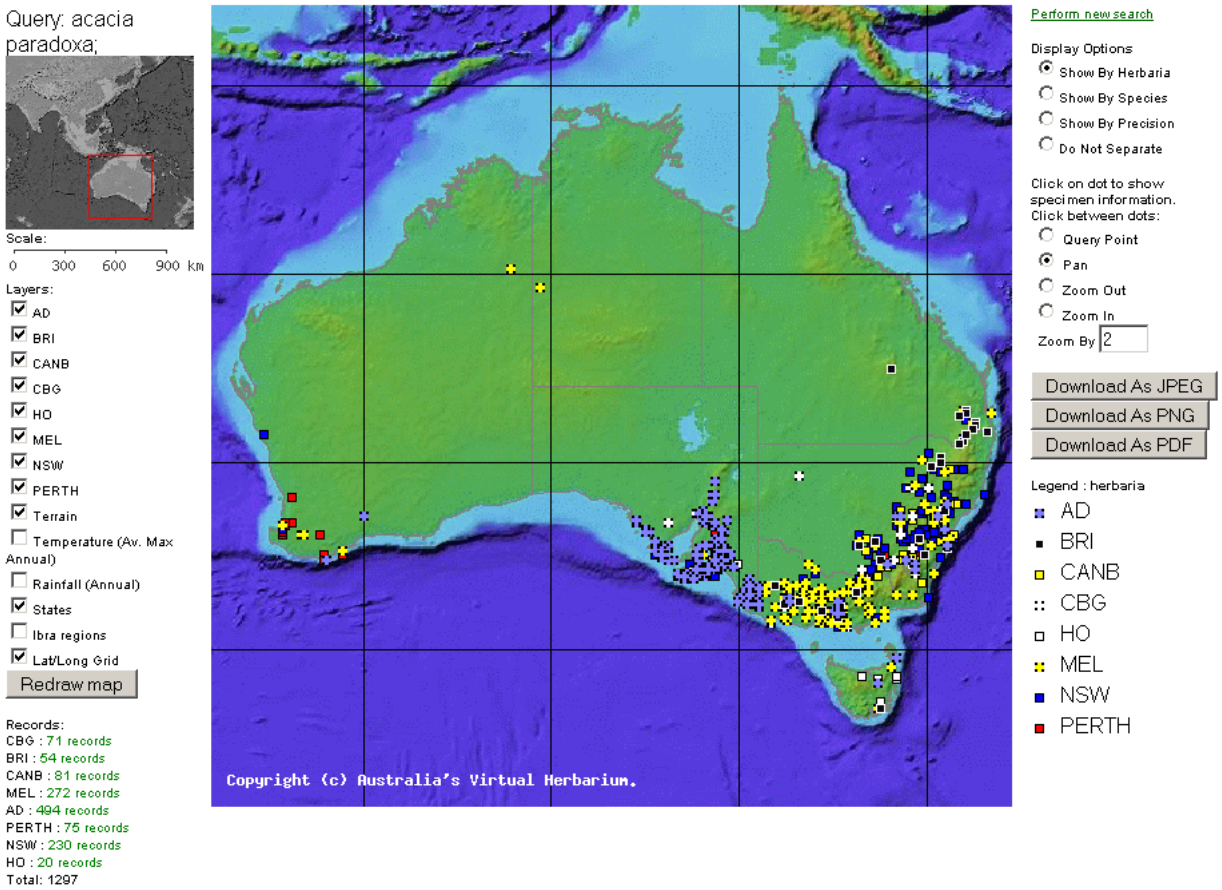
Public Access

- For the general public, no password required
- Data display/output
  - In browser HTML, or as a CSV file
- Points plotted on a map
  - Downloaded as JPEG, PDF, PNG

Public Access Query



Public Access Map



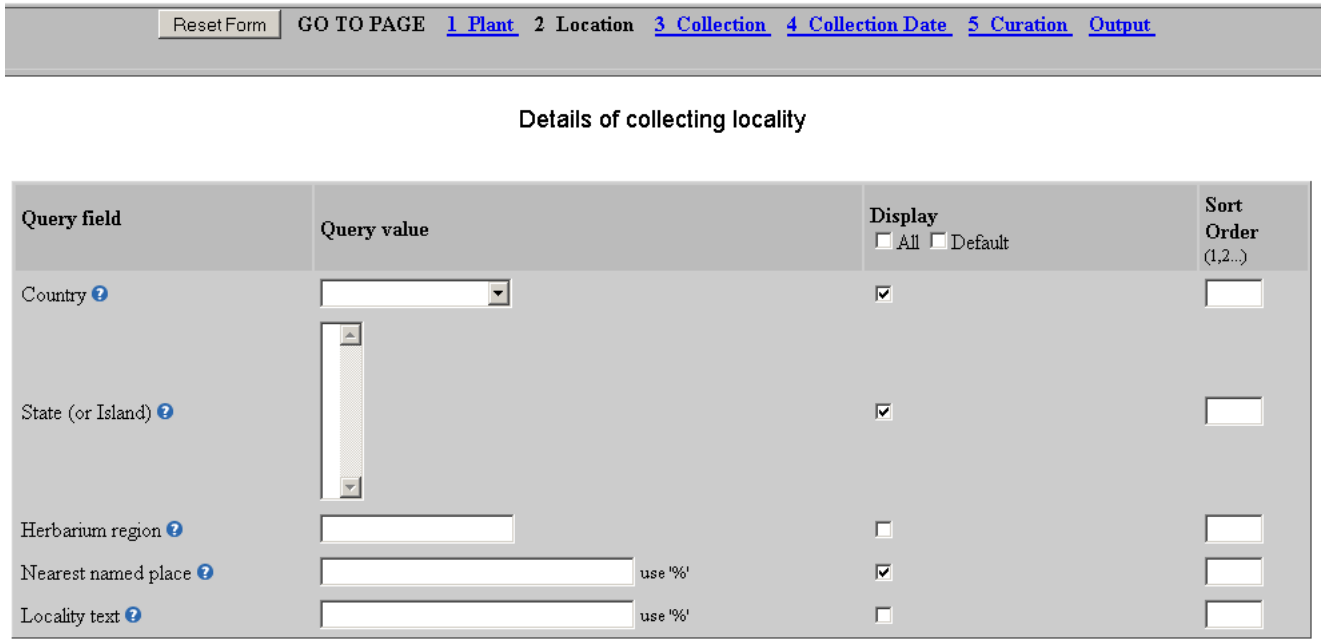
Extended Query

- Available to major clients, herbarium staff, password protected
- Data display/output
  - As for Public Access plus ABCD, HISPID3
  - Sent as email
- Large set of extra query fields

Extended Query: Location Page

- Country, state, herbarium, nearest named place
- Geographical coordinates
  - Decimal range
  - DMS range or centroid
  - Cartesian centroid

Extended Query: Location Page



Extended Query: Collection Page

- Primary Collector
- Other Collectors
- Collector's Field Number
- Accession Number
- Altitude, Depth
- And more…

Extended Query: Collection Date Page

- Exact date
- Range query
- Set of date ranges
  - 1981-1982, 1985-1987 and 1990-1991

Extended Query: Curation Page

- (Not yet enabled)
- Location of replicate specimens
- Loan and Exchange Numbers
- Donor information
- Validation information
- Dates for the creation and modification of the data

Our Experiences

- Synchronisation of data between a herbarium and AVH is slow
- BioCASE has been difficult to install on Solaris, which has slowed its adoption

To Do For 3.0

- New design
- Continue to address data consistency issues by correcting at the source
- Convert the remaining herbaria to web services

Licensing

- Mozilla Public License
- Source code available on SourceForge
  - big.sourceforge.net

The Future

- Incorporate data from regional herbaria, e.g. universities
- Provide access to:
  - Taxon names
  - Descriptions
  - Illustrations (photos and maps)
  - Validation tools
- ALA?

www.eresearchsa.edu.au/avh/