Peter Lillywhite Senior Collection Manager Entomology/Arachnology Museum Victoria (Aust.)



THE PROCESSES, END USES AND UNEXPECTED BONUSES OF HIGH RESOLUTION IMAGING OF ENTOMOLOGY COLLECTION ITEMS

Salticidae Lycidas sp.6

0.5 mm

Using imaging techniques to bring Museum collections to a wider audience is nothing new

McCoy's Prodromus 1878 - 1890







A.Bartholomew.del. D.Wild lith Prof.M. Coy direct

Steam Litho Gov Printing Office



 In 2003 the Entomology Dept at Museum Victoria first started working with high resolution, stacked images.

- In 2003 the Entomology Dept at Museum Victoria first started working with high resolution, stacked images.
- Funding sources:

Money from Federal Department of Agriculture, Fisheries and Forestry DAFF and Plant Health Australia through Australian Quarantine and Inspection Services AQIS

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 Initially this paid for equipment and software, later a dedicated technician

PaDIL

An online tool for the identification of plant pests and diseases for the purposes of biosecurity control.











Diagnostic Notes

Cylindrical bark beetle with a shiny black pronotum and red-brown elytra; abdomen has a declivity with tubercles on the third and fourth sternites (more so in the male); edge of frons above mandibles has a minute tubercle on either side; male bodylength 3-5mm, frons flat, with dense cover of hair, lateroapical regions of elytra with row of long, yellow bristles; female body length 4-6mm, frons weakly convex and with weak cover of short hair.

Source:

Vladimir Novak, F. Hrozinka & B. Stary (1976). Atlas of insects harmful to forest trees Volume 1. Elesvier Scientific Publishing Company.

Related Species

almond bark beetle - [Scolytus amygdali] White beech bark beetle - [Scolytus carpini] elm bark beetle - [Scolytus ensifer] European oak bark beetle - [Scolytus intricatus] Kirsch bark beetle - [Scolytus kirschii] middle elm tree split bark beetle - [Scolytus laevis] Larger shothole borer - [Scolytus mali] European elm bark beetle - [Scolytus multistriatus] Elm bark beetle - [Scolytus pygmaeus] The birch sapwood borer - [Scolytus ratzeburgi] Shothole Borer - [Scolytus rugulosus] Banded elm bark beetle - [Scolytus schevyrewi] bark beetle - [Scolytus sulcifrons]

More Information

Author	Walker, K.
Created	30/04/2006 11:22 AEST
Last Updated	27/09/2010 09:54 AEST
Citation	Walker, K. (2006) Large elm beetle (<i>Scolytus scolytus</i>) Updated on 9/27/2010 9:54:15 AM Available online: PaDIL - http://www.padil.gov.au.
Image Use	Free for use under the Creative Commons Attribution 3.0 Australia License

PaDIL	Image Libraries	Plant Biosecurity Toolbox	Pestpoint	BowerBird
Home	Biosecurity	Home	Home	Home
About PaDII	Australian Biosecurity	About	About Destroint	Sightings



Museum Victoria, Insect Primary Type Imaging Project



Asarapoda meltonensis Holotype female T-11867 10111111 5 mm

HOLOTYPE T-11867 Asarapoda meltonensis





This and many more of them were buzzing around, and alighting on Loranthus.

Asdropodd y meston ensis Ristm.



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Catalogue	
· 프 Taxonomy	T 11867, Asarapoda meltonensis Rayment : Apidae : Hymenoptera : Insecta : Arthropoda, Australia, Victoria, 🧭 1018274
) Sites	
Delection Events	Resource Information
Accession Lots	Asarapoda m Asarapoda m Asarapoda m
Events	
Caransactions	
Locations	MIME Type: image MIME Format: ipeg
	Identifier: Asarapoda meltonensis T-11867_holotype_female_dorsal.jpg
Conservation	Description
Bibliography	Asarapoda meltonensis, holotype T 11867, dorsal view.
C Rights	
Parties	
Narratives	
Multimedia	
	Specimen Spec. Storage Locality References Associations Notes Multimedia Condition Exhibit
-	Display Object 1 of 1 plwhite grp NatSci Admin Emu

Capturing high resolution images of whole drawers of insect specimens

Hasselblad H4D-200MS Camera







Catalogue (1) - Display	
File Edit Select View Tools Tabs Parts Archives Multimedia Window Help	2
	🖻 🖻 💦
T 6104, Stigmodera (Themognatha) miranda Carter : Buprestidae : Coleoptera : Insect	a : Arthropoda, (🎑 1005446
Resource Information	
Title: Buprestidae, Jewe	el Beetle
000111984c.tif Creator: 1 Paul, David	
MIME Type: image	MIME Format: tiff
Identifier: 000111984c.tif	
Description	
Buprestidae, Jewel Beetle. Dry o	collection specimen
▼ I	
Notes Multimedia Location Dimensions Condition Exhibition	Transactions Admin
Display Object 2 of 4 plwhite	grp Entomology Admin Emu

The bar-coding process

KE EMu (MV) - grp En🖾	E Catalogue (1) - Display
<u> </u>	File Edit Select View Tools Tabs Parts Archives Multimedia Window Help
Catalogue	
<u> </u> Taxonomy	COL 72060, Castiarina adelaidae (Hope, 1846) : Buprestidae : Coleoptera : Insecta : Arthropoda, Australia, Victoria, Big 🧭 1238626
) Sites	Permanent Storage Location Read Only? MELBOURNE (MvCIS) - STORE K - ROW 7 - BAY 5 - LEVEL A - Cabinet (L1114234) - Drawer (L1117371)
Collection Events	
Accession Lots	Current Location:
Transactions	Date Moved: Time Moved: Return to Storage Due Date: Moved By: Image: Comparison of the storage Due Date:
	Notes:
Conservation	
Bibliography	History of Current Location
Parties	Date Moved Time M Current Location Moved By
Narratives	
Multimedia	Entomology Locality Display References Associations Notes Multimedia Location Dimensions Condition Exhi
Internal Movements	Display Object 1 of 1 Emu
Valuations	
Thesaurus	















Better pictures of individual, single species, unit trays

Visionary Digital BK Plus Lab System





Single Image

10 mm



Stacked image

10 mm



single

stacked


Single image



Stacked image

Educational and Exhibition related by-products of the programs

School Holiday program. The variations in insect antennae



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- School Holiday program. The variations in insect antennae
- Posters. The alphabet and number found in butterfly wings



- School Holiday program. The variations in insect antennae
- Posters. The alphabet and number found in butterfly wings
- Exhibitions. The Art of Science







Field guides

- Mobile phone and tablet apps.
 Bunurong Marine Park Field Guide.
- Field Guide to Victorian Fauna





Bivalve Mollusc

Spisula trigonella

Identifying Characteristics

The shells of this species are small, quite solid, chalky and more or less triangular in shape. External coating (periostracum) brown. Hinge with grooved 'teeth'. Shell up to 25 mm across.

Biology

This species can be the dominant species in some locations. It is recorded by some earlier authors under a different scientific name.

Diet

Organic matter

Habitat

In sand and mud areas, particularly at river mouths, to depth of 1 m.

Credit: David Staples / Museum Vict

Distinctive Characters

Denti

Triangular, grooved hinge teeth.





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Commercial Scallop, Pecten fumatus; shell interior.

Commercial Scallop Pecten fumatus

Brief Description

One valve concave and one valve flat, 12-16 radial

Identifying Characteristics

Shells of this species are characterised by a flat left valve, and a strongly convex right valve, each with 12-16 strong radial ribs. The external shell colour is extremely variable among specimens, ranging from light brown to pink and orange. Shell up to 14 cm across.

Biology

Commercial Scallops were thought to be a number of different species because patterns on their shells are extremely variable, but genetic studies have shown





Field guides

- Mobile phone and tablet apps.
 Bunurong Marine Park Field Guide.
- Field Guide to Victorian Fauna
- Books. Moths of Victoria series

Anisozyga insperata (Walker, 1861)



Dromana 16 November, 1980 Wingspan: 24.5 mm Collector:

Page 1/2

D.R. Holmes



St Kilda
 25 October, 2005
 Wingspan: 27 mm
 Collector:
 A. Kallies

Australia Victoria Melbourne, St Kilda 25. Oct. 2005, dusk leg. A. Kallies

Adult flight times





Victorian specimen data: 96 specimens (Melbourne Museum, ANIC, A. Kallies, M. Hewish, author)

Victorian localities include: Brighton, Red Hill, Tyers Junction, Gipsy Point

Australian distribution: Also Queensland, NSW (ANIC)

Notes:

Larvae feed on Cherry Ballart (*Exocarpos cupressiformis*). Males are far more common at lights than females.

Anisozyga metaspila (Walker, 1861)





Adult flight times: The Victorian records are for January and February.



Gembrook 27 January, 2009 Wingspan: 31 mm Collector: P. Marriott et al.

Australia Victoria, E of Melbourne, Gembrook Gilwell Park, S37°26'E145°39' 27. Jan. 2009, lux leg. P. Marriott & B. Mollet

Tynong North 3 February, 2007 Wingspan: 32 mm Collector: A. Kallies et al.

> Australia Victoria E of Melbourne, Bunyip State Park near Tyriong North 3. Febr. 2007 lux leg. A. Kallies & P. Marriott

Victorian specimen data: 3 specimens (A. Kallies, author)

Victorian localities include: Gembrook, Tynong North

Australian distribution: Also Queensland, NSW

Notes:

Victorian specimens are among the more strongly marked of this variable species. This species may belong to the genus *Eucyclodes.* The name used here is from The Checklist of Australian Lepidoptera (1996).

Page 1/2

Data and Image aggregation sites such as: The Atlas of Living Australia



Home - Collections

Australia's natural history collections

Learn about the institution, the collections they hold and view records of specimens that have been databased. Currently only the collections of Australia partners are shown. Over time this list will expand to include all natural history collections in Australia.

Click a button to only show those organisms. Map List All collections Show all 164 collections. your mouse while holding the shift key to zoom to an area. Fauna Mammals, birds, reptiles, fish, amphibians and invertebrates. + Insects, spiders, mites and some other arthropods. Microorganisms Protists, bacteria, viruses, microfungi and WESTERN microalgae. AUSTRALIA Plants Vascular plants, algae, fungi, lichens and bryophytes. Great Australian 164 collections in total. Bight 159 collections are currently visible on the map.

💎 indicates there are multiple collections at this location.

Click on a map pin to see the collections at that location. Use the map controls to zoom into an area of interest. Or drag



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🙆 Most Visited 📙 Smart Bookmarks 🐰 Google 🗌 Getting Started 🔊 Latest Headlines 🗍 Musenet 💿 128 km	Melbourne Ra 🞯 AltaVista - Babel Fish T 🗍 What Time Is It	? 🗌 ARC Committee and P 📄 EB's 📄 Heavens-Above Main 📄 International Biodivers 📄 Legislation and P	arlia 🗍 McAfee - AVERT	
🛪 The Atlas Of Living Australia Contact us Get involved ALA Apps - Search th	e Atlas Search		User settings 🔻	
III Original vs Processed	Rights	Dataset licensed under Creative Commons Attribution (CC-BY) 4.0 Australian license. Use of does not require attribution on a per record basis.	data of individual specimen occurrent	
	Associated Occurrence Status	Associated record		
Images	Inferred Associated Occurrences	The occurrence is associated with a representative record. For more information see Inferred associated occurrence details		
Dilochrosis weiten T-3227 Paratype female	Institution id	NMV		
2 Common	Photographer	Hoath, Kristy		
	Collection code	Entomology		
	Occurrence status	present		
	Dataset id	Entomology		
	Language	en		
Photographer: Hoath, Kristy	Owner institution code	NMV		
Rights: Dataset licensed under Creative Commons Attribution (CC-BY) 4.0 Australian license. Use	Collection id	urn:lsid:biocol.org:col:34978		
of data of individual specimen occurrences does not require attribution on a per record basis. View image details				

Location of record



Date loaded: 2014-08-25 Date last processed: 2014-09-27

Taxonomy

Higher classification	Animalia;Arthropoda;Uniramia;Insecta;Coleoptera;Scarabaeidae;Cetoniinae
Scientific name	Dilochrosis walteri Supplied scientific name "Dilochrosis walteri Lea"
Original name	Dilochrosis walteri Lea
Taxon rank	Species
Common name	Species
Kingdom	ANIMALIA
Phylum	ARTHROPODA
Class	INSECTA Supplied as "Animalia;Arthropoda;Uniramia;Insecta;Coleoptera;Scarabaeidae;Cetoniinae"
Order	COLEOPTERA
Family	SCARABAEIDAE
Genus	Dilochrosis
Species	Dilochrosis walteri
Taxonomic issues	No issues
Name match metric	Canonical name match

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🗙 The Atlas Of Living Australia Contact us Get invol	ved ALA Apps - Search the Atlas Search		User s	ettings 🕶

Occurrence record: Entomology:T3225

Melobasis radiola



Data quality tests

failed: 0
warnings: 1
passed: 26
missing: 12
unchecked: 44

View full data quality report

🏴 Flag an issue

III Original vs Processed

Images



Dataset

Data provider	OZCAM (Online Zoological Collections of Australian Museums) Provider
Data resource	Museum Victoria provider for OZCAM
Institution	Museum Victoria Supplied institution code "NMV"
Collection	Museum Victoria Entomology Collection
Catalogue number	T3225
Occurrence ID	urn:lsid:ozcam.taxonomy.org.au:NMV:Entomology:PreservedSpecimen:T3225
Basis of record	Preserved specimen
Preparations	fixativeTreatment=pinned
Type status	Holotype
Sex	Female
Individual count	1
Rights	Dataset licensed under Creative Commons Attribution (CC-BY) 4.0 Australian license. Use of data of individual specimen occurrence does not require attribution on a per record basis.
Institution id	NMV
Photographer	Gibson, Lucinda
Collection code	Entomology
Occurrence status	present
Dataset id	Entomology
Language	en
Owner institution code	NMV
Collection id	urn:lsid:biocol.org:col:34978

Back to search results

Photographer: Gibson, Lucinda

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 Data and Image aggregation sites such as: The Atlas of Living Australia. AntWeb. Global ¥

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CASENT0318421: Stigmatomma mg01 CASENT0042899: Stigmatomma mg05 CASENT0121332: Stigmatomma mg04 CASENT0366766: Stigmatomma mg06 CASENT0318428: Stigmatomma mg02 CASENT0107483: Stigmatomma mg01

More »

More »

Recent Edits: Species: Strumigenys godeffroyi Species: Polyrhachis illaudata Genus: Mesoponera Species: Myrmecina urbanii Genus: Strumigenys

Background image: Specimen: CASENT0006837 Species: Myrmoteras iriodum



Current Statistics

525,612 specimens

15,836 valid species + ssp.

35,997 total species + ssp.

39,867 specimens imaged

16,064 species + ssp. imaged

171,182 total specimen images







their project. Learn how to submit data to Antweb.

Meet the rest of the team!



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Phil Ward University of California, Davis



Lloyd Davis Florida Ant Mafia





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Sciences

James Trager

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Brian L. Fisher California Academy of

University of Utah

Missouri Botanical Garden

Bay Area Ants Survey

The 11-county Bay Area is home to more 100 types of ant species. Visit AntWeb's Bay Area Ant Survey to find out how to become a Citizen Naturalist and help discover and learn about the ants in your backyard, schools and local Bay Area parks.

World Ant Collections

Many curators already contribute to AntWeb - would you like to join us? Curators

specimen data and authority files, and control a number of other aspects of

can edit the home page of the geographic section they curate, upload

If you would like to join us, contact us at - antweb@calacademy.org.

We at AntWeb have been busy taking photos of many of the world's great ant collections. Visit the AntWeb World Ant Collection to see the collections and get information about where they are housed.

mm

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Current View: Global: All Antweb Change View *

Cite this page

Specimen: ANTWEB1008290 Myrmecia rubicunda Overview I Images

Classification: Order: Hymenoptera Family: Formicidae Subfamily: Myrmeciinae Genus: Myrmecia Species: rubicunda Specimen: ANTWEB1008290

Persistent Identifier:

http://www.antweb.org/specimen/ANTWEB1008290

Locality Information:

Locality:	Australia: South Australia:	Ooldea
Latitude:	0.0	
Longitude:	0.0	
Lat/Long Max Error:		
Elevation		
Elevation Max Error:		
Locality Notes:		

ANTC28600

A. M. Lea

Collection Information:

Collection code: Collected by: Habitat: Date collected: Date collected end: Method: Microhabitat: Collection notes:

Specimen Information:

Life stage:	1w
Located at:	MVMA
Owned by:	MVMA, Melbourne, Australia
Determined by:	
Date determined:	
Type status:	Holotype of Promyrmecia rubicunda
Medium:	pin
DNA notes:	
Specimen notes:	T-20061; ANIC Database No. 32 019896
Specimen data uploaded by:	California Academy of Sciences

See something amiss? Send us an email.

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Current \	/iew: Global:	All Antweb				₿ ' Cite this page

Specimen: ANTWEB1008290 Myrmecia rubicunda Overview | Images

Classification: Order: Hymenoptera Family: Formicidae Subfamily: Myrmeciinae Genus: Myrmecia Species: rubicunda Specimen: ANTWEB1008290



Profile View Date Uploaded: 08/11/2014 Photographer: Lucinda Gibson View Highest Resolution

Back



Virtual loans

A request for information on a rare British Bug. Our specimen is over 200 years old

- Dear all,
- I am writing to request information on British examples of Carpocoris (Insecta: Hemiptera: Pentatomidae) which may be present in collections.
- Only about 14 examples have ever been recorded in Britain, mainly prior to 1900. They have been recorded from Essex (1 record, Harwood collection), Kent (2 records, one of which has already been located from Wye), Cornwall (2 records, cited in JC Dale collection and JE Mason collection) and Devon (up to 9 records, of which only one has been located to date in Brewer collection), the remaining Devon specimen whereabouts are unknown, but were collected by JJ Reading, Parfitt, Captain Blumer(Teignmouth), Saunders and Bignell (2 exx Bigley Woods). In collections can be variously named as Pentatoma nigricorne, Palomena fuscispina, Carpocoris fuscipina, Carpocoris purpureipennis, Carpocoris pudicus form fuscipina. I would be grateful for any assistance in locating any of the above specimens in order to reexamine them to determine which species of Carpocoris have been recorded in Britain, as part of ongoing work in producing a new Royal Entomological Society handbook to the group.
- Many thanks

Reply from the Curator

- In 1862, the first director of Museum Victoria, Melbourne Australia, Sir Fredrick McCoy purchased the John Curtis collection for 680 pounds. The collection consisted of some 20,000 specimens in 5 large and small cabinets plus the Curtis hand written diaries which contains taxonomy and location notes for every species in the collection. McCoy also purchased the John Curtis agricultural collection. McCoy had the cabinets sealed in lead lined containers and sailed out to Australia. The British Museum had rejected first offer on the collection due to disagreements they had had with Curtis.
- Although purchased over 150 years ago, there is hardly a month goes past without us needing to reference this wonderful collection.
- A search for the species named "Pentatoma nigricorne" revealed no specimens but there is one specimen in the Curtis collection named ""Pentatoma nigricornis" which I presume is the same species..
 - •
 - I have attached a series of images associated with this specimen. The drawer image, a close up, the diary entry and a series of montaged images which hopefully show the diagnostic features of this species. With the Curtis collection, we often try to avoid posting away specimens by taking a series high quality montaged images.
 - •
 - I have 16MB high resolution images available for these montage images. If you use DropBox, I can create a folder and share these high res images with you.
 - •
 - Best wishes,
 - •
 - Ken









Identification tools

Australian Blowflies: Calliphoridae

Adrianna Thomas, Research Associate, Museum Victoria






Common Blowflies



Comparison of setae on genal dilation Lucilia poryphryna Chrysomya megacephala



Future Projects that value-add to the existing and future, high resolution images. Future Projects that may value-add to high resolution imaging.

1. Online investigation of an entomology collection.

BUPRESTIDAE (Jewel beetles)







Castiarina * adelaidae (Hope)	Castiarina adelaidae (Hope
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Castiarina adelaidae



Castiarina adelaidae Registration No. COL-72060



Future Projects that may value-add to high resolution imaging.

1. Online investigation of an entomology collection.

2. Build your own virtual collection



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	spis			
	sp.6			
sp.2		sp.11	sp.14	
cn 3	sp.7	sp.12	sp.15	
sp.3 -	sp.8		sp.16	
sp.4	sp.9			

sp.1	sp.5	sp.10	sp.13 sp.14	sp.17
				sp.18
	sp.6			
sp.2	sp.2	sp.11		sp.19
sp.3	sp.7	sp.12	sp.15	
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sp.4	sp.9			

sp.1	sp.5	sp.10	sp.13	s p.1 7	sp.22
	3010			sp.18	
					sp.23
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sp.2		sp.11	sp.14	sp.19	sp.24
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sp.4	sp.9			s p.21	