Atlas Gaps and Horizon

Lee Belbin

Stakeholder Report

Idea Themes

Using a design approach, the workshop participants worked in groups to identify themes that help address the challenges and opportunities. These were further divided into 3 broad categories:

1 Better Operation

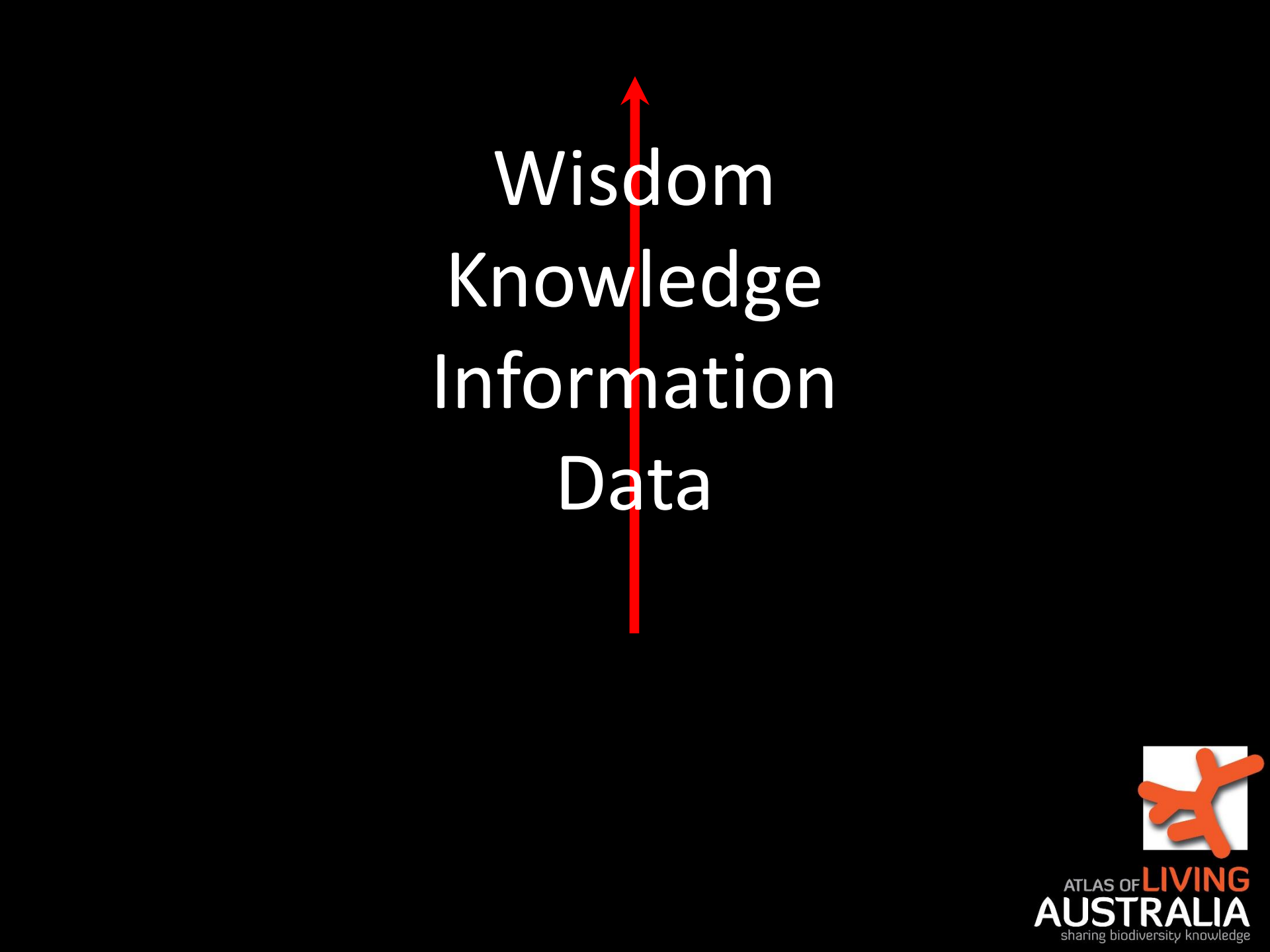
- 1.1 Quality
- 1.2 Identify and Close Gaps
- 1.3 User and Usage Insights

2 Strategic approach

- 2.1 Business model, funding and operations
- 2.2 Connectivity
- 2.3 Policy Framework and insights
- 2.4 Taxonomy Australia

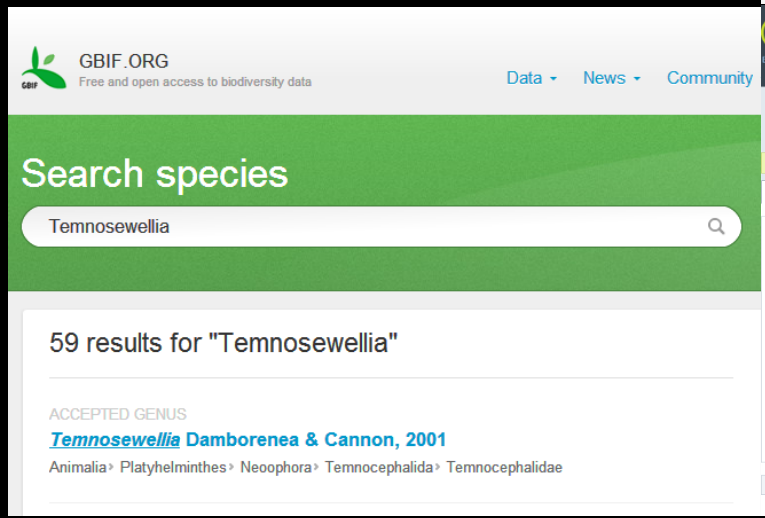
3 Extending impact

- 3.1 New users
- 3.2 Citizen Science
- 3.3 Mobile Tools



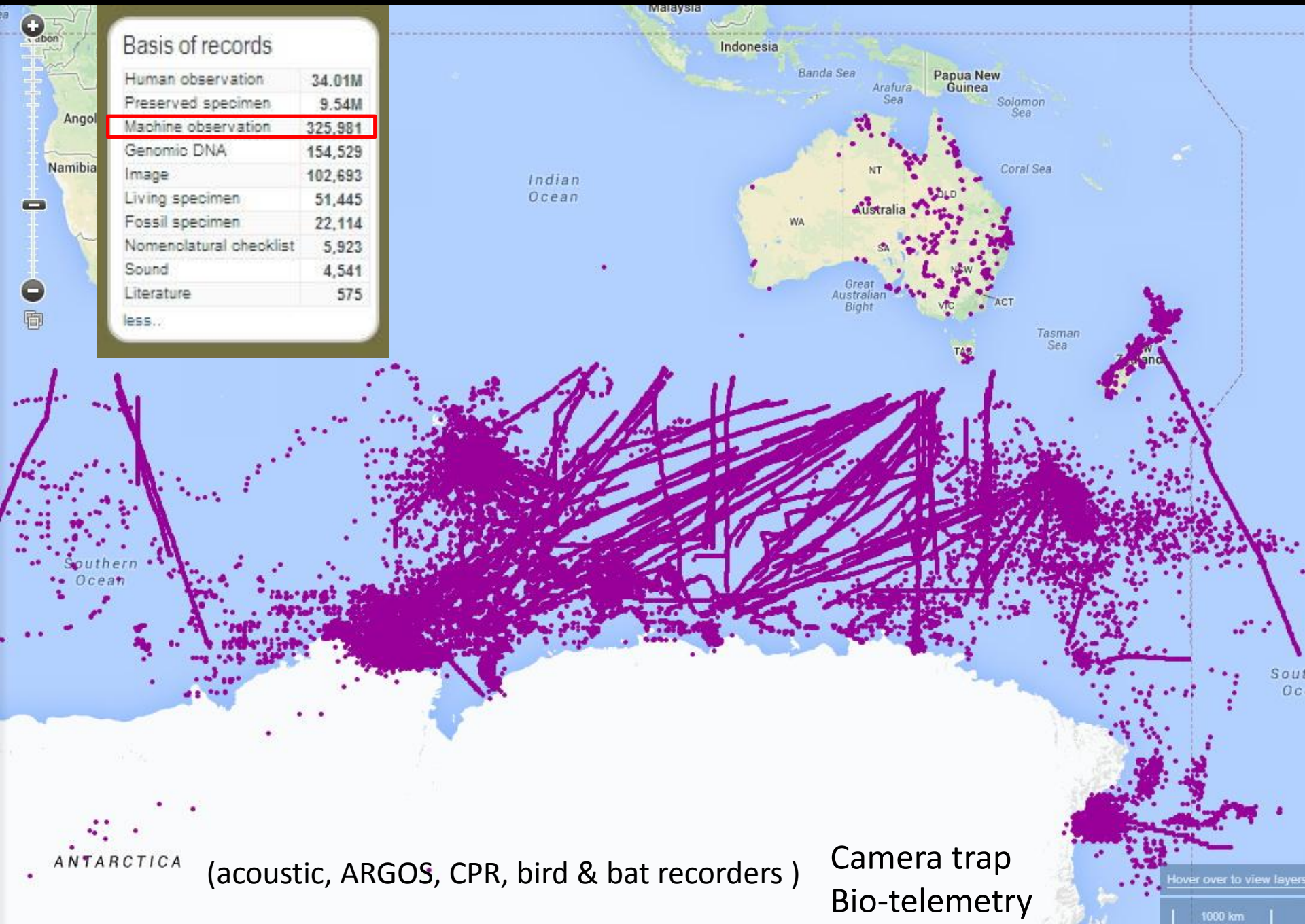
ATLAS OF LIVING AUSTRALIA
sharing biodiversity knowledge

Names without NSL matches



Species Without Occurrences

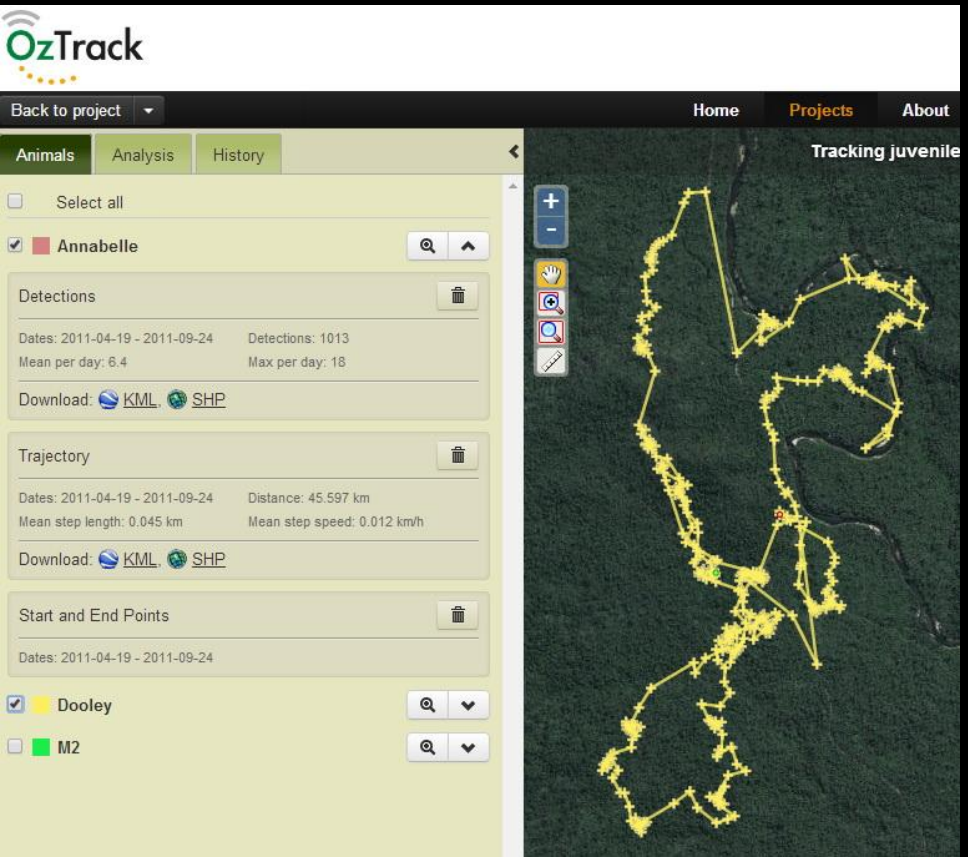
http://bie.ala.org.au/ws/download?q=*:*&fields=scientificName,occurrenceCount&fq=-occurrenceCount:[*%20TO%20*]

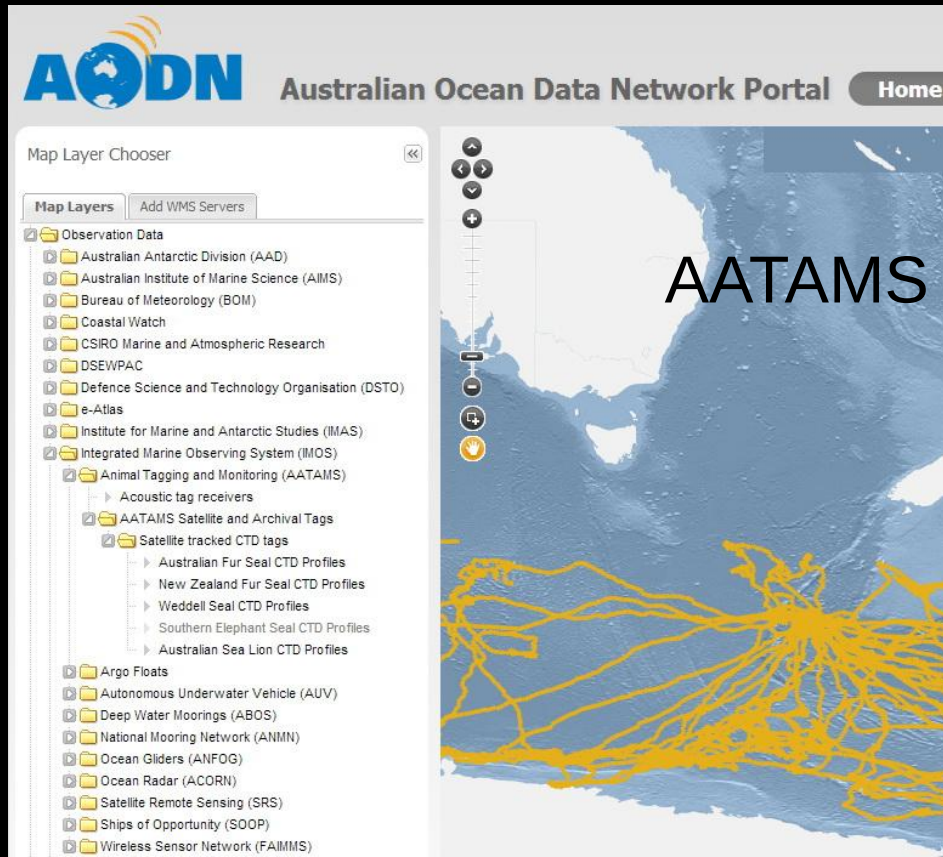


(acoustic, ARGOS, CPR, bird & bat recorders)

Camera trap
Bio-telemetry

Tracking Data Structure



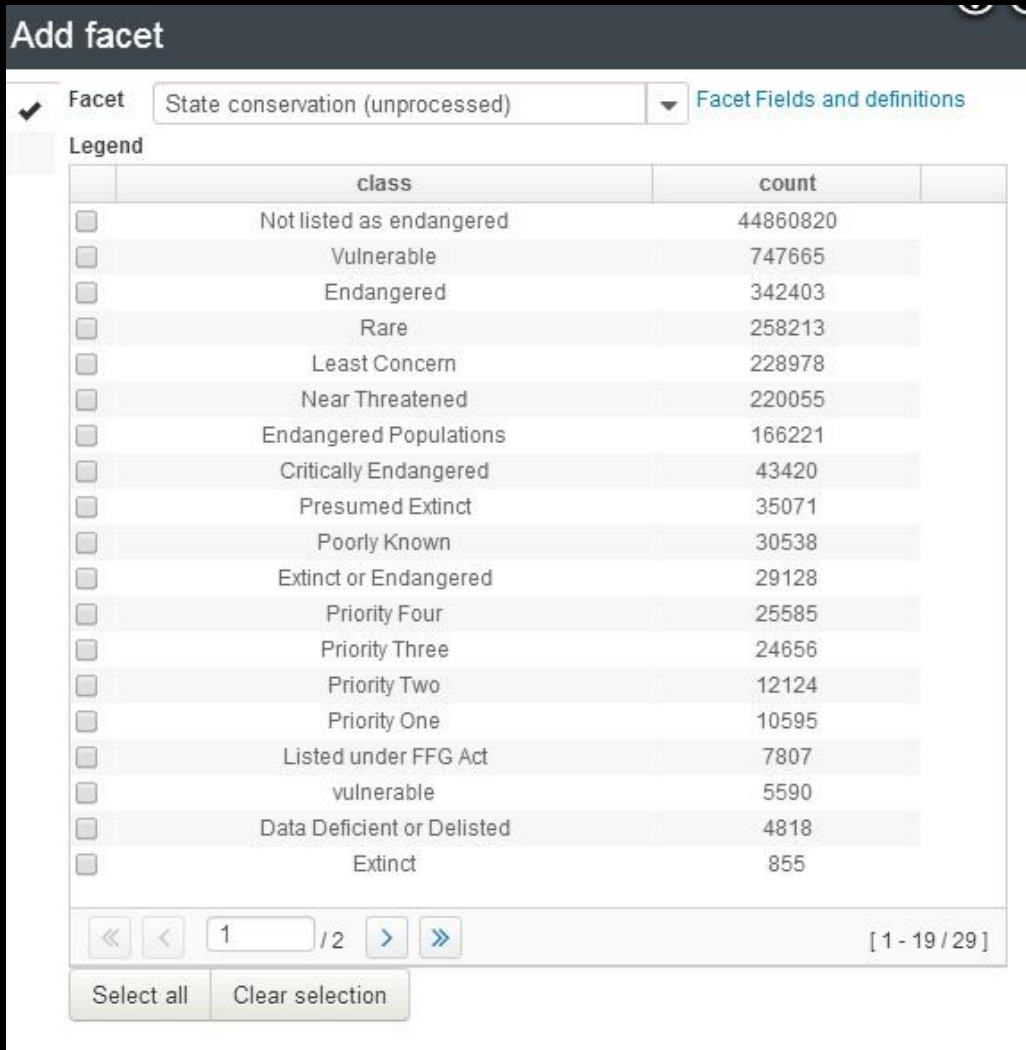


'Absences'

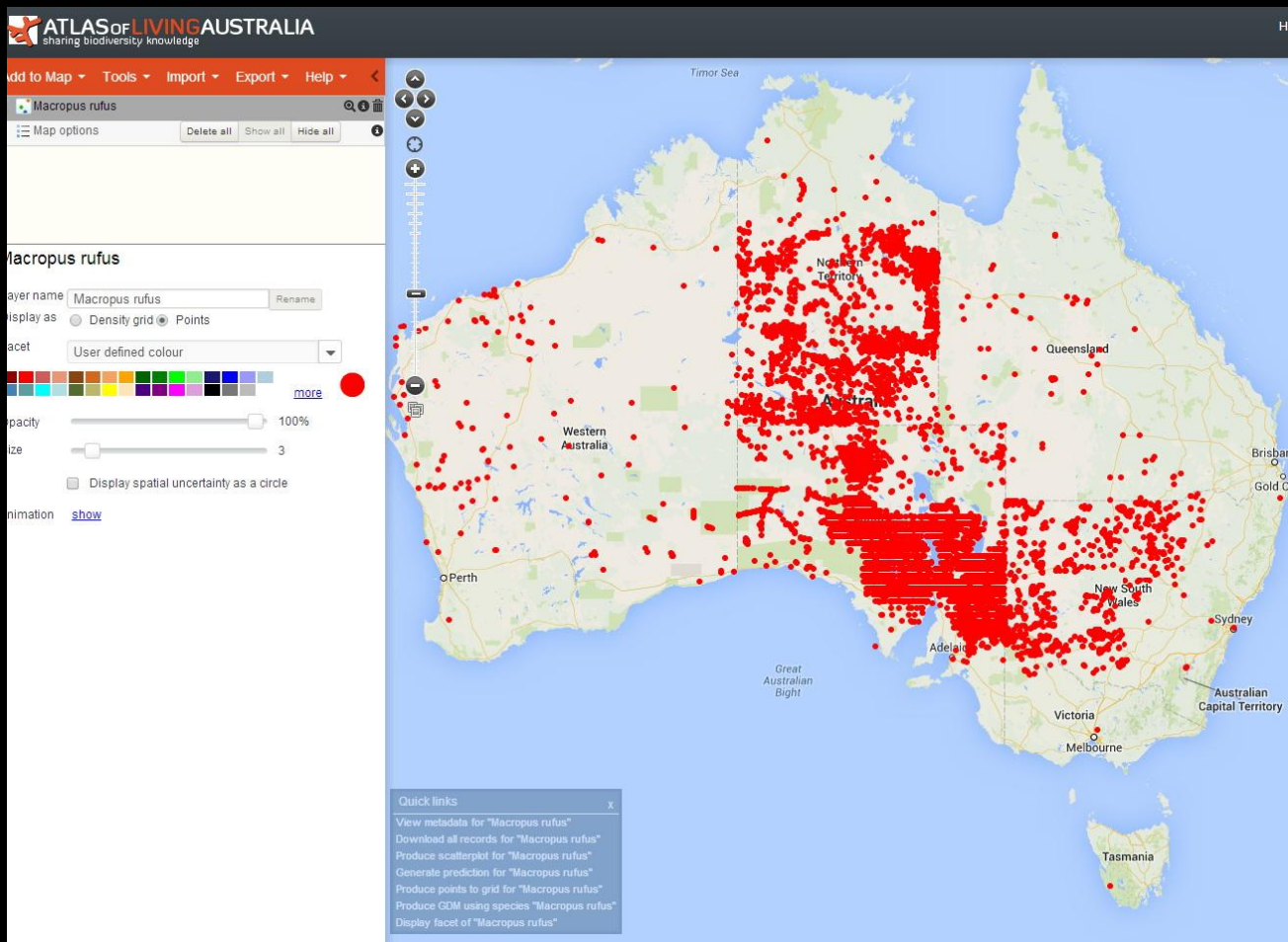
(5834 …)

‘Invasiveness’ *

There is no equivalent to conservation status for alien invasive species:
A **‘Black List’**

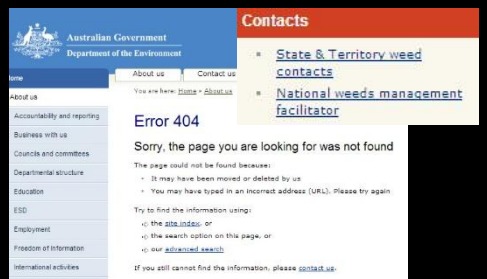


Collections

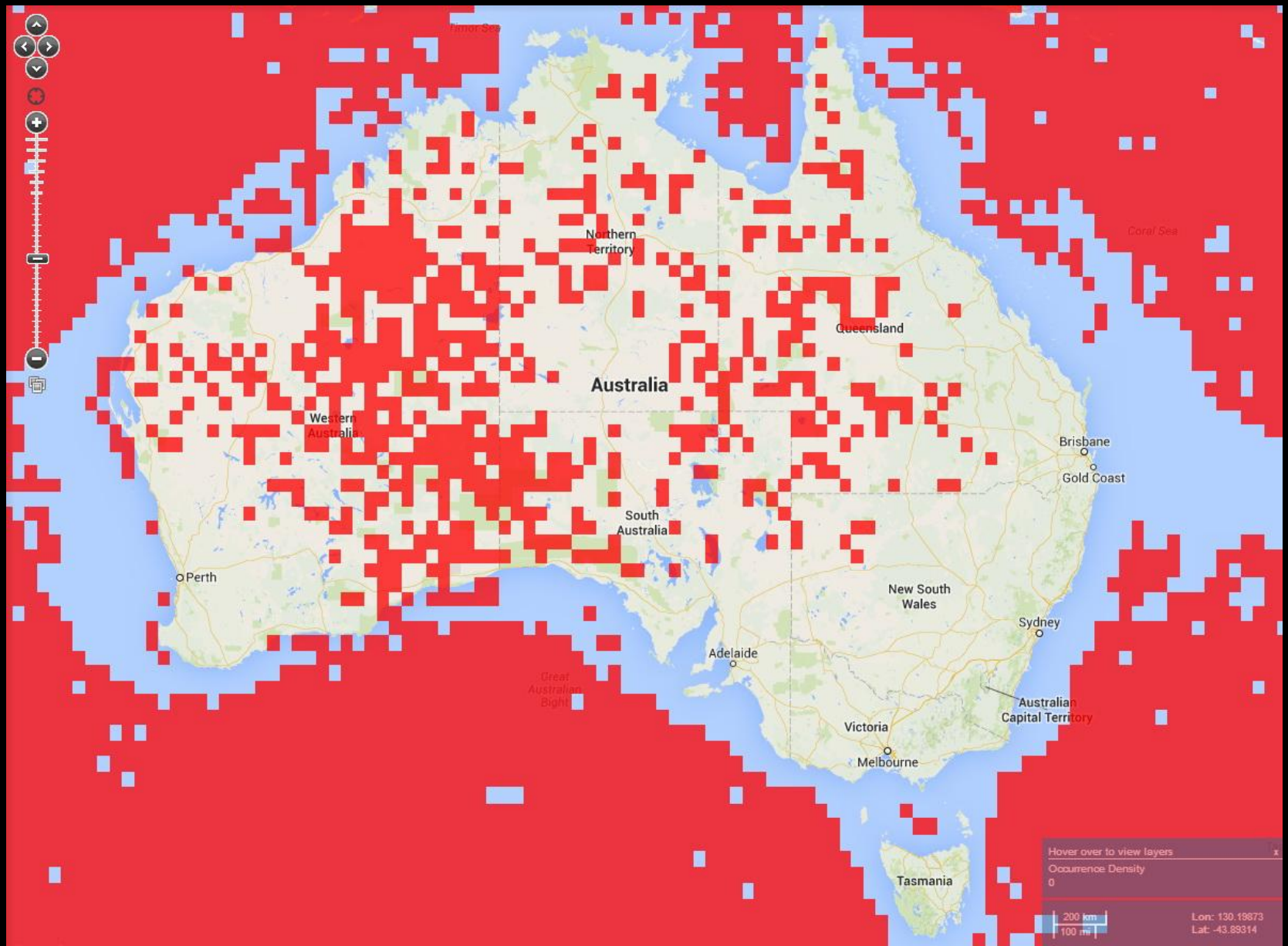


CSIRO

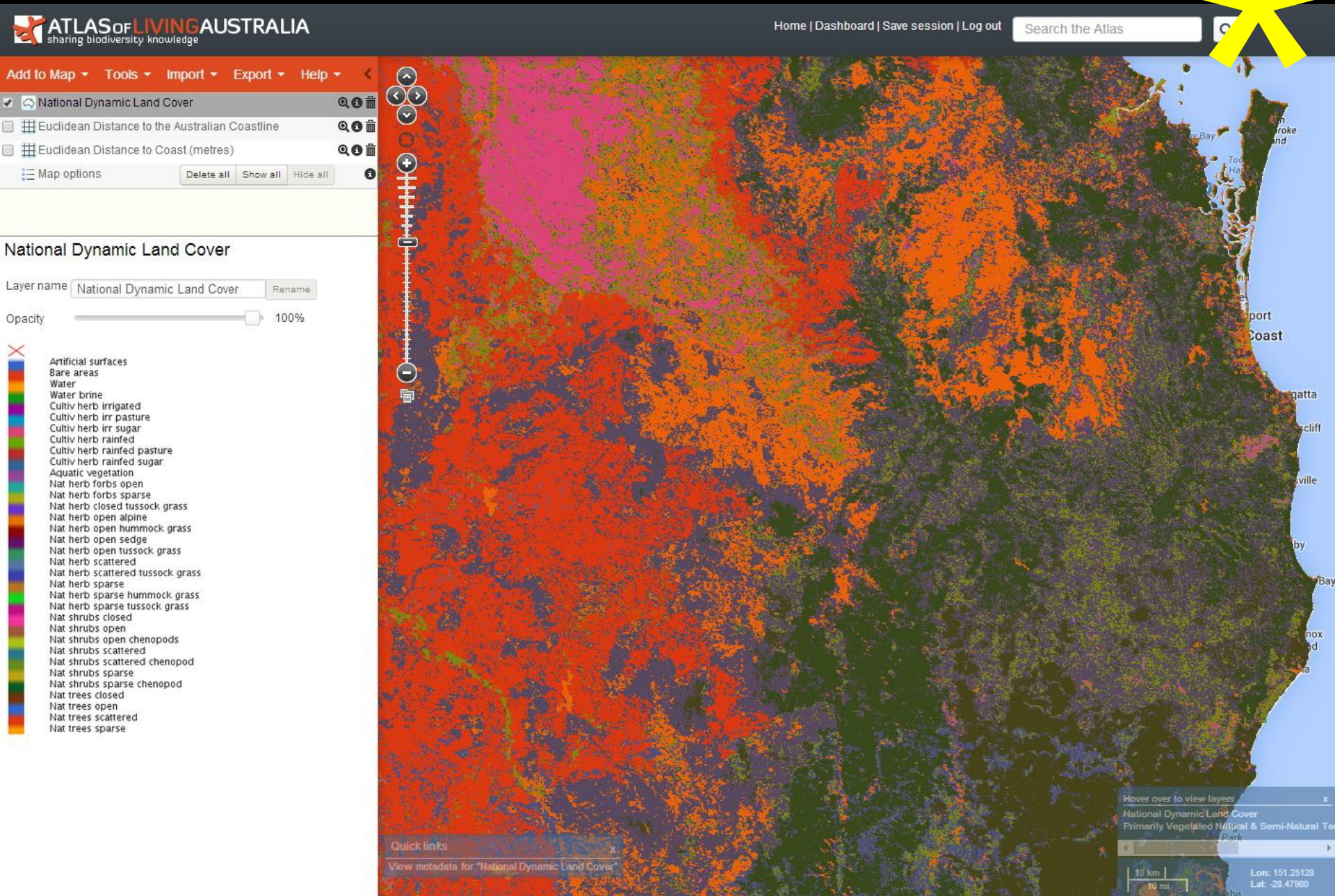
aekos™
AUSTRALIAN ECOLOGICAL KNOWLEDGE AND OBSERVATION SYSTEM



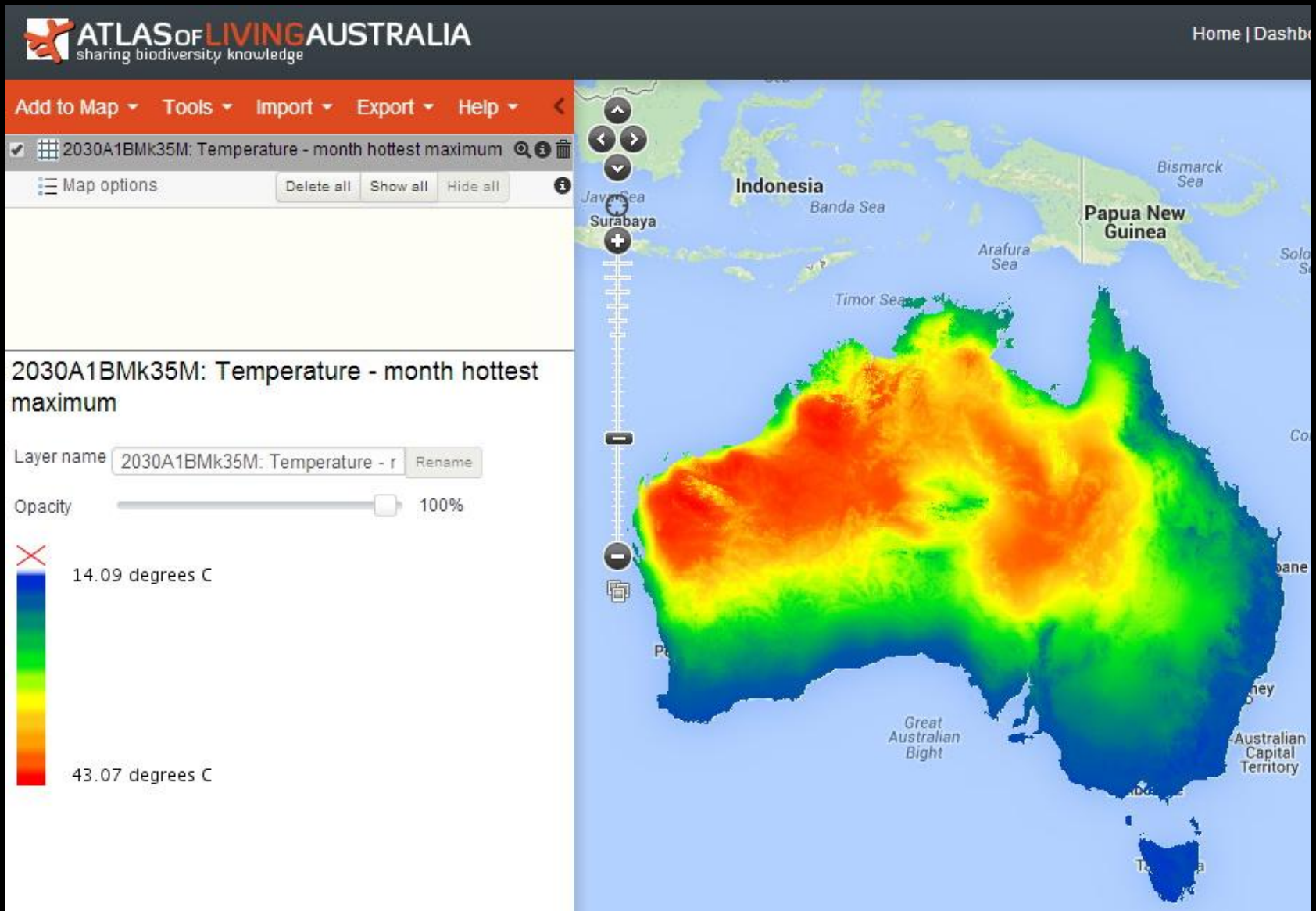
Unsampled areas



100-250m Terrestrial Environmental Layers



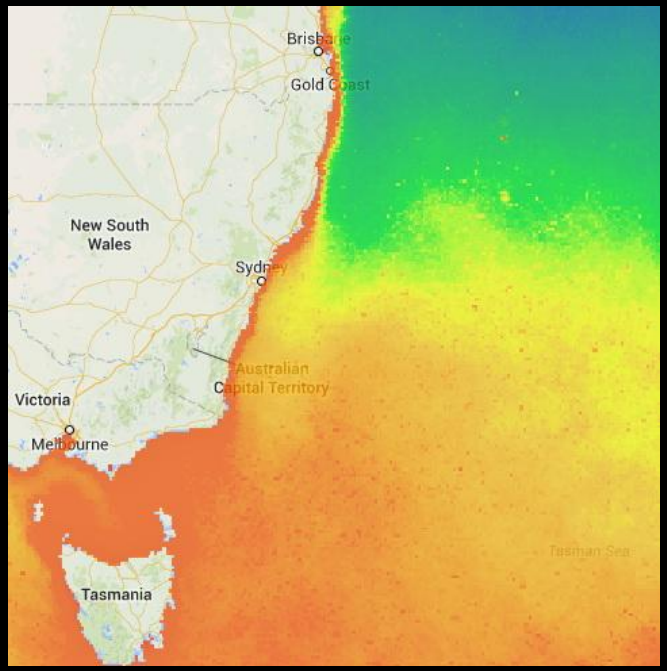
More Climate Scenarios



Environmental conditions

Freshwater – 0 !

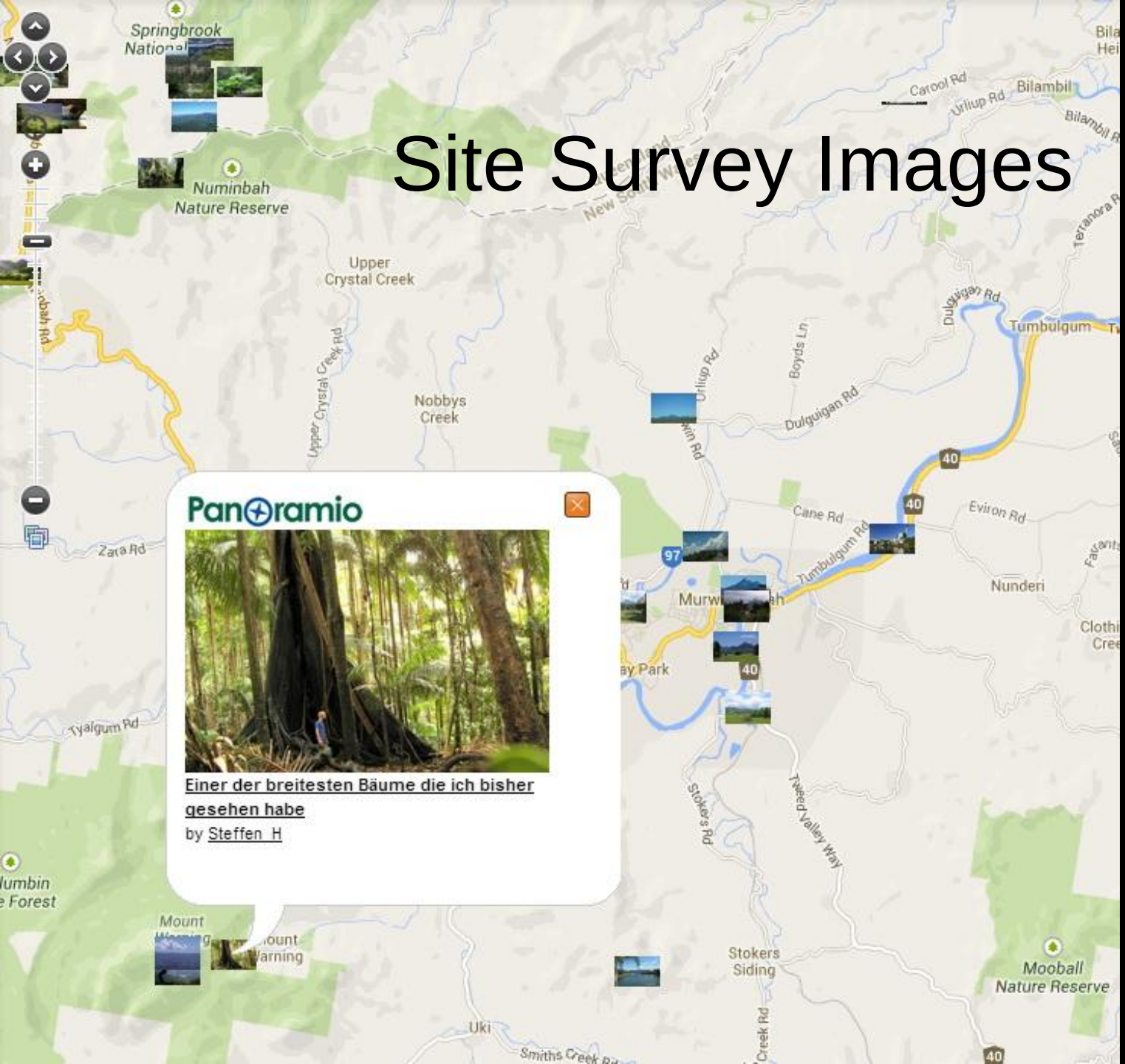
Marine – 12e, 8c



A List of Freshwater Species

Indigenous Knowledge

Site Survey Images



User Profiles and Workflows

Occurrence downloads by user type

Education	17,803 events	180.07M records
Government	6,380 events	141.39M records
Other	41,784 events	654.20M records
Unspecified	26,827 events	843.56M records
TOTAL	92,794 events	1.82B records

Occurrence downloads by reason

Scientific research	33,585 events	367.50M records
Ecological research	20,846 events	364.02M records
Conservation management/planning	6,744 events	145.96M records
Education	6,666 events	79.82M records
Environmental impact, site assessment	3,801 events	112.69M records
Systematic research	1,510 events	19.18M records
Other scientific research	567 events	4.32M records
Collection management	451 events	41.46M records
Biosecurity management, planning	406 events	9.08M records
Other	18,218 events	675.20M records
TOTAL	92,794 events	1.82B records

more/less...

ALA citations

Citation	Rights	More Information	Records in Download
Records provided by OZCAM (Online Zoological Collections of Australian Museums) Provider, accessed through ALA website		http://collectionsalaorg au/public/show/dp20	2913
Records provided by the Australian National Wildlife Collection, CSIRO, http://wwwcsiroau/, accessed through ALA website	Creative Commons Attribution 30 Australia (CC BY) Data is available under the Creative Commons Attribution 30 Australia license Sound files associated with specimen records are not available for download and re-use Please contact the Australian National Wildlife Collection for more information	http://collectionsalaorg au/public/show/dr341	2913
Records provided by Commonwealth Scientific and Industrial Research Organisation, accessed through ALA website		http://collectionsalaorg au/public/show/in6	2913

ATLAS OF LIVING AUSTRALIA
sharing biodiversity knowledge

Home | Logout

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

Home : Dashboard

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

Show raw data

Occurrence records

50,155,464

records in total.

We estimate the number of potential duplicate records to be 6,599,837.

Data sets 763

Harvested websites	110
Occurrence record sets	333
Document sets	19
Uploaded record sets	45

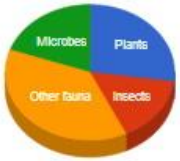
Most recently added dataset is *Queensland Wildlife Data - tnal*

Basis of records

Human observation	37.15M
Preserved specimen	9.66M
Machine observation	325,981
Genomic DNA	154,529
Image	102,866
Living specimen	51,445
Fossil specimen	22,114

more..

Collections 147



Records by date

Latest record	25 May 2014
Last image added	18 May 2013
1600s	24
1700s	8,357
1800s	362,218
1900s	24.34M
2000s	20.54M

National Species Lists

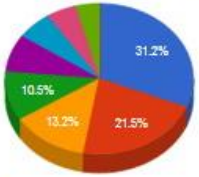
Accepted names	195,424
Synonyms	146,974
Species names	152,080
Species with records	111,566

Spatial layers 413

Contextual layers	87
Environmental/grided layers	326
Terrestrial layers	376
Marine layers	25

more..

Records by state and territory



Identify Life

Identification keys:

532

Most recorded species

Cracticus tibicen - Australian Magpie	625064
Grallina cyanoleuca - Magpie-lark	493013
Rhipidura (Sauloprocta) leucophrys - Willie Wagtail	461175
Malurus (Malurus) cyaneus - Superb Fairy-wren	374274
Eolophus roseicapillus - Galah	366458
Zosterops lateralis - Silvereye	356918

all lifeforms ▼

Type specimens 141,016

Holotypes	26103
Lectotypes	785
Neotypes	159
Isotypes	6
Types with images	5289

more..

Barcode of life

DNA barcode data

Records	606,922
Species	37,557
Countries	220
Institutions	790

Biodiversity heritage library

Pages	38.43M
Volumes	104,461
Titles	55,000

Biodiversity volunteer portal

Specimen labels transcribed	26,058
Fieldnotes pages transcribed	2,869
Volunteers	467
Projects active	42
Projects completed	15

Conservation status

Status	# species
Endangered	3783
Near Threatened	5673
Least Concern/Unknown	475
Listed under FFG Act	11
Extinct	192
Parent Species (Unofficial)	0

Records by data provider

Bird life Australia	12.58M
Office of Environment and...	6.94M
Australia's Virtual Herbarium	4.96M
OZCAM (Online Zoological...	3.43M
Eremaea	3.29M
South Australia, Department of...	1.73M
Department of Natural...	1.58M

more..

Records by institution

Australian Museum	1.12M
Centre for Australian National...	944,631
Royal Botanic Gardens Melbourne	850,587
Western Australia, Department...	752,671
Queensland Museum	734,730
The Royal Botanic Gardens &...	704,937
Department of Environment,...	660,185

more..

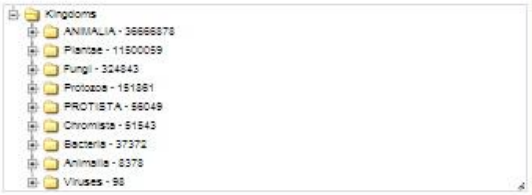
Records by lifeform

Algae	45,973	FernsAndAllies	390,558
Amphibians	426,924	Fish	1,298,574
Angiosperms	10,775,712	Fungi	324,843
Animals	36,666,878	Gymnosperms	70,024
Arthropods	2,030,822	Insects	1,271,348
Bacteria	37,372	Mammals	1,626,123

more/less...

Records and species by deca

Occurrence tree



Occurrence downloads by reason

Scientific research	33,604 events	387.52M records
Ecological research	20,851 events	364.02M records
Conservation management/planning	6,755 events	146.83M records
Education	6,672 events	80.05M records
Environmental impact, site assessment	3,802 events	112.69M records
Systematic research	1,510 events	19.18M records
TOTAL	92,956 events	1.87B records

more/less...

Occurrence downloads by user type

Education	17,803 events	180.07M records
Government	6,382 events	141.40M records
Other	41,806 events	655.31M records
Unspecified	26,965 events	889.79M records
TOTAL	92,956 events	1.87B records

Species Images 40,983

Species with images	40983
Subspecies with images	2367
Taxa with images from Biodiversity Volunteer Portal	768
Taxa with images from citizen science	6215
Images viewed	10.41M

Functions
Services

Champions

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My

Biodiversity Volunteer Portal | Expeditions | Tutorials | Forum | Contact Us | How can I volunteer? | Abou

Biodiversity Volunteer Portal » Honour Board - Top 20 volunteers for All Time

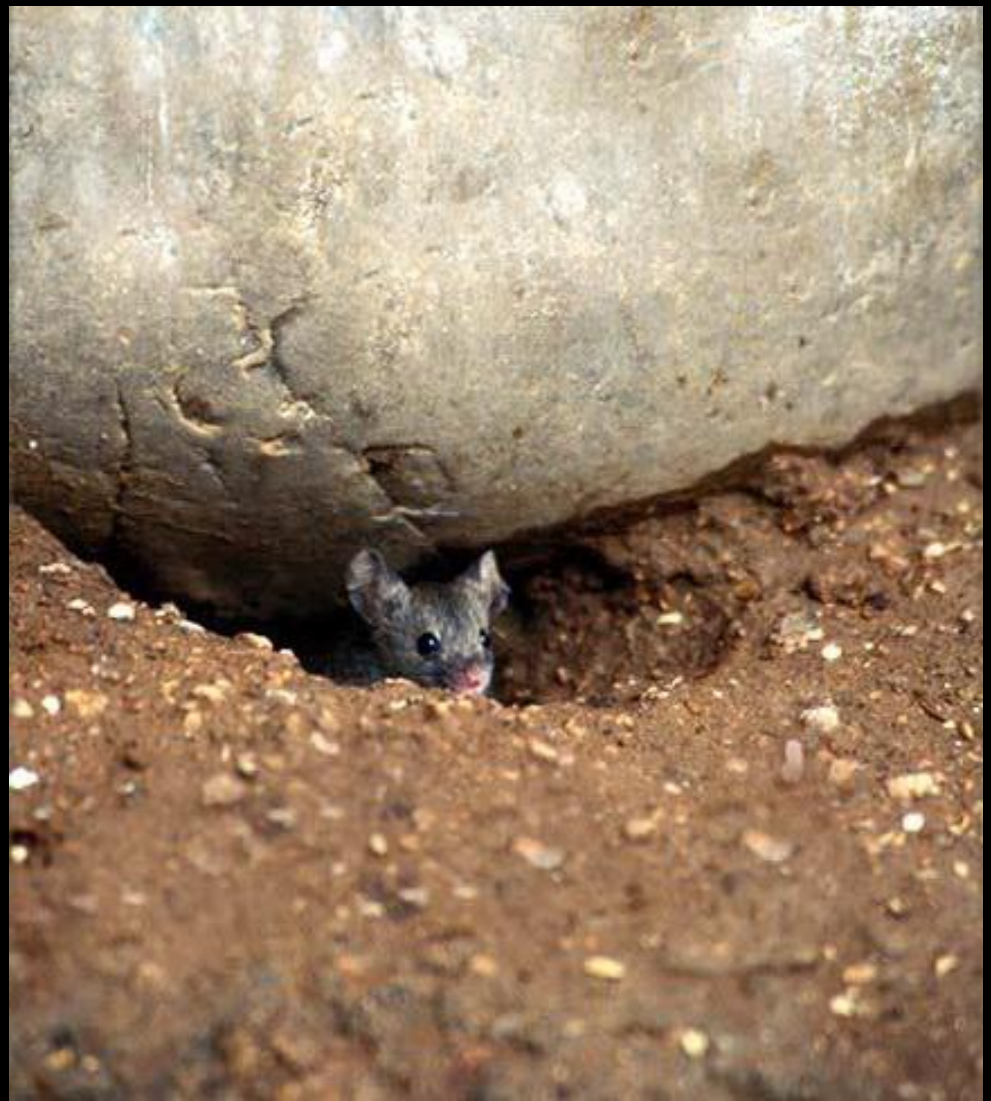
Honour Board - Top 20 volunteers for All Time

Volunteer	Tasks completed
Megan Edey	17273
Baz Walter	12860
Helen Woods	10626
Teresa Van Der Heul	8302
Jim Richardson	5933
Reiner Richter	5220
Joy Pagon	4383
Grahame Parsons	3976
Geoffrey Berry	3725
Diana Gershwin	3420

‘Friends of The Atlas’

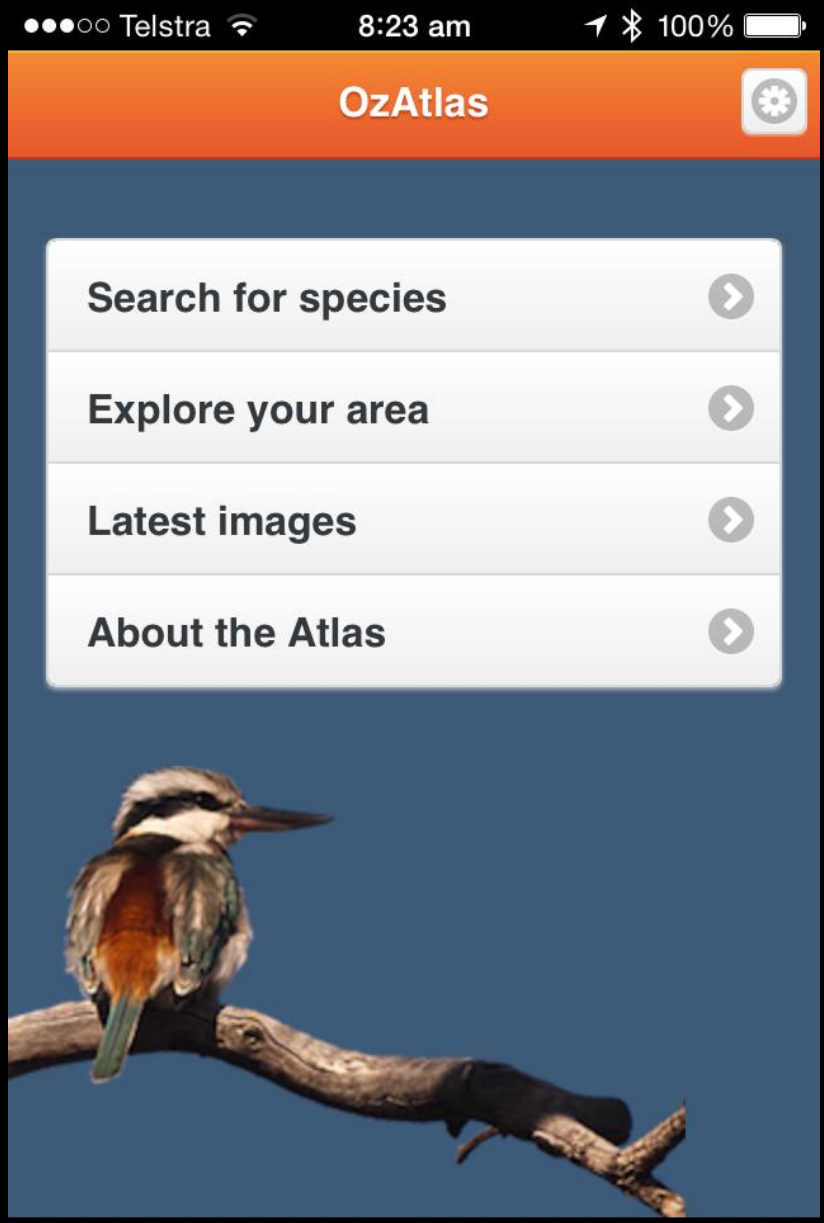
ATLAS OF LIVING AUSTRALIA
sharing biodiversity knowledge

Communications!



Mobile

- Multiple observations at a point
- Offline recording and sync
- Time of observation (EXIF)
- Coordinate uncertainty



Links to Keys?

IdentifyLife

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

Search | Contribute

View: [All] [Most Recent] [Most Popular]

LUCID

Fruits and Seeds of the Cerrado Attractive to Wildlife

Key for species of Brazilian Cerrado that produce diaspores eaten and dispersed by native fauna. *Details ...*

HTML

Key to species of Syntactus Förster known in Oriental and Eastern Palaearctic Regions

A new species, Syntactus julianicus Sun & Sheng, sp.n. belonging to the tribe Pionini of the subfamily Ctenopelmatinae (Hymenoptera, Ichneumonidae), collected from Jiangxi Province, China, is reported. Illustrations of the new species and Syntactus delusor (Linnaeus, 1758), Syntactus minor (Holmgren, 1857) and Syntactus varius (Holmgren, 1858) are provided. A key to the species of Syntactus known from the Oriental and Eastern Palaearctic Regions is given. *Details ...*

HTML

Key to the species of the genus Cheylostigmaeus

Key to the species of the genus Cheylostigmaeus by Willmann, C. *Details ...*

HTML

Key to the species of the genus Cheylostigmaeus

Key to the species of the genus Cheylostigmaeus by Willmann, C. *Details ...*

LUCID

Interactive Key to the Ferns of the Hawaiian Islands

The Interactive Key to the Ferns of the Hawaiian Islands is an electronic, web-based diagnostic key designed for efficient and easy identification of Hawaiian ferns. The interactive key was created using Lucid v3.5 software. The interactive key treats all 204 currently recognized native and naturalized Hawaiian fern taxa. Nomenclature has been updated to comply with the most recent taxonomic treatments. Nearly all taxa are accompanied with images showing the general plant form and further diagnostic characters. Diagnostic characters and character states are accompanied with images or illustrations along with definitions. A glossary and fact sheets are accessed within the key. Fact sheets include species descriptions, distributions, Hawaiian names, and synonyms. *Details ...*

HTML

Key to the species of the genus Cheylostigmaeus

Key to the species of the genus Cheylostigmaeus by Willmann, C. *Details ...*

Expose (more) Fields

occurrence_status_s	count
present	7651316
Present	4352874
common	9843
occasional	6195
Current	6101
abundant	5403
absent	5264
rare	4379
Not current	4090
breeding	772
Absent	570
Locally Extinct	147
unknown	121
uncommon	55
Abundant (found w/ little searching)	51
Abundant (found easily)	41
moderatly common	32
Rare (only 1 or 2 found after intensive search)	28
Frequent (found with some searching)	25
Frequent (found w/ some searching)	13

occurrence_status_s	count
Exsitu	12
Introduced	11
Feeding	9
Rare (1-2 found)	9
Not Found (not present during search)	8
Young attached to mother	7
Courting or mating	6
Other	6
probably breeding	5
Common	3
Extant	3
Moderatly common	3
translocation	3
Grooming	2
not found	2
Courting or Mating	1
Medium	1
Not Found (none present)	1
Rare (only 1 or 2)	1
Sleeping	1
Translocation	1
locally extinct	1

http://biocache.ala.org.au/ws/occurrences/facets/download?facets=occurrence_status_s&count=true

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Comprehensive Area Reports

Area: 10,393 km^2	Area Endemicity: 0.128	Species: 525	Occurrences: 423,191
Ecoregions: 2	Lifeforms: 12	DNA sequences: 5	Endemic species: 1,002
Invasive Species: 17	Iconic species: 5	Migratory Species: 82	Threatened Species: 21
Expert distributions: 3	Checklist Areas: 1	Checklist Species: 31	Documents: 2
Gazetteer points: 124	Ecosystems Services: $824m		

Dynamic Land Cover Classes

The Dynamic Land Cover Dataset is the first nationally consistent and thematically comprehensive land cover reference for Australia. It provides a base-line for reporting on change and trends in vegetation cover and extent. Information about land cover dynamics is essential to understanding and addressing a range of national challenges such as drought, salinity, water availability and ecosystem health. The data is a synopsis of land cover information for every 250m by 250m area of the country from April 2000 to April 2008. The classification scheme used to describe land cover categories in the Dataset conforms to the 2007 International Standards Organisation (ISO) land cover standard (19144-2). The Dataset shows Australian land covers clustered into 34 ISO classes. These reflect the structural character of vegetation, ranging from cultivated and managed land covers (crops and pastures) to natural land covers such as closed forest and open grasslands. [Ref1]

Australia's Dynamic Land Cover: http://www.ga.gov.au/earth-observation/landcover.html

"National Dynamic Land Cover" layer: Classification: Vegetation; Type: Contextual (polygonal); Metadata contact organisation: Geoscience Australia (GA).
http://spatial.ala.org.au/ws/layers/view/more/dlcmv1

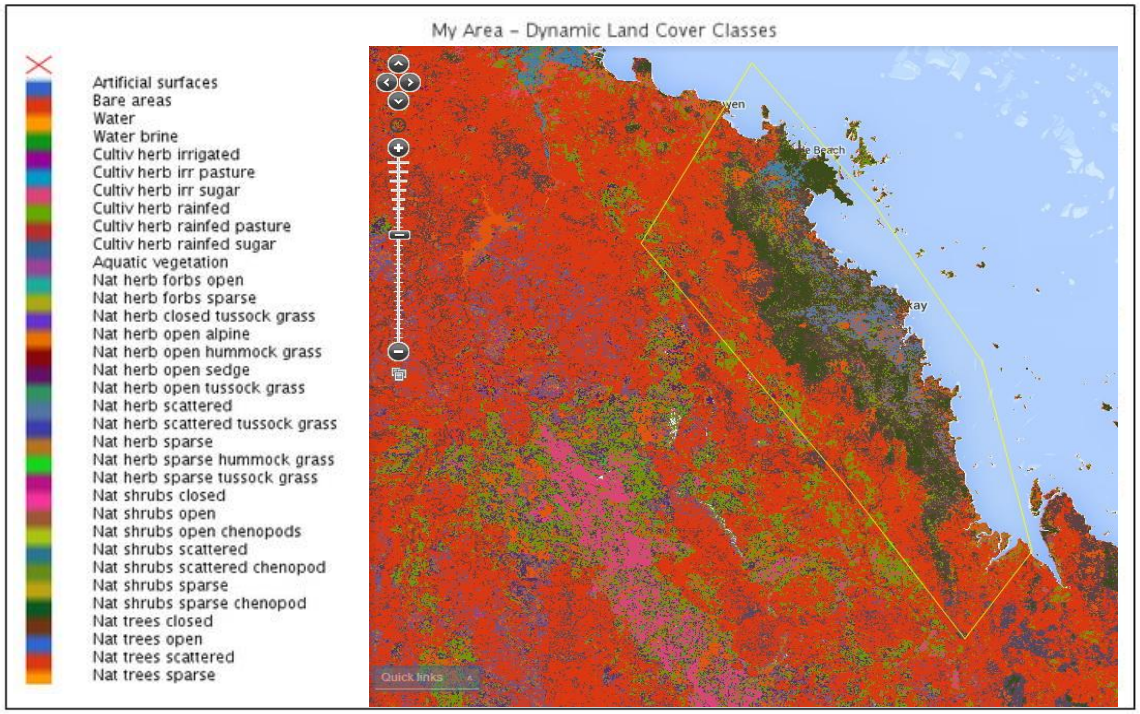


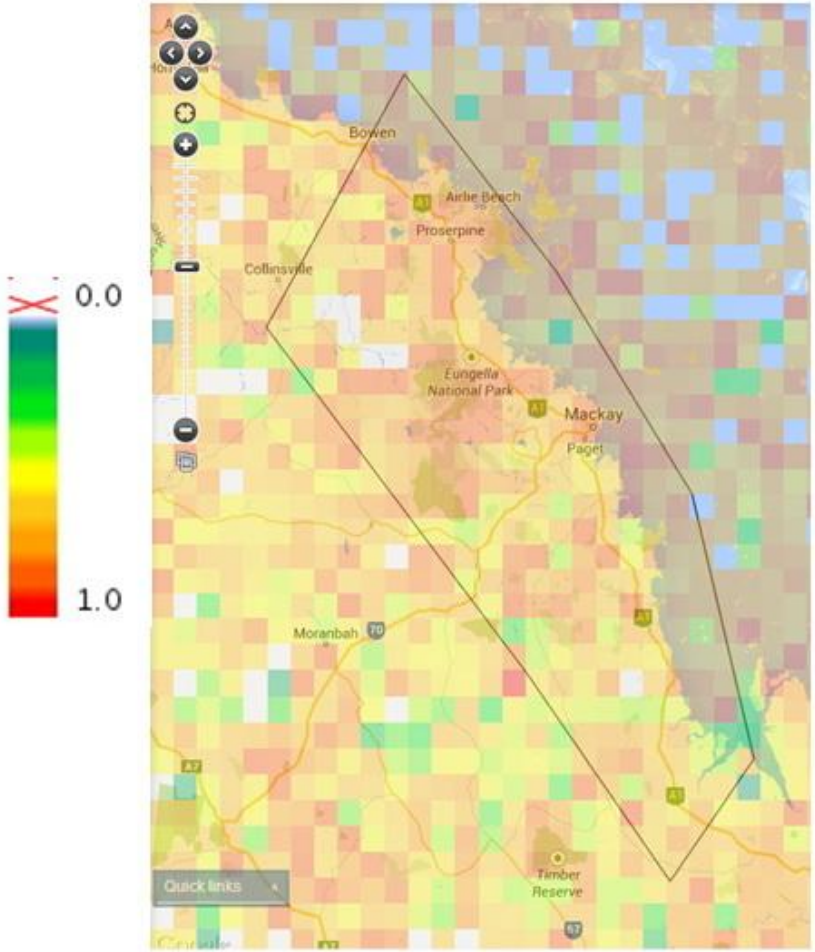
Figure 2: Map of "My Area" with National Dynamic Land Cover classes

Area Endemicity

Area endemicity: **0.583**

Endemicity for the area of interest is calculated using the corrected weighted endemism index developed by Crisp *et al.* (2001). This index measures the proportion of endemic species found in a grid cell. Centres of endemism can then be identified by running spatial autocorrelation analyses. The corrected weighted endemism index is not related to species richness (counting the number of species in a grid cell. [Ref6]).

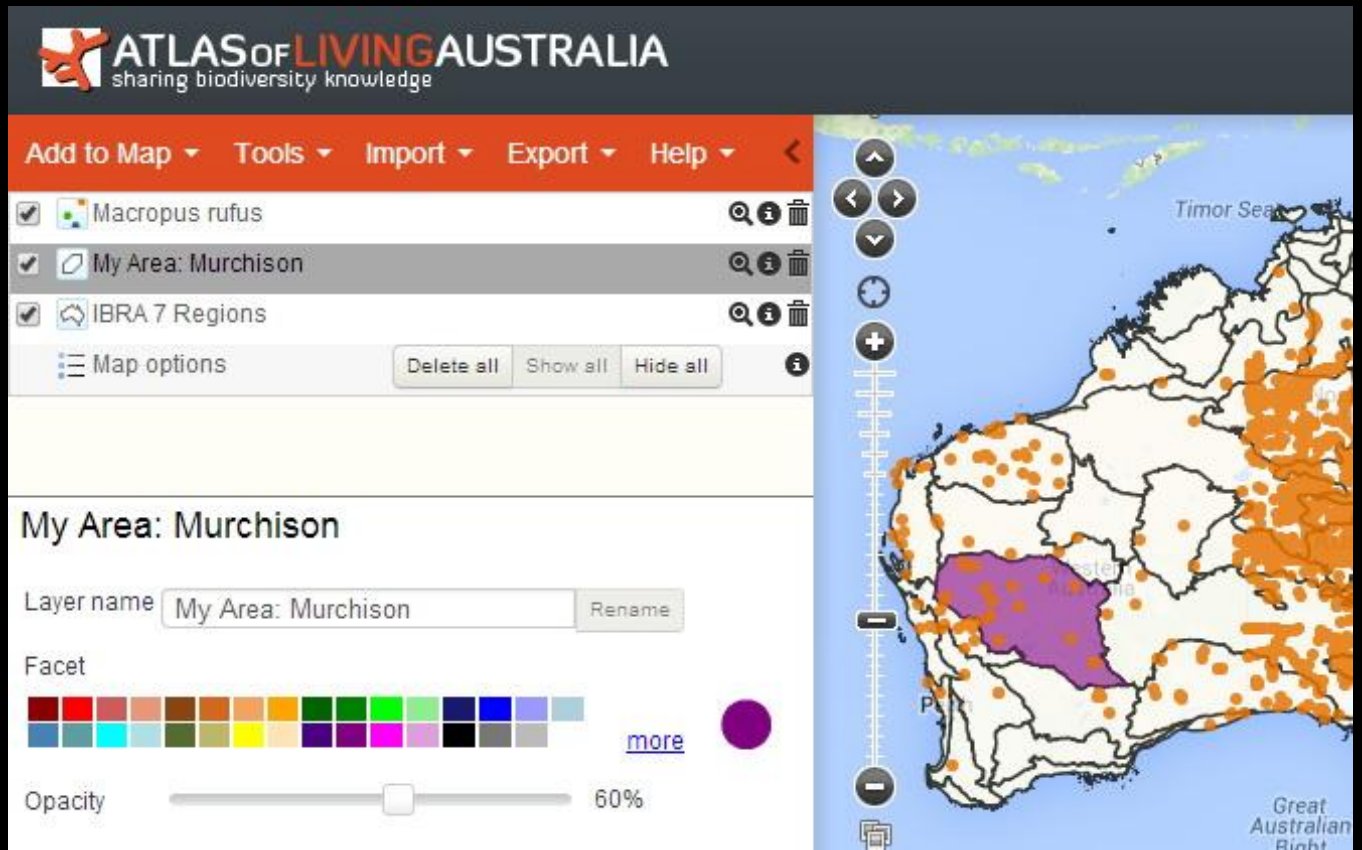
Crisp *et al.* (2001): http://onlinelibrary.wiley.com/doi/10.1046/j.1365-2699.2001.00524.x/full



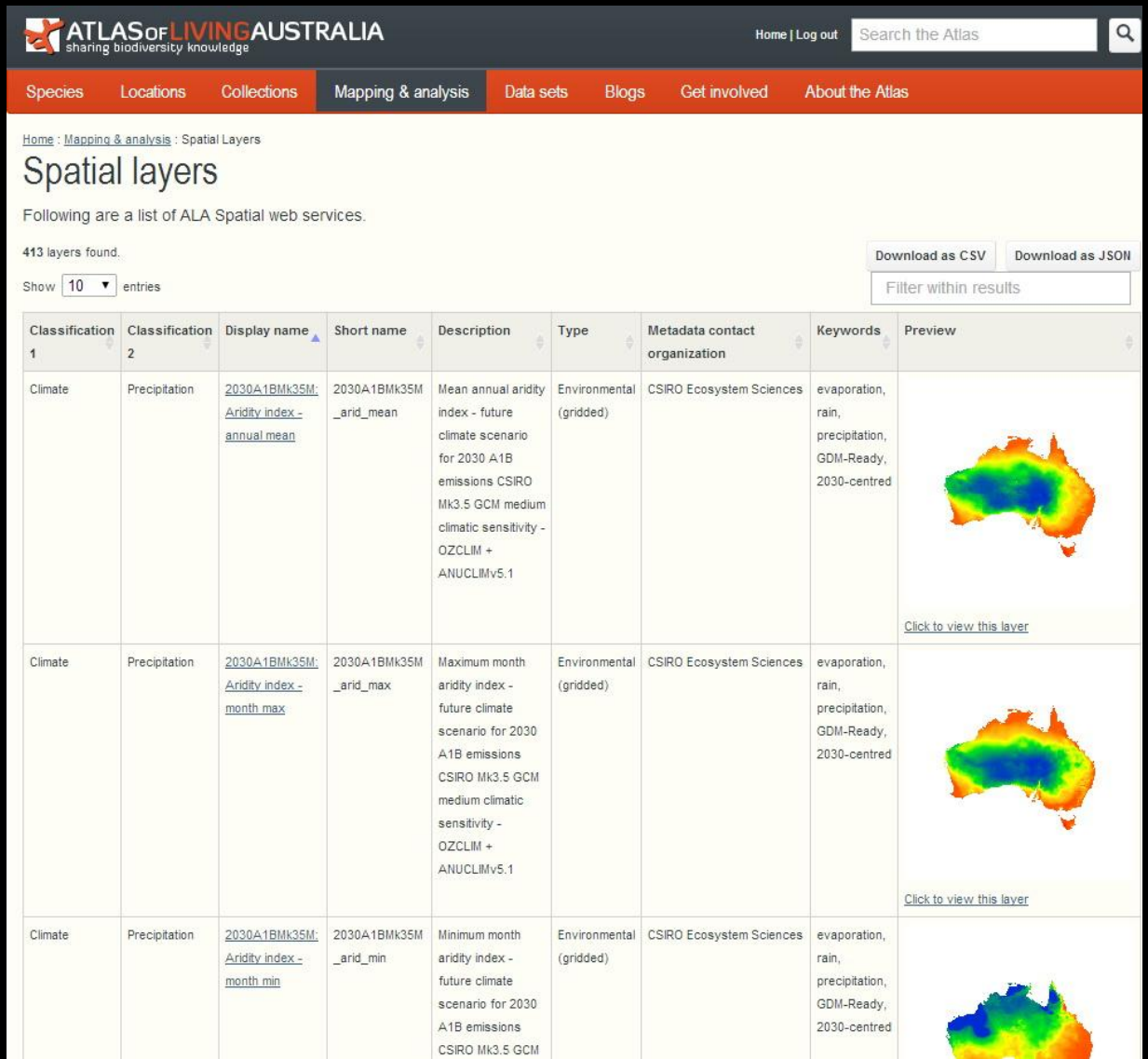
HPC?

- Expose an ALA ‘data cube’?
- Generalised Dissimilarity Modelling
- Pre-processing or on-the-fly cross tabulations
- Prediction
- Indexing?

Export of Point Data in GIS Formats



Export Layers



My ALA?

The Australian

Questions?

…

and I’d value feedback on feature and data priorities

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