

# Atlas of Living Australia Delivering collection information



John La Salle



# ALA - sharing biodiversity knowledge





## >\$46 million investment

- \$8.2M NCRIS (2007-2011)
- \$30M SS EIF (2010-2012)
- \$2.8 M CRIS (2013-2015)
- \$5.7M NCRIS2013 (2013-2015)





A world-leading collaborative e-infrastructure integral to growing biodiversity knowledge



## Partners – founding & beyond

- founding partners and contributors primarily biological collections and museums
- increased contribution & use by citizen science, government, industry





>57 million records

- >750 data sets
- >410 spatial layers
- >3.7 billion records downloaded
- >3.5 thousand users/day



## National Research infrastructure

- NCRIS established by Howard Gov
- Currently within Education Dept (perhaps better fit in Industry & Science?)
- Related environmental infrastructures TERN (terrestrial ecological info/data capture) & IMOS (marine)





### Data

- specimens
- occurrence
- images, sounds
- literature
- sequences
- more coming.....



## Open source & open access

- ALA driving cultural shift regarding open access to data
- ALA at forefront of accessibility to public sector information



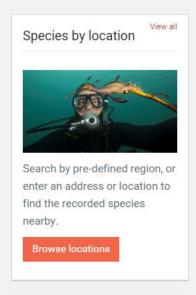
## System

- data capture & aggregation
- data management
- data discovery
- data visualisation
- data analysis & reporting

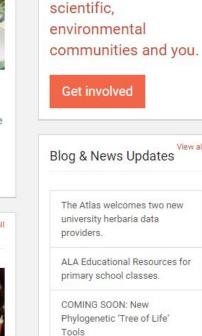
Search the Atlas ... Submit

## Explore the Atlas of Living Australia







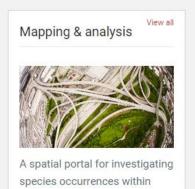


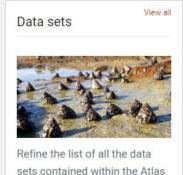
Sharing biodiversity

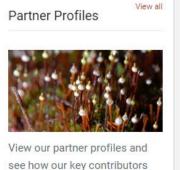
Australia's academic,

knowledge

Contributed by





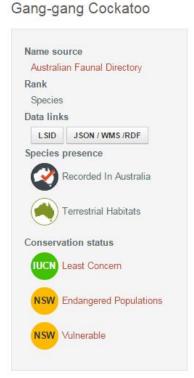


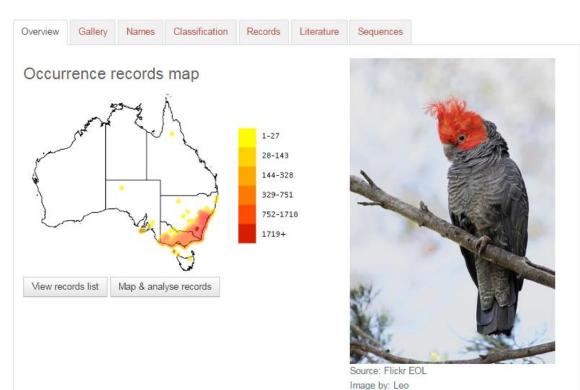
Home → Australia's species → Callocephalon fimbriatum

## Callocephalon fimbriatum (Grant, 1803)

Record a sighting Alerts A

User settings \*





#### Sounds



## Description

View more details of this audio

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

Gang-gang cockatoos are one of the more distinctive and charismatic members of Australia's avifauna. These birds are primarily slate-grey, with the males easily identified by their scarlet head and wispy crest, while females have a grey head and crest and feathers edged with salmon pink on the underbelly. ... source: Office of Environment and Heritage

## Explore by pre-defined region



Pre-defined regions include states and territories, local government areas, biogeographic regions, marine regions, management regions and more. Explore regions

## Explore by address or location



Simply enter an address or location to find the recorded species nearby. You can set the size of the search area and download the results.

Explore your area

## Sharing biodiversity knowledge

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

Get involved

## Blog & News Updates

The Atlas welcomes two new university herbaria data providers.

ALA Educational Resources for primary school classes.

COMING SOON: New Phylogenetic 'Tree of Life' Tools

#### Connect with us







View all



Search for Australian flora and fauna species by common, scientific name or search by category.

Browse species



Search by pre-defined region, or enter an address or location to find the recorded species nearby.

Browse locations



Learn about the institution. the collections they hold and view records of specimens that have been databased.

Browse collections

Australia s academic, scientific, environmental communities and you.

Get involved

Mapping & analysis



View all

A spatial portal for investigating species occurrences within specified locations and the environmental impacts.

Browse mapping

Data sets



View all

Refine the list of all the data sets contained within the Atlas by institution, integration status, content, resource, and license.

Browse data sets

Partner Profiles



View all

View our partner profiles and see how our key contributors help grow the Atlas of Living Australia.

Browse profiles

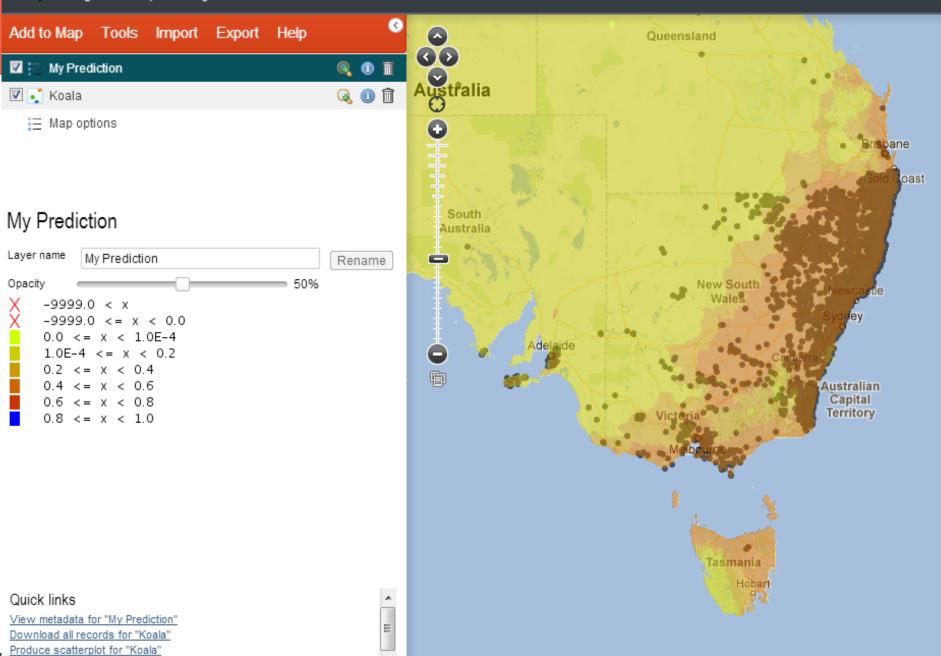
Blog & News Updates

> The Atlas welcomes two new university herbaria data providers.

ALA Educational Resources for primary school classes.

COMING SOON: New Phylogenetic Tree of Life' Tools

Connect with us



Kakadu

National Park

Nitmiluk

National Park

•

6

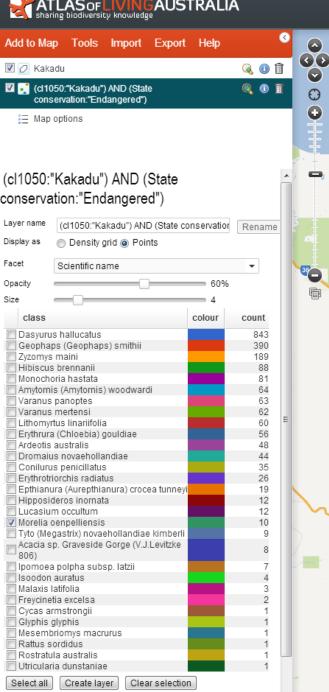
Mary River

National Park

Umbrawarra

Gorge

Nature Park



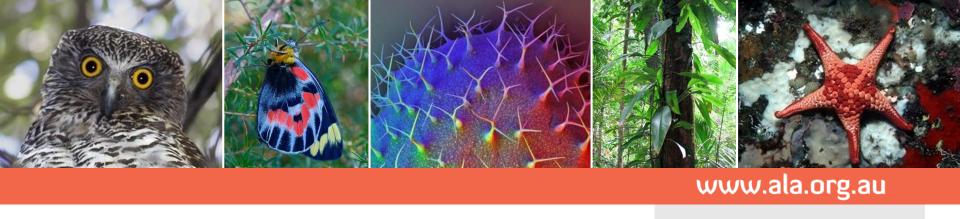
# ALA – some perspective



We are specifically not a digitisation initiative – Although we want to help people to digitise, And we're where you come when you have digitised data.

So let's talk about digitisation

Digitisation is good Doing something with digitised information is better



# A virtual natural history museum



# Digitising Australian collections



Imagine being able to examine any biological specimen in any collection in Australia. You could see it, explore it, know where it came from, record information about its size and appearance, and have access to its genetic make-up.

Imagine having all the information from the biological collections in the form of computable data – so that you could explore questions about distribution, species interactions, change through time, and influence of environmental parameters.

Australia's rich collection information will be available to anyone, anywhere, anytime



Collections

Mapping & analysis

Data sets

Blogs

Get involved

About the Atlas ▼

Home → Australia's species → Platycercus elegans

## Platycercus elegans (Gmelin, 1788)

Record a sighting

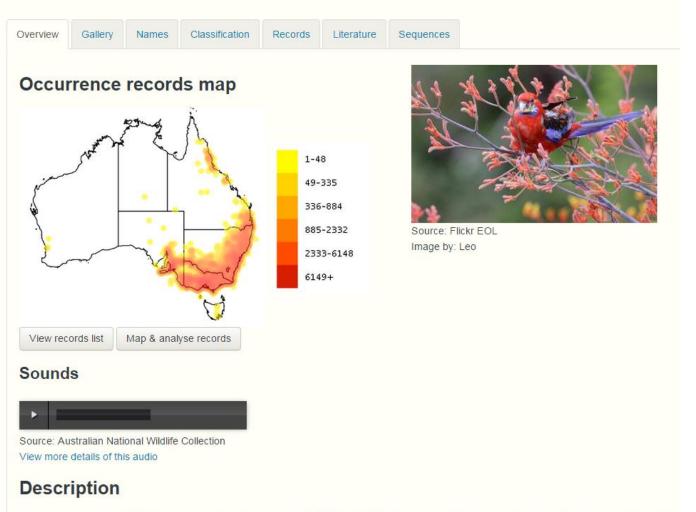
Alerts 🔔

Q

### Crimson Rosella

**Species** 

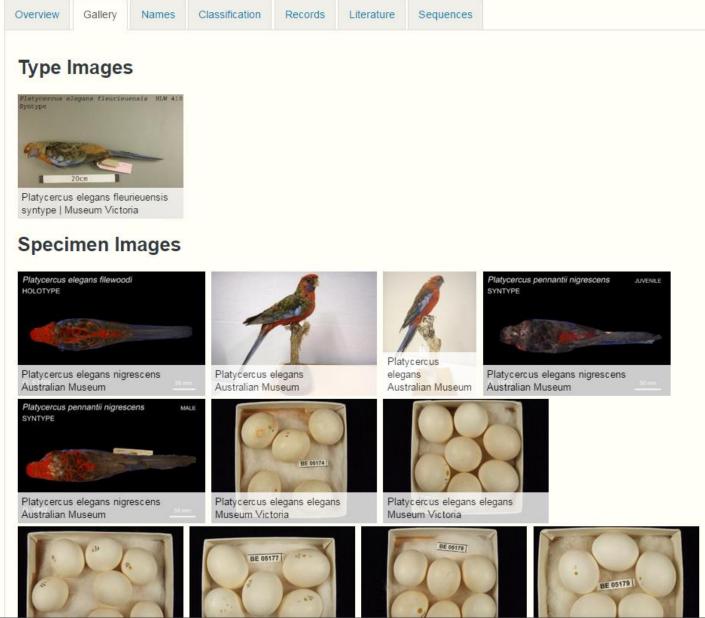




Platycercus elegans is a medium-sized Australian parrot at 36 cm (14 in) long, much of which is tail. There are five subspecies, three of which are actually crimson. The red is replaced by yellow in the case of var. flaveolus and a mixture of red, orange and yellow in the Adelaide Rosella. Adults and juveniles generally show strikingly different colouration in south-eastern populations, with predominantly greenish-olive body plumage

#### Crimson Rosella









## Type Images

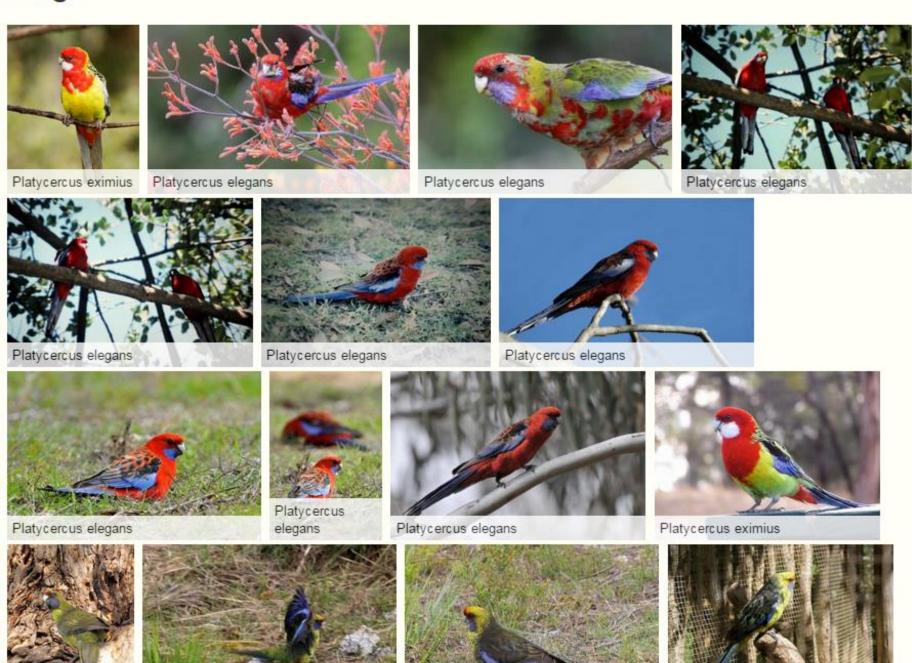


## Specimen Images



## **Images**

Platycercus

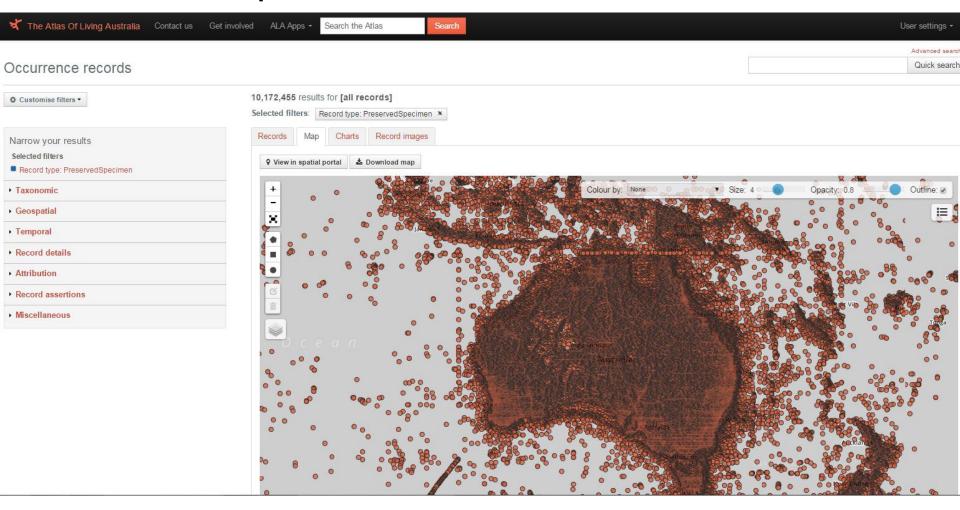






# Preserved specimens

# 10.17 million



# Collection data in the Atlas



## Collection images >53,000



Search the Atlas

User settings ·

Specimens images from Australia's Natural History collections

Images from Australian Natural History collections made available by the museums and herbaria of Australia. To view images from all collections, click here.





#### Museum Victoria Ornithology Collection

Museum Victoria

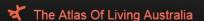


The Omithology Collection contains more than 70 000 specimens of mounted birds, skins, skeletons, eggs and specimens preserved in alcohol. One of the largest Australian avian collections, primarily of Australian species and with a strong Victorian emphasis, it includes material from a broad spectrum of the world's avifauna and represents in excess of 4000 species

## Collection data in the Atlas



# Collection images >53,000



Contact us

Get involved

ALA Apps -

Search the Atlas

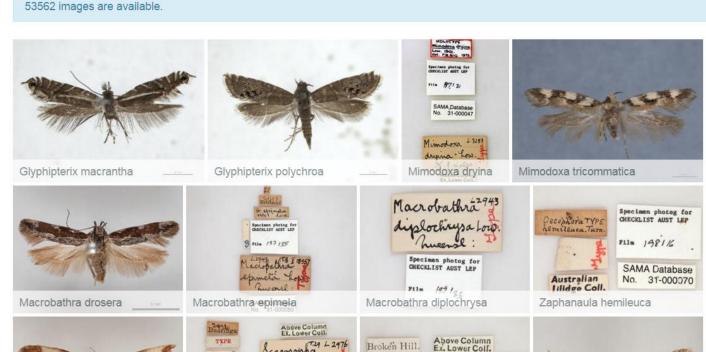
Search

User settings -

Home → Specimen images → all collections

## Specimen images from all collections





# ATLAS OF LIVING AUSTRALIA

# Collection Based Images

- >53,000 collection based images
  - Specimens
  - Herbarium sheets
  - Whole drawer images
  - Type specimens
  - Skulls
- ?Coming soon
  - X-rays (CSIRO Australian National Fish Collection)
  - 3D images
  - CT/MicroCT Scans
  - SEM's of parts
  - Morphological characters

# Finding images in the Atlas



- By taxon
  - Species
  - Genus
  - Family
- By collection



Anthela asciscens Type: holotype South Australian Museum

View details of this record





image 76 of 120



# Collection data in the Atlas



## Collection images >53,000



Search the Atlas

User settings ·

Specimens images from Australia's Natural History collections

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Museum Victoria



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# Viewing images in the Atlas



Species

Locations

Collections

Mapping & analysis

Data sets

**Blogs** 

Get involved

About the Atlas ▼

Home → Australia's species → Castiarina pseudasilida

## Castiarina pseudasilida (Barker, 1983)





My profile Logout

Search the Atlas



Species Locations

Collections Mapping & analysis

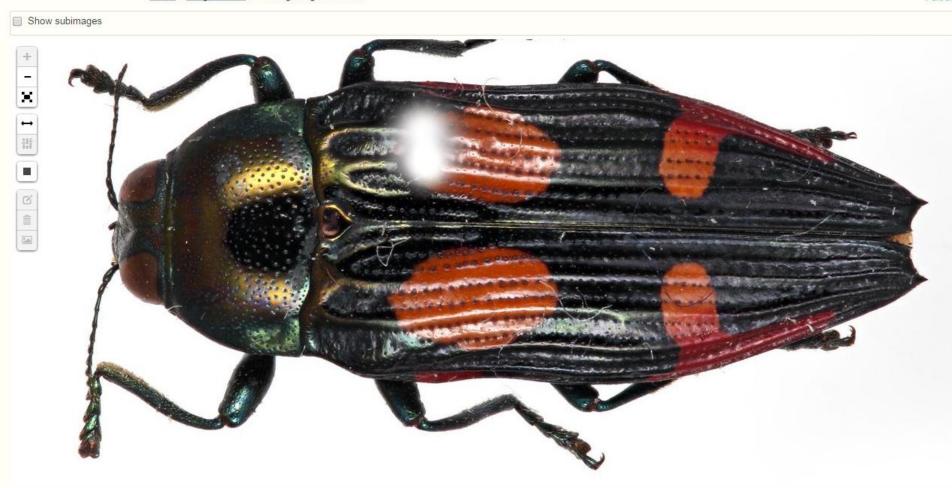
Data sets

Blogs Get involved

About the Atlas ▼

Home » Image Details » Viewing Image 7142112

1 album





5 mm

Species

Locations

Collections

Mapping & analysis

Data sets

Blogs

Get involved

About the Atlas \*

Home → Australia's species → LIBELLULIDAE

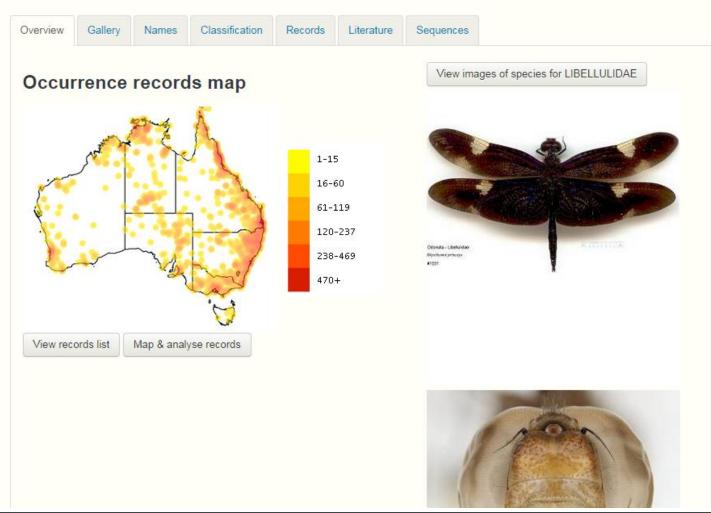
## LIBELLULIDAE

Alerts A Record a sighting

Q

## **Common Skimmers**





My profile Logout

Search the Atlas

Q

Species

Locations Collections

Mapping & analysis

Data sets

Blogs Get involved

ed

About the Atlas ▼

Home → Australia's species → LIBELLULIDAE

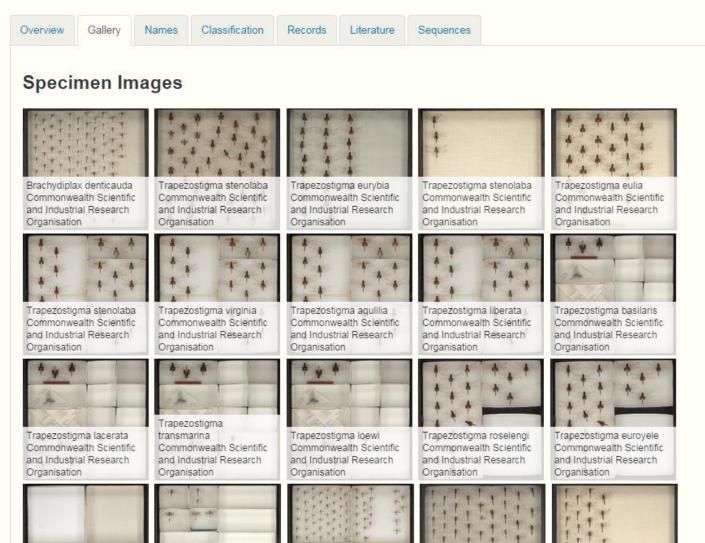
## LIBELLULIDAE

Record a sighting

Alerts A

#### **Common Skimmers**

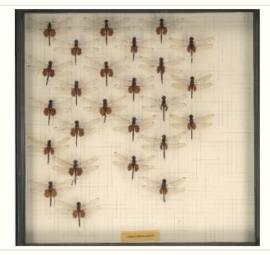




Species Locations Collections Mapping & analysis Data sets Blogs Get involved About the Atlas ▼

Home » Image details 4845589

## Image details 4845589



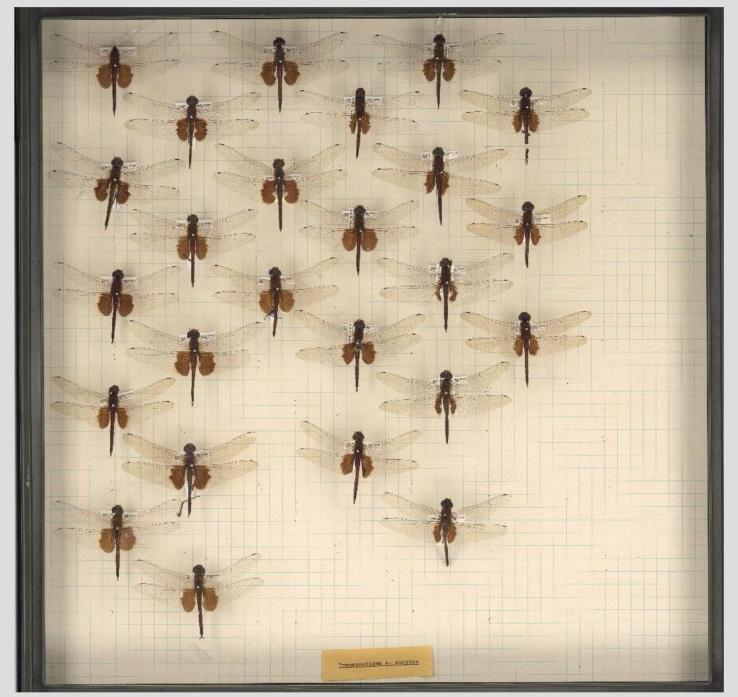
Tags



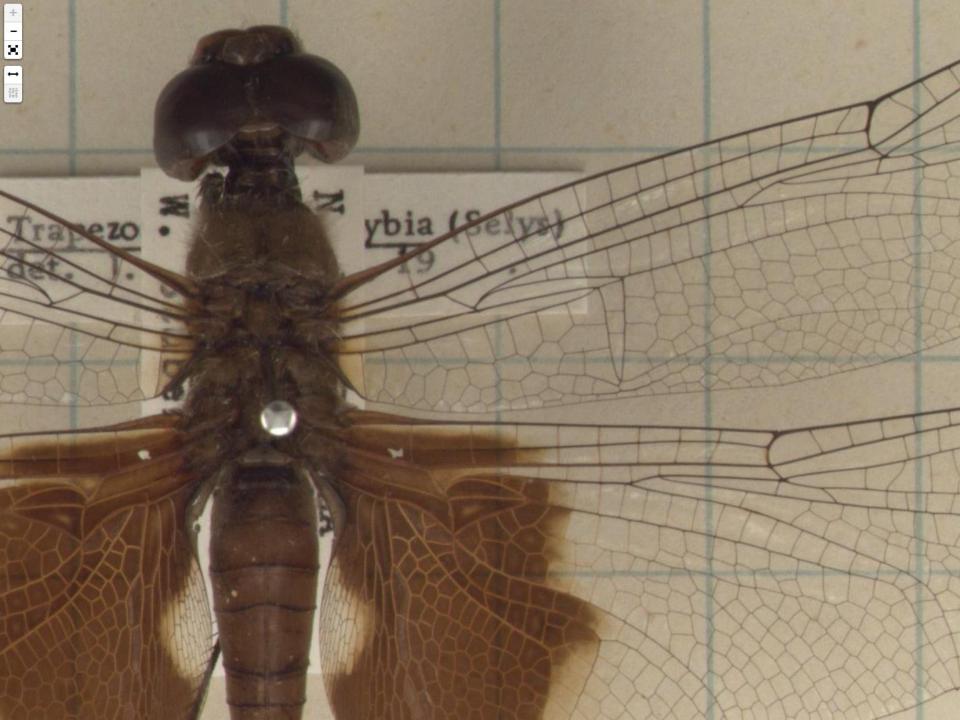
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|--|--|
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| Filename                               | dr441  8b27dce0-f75e-45fc-8c6f-0e27630addbf  2074371.jpeg  |
| Dimensions (w x h)                     | 16830 x 16249  |
| File size                              | 29.3 MB  |
| Date uploaded                          | 20 May, 2014 05:30:14  |
| Uploaded by                            | <unknown></unknown>  |
| Date taken/created                     | 20 May, 2014 05:30:14  |
| Mime type                              | image/jpeg   |
| Zoom levels                            | 8  |
| Linear scale                           | 0.03263707571801567 mm per pixel   |
| Image URL                              | http://images.ala.org.au/store/0/f/2/9/e348bb71-8295-428b-90c1-d9ef6e4c92f0/original   |
| MD5 Hash                               | e2a4221a37a8e7eec2680d7c5356bee0   |
| SHA1 Hash                              | a2a5bdffa6184ac2e3384269feee62f0d4bd428f   |
| Size on disk (including all artifacts) | 63.3 MB  |
| Sub-images                             | <ul> <li>dr441  8b27dce0-f75e-45fc-8c6f-0e27630addbf  2074371.jpeg_subimage_1</li> <li>dr441  8b27dce0-f75e-45fc-8c6f-0e27630addbf  2074371.jpeg_subimage_2</li> <li>dr441  8b27dce0-f75e-45fc-8c6f-0e27630addbf  2074371.jpeg_subimage_3</li> <li>dr441  8b27dce0-f75e-45fc-8c6f-0e27630addbf  2074371.jpeg_subimage_4</li> <li>dr441  8b27dce0-f75e-45fc-8c6f-0e27630addbf  2074371.jpeg_subimage_5</li> </ul> |
| Harvested as occurrence record?        | No   |
| • ±                                    |  |
|  |  |

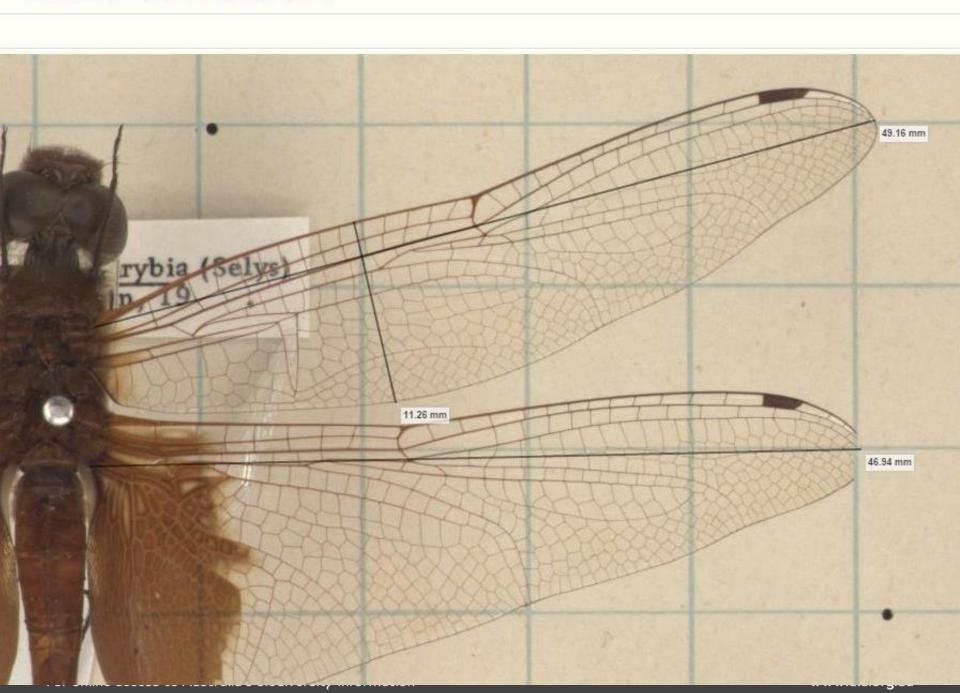
















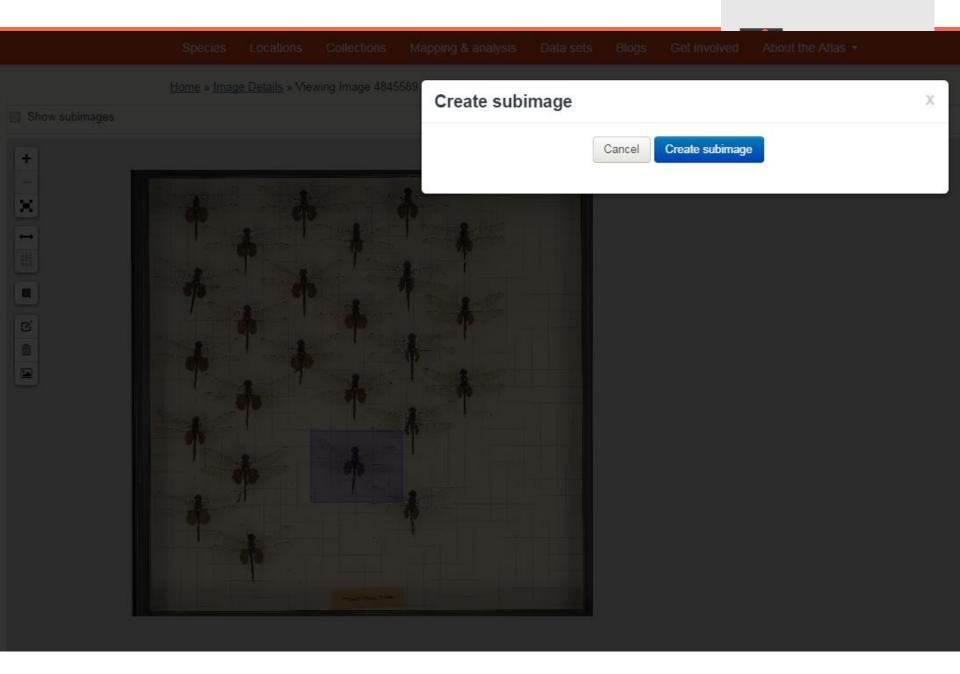


















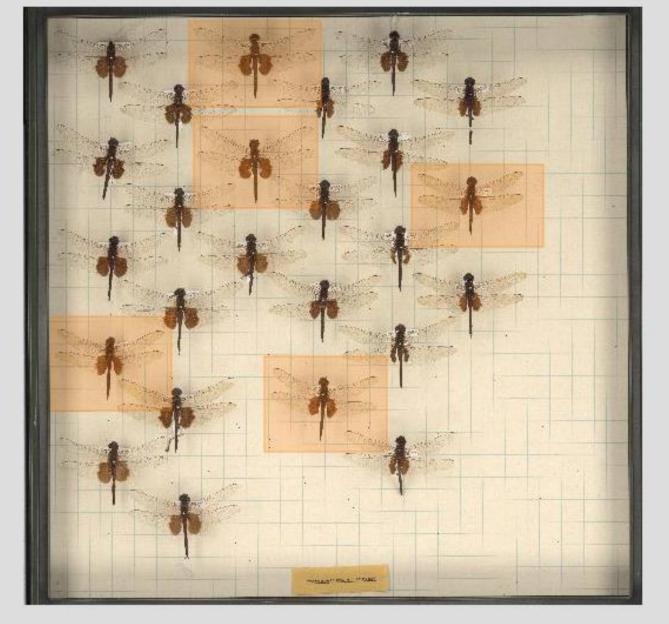












Show subimages

















For or





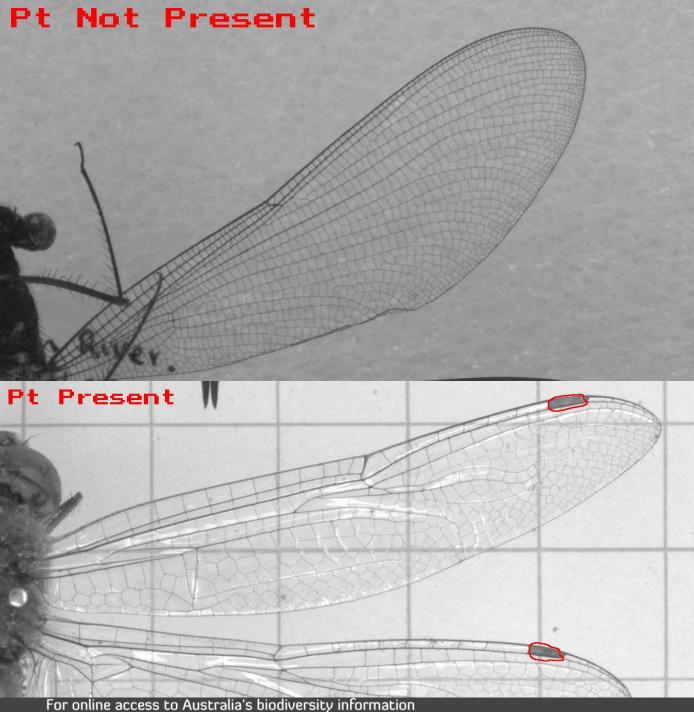








Imagine having all the information from the biological collections in the form of computable data – so that you could explore questions about distribution, species interactions, change through time, and influence of environmental parameters.





**Automated Feature** Extraction

**CSIRO** X-cutting **DPF** Computer Vision North Ryde

# The volunteer portal



DigiVol Expeditions

Institutions

Tutorials

Forum Contact Us How can I volunteer?

About DigiVol

# DigiVol

Volunteers building knowledge and communities through digitising collections

### Virtual expedition of the day



ALLAN HERBARIUM (CHR)

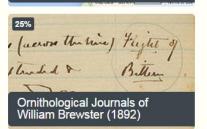
Armstrong Herbarium

Armstrong Herbarium

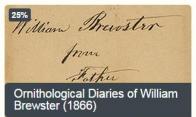
Start transcribing (A) (A)

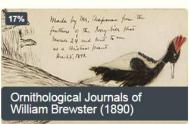
More expeditions















## Honour Board Day Tripper Baz Walter Weekly Wonder Baz Walter Monthly Maestro Megan Edey DigiVol Legend Megan Edey View my tasks

#### **Expedition stats**

109507 tasks of 116409 comp 698 volunteer transcribers

News

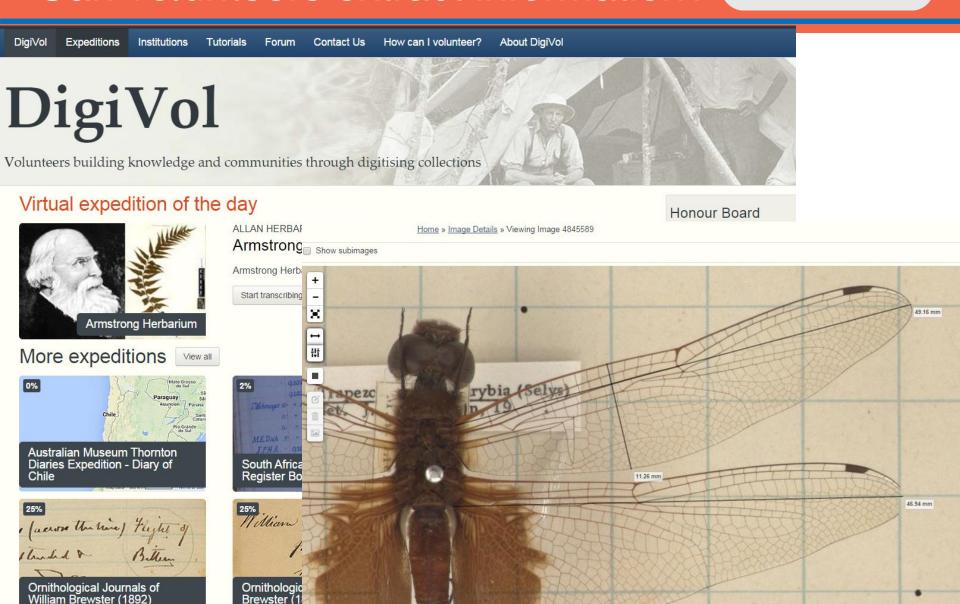
01 Sep 2014

DigiVol sets new records

August was the most productive

# Can volunteers extract information?





# Creating 3D images













# Creating 3D Images









NSW/DATA DATABASE

Vest side of the Gulf

Erokelaria Cumingham [From map of route in Bartholemen + Cramp, School Atlas, This collin would date from 1844-4

S. Lichhardt.

NSW

LOAN: 099 449

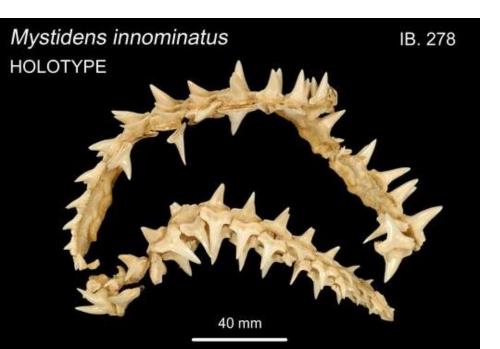


Brigges Calek am puddock as odle 43

Januaria carthamoides, Benty [22'00's 152" 86'E]

Dr. Luchhardt.



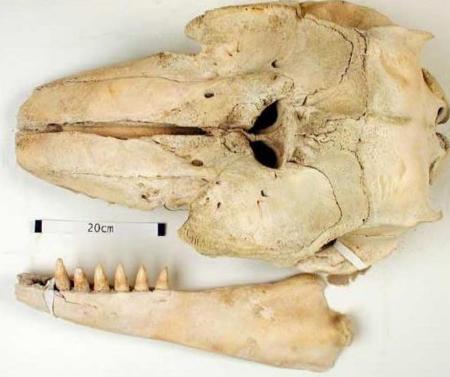




Syntype TMAG A808
Arctocephalus tasmanicus





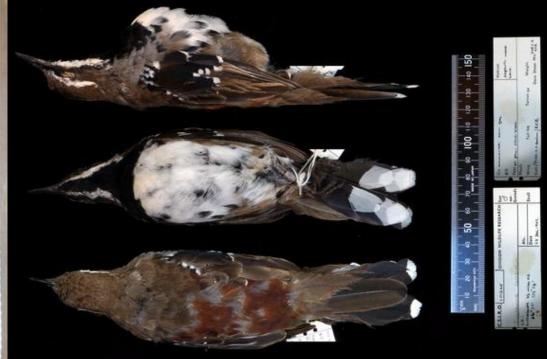


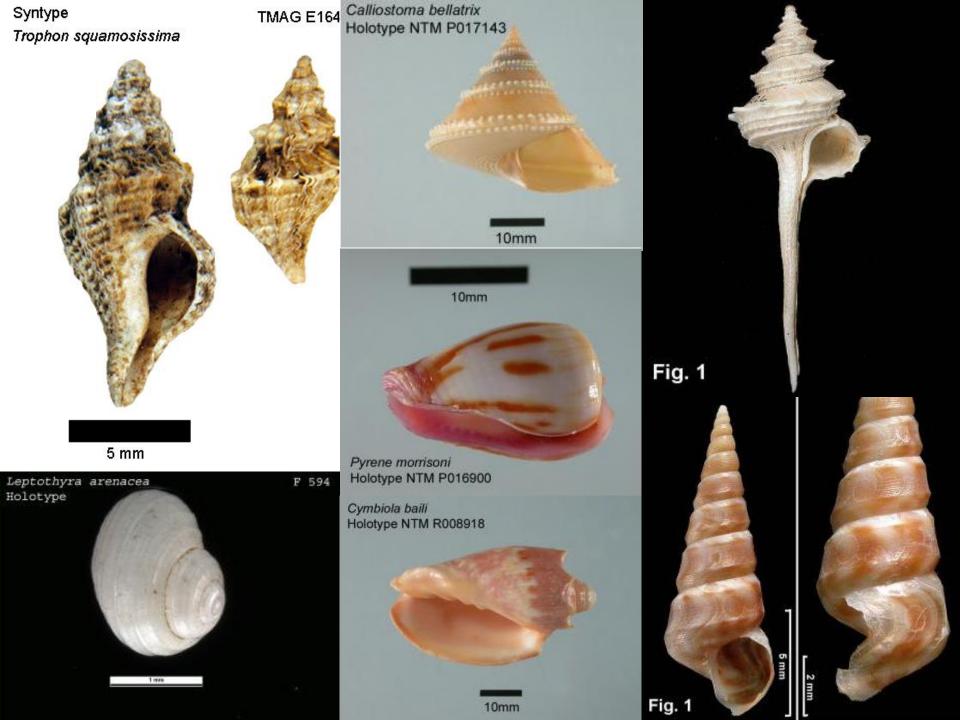












# The Atlas environment



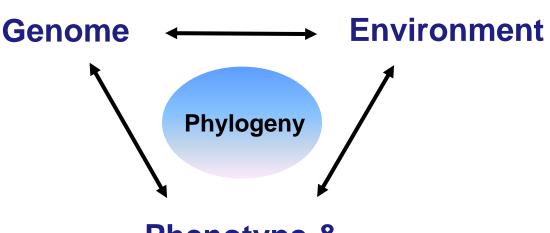
- Bringing it all together in integrated framework
  - Distribution, Images, DNA sequences, Trait data
  - Mapping and analysis tools
  - Dynamic publication
  - eFlora's and eFaunas
  - Education and outreach



# The future of museums and biodiversity research



- Discovering and understanding biodiversity
- Incorporating evolutionary dynamics
- Protecting diversity in a changing world
- Sharing knowledge



Phenotype & distribution

# ATLAS OF LIVING AUSTRALIA

# Accelerated Biodiversity Assessment

# RAPID BIODIVERSITY

- Discovery
- Documentation
- Analysis





# The Atlas and biological collections

How can the Atlas help you?

How can we embed the Atlas in your daily workflow - as researchers or collection managers?

What can we do to help you?

# ATLAS OF LIVING AUSTRALIA

# The Atlas and biological collections

# What would you like in the future?

- Better imaging tools and workflow
- Virtual taxonomy
- eFloras / eFaunas
- Phylojive (phylogeny visualisation and explorer)
- Trait bank
- Species interactions
- Biosecurity
- Citizen Science (volunteers)
- A distributed, virtual Natural History Museum for Australia

#### Acacia pubifolia

#### Description

Shrub or tree to 8 m high, single-stemmed. Bark rough to 'ironbark'-type, black. Branchlets angular, brown or orange-brown, sometimes slightly pruinose, velvety-pubescent; ridges not prominent. Phyllodes narrowly elliptic, elliptic or narrowly obovate, straight, 2–8.5 (–10) cm long, 8–30 mm wide, silvery, velvety-pubescent, later puberulous, with 1–3 slightly prominent main nerves reaching apex and base; minor nerves 5 or 6 per mm, not anastomosing; gland 1, small, basal, hairy. Spikes almost sessile, 2–5 cm long, golden. Flowers 5-merous; calyx 0.5–0.9 mm long, truncate or dissected to c. 1/6, white-pubescent, papillose at apices; corolla 1.6–1.8 mm long, dissected to 1/2–5/8, glabrous; ovary villous. Pods linear, slightly constricted between and slightly raised over seeds, 3–8 cm long, 3–4 mm wide, chartaceous, greyish, longitudinally nerved, pubescent. Seeds longitudinal, oblong-elliptic, 4–4.5 mm long, black; pleurogram indistinct, narrowly U-shaped, kdfhdslifdslifdslifd.

- Contributed by Dr M.D.Tindale and Dr P.G.Kodela with the assistance of M.Sedward, S.J.Davies, C.Herscovitch, D.A.Keith and/or D.A.Morrison
- Edited by Dave Martin

#### Distribution

Occurs in the Darling Downs District, south-eastern Qld, from Glen Aplin to Wallangarra, common near Wyberba, S of Stanthorpe; less common in N.S.W. where it is recorded from Torrington State Recreation Area (NW of Emmaville) and near Warrabah National Park (c. 60 km W of Armidale).

- Contributed by Dr M.D.Tindels and Dr P.G.Kodels with the assistance of M.Bedward, S.J.Davies, C.Herscovitch, D.A.Keith and/or D.A.Montson

#### Habitat

Grows on rocky granite hillsides, in sandy, stony or loam soil in eucalypt-scrub woodland or Eucalyptus -Callitris forest.

- Contributed by Dr M.D.Tindale and Dr P.G.Kodela with the assistance of M.Bedward, S.J.Davies, C.Herscovitch, D.A.Keith and/or D.A.Morrison

#### Links

· Acacia pubifolia - Old Flora of Australia site page for Acacia pubifolia

#### Taxonomy from Australian Plant Census

- Kingdom: Plantae
- · Phylum: Charophyta
- · Class: Equisetopsida
- · Subclass: Magnoliidae
- Order: Fabales
- Family: Fabaceae
   Genus: Acacia
- Species: Acacia pubifolia





#### Conservation & sensitivity lists

- . Census of the Queensland Flora 2013 Vascular plants
- Greening the Grain Belt test list.



The Atlas Of Living Australia Contact us Get involved ALA Apps •

Search the Atlas

User settings ▼

### **Phylolink**

#### Overview

Phylolink is a collection of tools through which biodiversity can be explored from a phylogenetic (or tree of life) perspective.

At the core of these tools is the ability to easily intersect a phylogenetic tree with species occurrence records, environmental data, and species character information.

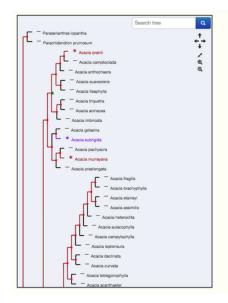
The result is powerful ways of combining data to generate flexible and customisable visualisations, profiles and metrics for biodiversity.

#### Start Phylolink

#### **Explore Phylogenetic Diversity**

#### Collaborators and acknowledgement:

These tools are the result of a collaboration between scientists, the creators of PhyloJIVE and the Atlas of Living Australia. The tools have been developed by Temi Varghese, Rebecca Pirzl, Adam Collins, Nick dos Remedios and Dave Martin, with advice from Joe Miller, Craig Moritz, Dan Rosauer and Garry Jolley-Rogers.



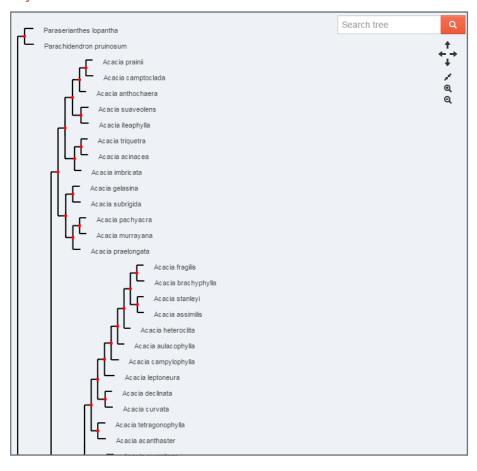




\* The Atlas Of Living Australia Contact us Get involved ALA Apps • Search the Atlas Search

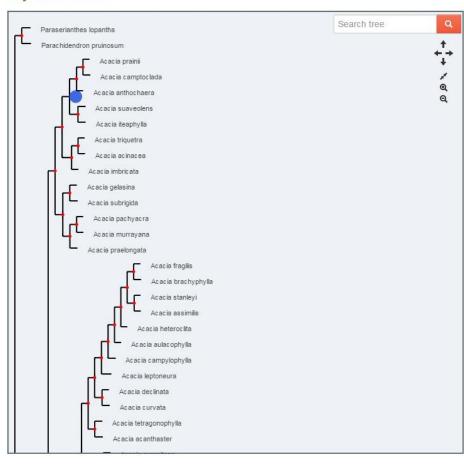
User settings •

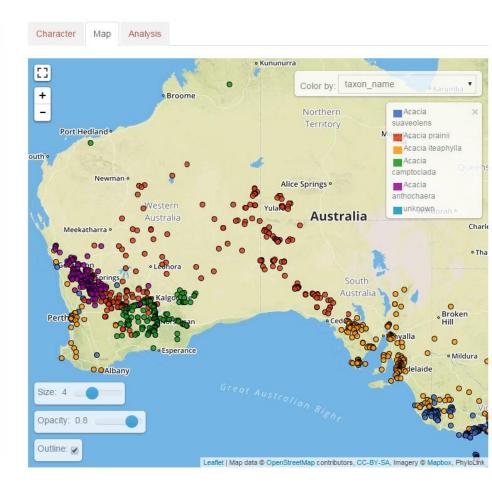
Home / Start PhyloLink / My Visualisations



| Character Map Analysis  |   |
|---|---|
|   |   |
| Upload your character data  |   |
| Or, pick a character dataset from the available list:   |   |
| List of characters available:   Choose ▼  available:  |   |
|   |   |
| Note  | × |
| First, select a character dataset from the given list, or upload your character data. Then click on Add   |   |
| $\textit{Character to Tree} \ \text{button.} \ Tree \ branch \ color \ is \ determined \ by \ the \ first \ character \ on \ the \ list. \ To \ color \ the \ tree$ |   |
| using a character either drag that character to the top of the list, or edit the first character by clicking on that  |   |
| character.  |   |

Home / Start PhyloLink / My Visualisations







The Atlas Of Living Australia

Contact us

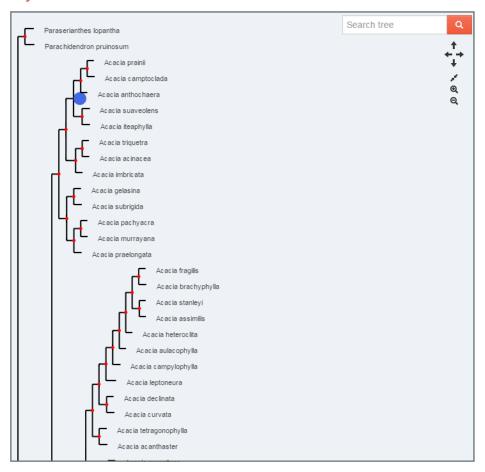
tinvolved ALA

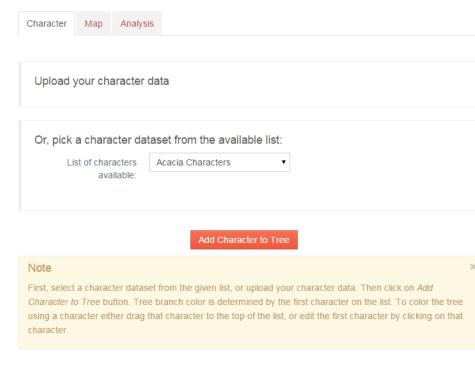
ALA Apps ▼ Search the Atlas

Search

User settings

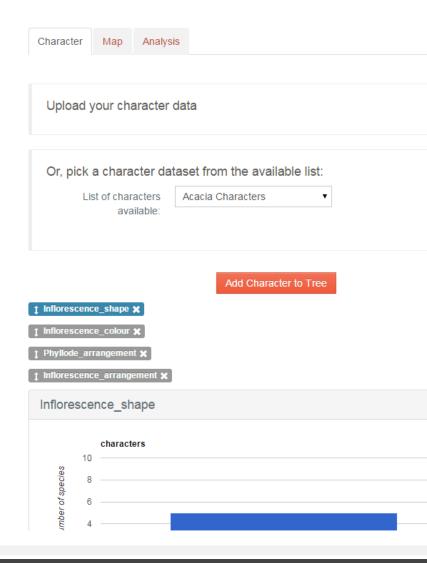
Home / Start PhyloLink / My Visualisations



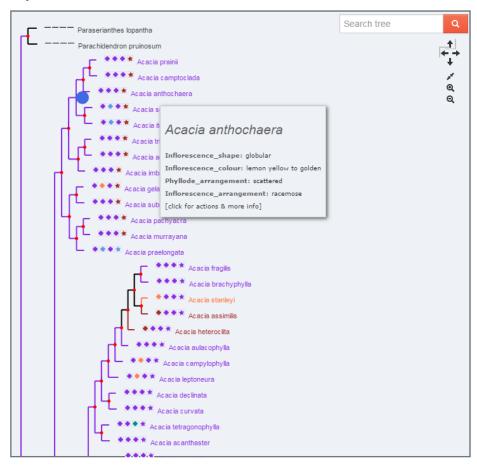


Home / Start PhyloLink / My Visualisations





Home / Start PhyloLink / My Visualisations



| Character                  | Мар               | Analysis   |                             |  |  |
|----------------------------|-------------------|------------|-----------------------------|--|--|
|                            |                   |            |                             |  |  |
| Upload your character data |                   |            |                             |  |  |
| Or, pick                   | a chara           | cter datas | et from the available list: |  |  |
| Li                         | st of char<br>ava | acters A   | cacia Characters •          |  |  |
|                            |                   |            |                             |  |  |
|                            |                   |            | Add Character to Tree       |  |  |
| † Inflorescend             |                   |            |                             |  |  |
| † Inflorescend             |                   |            |                             |  |  |
| † Phyllode_ar              | rangemen          | t 🗶        |                             |  |  |
| † Inflorescend             | ce_arrang         | ement 🗶    |                             |  |  |
| Infloresce                 | ence_sh           | ape        |                             |  |  |
| 10                         | charact           | ers        |                             |  |  |
| ecies<br>8                 |                   |            |                             |  |  |
| mber of species            |                   |            |                             |  |  |
| aqwr 4                     |                   |            |                             |  |  |

Search

#### My sightings | Recent sightings

## Report a Sighting

| Species   |                              |
|---|------------------------------|
| Type a scientific or common name into the box below and choose from the auto-complete list. | Help me identify my sighting |
| How confident are you with the species identification? ● Confide   Uncertain                | nt                           |
| (Optional) Tag this sighting with species group and/or sub-group:                           |                              |
| Species group ▼   |                              |

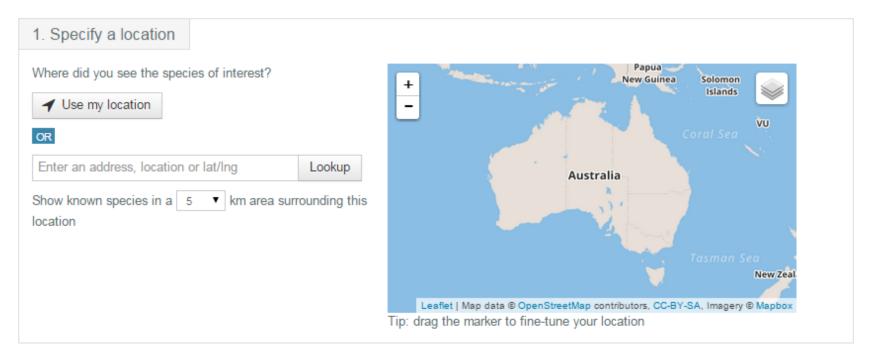
#### Media

#### + Add files...

Optional. Add one or more images. Image metadata will be used to automatically set date and location fields (where available) Hint: you can drag and drop files onto this window



## Help with species identification



#### 2. Narrow to a species group

Select the group and subgroup (optional) that best fits the species (if unsuccessful try different groups or increase the "surrounding area" size - drop-down above)

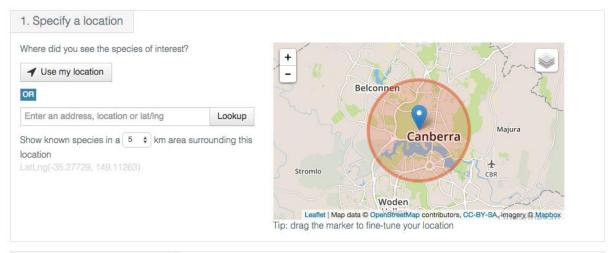
[Specify a location first]

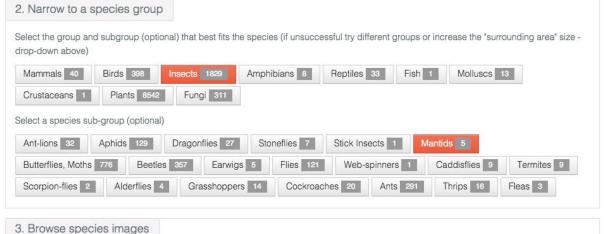
#### 3. Browse species images

Look for images that match the species you are trying to identify. Click the image for more example images of that species and finally click the "select this image" button.

hide species without images

### Help with species identification









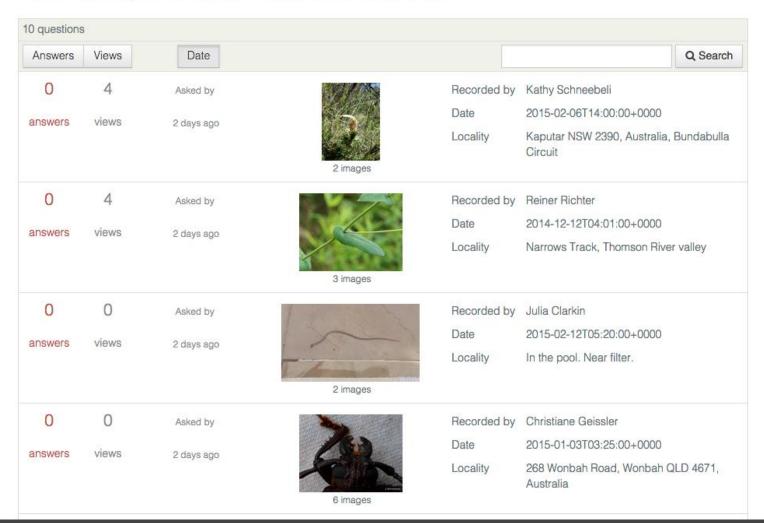
Search

Your activity summary

## Community identification help

Records contributed by others and needing confirmation of what they are. Can you help to identify any of the species?

Get involved, have fun and contribute to science.





Home → Community identification help → Species identification case #718

Your activity summary Logged in: , Switch users -

1 IDENTIFICATION(s)

# ATLAS OF LIVING AUSTRALIA

### Species identification case #718

Views: 8







| ☆ Not following |    |
|-----------------|----|
| Recorded by     | Ka |

athy Schneebeli

Event date 2015-02-06T14:00:00+0000

Kaputar NSW 2390, Australia, Bundabulla Circuit Locality

Search

Pterostylis coccina Scientific name Common name Scarlet Greenhood

Add a comment or question...

| Accepted answer   |                |  |  |  |
|---|----------------|--|--|--|
| Pterostylis coccina : Scarlet Greenhood Identified by moments ago | <b>✓</b> ∆ 3 ♥ |  |  |  |
| Add a comment on this identification                              |                |  |  |  |

| Identify this occurrence |                       |
|--------------------------|-----------------------|
| Scientific name          |                       |
| Common name              |                       |
| Remarks                  |                       |
|                          |                       |
|                          | Submit identification |

The Alias Of Living Australia Contact us Get Involved ALA Apps + Search the Alias Search

User settings +

#### Specimens images from Australia's Natural History collections

Images from Australian Natural History collections made available by the museums and herbaria of Australia. To view images from all collections, click here.

## South Australian Museum Terrestrial Invertebrate Collection

South Australian Museum



The collection has Australia-Wide and Indo-Pacific representation, plus some world specimens for comparative purposes.

#### Australian National Insect Collection

Commonwealth Scientific and Industrial Research Organisation



The Australian National Insect Collection is recognized both nationally and internationally as a major research collection.

#### Museum Victoria Ornithology Collection

Museum Victoria



The Omithology Collection contains more than 70 000 specimens of mounted birds, sixins, sixeletons, eggs and specimens preserved in alcohol. One of the largest Australian avian collections, primarily of Australian species and with a strong Victorian emphasis, it includes material from a broad spectrum of the world's avifauna and represents in excess of 4000 species.

#### Australian Museum Entomology Collection

Australian Museum



#### Museum Victoria Entomology Collection

Museum Victoria



#### Australian Museum Marine Invertebrate Collection

Australian Museum



Species

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Home: Blogs & news:: Learning by doing: The ALA is sponsoring Yugul Mangi Rangers and ecologists to conduct two-way biodiversity research in remote Arnhem Land

# Learning by doing: The ALA is sponsoring Yugul Mangi Rangers and ecologists to conduct two-way biodiversity research in remote Arnhem Land

5 December, 2014

The Aboriginal Yugul Mangi Rangers (a group of 5 men and 4 women) are working together with Emilie Ens and Mitchell Scott, ecologists from Macquarie University, to document species occurring in one of the lesser known parts of the country - south eastern Arnhem Land. The project will enter Western and Indigenous scientific knowledge into the Atlas of Living Australia (ALA) and produce a two-way Indigenous engagement case study to encourage more Indigenous content.

#### Read more



Cherry Daniels (first Yugul Mangi Ranger co-ordinator, Senior Ngandi woman and IPA Cultural Advisor) with Edna Nelson (Yugul Mangi Ranger).



Andy Lukaman Peters explaining to Benjamin Wilfred about the bush food and medicine plants near Lake Katherine

## Recent posts

- The different challenges of integrating data from many sources
- Panoramio
- Sign up to GBIF Australia email alerts
- Look for Whale Sharks in your Lounge Room
- Sandbox custom search facets for your data
- Using the ALA to help develop biodiverse plantings suitable for changing climatic conditions
- Viewing species layers in uDIG & ArcGIS
- PhyloJive Integrating biodiversity data with phylogenies
- The Atlas in the Classroom
- Holiday Greetings from the Atlas of Living Australia
- Australian BHL volunteers receive award
- Atlas Science Symposium
- Science Symposium presentations now available



Thank you www.ala.org.au



