useR! 2018 Data Challenge

Can you tell us something original and surprising about biodiversity in Australia? The Australian region has a large number of species that occur nowhere else in the world. In Australia, there are regions with many unique species. Where are these regions? Do lyrebirds and gang gang cockatoos occur in the same area?

The data: The Atlas of Living Australia (https://www.ala.org.au) hosts a vast array of curated data collected on living organisms across the country (and beyond). For example, there is 7.7Gb of plant data, 1.3Gb on birds, 800Mb about mammals, 500Mb on reptiles, fish and also molluscs. Live sighting data is provided by researchers and citizen scientists, historical records are provided from academic, museum and herbaria collections, and over 500 environmental spatial layers are provided by dozens of national and international agencies.

Useful resources:

ALA4R is an R nterface, where collections can be pulled based on common names like "red kangaroo". Details are at https://github.com/AtlasOfLivingAustralia/ALA4R.

The web site also has:

- A complete listing by category of the web services for the ALA, including other APIs.
- User guides are available on the education page.
- The spatial portal has several case studies of using the portal, access to spatial layers describing the environment.
- A technical overview of how the ALA processes and manages data quality issues, at https://www.ala.org.au/uncategorised/data-processing/ and https://www.ala.org.au/who-we-are/how-we-integrate-data/data-quality-assurance/.

The challenge:

The aim of the data challenge is to inform us about biodiversity in Australia, and find exotic patterns. Participants are encouraged to use graphics to convey their findings, and report the methods used to learn about the data. The final product should tell a story about the data, in the form of a paper, or electronic, poster. Building of web apps (e.g. shiny) for communicating the the findings is also encouraged.

Entries can focus on any aspect of the data, and here are a few ideas to get you started:

- What are the common species to see around Brisbane?
- Have groups of organisms such as birds been shifting spatially over time?
- Are data observations spatially biased?
- How well do Australia's reserves and parks conserve species groups such as reptiles or mammals?
- Have new species been identified evenly over time?
- Can communities of species be detected (are there species that seem to occur in the same area)?
- Have groups of organisms such as birds been shifting spatially over time?
- Are data collection areas concentrated on popular locations?
- Are there any systematic differences between observations from citizen scientists and the research community?

Prizes:

The challenge is open to anyone who is registered for the conference, particularly students. We encourage you to form a small team, of up to five members. A total of $1000 will be available as prize money, most likely $500 for first prize, $300 for second and $200 for third.

Important dates:

- Jun 10: Notification of intention to enter competition, so that we can plan the programme session. Complete the entry form at https://goo.gl/forms/W710AfuaVDrZOXyG3.
- Jul 11-13: Display submission in special session at useR! 2018. Judging and awards to be done at the conference.