

[www.ala.org.au](http://www.ala.org.au)

# Atlas of Living Australia

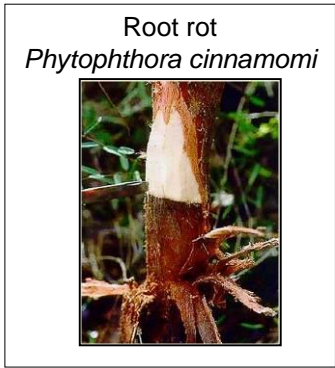


John La Salle

The Atlas is funded by the Australian Government under the National Collaborative Research Infrastructure Strategy and further supported by the Super Science Initiative of the Education Investment Fund

- Mission
  - To develop an authoritative, freely accessible, distributed and federated biodiversity data management system
- \$45M Australian Government investment
- A collaboration of Partners
- We don't own data – we aggregate it
- All data open source and freely available
- Built entirely on open-source software
- Everything we've built freely available to others

# Biodiversity information



Larvae mine stems

Feeds upon nectar

Pollinates

Pathogen of

*Banksia serrata* L.f.

= *Isostylis serrata* (L.f.) Britten

= *Sirmuelleria serrata* (L.f.) Kuntze

Old Man Banksia

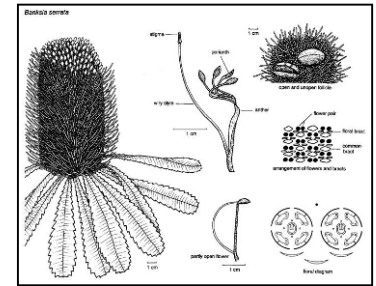
Saw Banksia

Kingdom: Plantae  
Division: Magnoliophyta  
Family: Proteaceae  
Subfamily: Grevilleoideae  
Tribe: Banksieae  
Subtribe: Banksiinae  
Genus: *Banksia* L.f.

Identified as



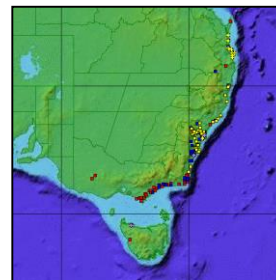
Biology and ecology



Literature



Distribution



Molecular biology



# Building on the work of others



Log In | Register

Australian Commonwealths store their herbaria with their focus on: on either part, a digit and a fung specimen. The collection of herbaria stores with these specimens provides the most complete picture of the distribution of Australia's flora to date.

Australia's Virtual Herbarium (AVH) is an online resource that provides immediate access to the available information.

Query AVH  
About AVH  
Partners  
Sponsors  
Credits




Copyright Disclaimer: Privacy statement 0095144 View my stats Updated 01 April 2018 (lastedit@brun.gov.au)

Home About OZCAM OZCAM Data Copyright Contact us News



Participating Organisations




With the aid of the National Zoological Collections of Australian Museums (NZCM) and the Australian Zoological Collections (AZC), the Australian Zoological Collections (AZC) have been established. The AZC provides a centralised collection of all the specimens of Australian plants and animals. This is done by providing a centralised collection of all the specimens of Australian plants and animals. This is done by providing a centralised collection of all the specimens of Australian plants and animals.

Click on the Search OZCAM button search the OZCAM database.

To access a full list of the AZC go to the OZCAM Data page.

Links OZCAM News

© 2018 Australian Zoological Collections of Australian Museums (AZC)



Home About Contact Help

SEARCH/MAP/MODEL

NEWS

Welcome to BioMaps  
BioMaps is a gateway to Australian biodiversity data held by Natural History Institutions. Through this site you can search biodiversity databases and compile maps showing the locations of collected and observed biodiversity specimens.

MAP SPECIES RECORDS  
Step 1: Select a species/taxon to search for  
Start typing a species or common name...  
Step 2 (Optional): Choose search filters  
Region of Interest Institution Other Data Filters  
Step 3: Start Database Search

CREATE A SPECIES LIST  
Step 1: Choose species group  
-- Select a Species Group --  
Step 2 (Optional): Choose search filters  
Region of Interest  
Step 3: Start Database Search

TOOLS  
Ecological Niche Modelling  
Survey Gap Analysis  
Catalogue Number Search

FIND FACTSHEETS  
Enter all or part of species or common name  
Start typing a species or common name...  
GO

RioTinto

An Australian Government Initiative Council of Heads of Australasian Herbaria CHAH

AD | BRI | CANB | DNB | HO | MEL | NSW | PERTH | ABRIS | ABSB | HISCOM | G

## Australian Plant Census - APC

Maintained by the Australian National Botanic Gardens as part of its larger BGD database, in collaboration with the Centre for Plant Biodiversity Research and the Australian Biological Resources Study.

### About the Australian Plant Census

APC is a database of the accepted scientific names for the Australian vascular flora, both native and introduced, and lists synonyms and misapplications for these names. The APC will cover all published scientific plant names used in an Australian context in the taxonomic literature, but excludes taxa (including cultivars) known only from cultivation in Australia. The taxonomy and nomenclature adopted for the APC are endorsed by the Council of Heads of Australasian Herbaria (CHAH).

For further information about names listed in APC, including bibliographic information, secondary references and typification, consult the [Australian Plant Name Index \(APNI\)](#). Alternatively, clicking on hyperlinked names in APC search results will link to the APNI data for any given name.

Information available through APC includes:

- Accepted scientific name and author abbreviation(s);
- Reference to the taxonomic and nomenclatural concept adopted for APC;
- Synonym(s) and misapplication(s);
- State distribution;
- Relevant comments and notes.

APC is coordinated through a network of contributors, and is maintained by the Centre for Plant Biodiversity Research with staff, resources and financial support from the Australian National Herbarium, Australian National Botanic Gardens, Australian Biological Resources Study, CHAH and State and Territory Herbaria. These organisations collaborate to further the updating and delivery of APC.

Search the APC database:

APC search

AD | BRI | CANB | DNB | HO | MEL | NSW | PERTH | ABRIS | ABSB | HISCOM | G  
Updated on 10 December, 2008 - Webmaster (webmaster@anbg.gov.au)

Australian Government Department of the Environment, Water, Heritage and the Arts

## Australian Faunal Directory

The Australian Faunal Directory is an online catalogue of taxonomic and biological information on all animal species known to occur within Australia. Currently, AFD includes 89550 species/subspecies online, in 6584 families.

You can start by searching for names or you can browse by group or use the menu below.

### Name Search

This will search all names, including common names, alternative names, scientific species and synonyms for a search match, but the simplest approach when searching for a species is to enter the species name, preceded by %.

Species name or common name:  Search

You can use the "N" to restrict an wild card to match a number of 0-9 characters in your search.

Here are some examples:

- Psyllidae** will search *Psyllidae* exactly.
- Psylli%** will search the name *Psyllidae* and all other names starting with *Psylli*.
- Psyllidae%:mexico** will search the species *Psyllidae*, part of the subgenus *Psyllidae* from Mexico.

To match a species epithet only, you need to provide a wild card to match the other parts of the binomial or trinomial.

For example:

- %fulvipes** would match the species *fulvipes*, part of the subgenus *Psyllidae* from Australia.
- %fulvipes%:mexico** would match the species *fulvipes*, part of the subgenus *Psyllidae* from Mexico.

### Bibliographic Search

This will search all publications in the AFD.

When searching there are many duplicate publications in the AFD. We are working to reduce the noise. Just fill in the name search, you can use the "N" character as a wild card in conjunction with a keyword to match any number of characters in your search.

In addition to searching publications, a full bibliography can be accessed for any taxa by clicking on the Group Bibliography link that is displayed on the main profile page.

birdata Australian Bird and Animal Data

Welcome to Birdata 26 July 2010

## Night Parrot: Catch Me If You Can

The Night Parrot is probably the most mysterious of Australia's birds. Inhabiting grassy country of arid and semi-arid areas, they have been reported from all mainland states, but few have been confirmed. They have usually been a source of frustration. In the 1970s, a collector named Frederick W. Anderson knew how to find them, and collected many specimens. Since then, the secretive species has proved far more elusive, and has been occasionally been considered extinct.

Ornithological history is riddled with tales of expeditions into the arid interior, especially to find the elusive parrot, but about which specimens they returned without their prize. Though some came tantalisingly close. In 1923, F. W. Anderson travelled by camel expeditions to the Northern Territory, specifically to see a Night Parrot. He was eventually told that some camels had found one nearby. But for the time he arrived at the site, the bird had been cooked and eaten (stew and all) before he had a chance to see it. A similar tale of an ill-fated camel expedition in 1979. Four Night Parrots were said to have been taken from a floodplain at Lake Ferguson in South Australia. Unfortunately for the expedition leader, he looked to the left as the birds flew to his right, he never saw them, and has written "I shall never forgive myself!"

To add to the frustration, many others have been reported, but there have usually been a few things wrong in noteworthy conditions, and sometimes even by the dissemination of a bad sighting. Unfortunately, most have been mischievous, even though they may well have indeed been Night Parrots. Eventually a Night Parrot was conclusively recorded in 1991, when the dried corpse of one was fortunately found beside a road near Broken in western Queensland. The discoverer are said to have inspected their car for a subtle break, and stumbled onto it!

Several rare species of birds have been recorded in the current Atlas, but unfortunately as the accompanying checklist map shows, the Night Parrot is not one of them.

If you want to discover more information about this species or any other birds that occur in Australia, just follow the link and you can explore Birds Australia's Atlas of Australian Birds.

Registered user login (optional)

Username:  Password:


Birdata is your gateway to Birds Australia data including the Atlas of Australian Birds and Nest record system. You can use Birdata to draw bird distribution maps and generate bird lists for any part of the country. You can also use in the Atlas and submit survey information to this important environmental database.

- Bird Distribution Maps
- About the Atlas
- Credits
- Current Bird Lists
- My Surveys
- Help
- Custom Bird Lists
- Group Surveys
- Data Entry
- Important Bird Areas
- Interpretation

Be quoted by postcode


To get a quick bird list, enter an Australian postcode

# Global involvement



free and open access to biodiversity data

## GLOBAL BIODIVERSITY INFORMATION FACILITY



**Data Portal improvements**

323,880,808  
370,000

Acc

Why

Curr

Data

The Global Biodiversity Information Facility (GBIF) was established by governments in 2001 to encourage free and open access to biodiversity data, via the Internet. Through a global network of countries and organizations, GBIF promotes and facilitates the mobilization, access, discovery and use of information about the occurrence of organisms over time and across the planet.

LATEST NEWS Call for proposals for the 2012 Young Researchers Award

## Toward a Global Virtual Environment for Biodiversity Research



Welcome | About | Related Initiatives | Medias | Documents | Intranet



creative-b

• GBIF Global Biodiversity Information Facility (host)

• GEOS / GEOBON Global Terrestrial Biodiversity Observation Network

• CAS Center of Excellence for Systematics

• SANBI South African National Biodiversity Institute (South Africa)


• CRIA Centre for Environmental Information (Brazil)

• ALA Atlas of Living Australia

Toward a Global Virtual Environment for Biodiversity Research

## IdentifyLife

"The beginning of wisdom is to call a thing by its right name"




Home | Keys Central | My IdentifyLife | Key to All Life | Login | Register

Keys Central | My IdentifyLife | Key to All Life

IdentifyLife is a global, collaborative project providing ways to identify the world's living organisms.

The world is full of a vast array of extraordinary organisms, from the largest trees, mammals and fish to the tiniest diatoms, algae and bacteria. There is an enormous amount of information about these organisms and their lives, habits and characteristics. IdentifyLife is all about bringing people and the information about the world's living creatures together. Welcome to IdentifyLife.



- What is an identification key?
- How can IdentifyLife help me build a key?
- How do I identify things using IdentifyLife?
- How does IdentifyLife actually work?
- How can I contribute to IdentifyLife?

## eOL

Encyclopaedia of Life

Global access to knowledge about life on Earth



Currently in the Encyclopaedia of Life

- 937,258 Taxa
- 53,992 Molecules like you
- 1,796 Collections
- 404

Community Activity

- Richard Smith & Andrew Townsend-Archer (2012) "The evolution of 'California State'"
- Steve Landrum (2012) "New taxonomic information on the genus 'Siphon'"
- Gregory Day (2012) "An image of an example 'Siphon'"
- L. Al. S. (2012) "comment on 'Siphon'"

## BARCODE OF LIFE DATA SYSTEMS v2.5

Advancing species identification and discovery through the analysis of short, standardized gene regions



MANAGEMENT & ANALYSIS

IDENTIFICATION ENGINE

EXTERNAL CONNECTIVITY

Country	Total Barcode Records
Germany	111,299
France	1,392,219
Spain	111,299
Canada	1,105,009
Others	100,395

BOLD 2.5 Release

Version 2.5, unveiled on Nov 11th 2009 at the Third International Barcode of Life conference in Mexico City, provides new data functionality including support for multiple sequence matches per specimen and more complex workflows. Features include identification services for ITS, matK, and rbcL markers, comparison analysis, web services and a variety of genome browsers. A few are highlighted here:

- Accumulation curves: Explore diversity of species and sequences by site or higher level taxonomy.
- Multi-marker analysis: All analytical tools have been upgraded to support processing and visualization of all registered markers.
- Alignment browser: Quickly identify alignment areas and calculate substitutions through the alignment browser which support visualization of amino acid positions of coding sequences.
- Web Services: A two-phase data retrieval service based on International Barcode Project (IBP) is available at services.biodiversity.org. Its source and version published on BOLD in text, PDF, and 2008 format.

BARCODING COLLABORATION

BARCODING WEBSITES

Ratnasingham, S. & Hebert, P. D. N. (2007). BOLD: The Barcode of Life Data System (www.barcodinglife.org).

## Biodiversity Heritage Library AUSTRALIA

About BHL | Contact Us

The Biodiversity Heritage Library—Australia is the digital literature component of the Atlas of Living Australia. BHL-Au also participates in the consortium of Biodiversity Heritage Libraries and affiliated literature digitization projects around the world.



Browse Our Collection

- Titles
- Authors
- Maps
- Year

Featured Books

- Australian bird maps, 1846-1862, 1862-1868
- Natural history of Victoria, Province of Victoria, 1845
- Bulletin / Division of Entomology... 1900-1901, 1902-1903, 1904-1905

Australia | MICHIGAN

Developer Resources | Licensing & Copyright

# Global involvement



free and open access to biodiversity data  
**GLOBAL BIODIVERSITY INFORMATION FACILITY**  
**Data improve**

The Global Biodiversity Information Facility (GBIF) was established in 2001 to encourage free and open access to biodiversity data, via the Internet. Through a global network of participating organizations, GBIF promotes and facilitates the discovery and use of information about the world's biodiversity, and across the planet.

**LATEST NEWS** Call for proposals for the 2012 Young Researchers Award

**eol**  
 Encyclopedia of Life  
 Global access to knowledge  
 Search EOL

Currently in the Encyclopedia of Life

- 937,258** Taxa
- 53,992** Multimedia files
- 1,796** Collections
- 404** Images

**CREATIVE-B**  
 Toward a Global Virtual Environment for Biodiversity Research  
 Welcome About Related Initiatives Medias Documents Intranet

**iDigBio**  
 Integrated Digitized Biocollections

24,053,874 Specimen Records  
 3,419,671 Media Records  
 350 Recordsets

**Making data and images of millions of biological specimens available on the web**

Search the Portal

Why digitization matters  
 More about what we do and why

<p><b>Digitization</b> Learn, share and develop best practices</p>	<p><b>Sharing Collections</b> Documentation on data ingestion</p>	<p><b>Working Groups</b> Join in, contribute, be part of the community</p>	<p><b>Proposals</b> New tool and workshop ideas</p>	<p><b>Citizen Scientists</b> How can you help biological collections?</p>
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**Researchers**  
Learn about research directions

**Collections Staff**  
Learn how your collection can benefit from our work

**Teachers & Students**  
Download lesson plans about using digitized specimens

**IdentifyLife**  
 The beginning of modern life is a struggle by its right name

Home Keys Current My IdentifyLife Key to All Life Login Register

Log In | Sign Up

providing ways to identify the world's living organisms.  
 extraordinary organisms, from the largest trees, plants, algae and bacteria. There is an enormous amount of information about the world's living organisms and about bringing people and the information about them. Welcome to IdentifyLife.

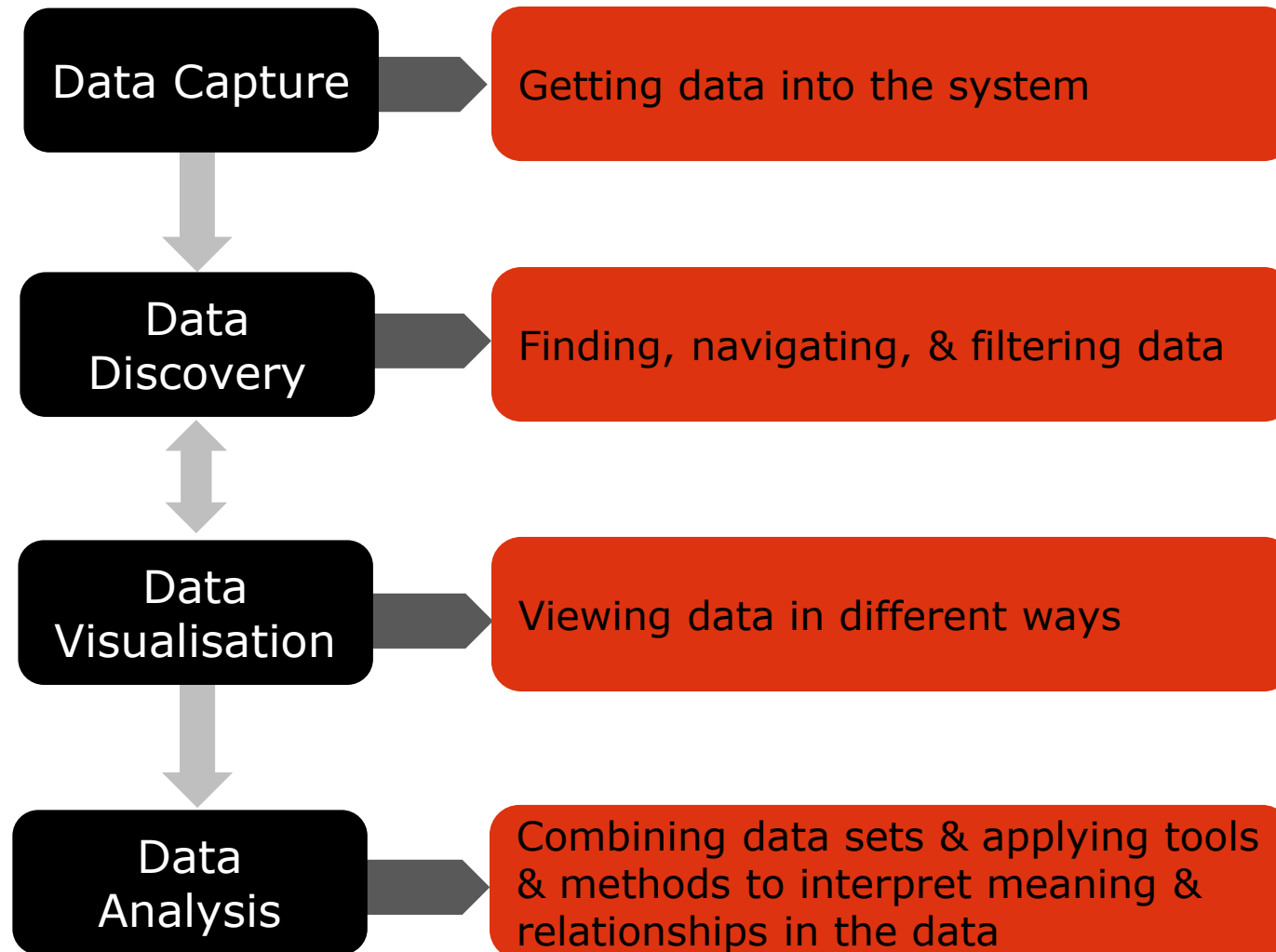
**ATLAS OF LIVING AUSTRALIA**  
 About AHL Contact Us

Search

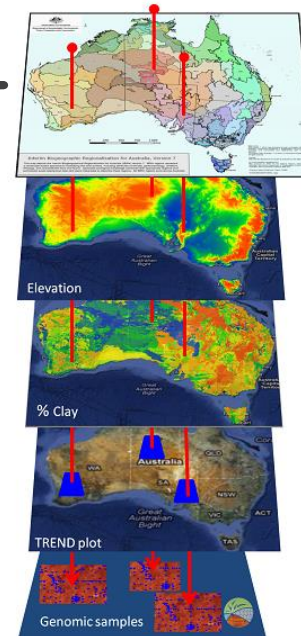
Year

Bulletin / Division of Entomology...

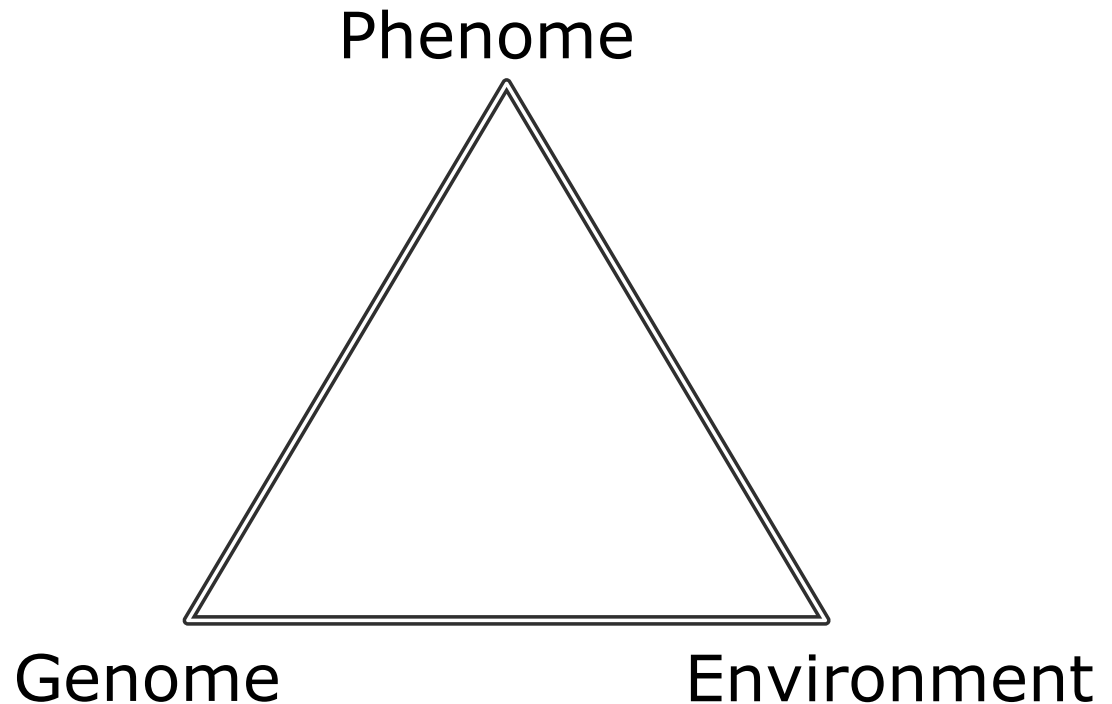
University of Queensland  
 Government of Queensland  
 Department of Environment and Heritage  
 Barcode of Life  
 Australian Government



Use  
Outputs  
Adoption  
Impact



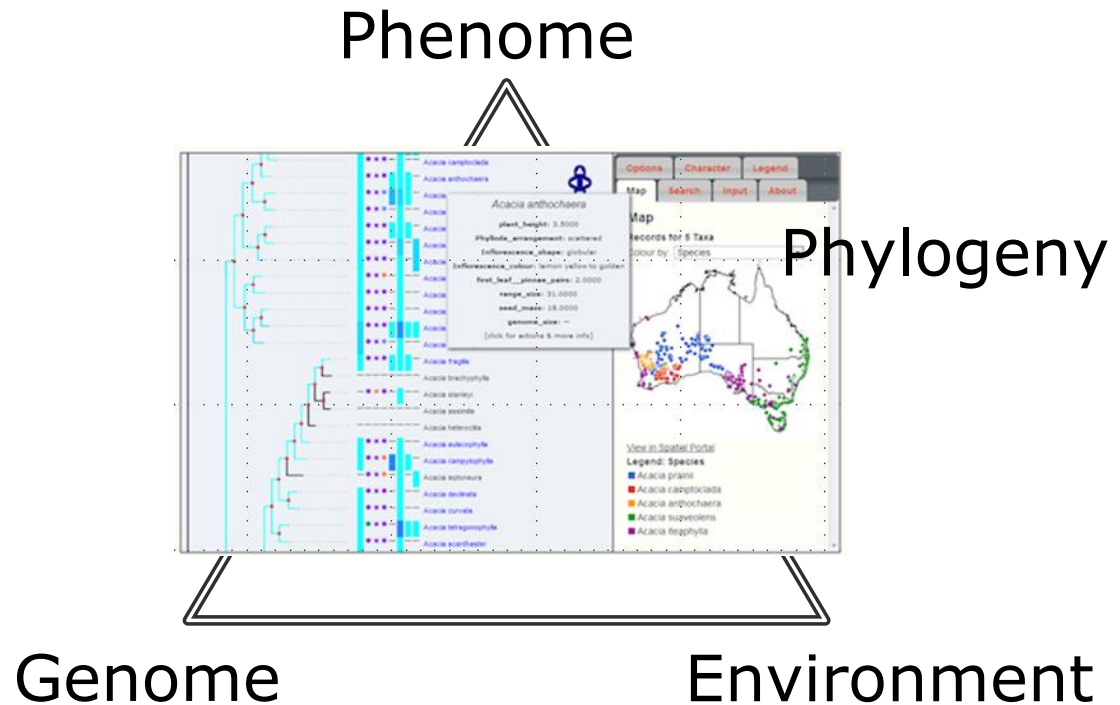
Value of Atlas it brings everything together into an environment which integrates data, supplies tools, etc



Allows you to address bigger questions in ecology, environmental biology, systematics, species delimitation, conservation biology ...



Adding phylogeny enables an evolutionary biology perspective





Home : Dashboard

HINT: You can rearrange topics by clicking and dragging them.

Show raw data Download as CSV Reset layout

### Occurrence records

# 50,515,600

records in total.

We estimate the number of potential duplicate records to be 7,745,200.

### Data sets **977**

Harvested websites	108
Occurrence record sets	413
Document sets	19
Uploaded record sets	20

Most recently added dataset is *Sarah's Banksias*

### Basis of records

Human observation	37.18M
Preserved specimen	9.86M
Machine observation	325,981
Genomic DNA	154,529
Image	103,152
Living specimen	52,432
Fossil specimen	22,114

more..

### Collections **147**

Microbes	
Plants	
Insects	
Other fauna	

### Records by date

Latest record	27 October 2014
Last image added	24 May 2012
1600s	28
1700s	8,369
1800s	364,665
1900s	24.52M
2000s	20.62M

### National Species Lists

Accepted names	195,424
Synonyms	146,974
Species names	152,080
Species with records	111,566

### Spatial layers **417**

Contextual layers	91
Environmental/grided layers	326
Terrestrial layers	381
Marine layers	25

more..

Records by state and territory

Identify Life

Most recorded species

## Occurrence downloads by reason

Scientific research	<b>52,054 events</b>	961.61M records
Ecological research	<b>19,232 events</b>	330.10M records
Conservation management/planning	<b>4,028 events</b>	533.44M records
Education	<b>3,217 events</b>	291.31M records
Environmental impact, site assessment	<b>1,941 events</b>	111.06M records
Systematic research	<b>1,297 events</b>	55.09M records
Collection management	<b>471 events</b>	17.88M records
Other scientific research	<b>393 events</b>	52.77M records
Biosecurity management, planning	<b>370 events</b>	312.56M records
Other	<b>42,826 events</b>	184.50M records
<b>TOTAL</b>	<b>125,829 events</b>	<b>2.85B records</b>
more/less...		

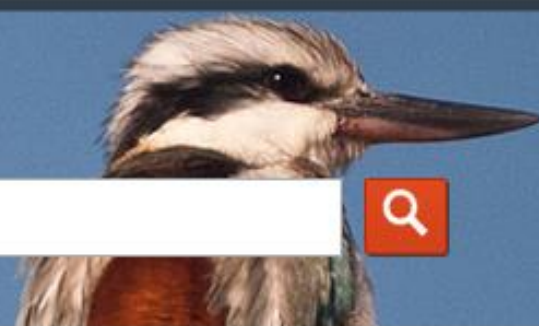
## Occurrence tree

- Kingdoms
  - ANIMALIA - 36794105
  - Plantae - 11564036
  - Fungi - 346018
  - Protozoa - 151958
  - Chromista - 63968
  - PROTISTA - 56052
  - Bacteria - 37726
  - Animalia - 8379
  - Viruses - 98

## Species images **44,249**

Taxa with images	<b>55068</b>
Species with images	<b>44249</b>
Subspecies with images	<b>2417</b>
Taxa with images from DigiVol	<b>2705</b>
Taxa with images from citizen science	<b>13320</b>
Total number of images	<b>498384</b>

# Search the Atlas



## Sharing biodiversity knowledge

Contributed by Australia's academic, scientific, environmental communities and you.

[Get involved](#)

## Explore

**Australia's species**



**Species by location**



**Natural history collections**



**Mapping & analysis**



**Data sets**



**Partner Profiles**



## Blogs & news

COMMUNICATIONS  
ALA helps bring  
CSIRO's new  
biodiversity book to life

26 August, 2014

 RSS  Twitter  My alerts

- » [Contact us](#)
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- » [About the Atlas](#)
- » [Citizen science](#)
- » [Help](#)

- Map & analyse**
  - [Species by region](#)
  - [Species in your area](#)
- Download**
  - [Open source software](#)
  - [Mobile app](#)
- Share**
  - [Volunteer for online projects](#)
  - [Record a sighting](#)
- Data**
  - [Find a record](#)
  - [Find a data set](#)
- Publications**
  - [FAQ](#)
  - [FieldData software help](#)
- Associated sites**
  - [Atlas mobile](#)
  - [Biodiversity Heritage Library](#)

Home → Australia's species → *Callocephalon fimbriatum*

# *Callocephalon fimbriatum* (Grant, 1803)

Record a sighting

Alerts

## Gang-gang Cockatoo

**Name source**  
[Australian Faunal Directory](#)

**Rank**  
 Species

**Data links**  
[LSID](#) [JSON / WMS / RDF](#)

**Species presence**

Recorded In Australia

Terrestrial Habitats

**Conservation status**

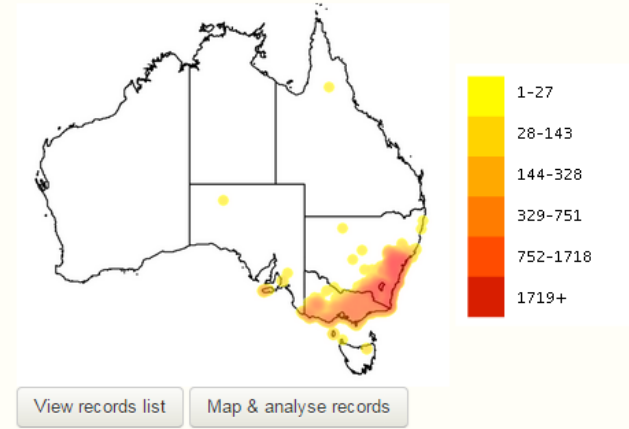
IUCN Least Concern

NSW Endangered Populations

NSW Vulnerable

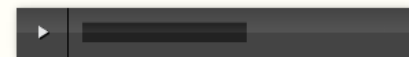
Overview Gallery Names Classification Records Literature Sequences

### Occurrence records map



Source: Flickr EOL  
 Image by: Leo

### Sounds



Source: Australian National Wildlife Collection  
[View more details of this audio](#)

### Description

The Gang-Gang Cockatoo is a dark grey cockatoo. It has prominent crest. The male has a red head and grey body. The female has grey head and body. Immature birds look like the hen except for some red in the head feathers in young males source: [OZ Animals](#)

Home → Locations → Your Area

## Explore Your Area

Enter your location or address:

18 Marcus Clarke St., Canberra

Search

E.g. a street address, place name, postcode or GPS coordinates (as lat, long)

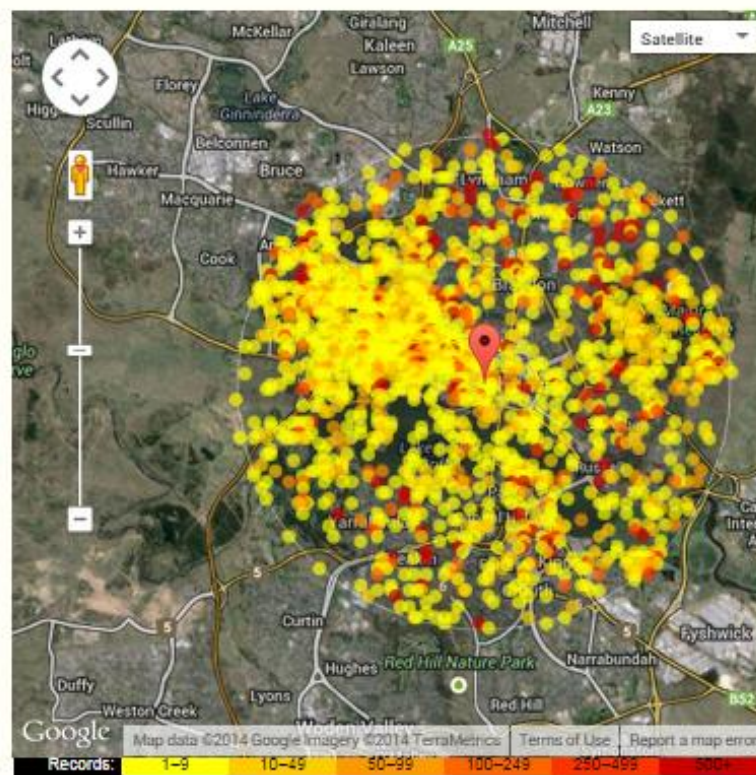
Showing records for: 18 Marcus Clarke Street, Canberra ACT 2601, Australia

Display records in a 5 km radius

View all records

Downloads

Group	Species	Species : Common Name	Records
<b>All Species</b>	<b>6608</b>		
Animals	2019	1. <i>ARCTIINAE</i>	1
Mammals	31	2. <i>Abelia x grandiflora</i>	1
Birds	351	3. <i>Abelmoschus ficulneus</i> : Native Rosella	1
Reptiles	28	4. <i>Abelmoschus moschatus subsp. tuberosus</i> : Native Rosella	2
Amphibians	8	5. <i>Abutilon theophrasti</i> : Chigma Lantern	1
Fish	1	6. <i>Acacia acinacea</i> : Gold-dust Acacia	4
Molluscs	9	7. <i>Acacia acuminata</i> : Jam Wattle	2
Arthropods	1588	8. <i>Acacia adsurgens</i> : Whipstick Wattle	1
Crustaceans	1	9. <i>Acacia adunca</i> : Cascade Wattle	6
Insects	1538	10. <i>Acacia aestivalis</i>	1
Plants	4089	11. <i>Acacia alcockii</i> : Alcock's Wattle	1
Bryophytes	49	12. <i>Acacia amblyophylla</i>	1
Gymnosperms	40	13. <i>Acacia amoena</i> : Boomerang Wattle	1
FernsAndAllies	102	14. <i>Acacia ampliceps</i> : Jilla Jilla Bush	1
Angiosperms	3795	15. <i>Acacia anceps</i>	1
Monocots	758	16. <i>Acacia andrewsii</i>	1
Dicots	3037	17. <i>Acacia aneura var. microcarpa</i> : Mulga	1
Fungi	151	18. <i>Acacia aneura</i> : Mulga	1
Chromista	2	19. <i>Acacia anthochaera</i> : Kimberly's Wattle	1
Protozoa	19	20. <i>Acacia aphylla</i> : Leafless Rock Wattle	1
Bacteria	0	21. <i>Acacia argyrophylla</i> : Silver Mulga	1
Algae	0	22. <i>Acacia ashbyae</i>	1
		23. <i>Acacia aspera subsp. aspera</i>	3
		24. <i>Acacia assimilis subsp. atroviridis</i>	1
		25. <i>Acacia auriculiformis</i> : Black Wattle	1
		26. <i>Acacia ausfeldii</i> : Ausfeld's Wattle	2



Tips: you can fine-tune the location of the area by dragging the red marker icon

## Explore Your Area

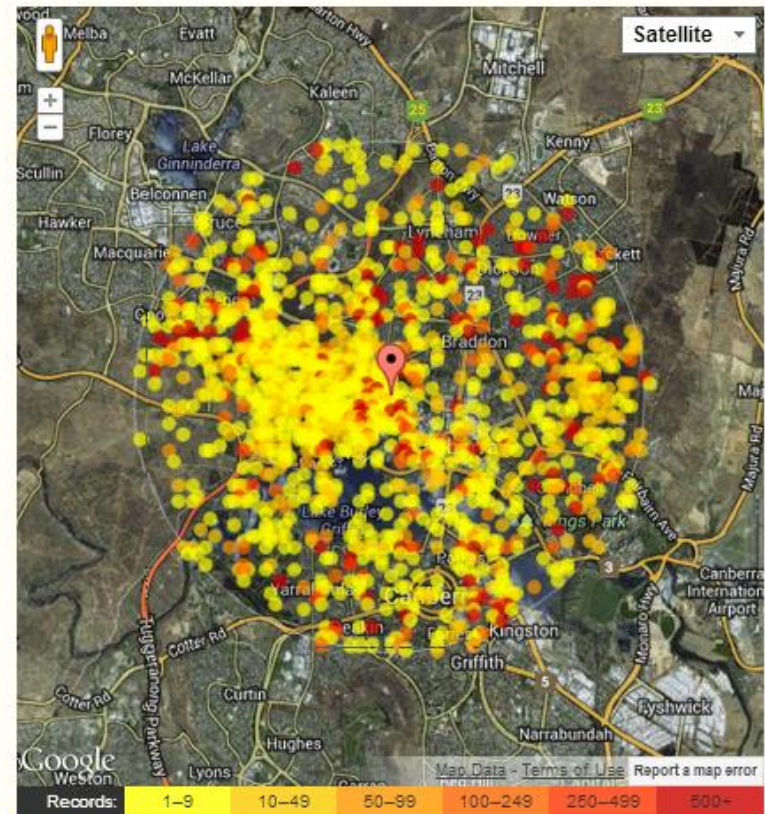
Enter your location or address:

CSIRO Discovery Centre  E.g. a street address, place name, postcode or GPS coordinates (as lat, long)

Showing records for: North-Science Road, Acton ACT 2601, Australia

Display records in a  km radius

Group	Species	Species : Common Name	Records
<b>All Species</b>	<b>6467</b>		
Animals	1761	1. <i>Abelia x grandiflora</i>	1
Mammals	31	2. <i>Abelmoschus ficulneus</i> : Native Rosella	1
Birds	294	3. <i>Abelmoschus moschatus subsp. tuberosus</i> : Native Rosella	2
Reptiles	26	4. <i>Abutilon theophrasti</i> : Chigma Lantern	1
Amphibians	4	5. <i>Acacia abbreviata</i>	1
Fish	1	6. <i>Acacia acinacea</i> : Gold-dust Acacia	7
Molluscs	7	7. <i>Acacia acradenia</i> : Silky Wattle	3
Arthropods	1396	8. <i>Acacia acuminata</i> : Jam Wattle	8
Crustaceans	1	9. <i>Acacia adsurgens</i> : Whipstick Wattle	1
Insects	1352	10. <i>Acacia adunca</i> : Cascade Wattle	7
Plants	4191	11. <i>Acacia aestivalis</i>	1
Bryophytes	48	12. <i>Acacia alcockii</i> : Alcock's Wattle	1
Gymnosperms	42	13. <i>Acacia amblyophylla</i>	1
FernsAndAllies	110	14. <i>Acacia amoena</i> : Boomerang Wattle	1
Angiosperms	3991	15. <i>Acacia ampliceps</i> : Jila Jila Bush	9
Monocots	813	16. <i>Acacia anceps</i>	7
Dicots	3178	17. <i>Acacia ancistrocarpa</i> : Fish-hook Wattle	1
Fungi	230	18. <i>Acacia andrewsii</i>	1
Chromista	2	19. <i>Acacia aneura var. conifera</i> : Mulga	1
Protozoa	24	20. <i>Acacia aneura var. intermedia</i> : Mulga	5
Bacteria	0	21. <i>Acacia aneura var. major</i>	2
Algae	0	22. <i>Acacia aneura var. microcarpa</i> : Mulga	3



Tip: you can fine-tune the location of the area by dragging the red marker icon

# Occurrence search results

Quick search

Refine results

558,527 results for [all records] - within 5.0 km of point(-35.273193,149.11497)

## Scientific name

AMORPHOSCELIDAE (2)

ANTHOZOA (33)

APHIDIDAE (1)

choose more...

## Common name (processed)

"Common raspwort" (36)

"Creeping raspwort" (34)

"Greco-Latin name of the sow-thistle." (1)

choose more...

## Subspecies

Abelmoschus moschatus subsp. tuberosus

(2)

Acacia aneura var. conifera (1)

Acacia aneura var. intermedia (5)

choose more...

## Species

Abelia x grandiflora (1)

Abelmoschus ficulneus (1)

Abutilon theophrasti (1)

choose more...

## Family

ACANTHIZIDAE (35,211)

ACCIPITRIDAE (1,597)

ACRIDIDAE (25)

choose more...

## Lifeform

Algae (4)

Amphibians (38)

Angiosperms (22,270)

choose more...

Records Map Charts Species images Record images

Downloads

Alerts

Results per page: 20

Sort by: Date added

Sort order: Descending

Species: *Hydromys chrysogaster* | Water-rat Date: 2013-06-08 State: ACT

Data Resource: Individual Sightings Basis Of Record: HumanObservation [View record](#)

Species: *Platycercus (Platycercus) elegans* | Crimson Rosella Date: 2013-05-31 State: ACT

Data Resource: Individual Sightings Basis Of Record: HumanObservation [View record](#)

Species: *Acacia buxifolia* | Box Leaf Wattle Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)

Species: *Acacia dealbata* | Silver Wattle Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)

Species: *Acacia genistifolia* | Early Wattle Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)

Species: *Acacia gunnii* | Dog's Tooth Wattle Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)

Species: *Acacia implexa* | Bastard Myall Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)

Species: *Acacia parramattensis* | Parramatta Green Wattle Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)

Species: *Acaena ovina* | Sheep's Burr Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)

Species: *Aristida ramosa* | Cane Speargrass Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)

Species: *Austrostipa densiflora* | Foxtail Spear-grass Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)

Subspecies: *Austrostipa scabra subsp. falcata* Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)

Species: *Billardiera scandens* | Apple Berry Date: 2009-08-12 State: ACT

Data Resource: Australian Native Plants Society, Canberra Region Basis Of Record: HumanObservation [View record](#)



[Acacia aneura var. conferta](#) (1)  
[Acacia aneura var. intermedia](#) (5)

[choose more...](#)

#### Species

[Abella x grandiflora](#) (1)  
[Abelmoschus ficulneus](#) (1)  
[Abutilon theophrasti](#) (1)

[choose more...](#)

#### Family

[ACANTHIZIDAE](#) (35,252)  
[ACCIPITRIDAE](#) (1,598)  
[ACRIDIDAE](#) (25)

[choose more...](#)

#### Lifeform

[Algae](#) (4)  
[Amphibians](#) (38)  
[Angiosperms](#) (22,271)

[choose more...](#)

#### Species habitats

[Non-marine](#) (533,282)  
[Marine and Non-marine](#) (645)  
[Marine](#) (93)

[choose more...](#)

#### Sensitive

[Generalised](#) (14)

#### State conservation

[Endangered](#) (1,311)

#### Local Gov. Area

[Unincorporated ACT](#) (556,106)

#### State/Territory

[Australian Capital Territory](#) (557,802)

#### Country

[Australia](#) (557,801)

#### IBRA

Subspecies: *Ninox (Ninox) novaeseelandiae boobook* | **Southern Boobook** Date: 2011-05-01 State: ACT  
Institution: Commonwealth Scientific And Industrial Research Organisation Collection: Australian National Wildlife Collection Basis Of Record: Presence  
Catalog number: Birds:553259 [View record](#)

Subspecies: *Sturnus (Sturnus) vulgaris vulgaris* | **Common Starling** Date: 2013-05-07 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3285341 [View record](#)

Subspecies: *Sturnus (Sturnus) vulgaris vulgaris* | **Common Starling** Date: 2013-05-27 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3331648 [View record](#)

Species: *Passer (Passer) domesticus* | **House Sparrow** Date: 2013-05-03 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3268965 [View record](#)

Species: *Neochmia (Aegintha) temporalis* | **Red-browed Finch** Date: 2013-05-08 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3323147 [View record](#)

Species: *Neochmia (Aegintha) temporalis* | **Red-browed Finch** Date: 2013-05-02 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3323123 [View record](#)

Species: *Neochmia (Aegintha) temporalis* | **Red-browed Finch** Date: 2013-05-25 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3327565 [View record](#)

Subspecies: *Rhipidura (Rhipidura) albiscapa albiscapa* | **Grey Fantail** Date: 2013-05-05 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3285355 [View record](#)

Subspecies: *Rhipidura (Rhipidura) albiscapa albiscapa* | **Grey Fantail** Date: 2013-05-05 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3285374 [View record](#)

Subspecies: *Rhipidura (Rhipidura) albiscapa albiscapa* | **Grey Fantail** Date: 2013-05-09 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3287889 [View record](#)

Subspecies: *Rhipidura (Rhipidura) albiscapa albiscapa* | **Grey Fantail** Date: 2013-05-01 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3287908 [View record](#)

Subspecies: *Rhipidura (Rhipidura) albiscapa albiscapa* | **Grey Fantail** Date: 2013-05-09 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3288359 [View record](#)

Subspecies: *Rhipidura (Rhipidura) albiscapa albiscapa* | **Grey Fantail** Date: 2013-05-14 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3300253 [View record](#)

Subspecies: *Rhipidura (Rhipidura) albiscapa albiscapa* | **Grey Fantail** Date: 2013-05-23 State: ACT  
Data Resource: Eremaea Basis Of Record: HumanObservation Catalog number: :3322927 [View record](#)

# Occurrence search results

[Quick search](#)[Refine results](#) ▾

1,309 results for [all records] - within 5.0 km of point(-35.273193,149.11497)

## Current filters

State conservation:Endangered [X]

## Scientific name

[Anthochaera \(Xanthomyza\) phrygia](#) (13)[Caladenia actensis](#) (10)[Climacteris \(Climacteris\) picumnus picumnus](#) (22)[choose more...](#)

## Common name (processed)

[Brown Treecreeper](#) (22)[Button Wrinklewort](#) (105)[Canberra Spider Orchid](#) (10)[choose more...](#)

## Subspecies

[Climacteris \(Climacteris\) picumnus picumnus](#) (22)

## Species

[Anthochaera \(Xanthomyza\) phrygia](#) (13)[Caladenia actensis](#) (10)[Climacteris \(Climacteris\) picumnus](#) (22)[choose more...](#)

## Family

[ACCIPITRIDAE](#) (149)[AGAMIDAE](#) (1)[Asteraceae](#) (105)[choose more...](#)

## Lifeform

[Angiosperms](#) (130)[Animals](#) (1,179)[Arthropods](#) (37)[choose more...](#)

## Species habitats

[Non-marine](#) (1,188)

## Sensitive

[Records](#)[Map](#)[Charts](#)[Species images](#)[Record images](#)[Downloads](#)[Alerts](#)

Results per page: 20

Sort by: Date added

Sort order: Descending

Species: *Caladenia actensis* | Canberra Spider Orchid Date: 2006-09-24 State: ACTData Resource: Plants Of The NSW South Coast & ACT - Don And Betty Wood Basis Of Record: HumanObservation [View record](#)Species: *Rutidosia leptorrhynchoides* | Button Wrinklewort Date: 2001-12-12 State: ACTData Resource: Plants Of The NSW South Coast & ACT - Don And Betty Wood Basis Of Record: HumanObservation [View record](#)Species: *Muehlenbeckia tuggeranong* | Tuggeranong Lignum Date: 2001-11-23 State: ACTData Resource: Plants Of The NSW South Coast & ACT - Don And Betty Wood Basis Of Record: HumanObservation [View record](#)

## Refine your search

	Common name (processed)	Count
<input type="checkbox"/>	<a href="#">Brown Treecreeper</a>	22
<input type="checkbox"/>	<a href="#">Button Wrinklewort</a>	105
<input type="checkbox"/>	<a href="#">Canberra Spider Orchid</a>	10
<input type="checkbox"/>	<a href="#">Ginniderra Peppercross</a>	1
<input type="checkbox"/>	<a href="#">Golden Sun Moth</a>	37
<input type="checkbox"/>	<a href="#">Grassland Earless Dragon</a>	1
<input type="checkbox"/>	<a href="#">Hooded Robin</a>	18
<input type="checkbox"/>	<a href="#">Little Eagle</a>	149
<input type="checkbox"/>	<a href="#">Many-lined Delma</a>	2
<input type="checkbox"/>	<a href="#">Mountain Swainson-pea</a>	9
<input type="checkbox"/>	<a href="#">Painted Honeyeater</a>	5
<input type="checkbox"/>	<a href="#">Regent Honeyeater</a>	13
<input type="checkbox"/>	<a href="#">Spotted-tailed Quoll</a>	1
<input type="checkbox"/>	<a href="#">Superb Parrot</a>	161
<input type="checkbox"/>	<a href="#">Swift Parrot</a>	19
<input type="checkbox"/>	<a href="#">Tuggeranong Lignum</a>	5
<input type="checkbox"/>	<a href="#">Varied Sittella</a>	536

 INCLUDE selected items in search EXCLUDE selected items from search

Home : [Locations](#) : Regions

# Select a region to explore

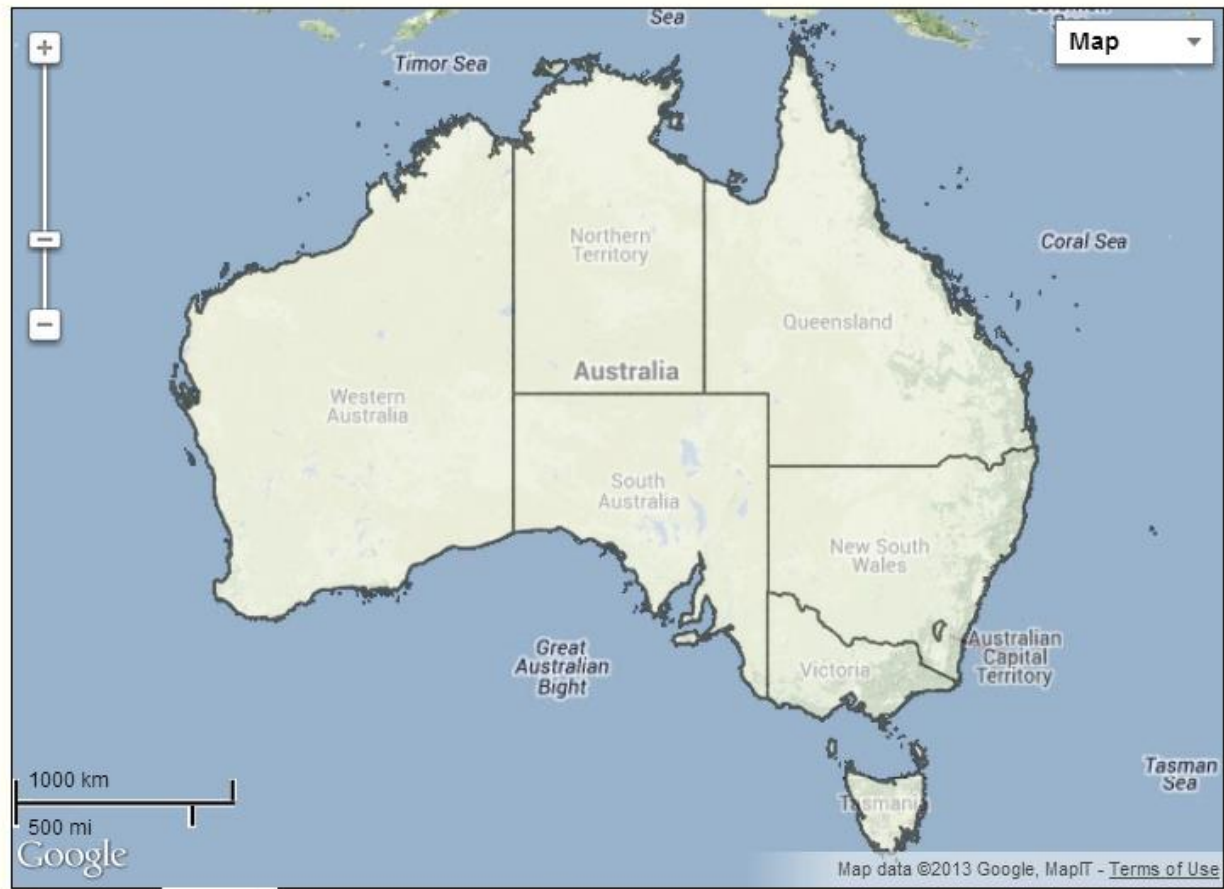
Select the type of region on the left. Click a name or click on the map to select a region. Use map controls or shift-drag with your mouse to zoom the map. Click the region link to explore occurrence records, images and documents associated with the region.

Click on a region name to select an area.

Click on the map to select an area.

Reset map

- ▼ States and territories
  - Australian Capital Territory
  - New South Wales
  - Northern Territory
  - Queensland
  - South Australia
  - Tasmania
  - Victoria
  - Western Australia
- ▶ Local Government
- ▶ Biogeographic Regions
- ▶ Marine Regions
- ▶ Management Regions
- ▶ Other Regions



Home : [Locations](#) : Regions

# Select a region to explore

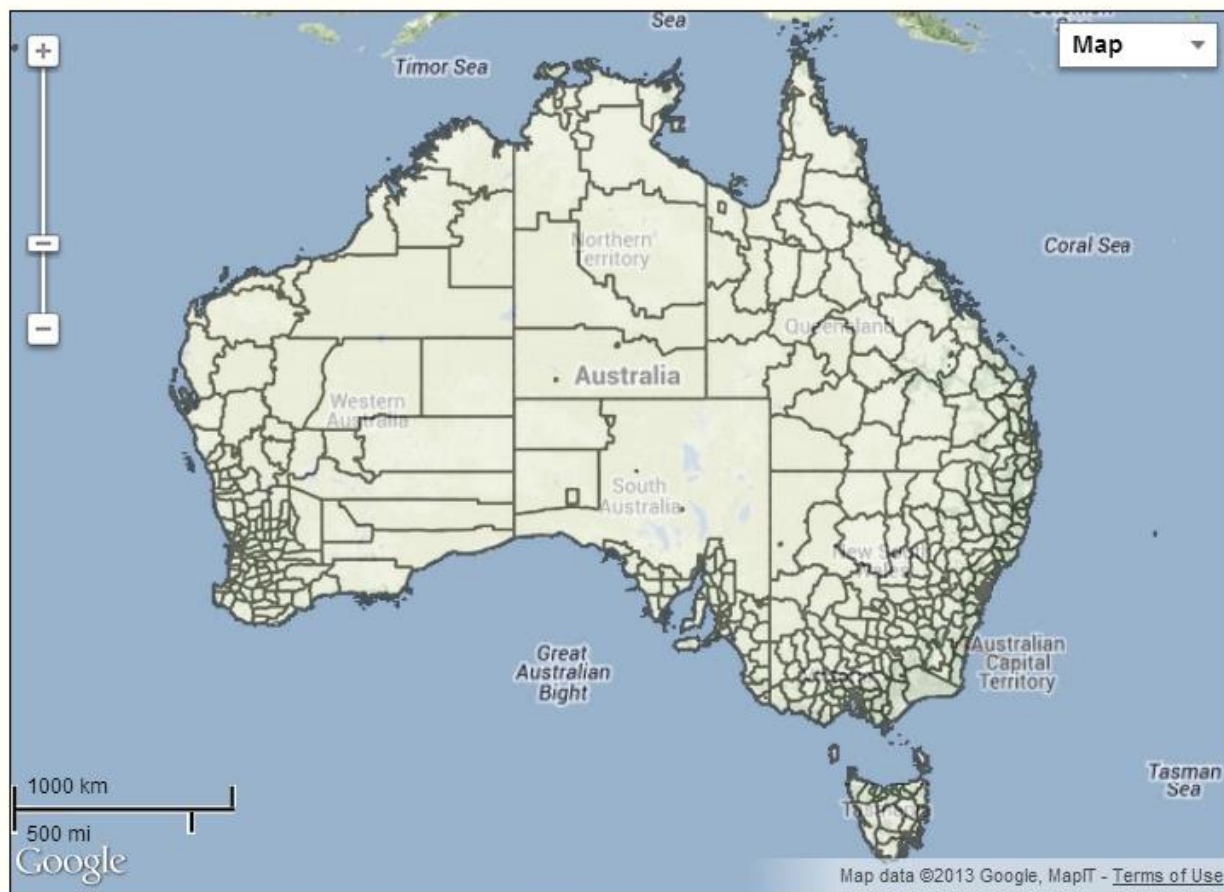
Select the type of region on the left. Click a name or click on the map to select a region. Use map controls or shift-drag with your mouse to zoom the map. Click the region link to explore occurrence records, images and documents associated with the region.

Click on a region name to select an area.

Click on the map to select an area.

Reset map

- ▶ States and territories
- ▼ Local Government
  - Adelaide (C)
  - Adelaide Hills (DC)
  - Albany (C)
  - Albury (C)
  - Alexandrina (DC)
  - Alice Springs (T)
  - Alpine (S)
  - Anangu Pitjantjatjara (AC)
  - Ararat (RC)
  - Armadale (C)
  - Armidale Dumaresq (A)
  - Ashburton (S)
  - Ashfield (A)
  - Auburn (C)
  - Augusta-Margaret River (S)
  - Aurukun (S)
- ▶ Biogeographic Regions
- ▶ Marine Regions
- ▶ Management Regions
- ▶ Other Regions





Home : [Locations](#) : Regions

# Select a region to explore

Select the type of region on the left. Click a name or click on the map to select a region. Use map controls or shift-drag with your mouse to zoom the map. Click the region link to explore occurrence records, images and documents associated with the region.

Click on a region name to select an area.

Click on the map to select an area.

Reset map

- ▶ States and territories
- ▶ Local Government
- ▼ Biogeographic Regions
  - Arnhem Coast
  - Arnhem Plateau
  - Australian Alps
  - Avon Wheatbelt
  - Ben Lomond
  - Brigalow Belt North
  - Brigalow Belt South
  - Broken Hill Complex
  - Burt Plain
  - Cape York Peninsula
  - Carnarvon
  - Central Arnhem
  - Central Kimberley
  - Central Mackay Coast
  - Central Ranges
  - Channel Country
- ▶ Marine Regions
- ▶ Management Regions
- ▶ Other Regions



Home : [Locations](#) : Regions

# Select a region to explore

Select the type of region on the left. Click a name or click on the map to select a region. Use map controls or shift-drag with your mouse to zoom the map. Click the region link to explore occurrence records, images and documents associated with the region.

Click on a region name to select an area.

Click on the map to select an area.

Reset map

- ▶ States and territories
- ▶ Local Government
- ▶ Biogeographic Regions
- ▼ Marine Regions
  - Bass Strait Shelf Province
  - Cape Province
  - Central Eastern Province
  - Central Eastern Shelf Province
  - Central Eastern Shelf Transition
  - Central Eastern Transition
  - Central Western Province
  - Central Western Shelf Province
  - Central Western Shelf Transition
  - Central Western Transition
  - Christmas Island Province
  - Cocos (Keeling) Island Province
  - Great Australian Bight Shelf Transition
  - Kenn Province
  - Kenn Transition
  - Lord Howe Province
- ▶ Management Regions
- ▶ Other Regions



Home : [Locations](#) : [Regions](#) : Northeast Shelf Province

# Northeast Shelf Province

Occurrence records (267,745)

Explore by species

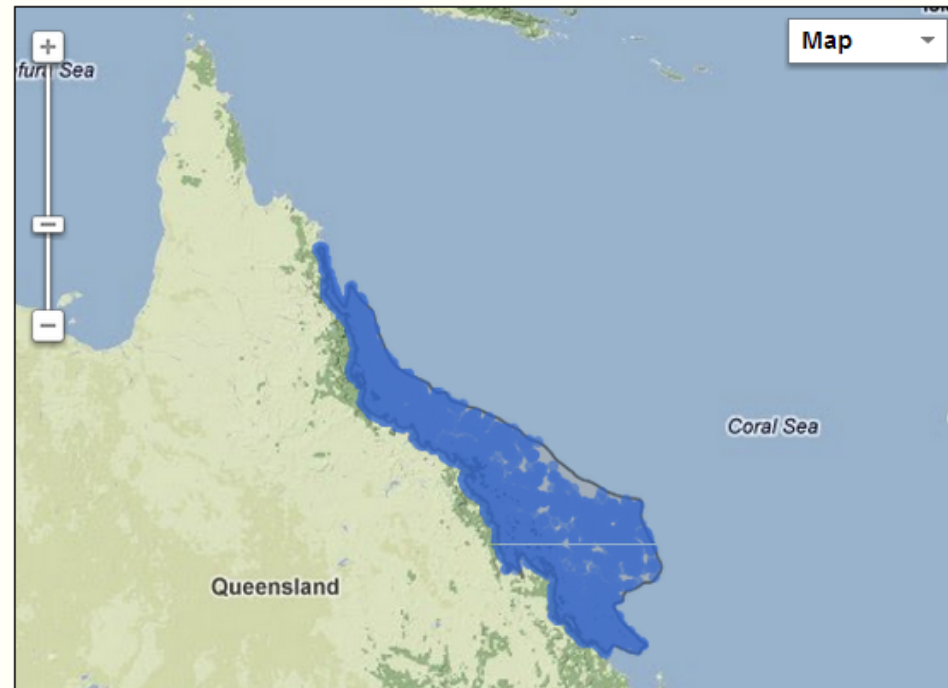
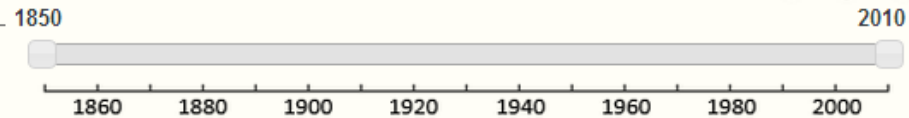
Explore by taxonomy

Reset all

Group	Species	Species	Records
<b>All Species</b>	<b>11206</b>	1. <i>Aaaba nodosus</i>	1
Animals	6929	2. <i>Aaptos aaptos</i>	1
Mammals	59	3. <i>Abalistes stellatus</i> : Starry Triggerfish	451
Birds	611	4. <i>Abelmoschus ficulneus</i> : Native Rosella	3
Reptiles	105	5. <i>Abelmoschus manihot subsp. tetraphyllus</i>	1
Amphibians	24	6. <i>Abelmoschus moschatus subsp. tuberosus</i>	6
Fish	1726	7. <i>Abildgaardia ovata</i>	13
Molluscs	1657	8. <i>Abildgaardia vaginata</i>	14
Arthropods	1850	9. <i>Ablennes hians</i> : Barred Longtom	4
Crustaceans	337	10. <i>Aborolobatea insidiosa</i>	9
Insects	1439	11. <i>Abra (Syndosmya) truncata</i>	2
Plants	3803	12. <i>Abriesa dema</i>	2
Bryophytes	107	13. <i>Abroma fastuosa</i>	5
Gymnosperms	15	14. <i>Abroma mollis</i>	1
FernsAndAllies	167	15. <i>Abrophyllum omans var. omans</i>	1
Angiosperms	3018	16. <i>Abрус precatorius subsp. precatorius</i> : Crabs Eye	13
Monocots	804	17. <i>Abрус precatorius</i> : Crab's eye	4
Dicots	2214	18. <i>Abudefduf bengalensis</i> : Bengal Sergeant	71
Fungi	200	19. <i>Abudefduf hoefleri</i> : African Sergeant	6
Chromista	76	20. <i>Abudefduf saxatilis</i> : Damsel Fish	2
Protozoa	1	21. <i>Abudefduf septemfasciatus</i> : Banded	3
Bacteria	47		
Algae	477		

Explore by date

Drag handles to restrict date or play by decade.



# Spatial Portal





[Add to Map](#) ▾ [Tools](#) ▾ [Import](#) ▾ [Export](#) ▾ [Help](#) ▾

Map options

## Map options

### Base map

- Outline 
- Minimal 
- Normal 
- Satellite 

Add WMS Layer

Download map

Reset map





Add to Map ▾ Tools ▾ Import ▾ Export ▾ Help ▾ <

- Species
- Areas
- Layers
- Facet

### Map options

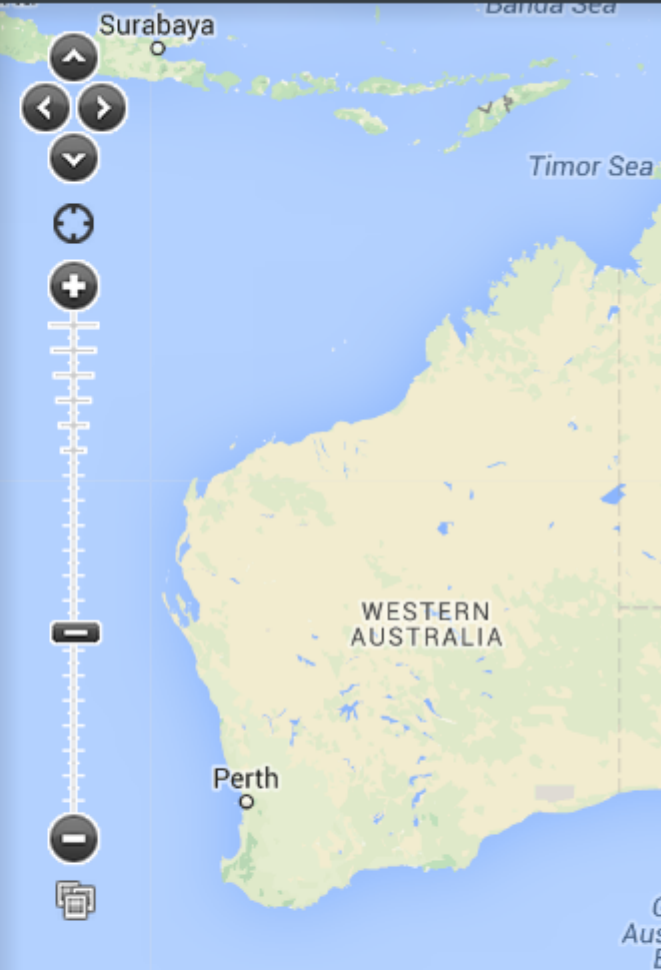
#### Base map

- Outline i
- Minimal i
- Normal i
- Satellite i

Add WMS Layer

Download map

Reset map



- Quick links x
- Map species occurrences
  - Map area
  - Map layer
  - Map facet

Add to Map ▾ Tools ▾ Import ▾ Export ▾ Help ▾ <

☰ Map options

- Area Report
- Detailed Area Report (PDF)
- Nearest locality
- Scatterplot
- Scatterplot List
- Tabulate
- Points to Grid
- Generate Points
- Classify
- Predict
- GDM
- Restore prior analysis

## Map options

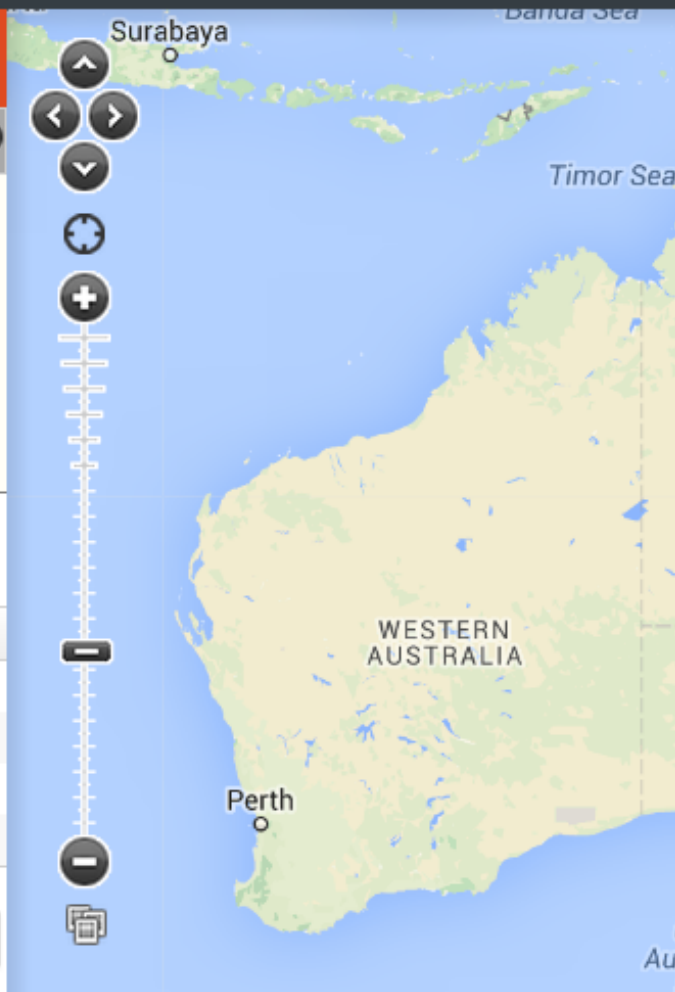
### Base map

- Outline
- Minimal
- Normal
- Satellite

Add WMS Layer

Download map

Reset map



### Quick links

x

- Map species occurrences
- Map area
- Map layer
- Map facet

Add to Map Tools Import Export Help

Genus: Dacelo

Map options

### Genus: Dacelo

Layer name:

Display as:  Density grid  Points

Facet:

Opacity:

Size:

class	colour	count
<input type="checkbox"/> Dacelo (Dacelo) novaeguineae	<span style="color: blue;">■</span>	221415
<input type="checkbox"/> Dacelo (Dacelo) leachii leachii	<span style="color: red;">■</span>	27167
<input type="checkbox"/> Dacelo (Dacelo) novaeguineae novaeguineae	<span style="color: orange;">■</span>	2234
<input type="checkbox"/> Dacelo	<span style="color: green;">■</span>	190
<input type="checkbox"/> Dacelo (Dacelo) leachii cervina	<span style="color: purple;">■</span>	68
<input type="checkbox"/> Dacelo (Dacelo) novaeguineae minor	<span style="color: cyan;">■</span>	18
<input type="checkbox"/> Dacelo (Dacelo) leachii occidentalis	<span style="color: magenta;">■</span>	9
<input type="checkbox"/> Dacelo (Dacelo) leachii	<span style="color: pink;">■</span>	4

Display spatial uncertainty as a circle

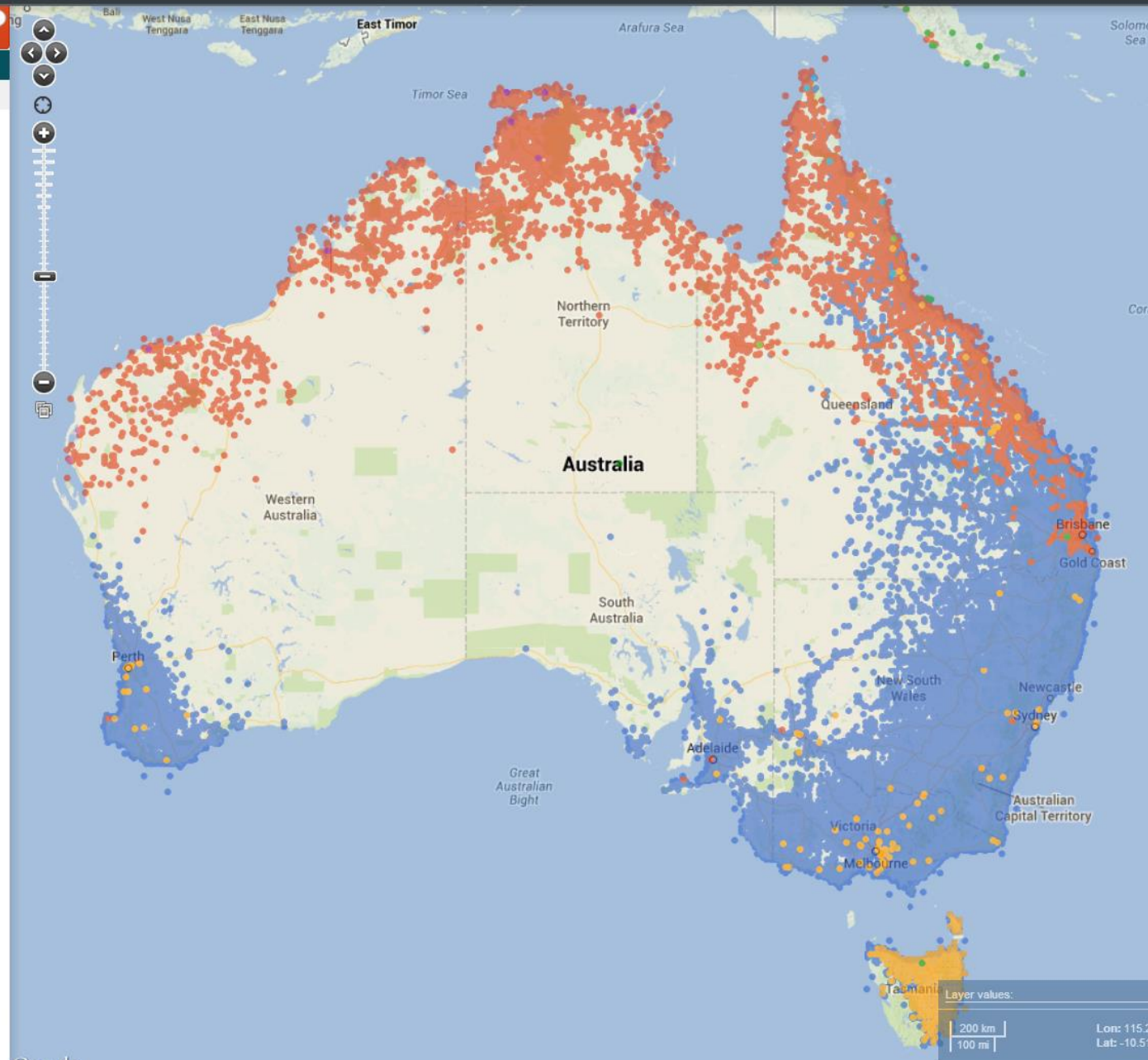
### Animation

Month/year:  Frame rate (s):

Year range:  to

### Quick links

- [View metadata for "Genus: Dacelo"](#)
- [Download all records for "Genus: Dacelo"](#)
- [Produce scatterplot for "Genus: Dacelo"](#)
- [Generate prediction for "Genus: Dacelo"](#)
- [Produce points to grid for "Genus: Dacelo"](#)



Add to Map Tools Import Export Help

Kakadu

(cl1050:"Kakadu") AND (State conservation:"Endangered")

Map options

### (cl1050:"Kakadu") AND (State conservation:"Endangered")

Layer name (cl1050:"Kakadu") AND (State conservation: "Endangered")

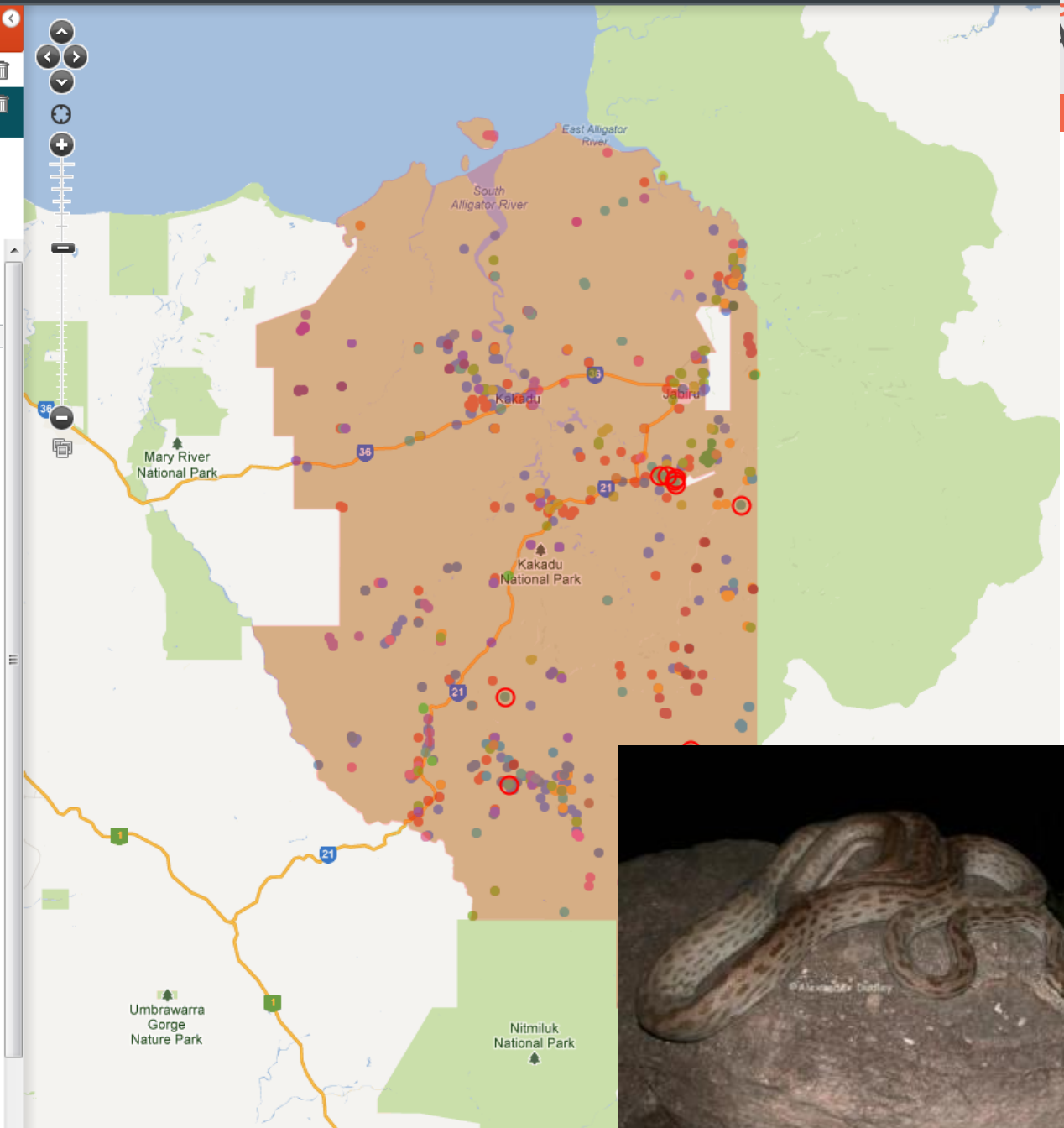
Display as  Density grid  Points

Facet Scientific name

Opacity 60%

Size 4

class	colour	count
<input type="checkbox"/> Dasyurus hallucatus		843
<input type="checkbox"/> Geophaps (Geophaps) smithii		390
<input type="checkbox"/> Zyzomys maini		189
<input type="checkbox"/> Hibiscus brennani		88
<input type="checkbox"/> Monochoria hastata		81
<input type="checkbox"/> Amytornis (Amytornis) woodwardi		64
<input type="checkbox"/> Varanus panoptes		63
<input type="checkbox"/> Varanus mertensi		62
<input type="checkbox"/> Lithomyrtus linariifolia		60
<input type="checkbox"/> Erythrura (Chloebeia) gouldiae		56
<input type="checkbox"/> Ardeotis australis		48
<input type="checkbox"/> Dromaius novaehollandiae		44
<input type="checkbox"/> Conilurus penicillatus		35
<input type="checkbox"/> Erythroriorchis radiatus		26
<input type="checkbox"/> Epthianura (Aurepthianura) crocea tunneyi		19
<input type="checkbox"/> Hipposideros inornata		12
<input type="checkbox"/> Lucasium occultum		12
<input checked="" type="checkbox"/> Morelia oenpelliensis		10
<input type="checkbox"/> Tyto (Megastrix) novaehollandiae kimberli		9
<input type="checkbox"/> Acacia sp. Graveside Gorge (V.J. Levitzke 806)		8
<input type="checkbox"/> Ipomoea polpha subsp. latzii		7
<input type="checkbox"/> Isodon auratus		4
<input type="checkbox"/> Malaxis latifolia		3
<input type="checkbox"/> Freycinetia excelsa		2
<input type="checkbox"/> Cycas armstrongii		1
<input type="checkbox"/> Glyphis glyphis		1
<input type="checkbox"/> Mesembriomys macrurus		1
<input type="checkbox"/> Rattus sordidus		1
<input type="checkbox"/> Rostratula australis		1
<input type="checkbox"/> Utricularia dunstaniae		1



### My Prediction

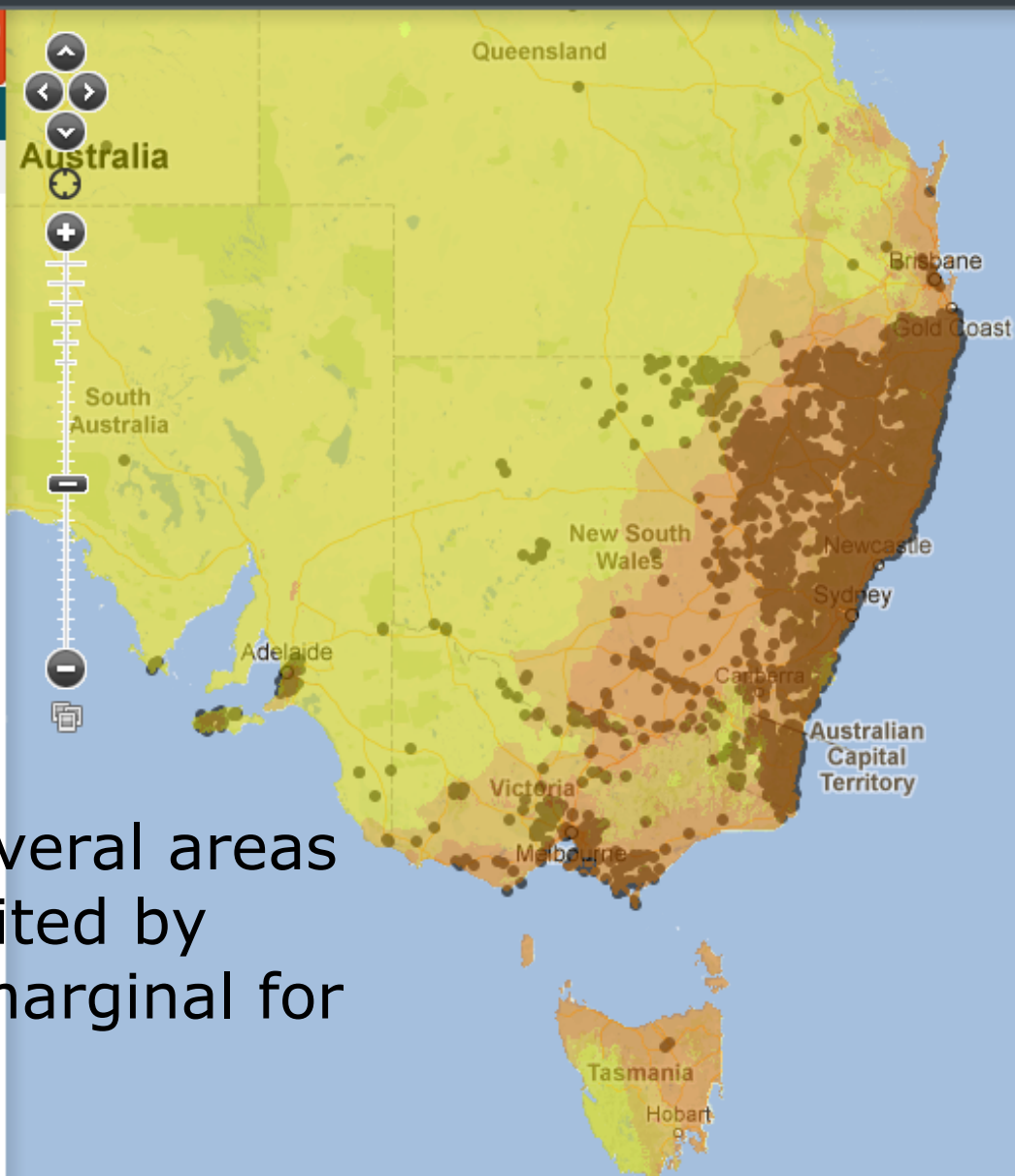
Layer name

Opacity

- X  $-9999.0 < x$
- X  $-9999.0 \leq x < 0.0$
- $0.0 \leq x < 1.0E-4$
- $1.0E-4 \leq x < 0.2$
- $0.2 \leq x < 0.4$
- $0.4 \leq x < 0.6$
- $0.6 \leq x < 0.8$
- $0.8 \leq x < 1.0$

#### Quick links

- [View metadata for "My Prediction"](#)
- [Download all records for "Koala"](#)
- [Produce scatterplot for "Koala"](#)



In 20 years, several areas currently inhabited by koalas will be marginal for their existence

Add to Map Tools Import Export Help

My Scatterplot

SPECIES: *Calyptrorhynchus (Zanda) latirostris*

Map options

### My Scatterplot

Species display settings

Download image Download data

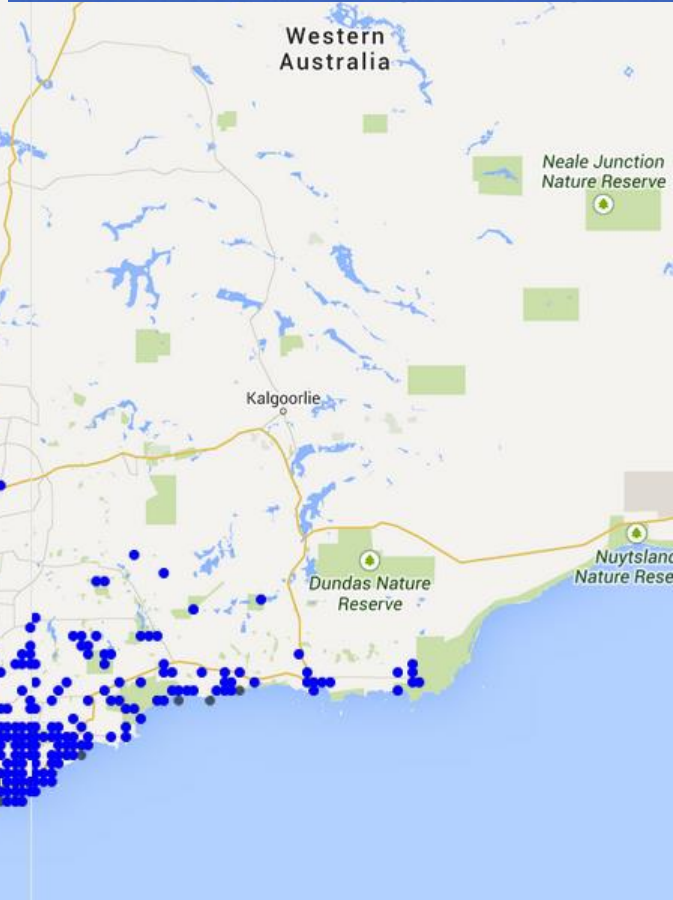
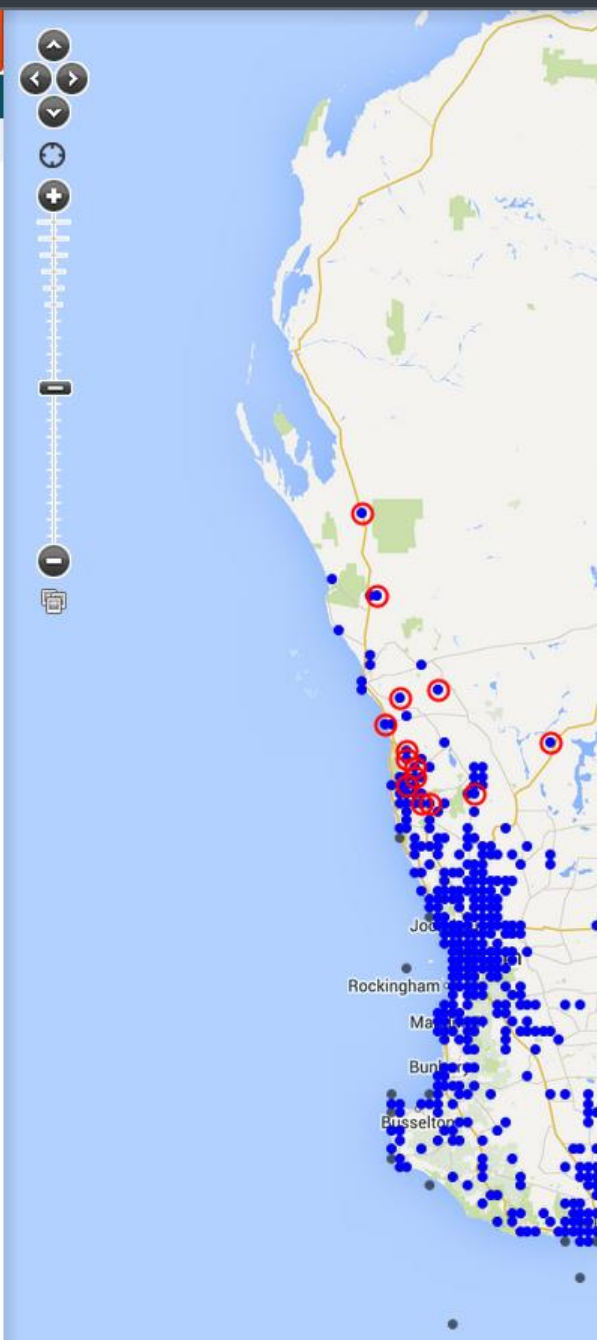
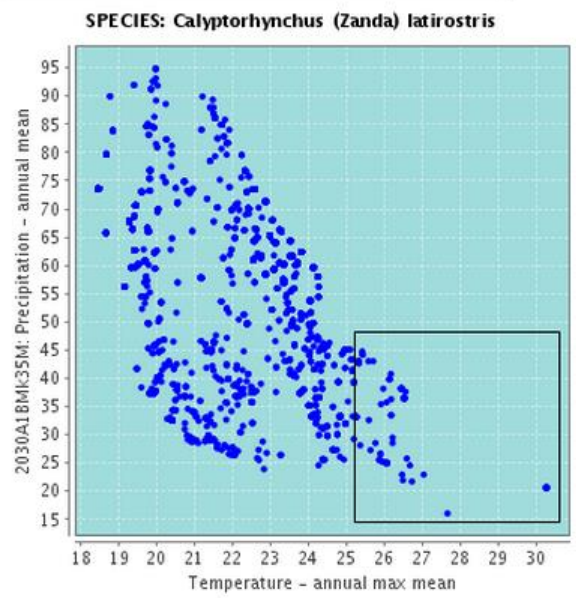
Records selected: 32 [add in/out layers to map](#)

Temperature - annual max mean: 25.2025 - 30.6000  
2030A1BMk35M: Precipitation - annual mean: 14.5198 - 48.2012

SELECT records with missing values (160)

Highlight occurrences on the scatterplot that are in an area

[Clear](#)



# Developing biodiverse plantings suitable for changing climatic conditions 2: Using the Atlas of Living Australia

By Trevor H. Booth, Kristen J. Williams and Lee Belbin

*Trevor H. Booth and Kristen J. Williams are research scientists with CSIRO Ecosystem Sciences and CSIRO Climate Adaptation Flagship (GPO Box 1700, Canberra, ACT 2601, Australia; Tel: +61 02 6246 4217; Email: trevor.booth@csiro.au; kristen.williams@csiro.au). Lee Belbin carries out consultancy work for CSIRO Ecosystem Sciences as the Geospatial Team Leader for the Atlas of Living Australia (Bonnet Hill, Hobart, Tas 7000, Australia Email: leebelbin@gmail.com). This research was carried out as a strategic project of the 'Managing Species and Natural Ecosystems' theme of CSIRO's Climate Adaptation Flagship.*

**Summary** There has been an increasing investment of taxpayer dollars in revegetation in Australia over the past 20 years, at both federal and state levels. The largest of these, the Australian Government's Biodiversity Fund, will invest A\$946 million to revegetate, rehabilitate and restore landscapes to store carbon, enhance biodiversity and build environmental resilience under climate change. The universal challenge for restoration practitioners working within these programmes is species selection for both current and future environmental conditions at a given site. For policy makers, the challenge is to provide guidelines and tools for this process. The first paper in this series of two papers looked at scientific methods that could provide underpinning knowledge to improve the assessment of species vulnerability to climatic and atmospheric change. In this paper, the publically accessible Atlas of Living Australia is used to demonstrate how revegetation project leaders can assess whether the species and provenances used in their revegetation projects are likely to be suitable for changing environmental conditions. While using the Atlas can assist current selections, ways in which more reliable selections for changing climatic conditions could be made are also outlined.

**Key words:** *Atlas of Living Australia, biodiversity, climate change, revegetation, maxent models, species distribution models.*

Home → Phylojive

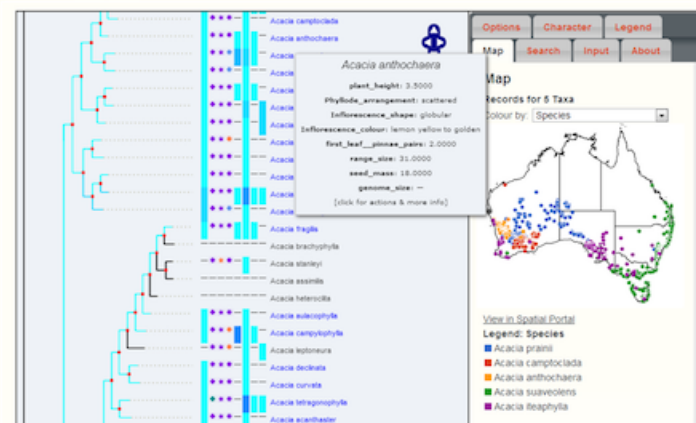
## Phylojive

PhyloJive ([Phy](#)logeny [J](#)avascript [I](#)nformation [V](#)isualiser and [E](#)xplorer) is a web based application that places biodiversity information aggregated from many sources onto compact phylogenetic trees.

The project is the brainchild of [Garry Jolley-Rogers](#) and [Joe Miller](#) and was developed by [Temi Varghese](#) and [Garry Jolley-Rogers](#) as part of the [Taxonomy Research & Information Network \(TRIN\)](#) – see the [original project page](#), [original code repository](#) and [ALA code repository](#). The ALA has contributed to the PhyloJive codebase to integrate a number of web services: occurrence data, maps and character data from Identify Life. This work has been undertaken with help and advice from [Joe Miller](#).

The [getting started](#) page outlines the steps for creating a new phylogenetic tree and contains demo data sets that can be used to get up and running.

Create a new tree



### Trees with character data

- quantitative characters
- kimberley land snails3
- Joe's acacia
- Damien

### "Bare" Trees

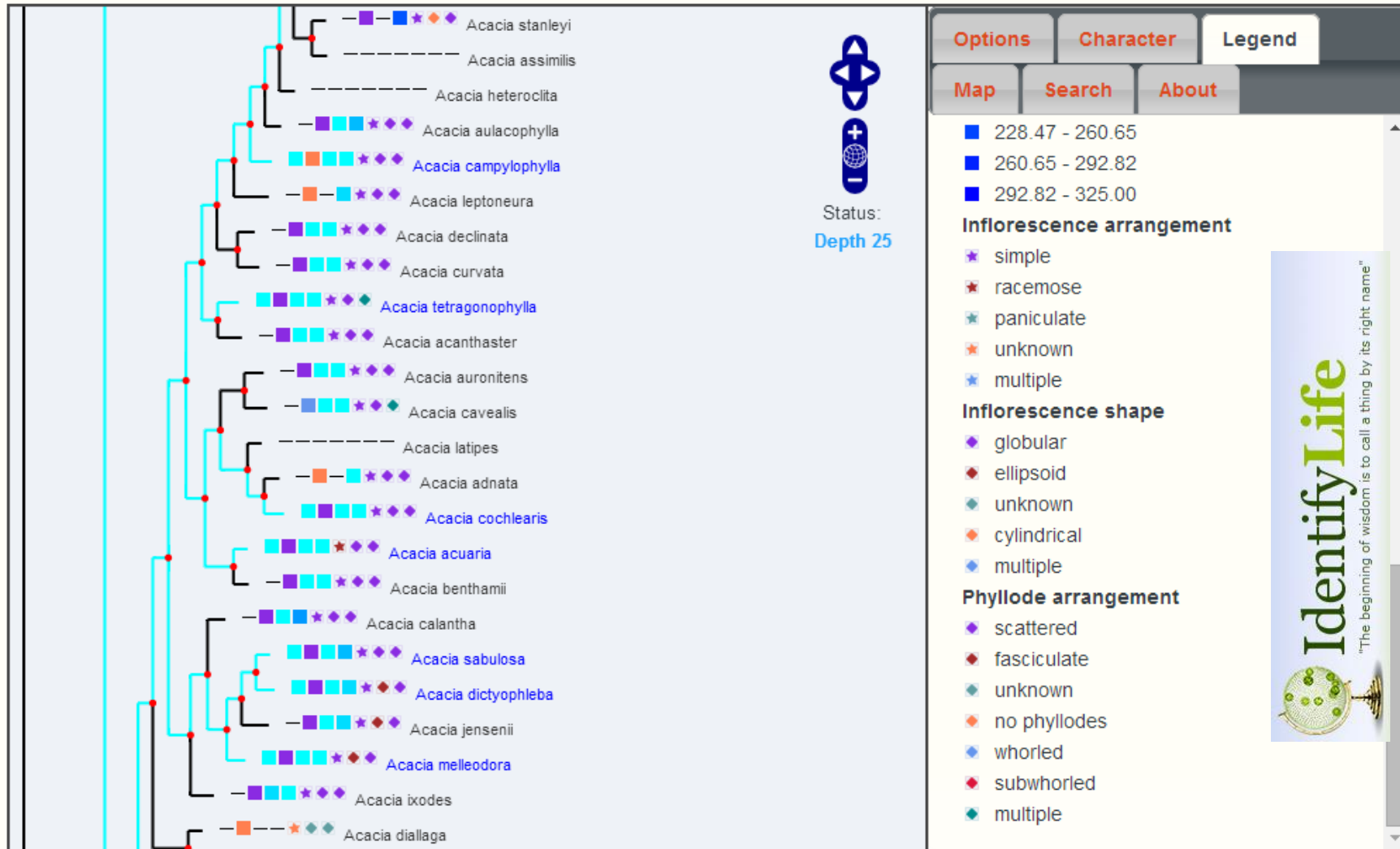
- Mollusca-tree of life
- amphibia - frogs, salamanders and caecilians
- Damien
- Bird super tree

phylojive.ala.org.au



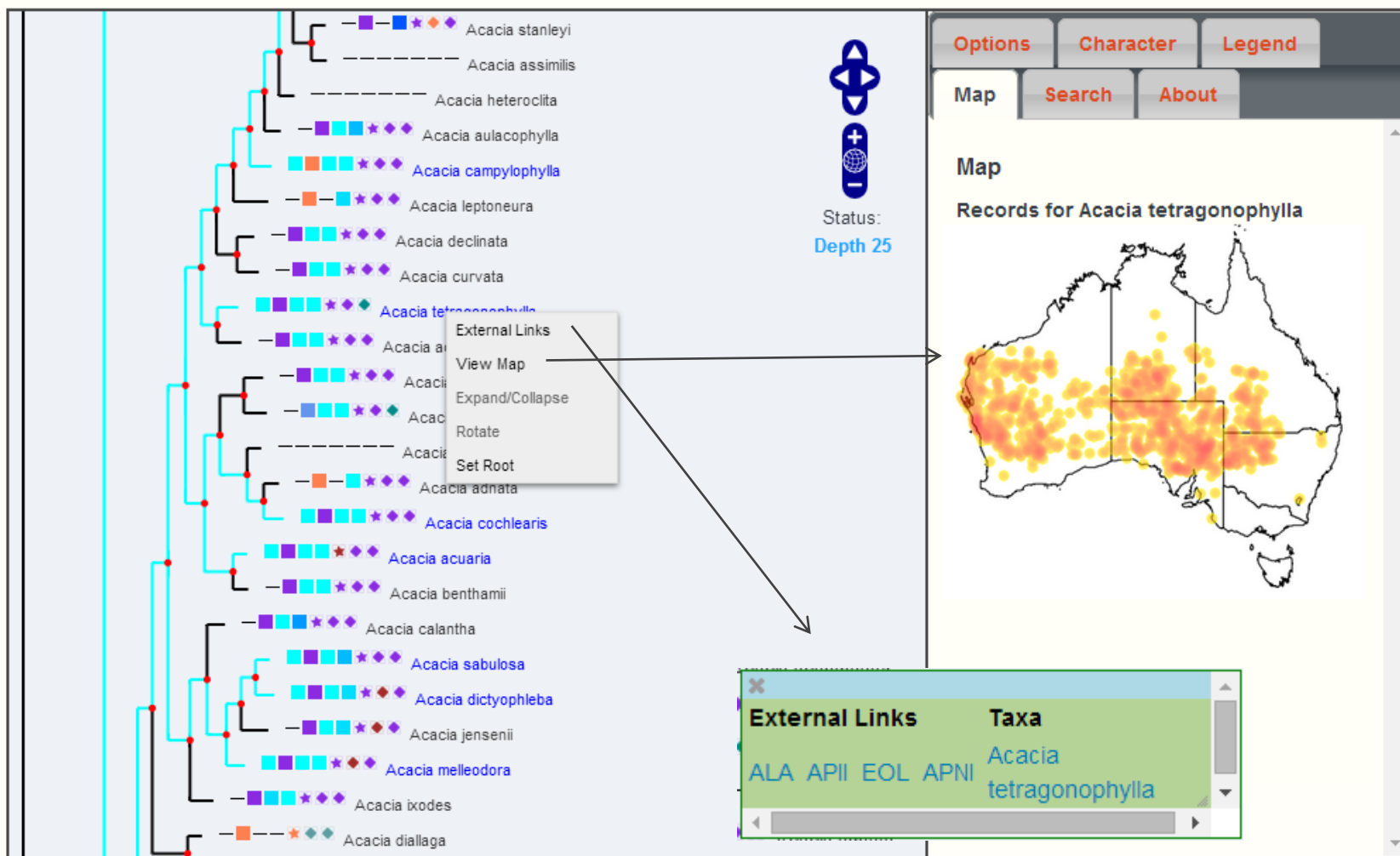
# Map characters

## Tree: Case Study 1: Acacia



# View maps and link externally

## Tree: Case Study 1: Acacia

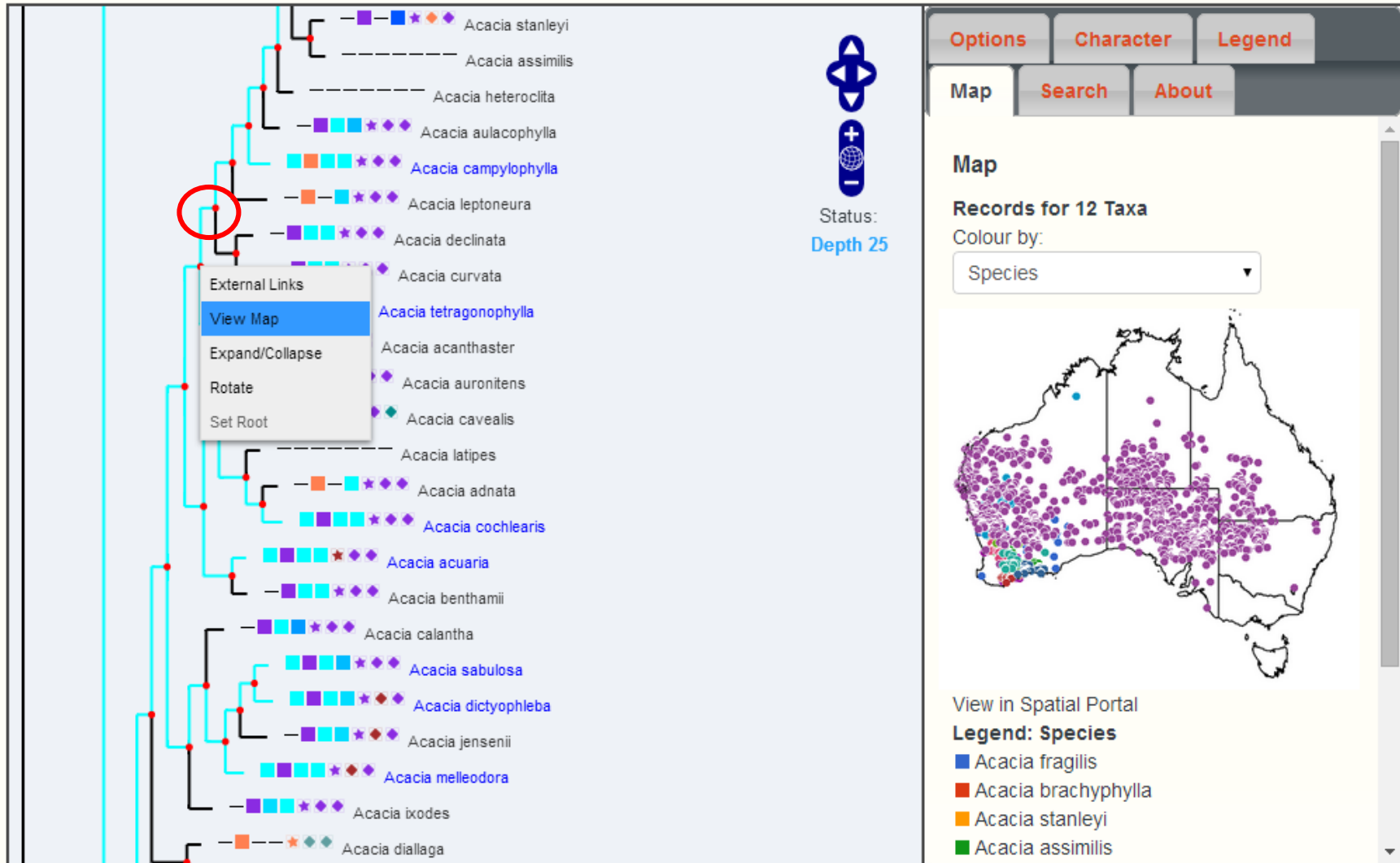


The screenshot displays the Atlas of Living Australia interface for a phylogenetic tree of Acacia species. The tree is shown on the left, with species names listed on the right. A context menu is open over the tree, showing options: External Links, View Map, Expand/Collapse, Rotate, and Set Root. The 'View Map' option is selected, and an arrow points to a map of Australia on the right. The map shows the distribution of *Acacia tetragonophylla* records, with yellow and orange dots indicating the locations. The map is titled 'Records for Acacia tetragonophylla'. A table of external links is also visible, showing links to ALA, APII, EOL, and APNI for the taxon *Acacia tetragonophylla*.

External Links	Taxa
ALA APII EOL APNI	Acacia tetragonophylla

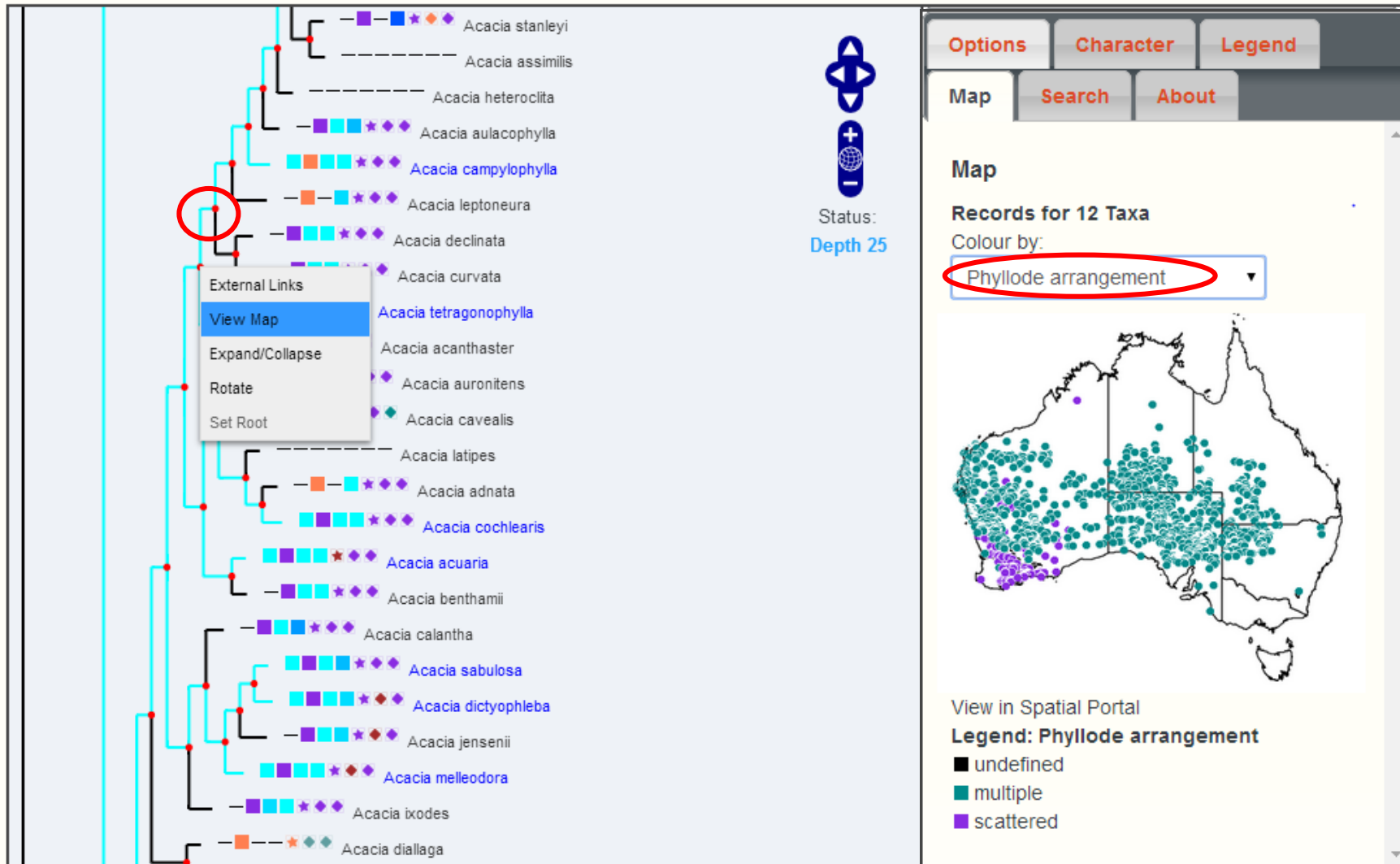
# Map records – by taxon

## Tree: Case Study 1: Acacia



# Map records – by character state

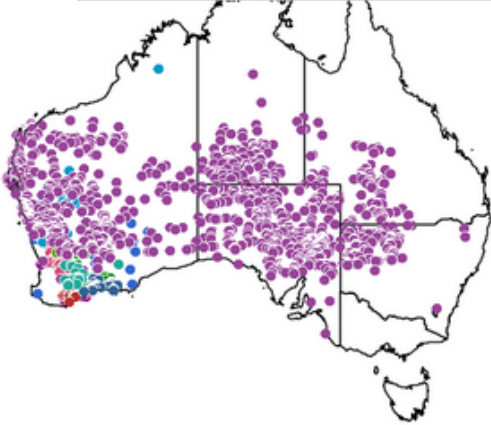
## Tree: Case Study 1: Acacia



# Integrate with ALA spatial portal

Options Character Legend

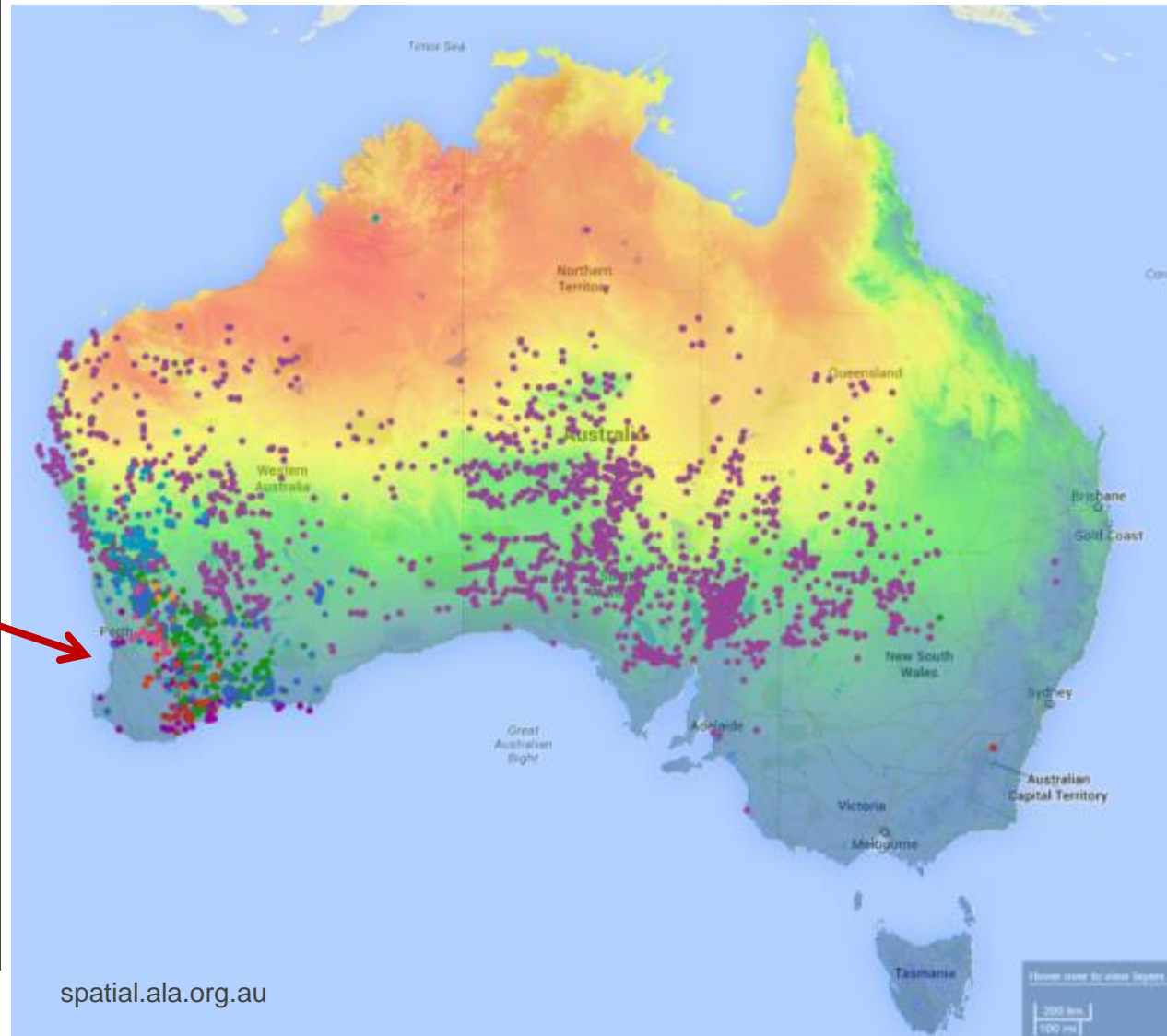
Map Search About



View in Spatial Portal

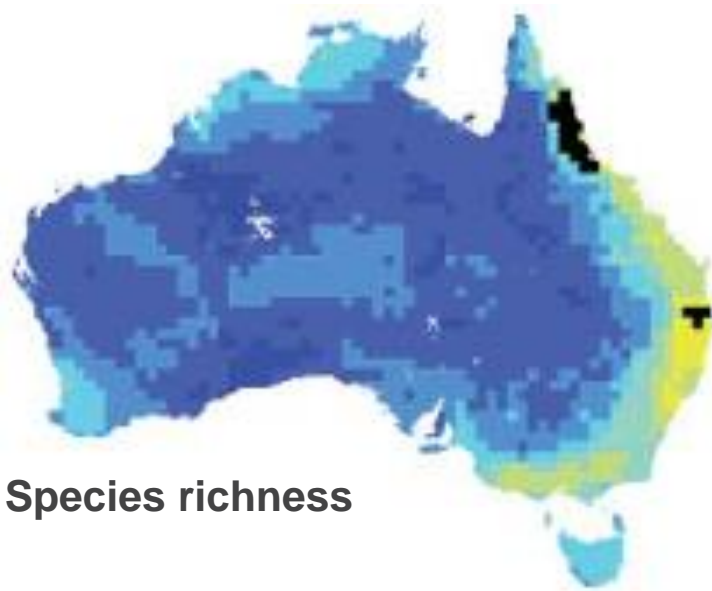
**Legend: Species**

- Acacia fragilis
- Acacia brachyphylla
- Acacia stanleyi
- Acacia assimilis
- Acacia heteroclita
- Acacia aulacophylla
- Acacia campylophylla
- Acacia leptoneura
- Acacia declinata
- Acacia curvata
- Acacia tetragonophylla
- Acacia acanthaster

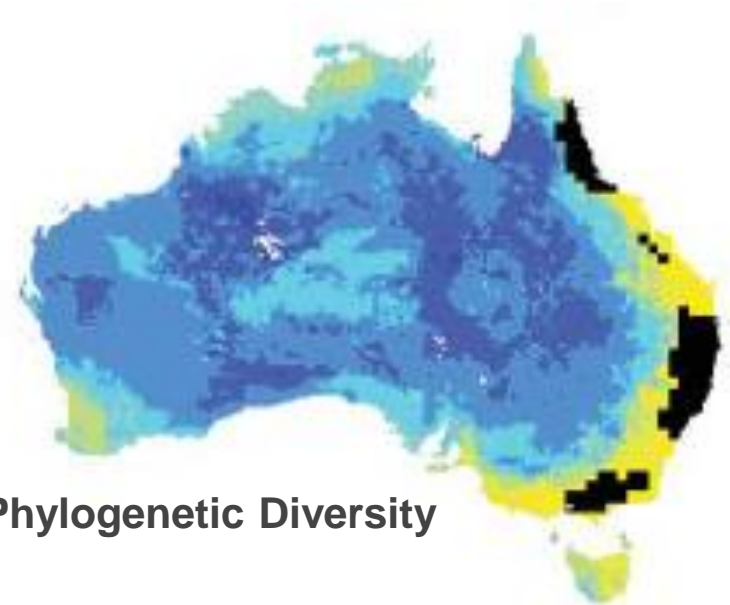


# Enabling phylogenetic views of ALA data

- calculate phylogenetic measures – e.g. phylogenetic diversity
  - compare to measures generated from non-phylogenetic approaches (e.g. PD and species richness)



**Species richness**



**Phylogenetic Diversity**

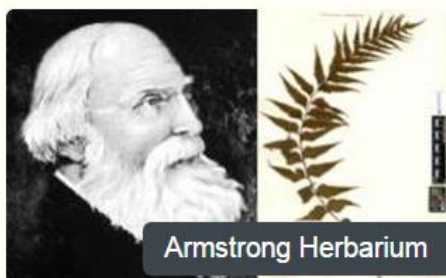
Marsupial diversity – black indicates hotspots

Amboni & Laffan 2010

# DigiVol

Volunteers building knowledge and communities through digitising collections

## Virtual expedition of the day



Armstrong Herbarium

ALLAN HERBARIUM (CHR)  
**Armstrong Herbarium**

Armstrong Herbarium

Start transcribing

## More expeditions [View all](#)

0%

**Australian Museum Thornton Diaries Expedition - Diary of Chile**

2%

**South Africa - Acocks Collecting Register Book 4**

17%

**Ornithological Journals of William Brewster (1890)**

25%

**Ornithological Journals of William Brewster (1892)**

25%

**Ornithological Diaries of William Brewster (1866)**

41%

**Smithsonian US Herbarium - Dalbergia around the world**

42%

55%

56%

## Honour Board

Day Tripper	
Baz Walter	3
Weekly Wonder	
Baz Walter	3
Monthly Maestro	
Megan Edey	1
DigiVol Legend	
Megan Edey	2

[View my tasks](#)

## Expedition stats

109507 tasks of 116409 completed by 698 volunteer [transcribers](#).

## News

01 Sep 2014  
 DigiVol sets new records  
 August was the most productive



**Institution:** Australian Museum  
Entomology Collection

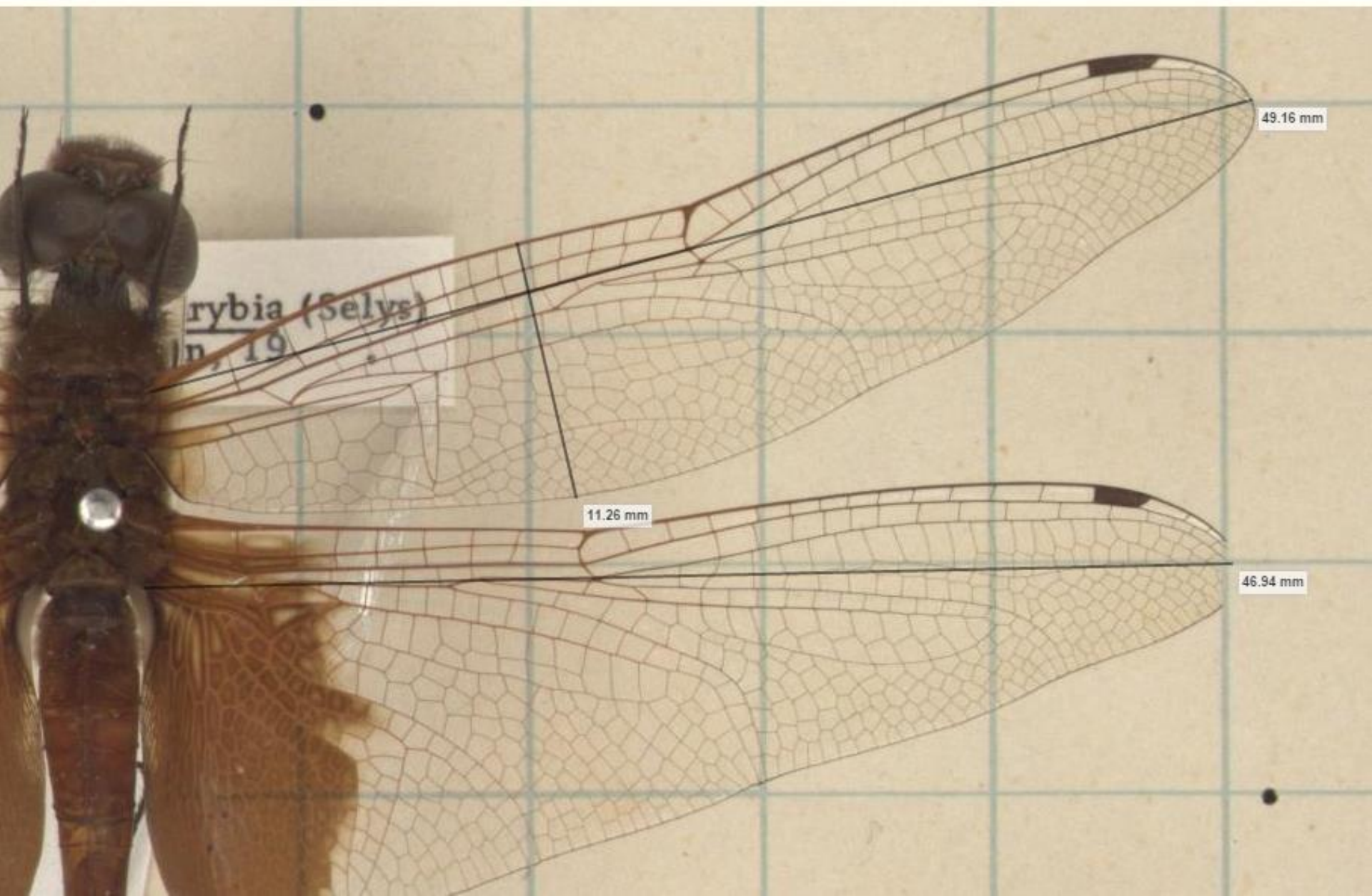
**Project:** Australian Museum Robber  
Fly Expedition - 5

**Catalog Number:**  
K.417976

**Taxa:**  
Cerdistus sp.

[Specimen Label Tutorial](#)





rybia (Selys)  
n, 19

49.16 mm

11.26 mm

46.94 mm

## 4-Step Vision

- Increasing our capacity to generate images
  - Faster, smarter, better data capture, new types of images
- Manage, discover, view images
  - Annotation, tags, zooming, panning
- Extract information from image libraries
  - Annotation, measuring,
- Manage that information
  - Hold information extracted from image libraries

# Demo of true-color 3D insect models

3D models provided by [Chuong Nguyen](#) of [CSIRO Computational Informatics](#). The specimens were mostly from

This data set is provided to accompany the following paper:

Chuong Nguyen, David Lovell, Matt Adcock and John La Salle (2013) **Capture natural-colour 3D models of in**



This [YouTube video](#) describes the 3D insect scanning systems that created these 3D models.

This work is supported by [CSIRO Computational Informatics](#), [CSIRO Ecosystem Sciences](#), [Atlas of Living Australia](#)

Licence: 3D models are released under Creative Commons Attribution Licence.

Rights statement: All Rights (including copyright) CSIRO Australia 2013.

Contact: [Chuong Nguyen](#) of CSIRO Computational Informatics.

Note: 3D models were tested with Firefox 25.0 and Chrome 31.0. *Last update on 19 December 2013.*



Navigation: Examine  
Detail: 100%  
Date: 1/1/2011 10:00:00 AM  
Show Everything | Reset View

# Extracting and storing information



Christmas Beetle (DAP)

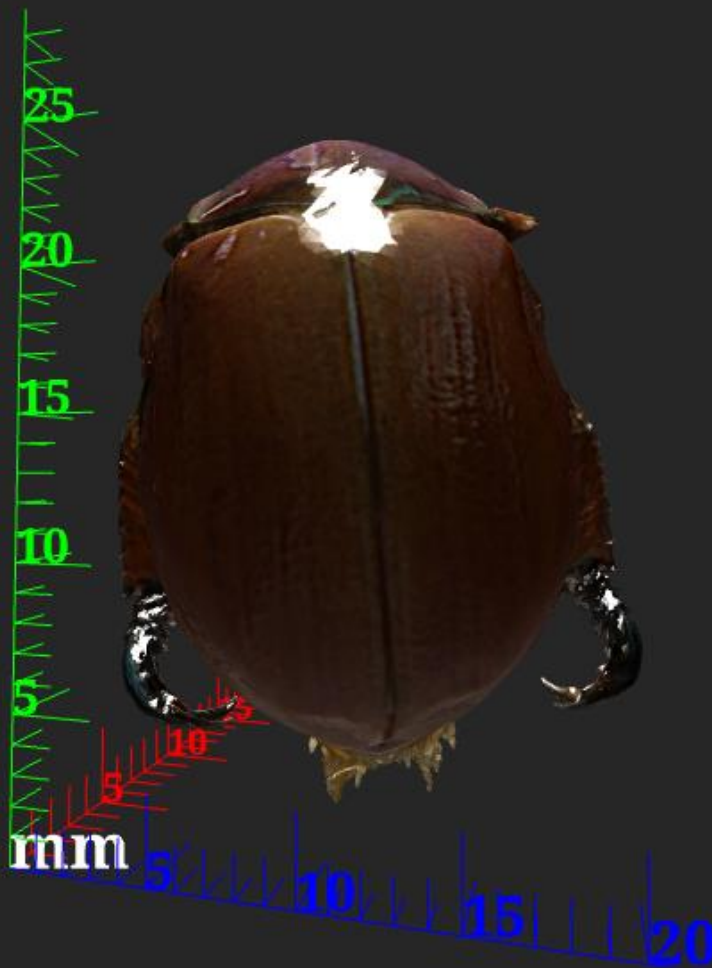


Annotations

Opacity

Scale Bar

Other



Annotations

Opacity

Scale Bar

Axes:  X  Y  Z Ticks:

Small  Big Tags:

Small  Big Increments

Small/Big:

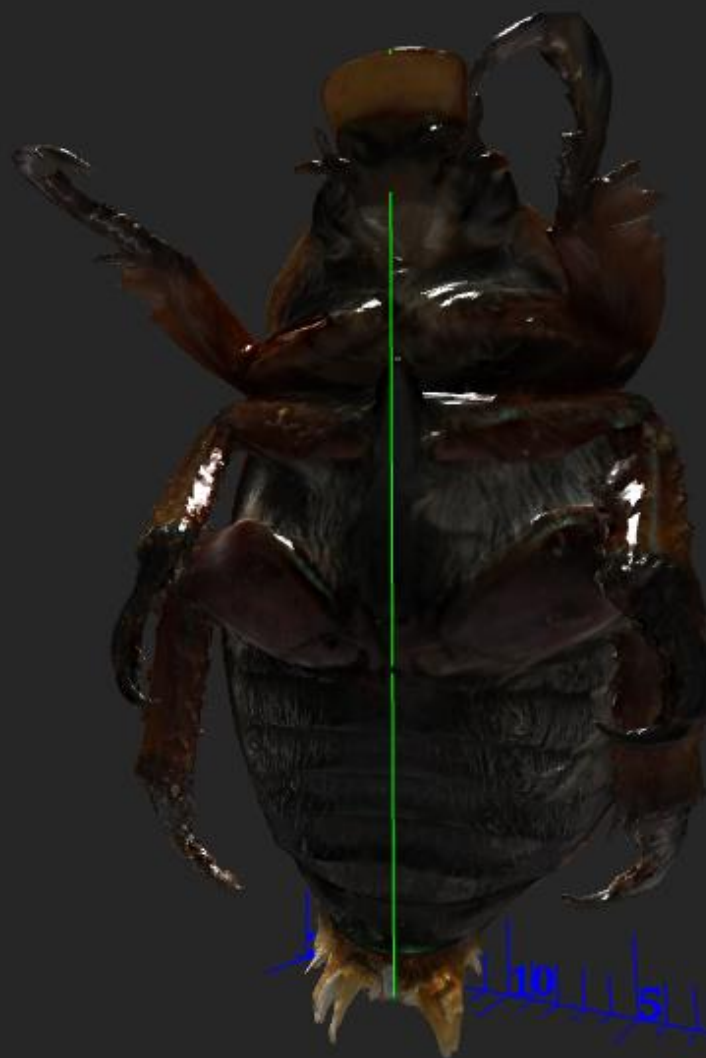


Units:

Other

Drawing Line

Len: 54.749mm



mm

5

10



Annotations

Opacity

Scale Bar

Axes: X Y Z Ticks:

Small Big Tags:

Small Big Increments

Small/Big:

1

5

Units: mm ▾ Apply

Other

### Line Details

**Title**

**Details**

**User**

**Date**

**Length (mm)**

**Distance (mm)**



mm

5  
10

## Annotations

▲  Default Set (1):

Use as active

▲  Highlights (0):▲  Lines (1):▲  body length (1)▲  Body Parts (0):▲  Images (0):▲  Viewpoints (0):

Create New Set...

Load Saved Set...

Opacity

Scale Bar

Other





## Annotations

▲  **Default Set (2):**

Use as active

▲  **Highlights (0):**

▲  **Lines (2):**

▲  body length (1)

▲  body width (1)

▲  **Body Parts (0):**

▲  **Images (0):**

▲  **Viewpoints (0):**

Create New Set...

Load Saved Set...

Opacity

Scale Bar

Other



Draw Sticky Line





## Annotations

### ▲ Default Set (3):

Use as active

### ▲ Highlights (0):

### ▲ Lines (3):

▲  body length (1)

▲  body width (1)

▲  length elytra (1)

### ▲ Body Parts (0):

### ▲ Images (0):

### ▲ Viewpoints (0):

Create New Set...

Load Saved Set...

Opacity

Scale Bar

Other



Annotations

▲  **Default Set (4):**

Use as active

▲  **Highlights (0):**

▲  **Lines (3):**

▲  body length (1)

▲  body width (1)

▲  length elytra (1)

▲  **Body Parts (1):**

▲  **fore tarsi (1)**

▲  **Images (0):**

▲  **Viewpoints (0):**

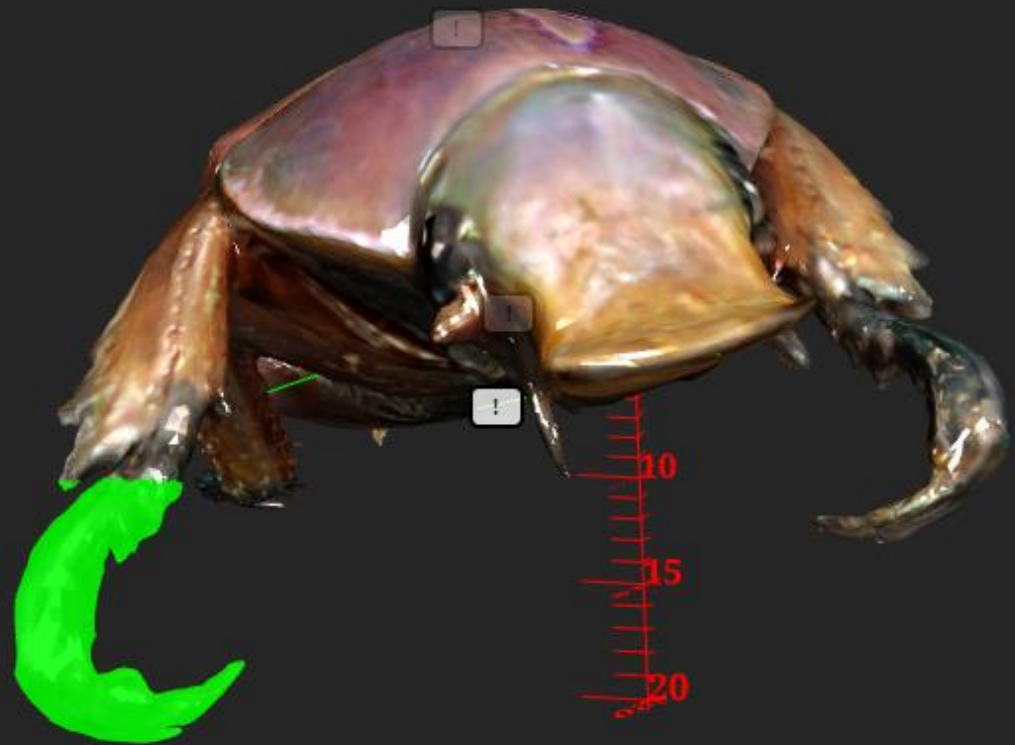
Create New Set...

Load Saved Set...

Opacity

Scale Bar

Other



## Annotations:

- ▼  Default Set (0):
- ▼  Body Parts (4):
- ▲  Measurements (4):
  - Use as active
  - ▶  Highlights (0):
  - ▲  Lines (4):
    - ▶  Front Leg Distance (1)
    - ▶  Middle Leg Distance (1)
    - ▶  Rear Leg Distance (1)
    - ▶  Back Arch Distance (1)
  - ▶  Body Parts (0):
  - ▶  Images (0):
  - ▶  Viewpoints (0):
- ▲  Interesting Areas (3):
  - Use as active
  - ▲  Highlights (3):
    - ▶  Back Region (1)
    - ▶  Strange Colouring (1)
    - ▶  Unusual Head Shape (1)
  - ▶  Lines (0):
  - ▶  Body Parts (0):
  - ▶  Images (0):
  - ▶  Viewpoints (0):

Create New Set...

Load Saved Set...

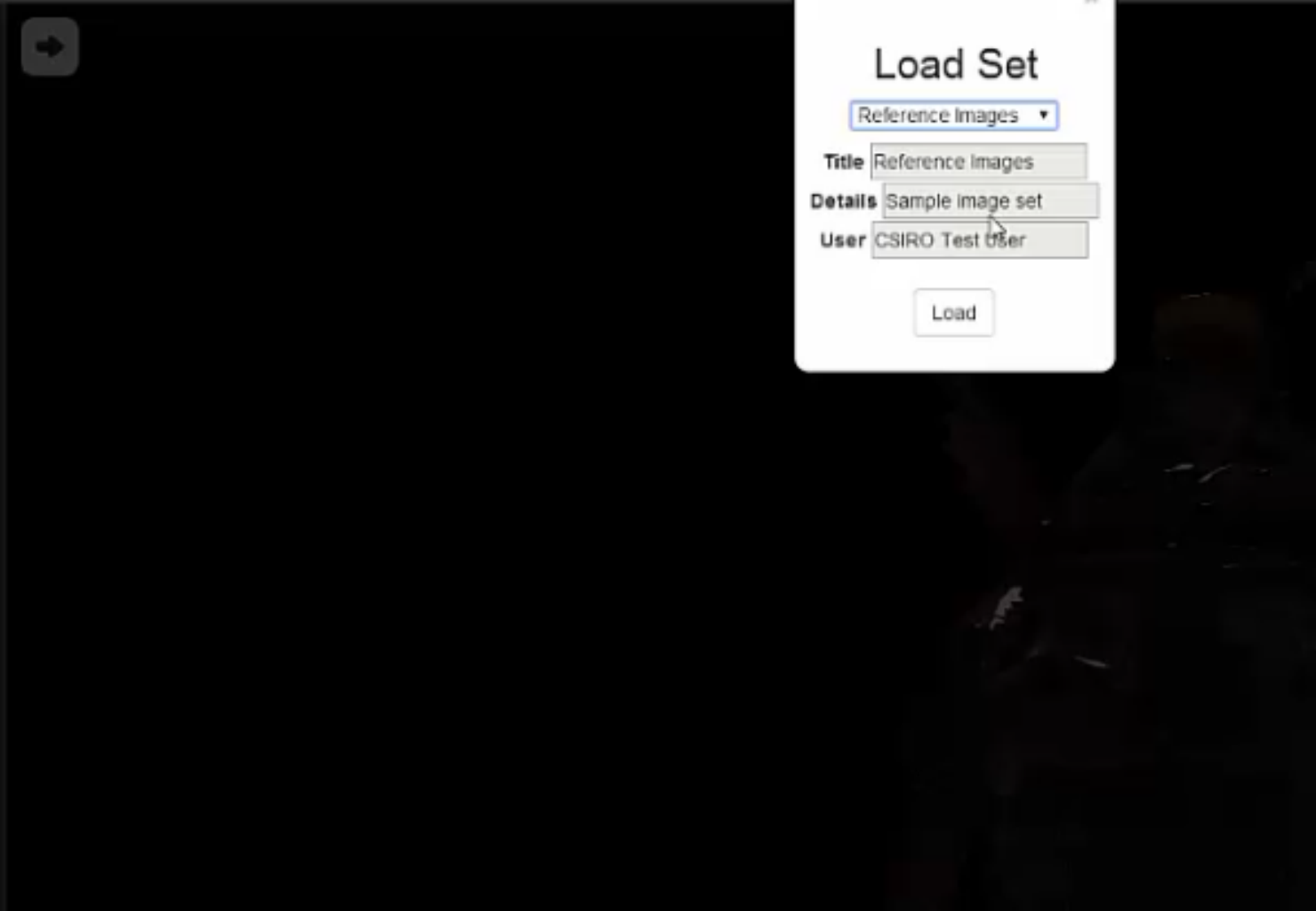


Annotations:

- ▼ Default Set (1):
- ▼ Body Parts (4):
- ▼ Measurements (4):
- ▼ Interesting Areas (3):

Create New Set...

Load Saved Set...



### Load Set

Reference Images ▾

Title Reference Images

Details Sample image set

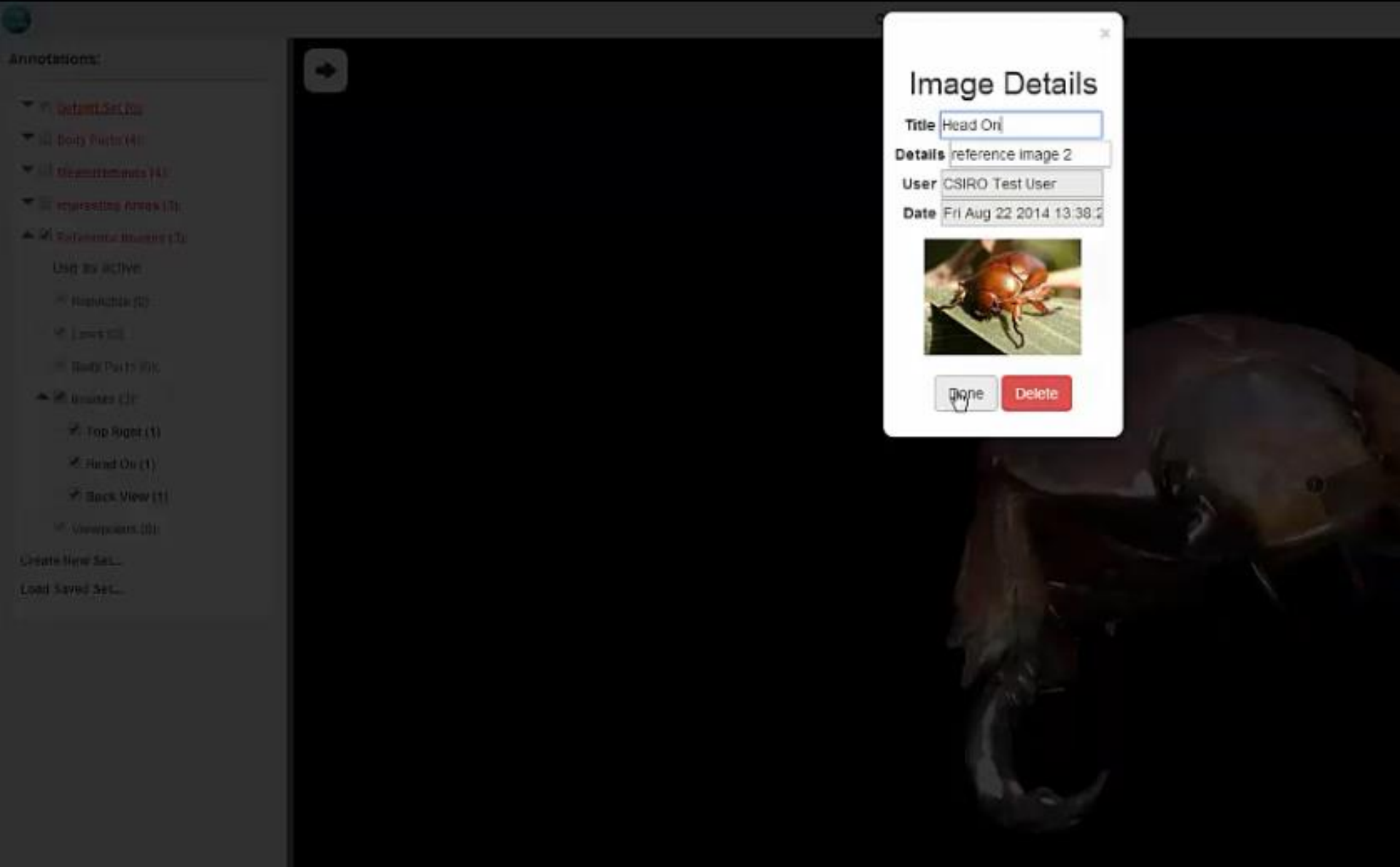
User CSIRO Test user

Load

## Annotations:

- [Default Set \(1\)](#)
- [Body Parts \(4\)](#)
- [Measurements \(4\)](#)
- [Interesting Areas \(3\)](#)
- [Reference Images \(3\)](#)
  - Use as active
  - [Highlights \(0\)](#)
  - [Lines \(0\)](#)
  - [Body Parts \(0\)](#)
- [Images \(3\)](#)
  - [Top Right \(1\)](#)
  - [Head On \(1\)](#)
  - [Back View \(1\)](#)
  - [Viewpoints \(0\)](#)

[Create New Set...](#)[Load Saved Set...](#)



- Annotations:
- [-] Defunct Set (0)
  - [-] Body Parts (4)
  - [-] Measurements (4)
  - [-] Representative Areas (3)
  - [+] Reference Images (3)
    - Use by Active
    - [-] Head On (0)
    - [-] Legs (0)
    - [-] Body Part (0)
  - [+] Images (1)
    - [-] Top Right (1)
    - [-] Head On (1)
    - [-] Back View (1)
    - [-] Viewpoints (0)
- Create New Set...
- Load Saved Set...

**Image Details**

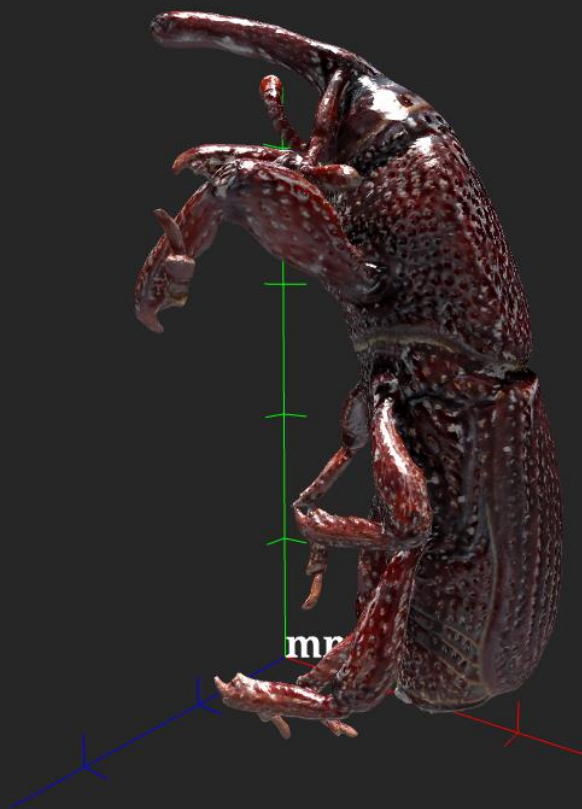
Title:

Details:

User:

Date:



[Annotations](#)[Opacity](#)[Scale Bar](#)[Other](#)



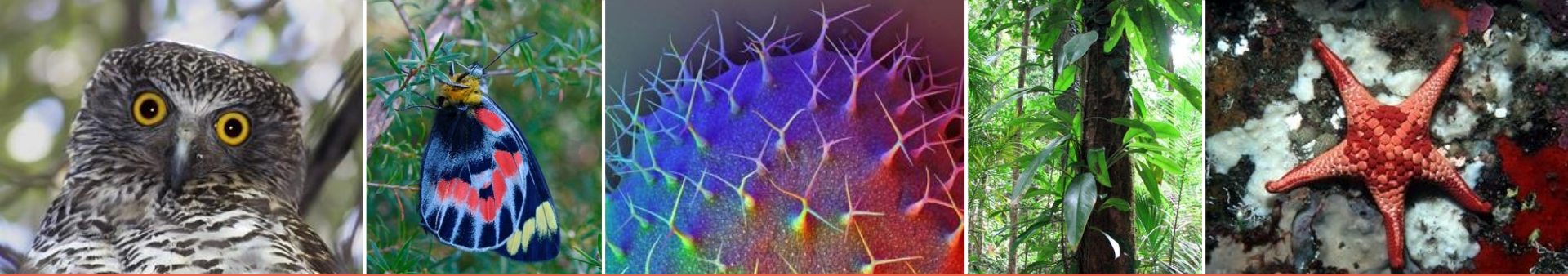
# Adding value to image libraries

- Ability to extract information from 3D images
- Store that information
  
- Add relevant information
  - High resolution images
  - Highlight diagnostic characters

# Future activities

- Better imaging tools
- Virtual taxonomy
- eFloras / eFaunas
- Trait bank
- Species interactions
- Indigenous knowledge
- Environmental monitoring
- Biosecurity
- Citizen Science

All Atlas software is open source



[www.ala.org.au](http://www.ala.org.au)

Thank you  
[www.ala.org.au](http://www.ala.org.au)



ATLAS OF **LIVING**  
**AUSTRALIA**  
sharing biodiversity knowledge