

www.ala.org.au

Advances in managing images from biological collections



ATLAS OF **LIVING**
AUSTRALIA
sharing biodiversity knowledge

Mark Woolston, David Baird, John La Salle
Atlas of Living Australia

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

Collection Based Images

- >280,000 collection based images
 - Specimens
 - Herbarium sheets
 - Whole drawer images
 - Type specimens
 - Skulls
- ?Coming soon
 - X-rays
 - 3D images
 - CT/MicroCT Scans
 - SEM's of parts
 - Morphological characters

Collection Based Images

- Collection Explorer
 - Search images by taxon/collection/sex/type status ...
- Imaging Tools
 - Zooming and panning capability for high res images
 - Manage, annotate, tag images,
 - Download images
 - Create sub-images,
 - Create and export image albums.
- Workflow
 - Better processes for collections to import images into the Atlas
- Almost there ...

Specimen images from entire Atlas

All

Taxonomy

Kingdom

- ANIMALIA (158223)
- Animalia (12)
- Bacteria (546)
- Chromista (875)
- Fungi (5794)
- PROTISTA (1011)
- Plantae (112887)
- Protozoa (614)
- Viruses (76)

Types

- allotype (126)
- cotype (17)
- holotype (4306)
- lectotype (258)
- neotype (20)
- paralectotype (28)
- paratypes (191)
- syntype (1820)
- type (691)
- all values

Sex

- Unknown (2720)
- Male (1871)
- U (1857)
- Female (1348)
- M (643)
- F (382)
- sex undetermined (136)
- Unsexed (91)
- male (47)
- female (21)
- 1 sex undetermined (7)
- 1 male (6)
- Female;Unknown (5)
- u (5)
- unknown (5)
- 2 (4)
- M,F (4)
- Female? (3)

286475 images are available.



Laccobius (Notoberosus) zietzi



Castiarina elderi



Castiarina galactica



Castiarina galactica



Castiarina williamsi



Castiarina williamsi



Castiarina gardnerae



Castiarina gardnerae



Castiarina arida



Castiarina dugganensis



Castiarina watkinsi



Castiarina watkinsi



Castiarina wellsae



Castiarina eneabba



Castiarina verdiceps



Castiarina markgoldingi



Castiarina markgoldingi



Castiarina rufolimbata



Castiarina rufolimbata



Castiarina stellata



Castiarina victoriensis



Castiarina euclae



Castiarina euclae



Castiarina markhanloni



Castiarina markhanloni

Specimen images from Australian National Insect Collection

All

Taxonomy

Kingdom: ANIMALIA
Phylum: ARTHROPODA
Class: INSECTA
Order
BLATTODEA (1)
DIPTERA (15)
HEMIPTERA (81)
HYMENOPTERA (8)
LEPIDOPTERA (124)
MANTODEA (1)
ODONATA (572)
ORTHOPTERA (503)
PHASMIDA (31)

1380 images are available.



PHASMATIDAE



Rhodomantis pulchella



Epacra



Chauliogyllacris exserta



Gastromargus musicus



Gastromargus musicus



Gastromargus musicus



Cardiaspina



Cardiaspina



APIDAE



APIDAE



MEGACHILIDAE



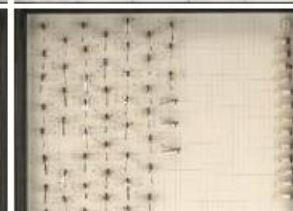
APIDAE



APIDAE



APIDAE



Specimen images from Australian National Insect Collection

All

572 images are available.

Taxonomy

Kingdom: ANIMALIA

Phylum: ARTHROPODA

Class: INSECTA

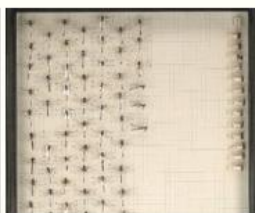
Order: ODONATA

Family

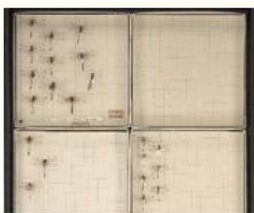
- [AESHNIDAE \(36\)](#)
- [AUSTROCORDULIIDAE \(12\)](#)
- [AUSTROPETALIIDAE \(3\)](#)
- [BRACHYTRONIDAE \(1\)](#)
- [CALOPTERYGIDAE \(8\)](#)
- [CHLOROCYPHIDAE \(2\)](#)
- [COENAGRIONIDAE \(64\)](#)
- [CORDULEPHYIDAE \(6\)](#)
- [CORDULIIDAE \(9\)](#)
- [GOMPHIDAE \(64\)](#)
- [GOMPHOMACROMIIDAE \(2\)](#)
- [HEMIPHEBIIDAE \(1\)](#)
- [HYPOLESTIDAE \(4\)](#)
- [ISOSTICTIDAE \(18\)](#)
- [LESTIDAE \(20\)](#)
- [LESTOIDEIDAE \(7\)](#)
- [LIBELLULIDAE \(153\)](#)
- [LINDENIIDAE \(5\)](#)
- [MACROMIIDAE \(3\)](#)
- [MEGAPODAGRIONIDAE \(24\)](#)
- [PETALURIDAE \(10\)](#)
- [PLATYCNEMIDIDAE \(13\)](#)
- [PSEUDOCORDULIIDAE \(2\)](#)
- [SYNLESTIDAE \(9\)](#)
- [SYNTHEMISTIDAE \(26\)](#)
- [TELEPHLEBIIDAE \(40\)](#)



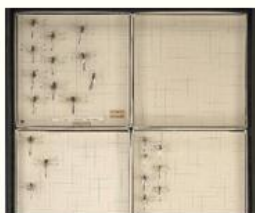
Brachydiplax denticauda



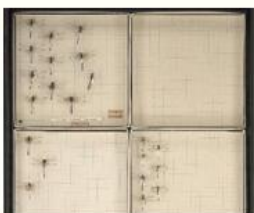
Cordulephya pygmaea



Cordulephya bidens



Cordulephya divergens



Cordulephya montana



Cordulephya



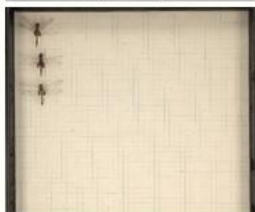
Austrocordulia refracta



Tramea stenoloba



Tramea



Tramea stenoloba



Tramea



Tramea



Tramea



Tramea



Tramea



Tramea



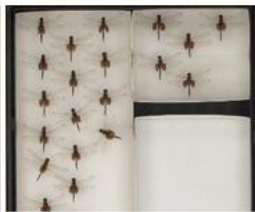
Tramea



Tramea



Tramea



Tramea



Tramea



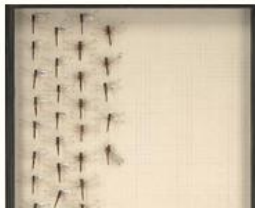
ODONATA



ODONATA



Brachydiplax



Specimen images from Australian National Insect Collection

All

36 images are available.

Taxonomy

Kingdom: ANIMALIA

Phylum: ARTHROPODA

Class: INSECTA

Order: ODONATA

Family: AESHNIDAE

Genus

- Adversaeschna (3)

- Agyrtacantha (1)

- Anaciaeschna (1)

- Anax (11)

- Gynacantha (11)



Aeshna



Aeshna



Anaciaeschna jaspidea



Anax papuensis



Anax papuensis



Anax pa



Anax papuensis



Anax papuensis



Anax papuensis



Anax georgius



Anax guttatus



Anax gu



Anax gibbosulus



Anax



AESHNIDAE



AESHNIDAE



AESHNIDAE



AESHN



Gynacantha kirbyi



Gynacantha nourlangie



Gynacantha nourlangie



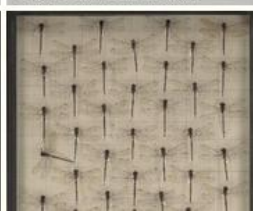
Gynacantha nourlangie



Gynacantha nourlangie



Gynaca



[Home](#) » Image details <http://biocache.ala.org.au/biocache-media/dr441/21585/c1fdc23c-cfe1-4502-af82-74f77c986f9a/2075396.jpeg>

0 albums

Image details <http://biocache.ala.org.au/biocache-media/dr441/21585/c1fdc23c-cfe1-4502-af82-74f77c986f9a/2075396.jpeg>



Tags + Add tag

Thumbnails

Image properties
Embedded
User Defined Metadata
System

Filename	http://biocache.ala.org.au/biocache-media/dr441/21585/c1fdc23c-cfe1-4502-af82-74f77c986f9a/2075396.jpeg
Dimensions (w x h)	17009 x 16430
File size	27 MB
Date uploaded	20 May, 2014 05:33:10
Uploaded by	<Unknown>
Date taken/created	20 May, 2014 05:33:10
Mime type	image/jpeg
Image Identifier	de7edb84-2c6b-4924-904a-34a7878210ea
Zoom levels	8
Image URL	http://images.ala.org.au/store/a/e/0/1/de7edb84-2c6b-4924-904a-34a7878210ea/original
MD5 Hash	df1e67dd9fb760ea62cccec996df1ac1b
SHA1 Hash	5f87b788742a86ca841b887cbd6e30bd1da664b5
Size on disk (including all artifacts)	59.3 MB

Show subimages



Contact us

Map & analyse

[Species by region](#)
[Species in your area](#)
[Species distributions](#)
[Spatial case studies](#)

Partners

Download

[Open source software](#)
[Field Data Capture toolkit](#)
[Web services](#)

Communications

Share

[Volunteer for online projects](#)
[Record a sighting](#)
[Recent sightings](#)
[My sightings](#)
[Ways to get involved](#)
[Upload data sets](#)
[Upload media](#)
[Terms & conditions of sharing](#)

About the Atlas

Data

[Find a record](#)
[Find a data set](#)
[Sensitive data](#)
[Data integration](#)
[Dashboard](#)
[Sandbox](#)
[Upload species lists](#)

Citizen Science

Publications

[FAQ](#)
[FieldData software help](#)
[Atlas governance](#)
[Digitisation guidance](#)

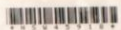
Help

Associated sites

[Atlas mobile site](#)
[Biodiversity Heritage Library](#)
[IdentifyLife](#)
[Morphbank images](#)
[OZCAM](#)
[Australia's Virtual Herbarium](#)
[BOLD](#)
[National Species Lists](#)



NSW
LOAN: 096/62



NSW
LOAN: 099/49



NSW473233



Mr Briggs paddock
7/10/43

CONFIRMAVIT
Seen for Flora of Australia
Det. A.E. Holland (BRD) 21/11/1998

Seen for Flora of Australia ASTERACEAE
Hemistegia lyrata (Bunge) Fisch. & C.A. Mey.
Det. A.R. Bean (BR1) Oct. 2000

NSW DATA
DATABASE

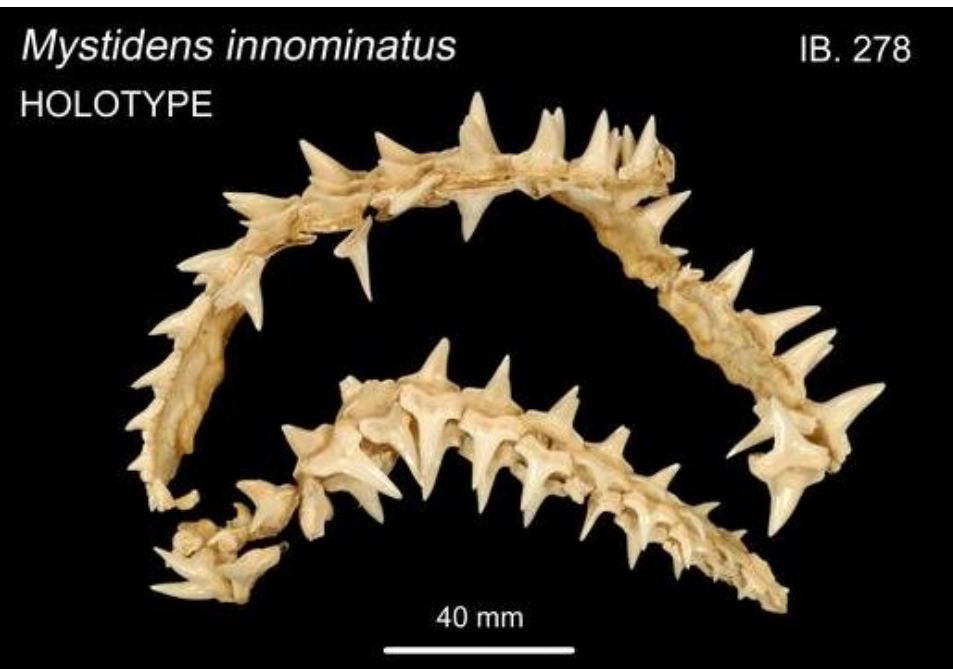
West side of the gulf

Protoparce Cunninghamii
No. 42975
[From map of route in Barrowman + Cramp,
School Atlas, this colln. would date from 1944-5]
Dr. Leckhardt.

Briggs Creek and
paddock
10/10/43

Gnaphalium sp.
Palasira
Saussurea carthamoides, Benth.
Dr. Leckhardt.

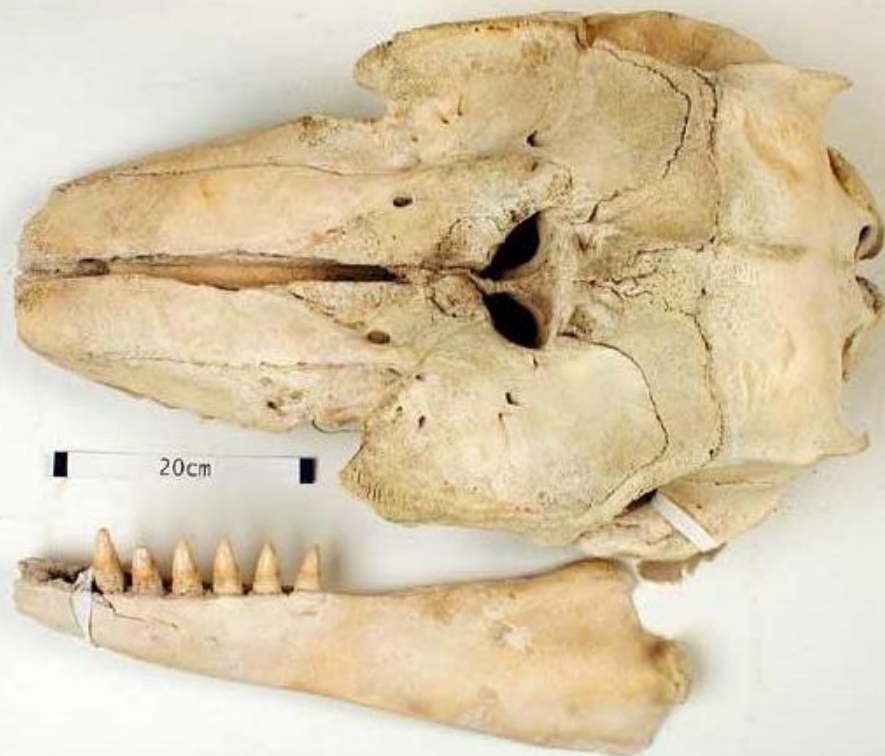
NSW473233



Syntype

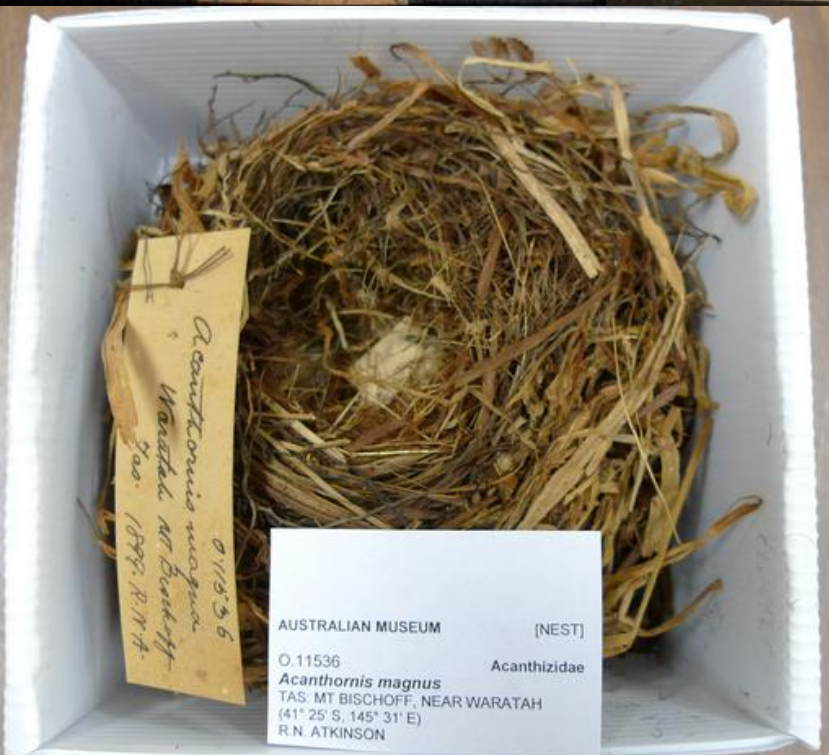
Arctocephalus tasmanicus

TMAG A808





QMO29676



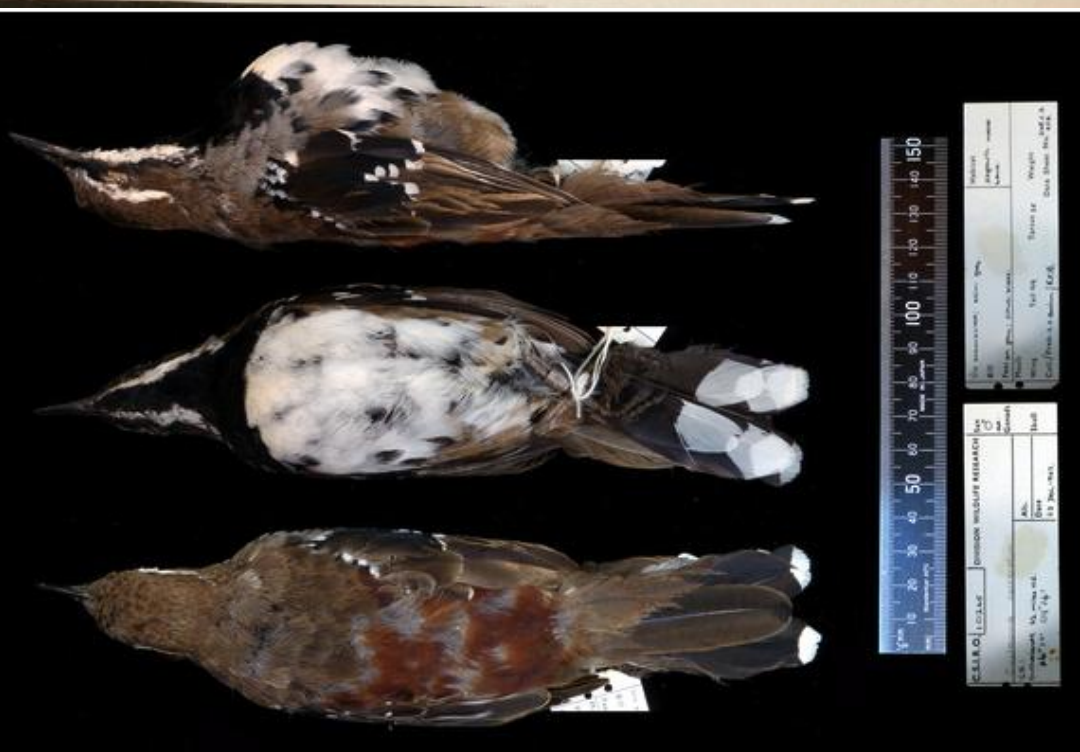
AUSTRALIAN MUSEUM

[NEST]

O.11536

Acanthizidae

Acanthornis magna
TAS: MT BISCHOFF, NEAR WARATAH
(41° 25' S, 145° 31' E)
R.N. ATKINSON



Field No.	011536	Date	1899
Locality	Waratah Mt Bischoff	Collector	R.N. Atkinson
Sex		Age	
Measurements		Weight	
Remarks		Other	

CLIP	LOCAL	COMMON WILDLIFE RESEARCH	DATE
CLIP	LOCAL	COMMON WILDLIFE RESEARCH	DATE
CLIP	LOCAL	COMMON WILDLIFE RESEARCH	DATE
CLIP	LOCAL	COMMON WILDLIFE RESEARCH	DATE

Syntype
Trophon squamosissima



5 mm

TMAG E164



Calliostoma bellatrix
Holotype NTM P017143



10mm

10mm



Pyrene morisoni
Holotype NTM P016900

Cymbiola bairdii
Holotype NTM R008918



10mm

Leptothyra arenacea
Holotype

F 594



1 mm



Fig. 1



Fig. 1

5 mm

2 mm

Where to next

- Bringing the tools together
 - Seamless integration
 - Improved ability to import images
- Going out to stakeholders for feedback
- Other types of media files
 - Sound, video, pdf

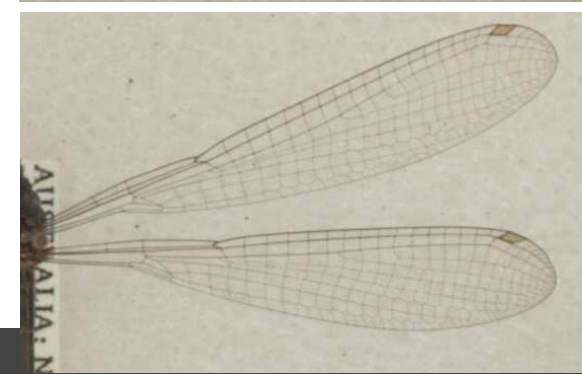
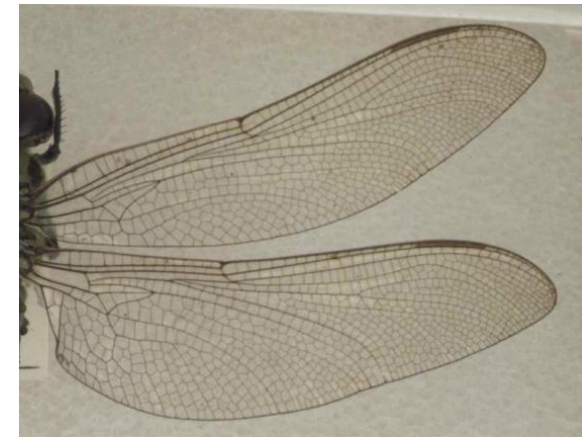
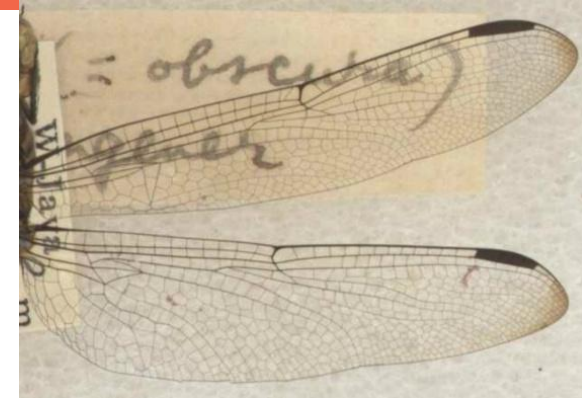


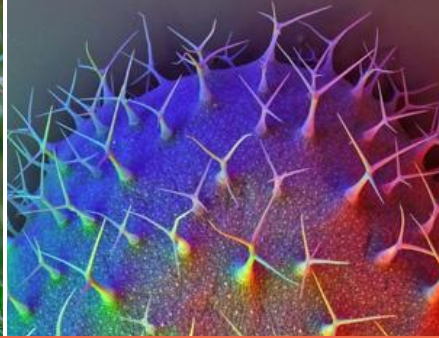
What it does

- Will allow examination of specimens from anywhere
- Create a distributed virtual museum for Australia
- “Remote” curation
- Supports identification
 - Particularly with expert annotation
- Capture of morphological information from images
 - Expert
 - Volunteer/crowd-sourcing
 - Machine

Computer Vision Meets Big Data

- High resolution image libraries will enable novel solutions to quickly extract, analyse and share rich information to support biodiversity discovery, species identification, quarantine control, and unlocking the value of big data in our biological collections.





The Atlas of Living Australia Team – or some of it...

www.ala.org.au

Thank you



ATLAS OF **LIVING**
AUSTRALIA
sharing biodiversity knowledge



An Australian Government Initiative
National Collaborative Research
Infrastructure Strategy