

Leveraging Integrated Spatial Biological and Environmental Data in the Atlas of Living Australia

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Adam Collins | Spatial Developer

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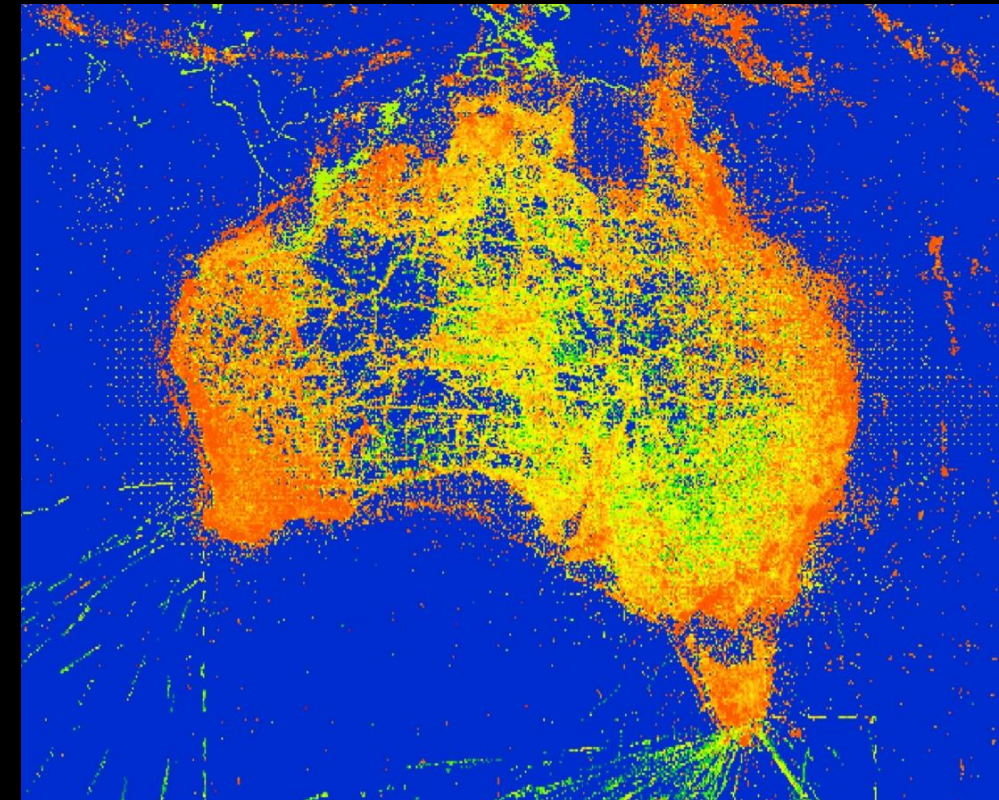
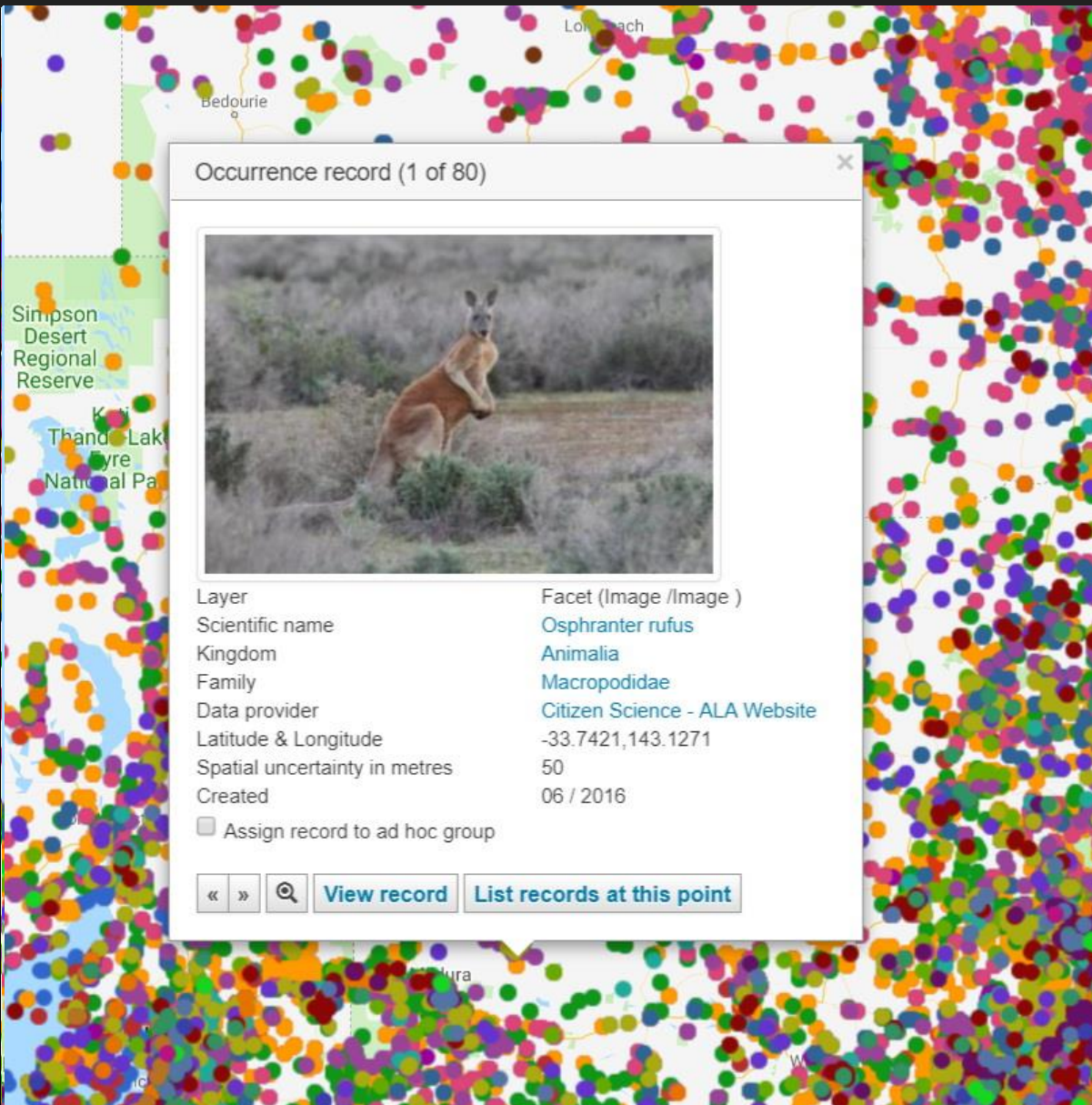
As Harry Truman said (and John often quoted)-

“It is amazing what you can accomplish if you do not care who gets the credit”



John LaSalle

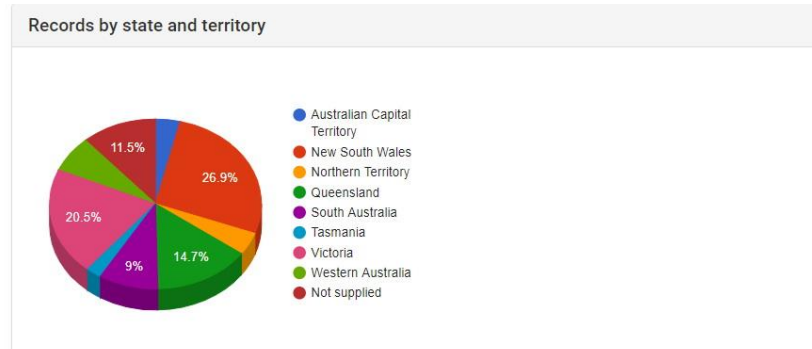
The Atlas of Living Australia is a repository of observations of living things and related data in our region



Occurrence records

77,179,519
records in total.

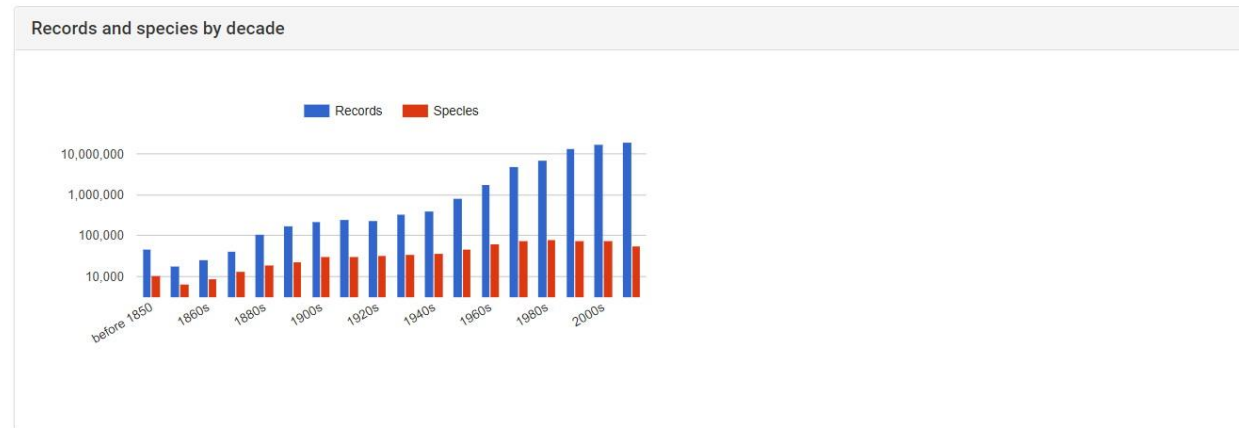
We estimate the number of potential duplicate records to be *813,940*.



Occurrence downloads by reason

Other scientific research	1.11M events	3.22B records
Ecological research	312,914 events	3.11B records
Scientific research	135,190 events	3.50B records
Education	23,088 events	1.45B records
Collection management	10,420 events	483.08M records
Citizen science	10,165 events	319.67M records
TOTAL	1.69M events	16.34B records

[More](#)



478 Spatial layers

Contextual layers	134
Environmental/grided layers	344
Terrestrial layers	418
Marine layers	36

[More](#)

Conservation status

Status	# species
Endangered	2,754
Near Threatened	5,040
Least Concern/Unknown	349
Listed under FFG Act	0
Extinct	111
Parent Species (Unofficial)	0

7,053 Data sets

Institutions	311
Collections	212
Data Resources	5,515
• Data Available	676
• Description only	4,839
Species List sets	1,414
Harvested websites	124

So what?

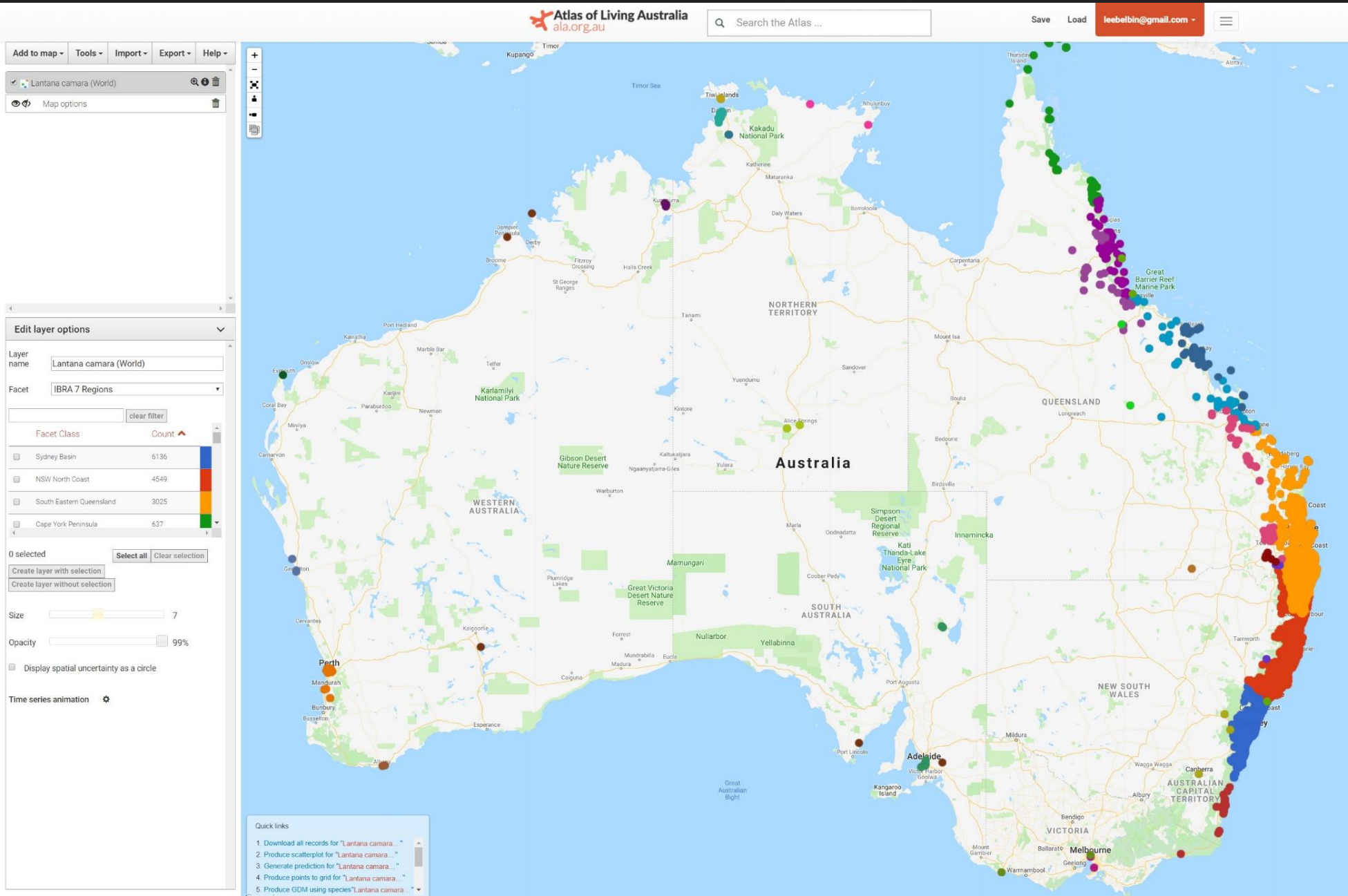
“Progress is measured by the speed at which we destroy the conditions that sustain life.”

— George Monbiot



If we don't know what makes up our environment,
how can we sustain it?

Lee Belbin 😊



Invasive Species

Add to Map Tools Import Export Help

- ☒ Neophema (Neonanodes) chrysogaster 1
- ☒ Expert distribution (likely) Neophema chrysogaster
- ☐ Expert distribution Neophema chrysogaster
- ☒ Expert distribution (maybe) Neophema chrysogaster
- Map options Delete all Show all Hide all

Neophema (Neonanodes) chrysogaster 1

Layer name Neophema (Neonanodes) chry Rename

Display as ☐ Density grid ☒ Points

Facet Institution

Opacity 100%

Size 3

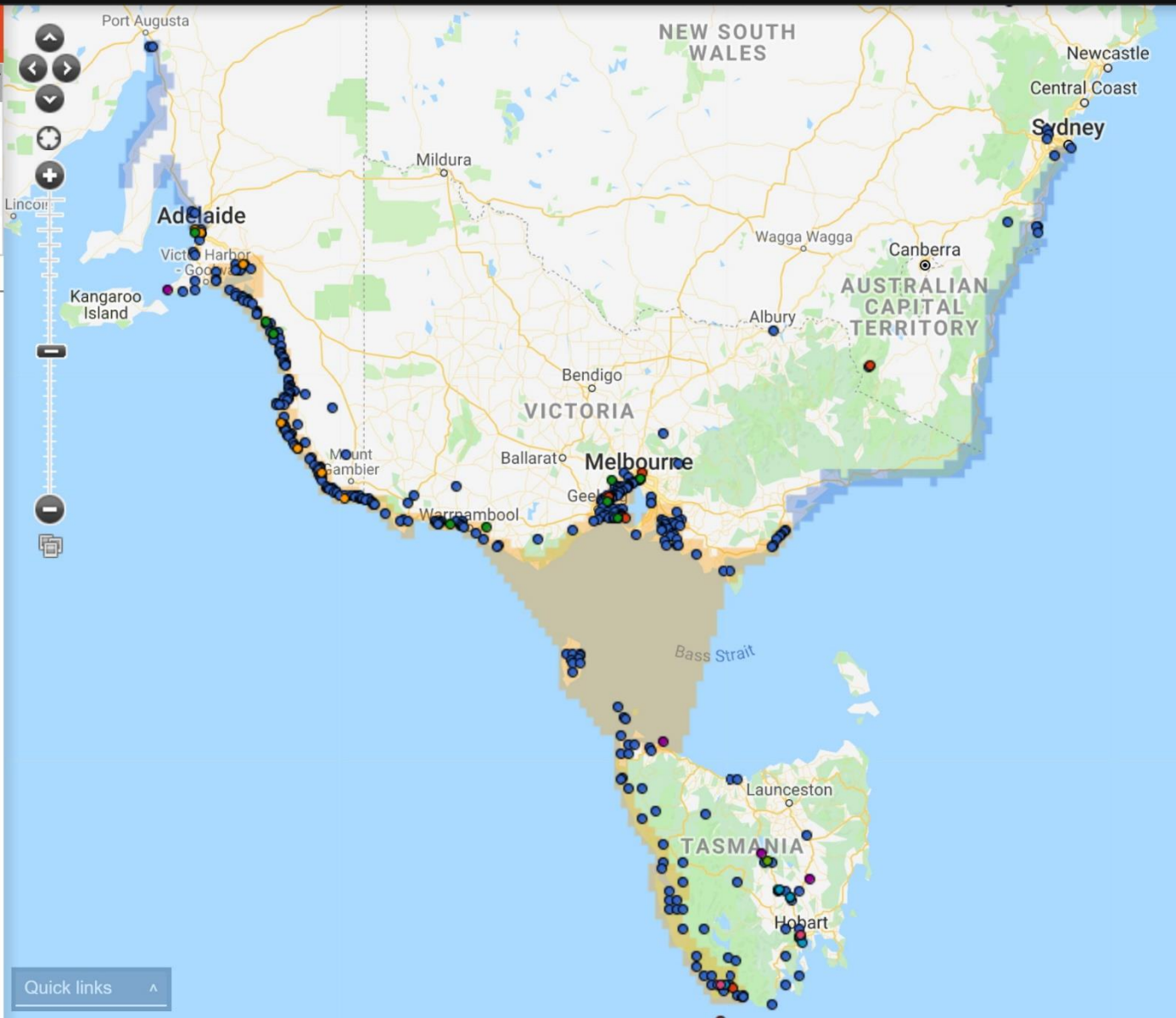
Filter Clear Filter

class	colou	count
<input type="checkbox"/> Not supplied		2180
<input type="checkbox"/> Commonwealth Scientific and Industrial Research Organisation		40
<input type="checkbox"/> South Australian Museum		18
<input type="checkbox"/> Museums Victoria		17
<input type="checkbox"/> Australian Museum		10
<input type="checkbox"/> Tasmanian Museum and Art Gallery		6
<input type="checkbox"/> Queen Victoria Museum and Art Gallery		2
<input type="checkbox"/> Western Australian Museum		1

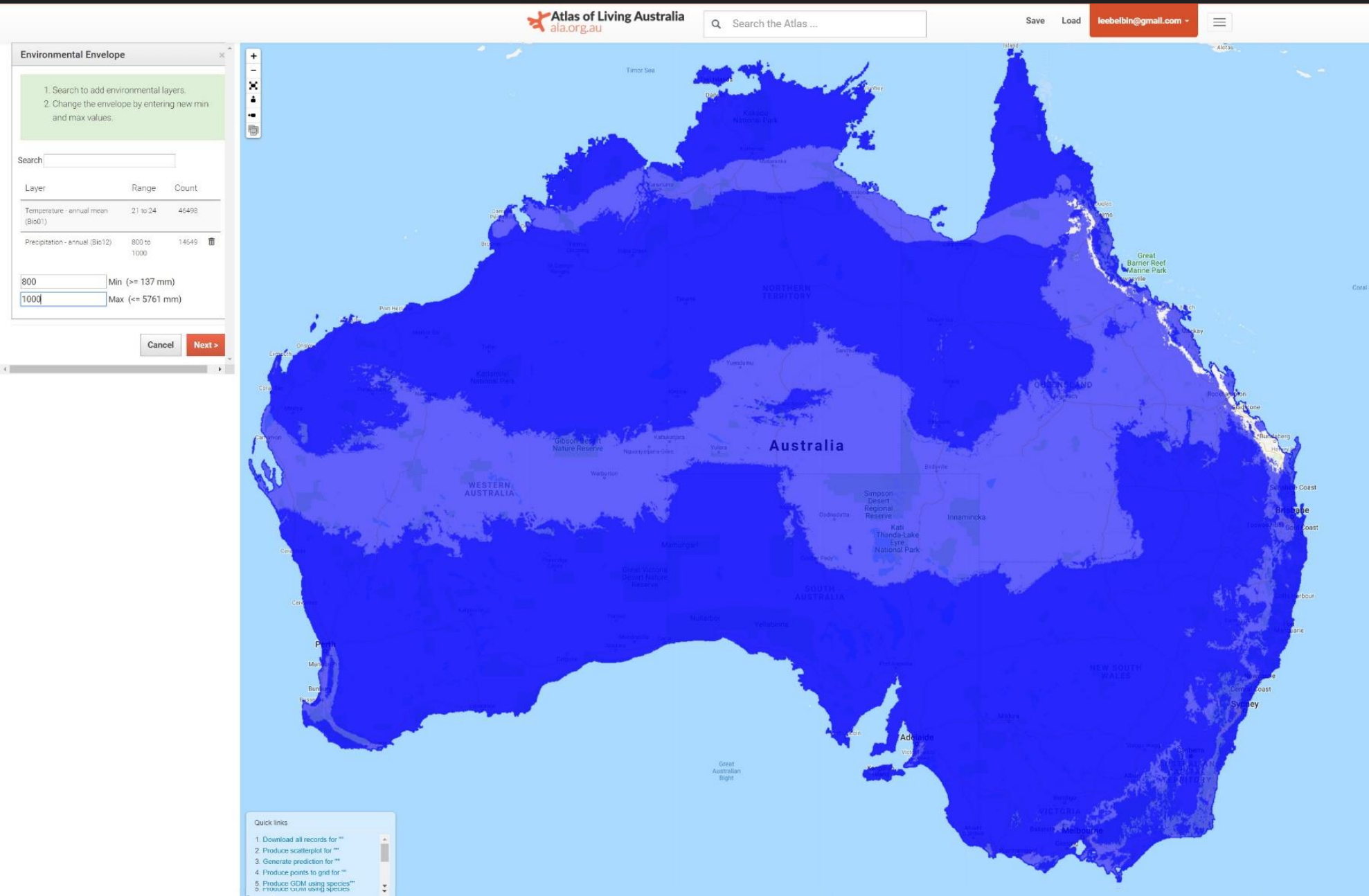
0 selected

Select all

☐ Display spatial uncertainty as a circle



Endangered Species



Understanding and using Environments

Add to map Tools Import Export Help

☒ Saltwater crocodile (Crocodylus porosus) Map options

Edit layer options

Layer name: Saltwater crocodile (Crocodylus porosus)

Display as: ☐ Density grid ☒ Points

Facet: User defined colour

Size: 8

Opacity: 100%

☐ Display spatial uncertainty as a circle

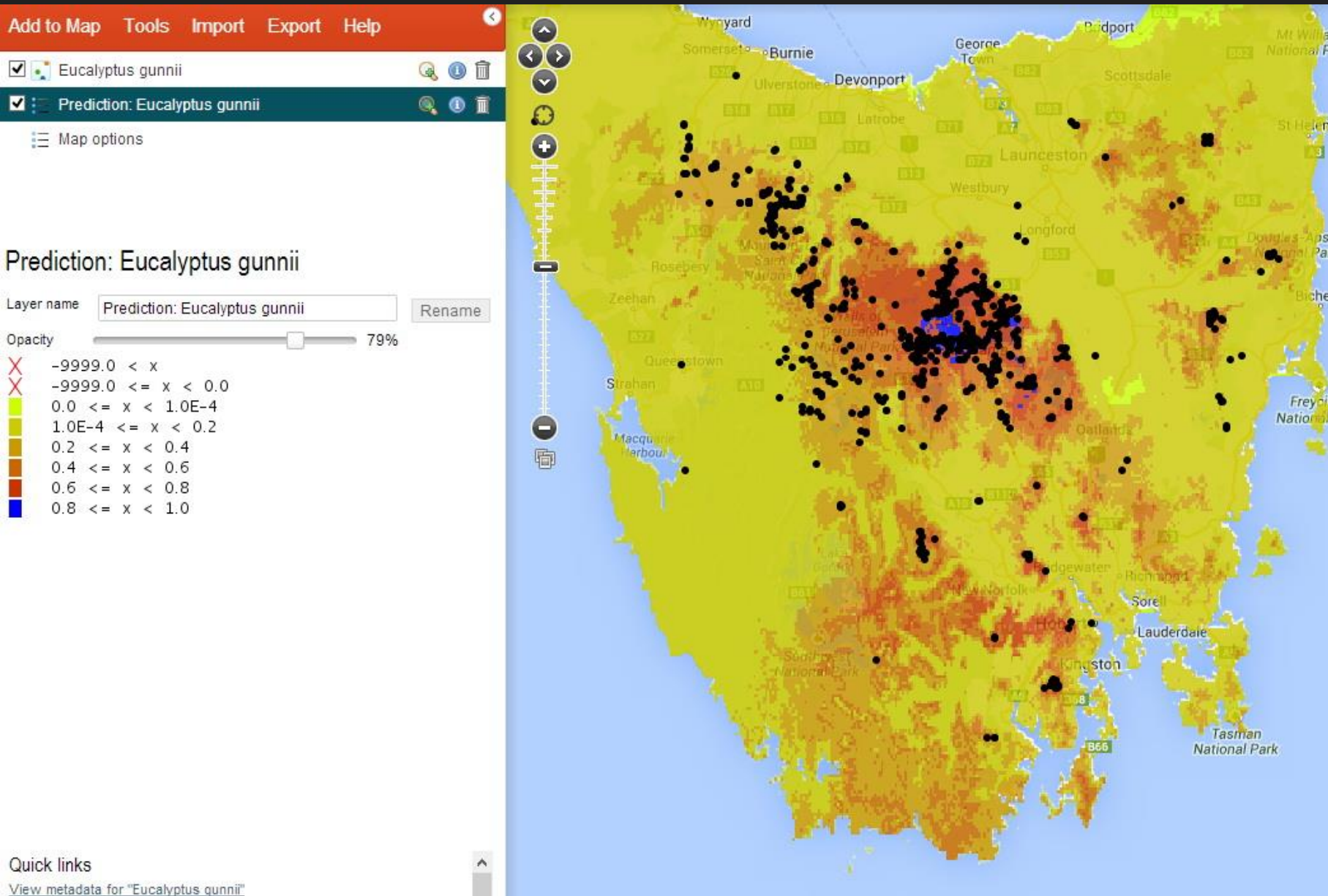
Time series animation

Quick links

1. Download all records for "Saltwater croco..."
2. Produce scatterplot for "Saltwater croco..."
3. Generate prediction for "Saltwater croco..."
4. Produce points to grid for "Saltwater croco..."
5. Produce GDM using species "Saltwater croco..."



Safety?



The ALA's Spatial Portal has tools designed to **(simply)** address research and environmental management needs

AtlasOfLivingAustralia / **ALA4R** Watch 28 Star 27 Fork 6

Code Issues 19 Pull requests 0 Projects 0 Wiki Insights Settings

Access data and resources hosted by the Atlas of Living Australia (ALA) <https://atlasoflivingaustralia.github...> Edit

Manage topics

1,005 commits 3 branches 2 releases 8 contributors

Branch: master New pull request Create new file Upload files Find file Clone or download

peggynewman handle biocache ws change to scientificName fields Latest commit 49c4a78 21 days ago

File	Commit Message	Time Ago
R	handle biocache ws change to scientificName fields	21 days ago
data	interim commit for new functions	4 years ago
docs	remove figure-centering from vignette	5 months ago
man	Merge branch 'master' into refresh	5 months ago
tests	add field to data frame in lists test	3 months ago
vignettes	Revert "rgeos - referenced on line 239, but not installed"	2 months ago
.Rbuildignore	update vignette	5 months ago
.travis.yml	add Slack notifications.	24 days ago
ALA4R.Rproj	Lees docs	5 years ago
DESCRIPTION	make data.table an imports not suggests	5 months ago
NAMESPACE	refine some @import to @importFrom	5 months ago
NEWS.md	minor version bump, news update, change maintainer	5 months ago
README.Rmd	add cran downloads badge	3 months ago
README.md	add cran downloads badge	3 months ago
appveyor.yml	env var to get appveyor to run skip_on_cran tests	2 years ago
codecov.yml	configs for travis, codecov	2 years ago

README.md

ALA4R

build failing build failing codecov 71% CRAN 1.6.0 downloads 8661

The Atlas of Living Australia (ALA) provides tools to enable users of biodiversity information to find, access, combine and visualise data on Australian plants and animals; these have been made available from <http://www.ala.org.au/>. Here we provide a subset of the tools to be directly used within R.

ALA4R enables the R community to directly access data and resources hosted by the ALA.

The use-examples presented at the 2014 ALA Science Symposium are available in the package vignette, via (in R): `vignette("ALA4R")`, or browse it online.

Installing

Stable version from CRAN:

```
install.packages("ALA4R")
```

Or the development version from GitHub:

```
install.packages("devtools")
devtools::install_github("AtlasOfLivingAustralia/ALA4R")
```

On Linux you will first need to ensure that `libcurl` and `curl` (version `<= 3.15`) are installed on your system — e.g. on

Other ‘research’ interfaces:

ALA4R

Later...

Web service API

Admin

The (nearly) complete listing of the web services for the ALA. Send complements/issues to support@ala.org.au. The webservices are listed by category. To list by application, click here.

+ Expand All - Collapse All

Species profile - Taxonomic name, concept lookups services

Webservices change log

Species lookup with GUID - http://bie.ala.org.au/ws/species/{guid}.json	Edit Example Copy
GET JSON JSONP	
Species search - http://bie.ala.org.au/ws/search.json?q={q}&fq={fq}	Edit Example Copy
GET JSON	
Species indexed fields - http://bie.ala.org.au/ws/admin/indexFields	Edit Example Copy
GET JSON	
Bulk species lookup - http://bie.ala.org.au/ws/species/bulklookup.json	Edit Example Copy
POST JSON DEPRECATED	
Bulk species lookup - revised JSON input - http://bie.ala.org.au/ws/species/lookup/bulk	Edit Example Copy
POST JSON	
Species download - http://bie.ala.org.au/ws/download?q={q}&fq={fq}	Edit Example Copy
GET CSV	
Bulk species lookup (GET) - http://bie.ala.org.au/ws/guid/batch.json?q={q}	Edit Example Copy
GET JSON	
Get higher classifications for GUID - http://bie.ala.org.au/ws/classification/{guid}	Edit Example Copy
GET JSON	
Bulk lookup by GUID - http://bie.ala.org.au/ws/species/guids/bulklookup	Edit Example Copy
POST JSON	

Occurrence - Specimen & observation data searching

Occurrence search - http://biocache.ala.org.au/ws/occurrences/search?q={q}&fq={fq}	Edit Example Copy
GET JSON	
Deleted occurrences - http://biocache.ala.org.au/ws/occurrence/deleted	Edit Example Copy
GET JSON	
Compare original vs processed - http://biocache.ala.org.au/ws/occurrence/compare/{uuid}	Edit Example Copy
GET JSON	
Occurrence indexed fields - http://biocache.ala.org.au/ws/index/fields	Edit Example Copy
GET JSON	
Retrieve all species groups and counts - http://biocache.ala.org.au/ws/explore/groups	Edit Example Copy
GET JSON	
Retrieve the counts for a specific group - http://biocache.ala.org.au/ws/explore/counts/group/{group}	Edit Example Copy
GET JSON	

Web services:

api.ala.org.au

119 documented

tdwg / dwc-qa

Code Issues 73 Pull requests 0 Projects 0 Wiki Insights

Branch: master dwc-qa / data / ALADistinctValues / 2018-07-12 / ALA_distinct_sex_2018-07-12.csv Find file Copy path

nickdos ALA enhancements and new data b3f84e on Jul 12

1 contributor

1210 lines (1209 sloc) 24.3 KB Raw Blame History

1	"Dead on road/ground.Female with young"	1
2	"Female.Male"	1
3	, , Female	1
4	, Female	1
5	, Male	1
6	, Males, Females	1
7	-	2027
8	0	3532
9	0 female	2
10	1	5
11	1 Queen, 1 Male	1
12	1 Worker, 1 Male	3
13	1 Worker, 1 Queen	10
14	1 Worker, 12 Queen, 13 Male	1
15	1 Worker, 2 Male	1
16	1 Worker, 2 Queen	1
17	1 Worker, 4 Queen	1
18	1 female	1009
19	1 female 1 sex undetermined	16
20	1 female 10 sex undetermined	1
21	1 female 2 sex undetermined	4
22	1 female 3 sex undetermined	1
23	1 female 4 sex undetermined	2
24	1 female 5 sex undetermined	1
25	1 female 6 sex undetermined	3
26	1 female 64 sex undetermined	1
27	1 female 9 sex undetermined	2
28	1 female, 1 male	25
29	1 female, 1 undermined	1
30	1 female, 1 undermined, 1 male	2
31	1 female, 1 undermined, 2 male	1
32	1 female, 2 male	1
33	1 female, 2 undermined, 1 male	2
34	1 female, 26 undermined, 1 male	1
35	1 female, 3 undermined, 1 male	3
36	1 m, 2 f	1
37	1 male	940
38	1 male 1 female	1927
39	1 male 1 female 1 sex undetermined	3

Issues –
plenty!

Thank you...

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(and please don't vote for turkeys)

