ABAP: An R package to access African Bird Atlas Project data

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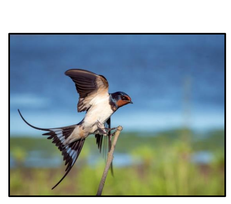
The African Bird Atlas Project

The African Bird Atlas Project (ABAP) is a long-term project that aims to provide a unified bird atlasing protocol throughout Africa. Many bird species are highly mobile and even undertake migratory movements. Therefore, studying bird species' distribution over large spatial scales is critical to understand the state of their populations, and also the drivers behind changes in their abundance and distributions.

The ABAP protocol provides information on whether a species was detected over a grid of 5' x 5' cells called 'pentads', which is a scale that also allows analysis at local and regional scales. It also provides information about non-detection (i.e., visits when the species wasn't detected), which is vital to understand biases in observation effort, and to estimate the probability of observer errors.



SABAP2

Kenya Bird Map

Nigeria Bird Atlas

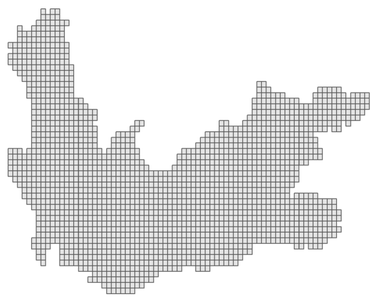
...

ABAP R package - basic workflow

1) Extract atlas data directly from the ABAP database,
2) Add Google Earth Engine data to selected pentads,
3) Format ABAP data to integrate with occupancy modelling R packages.

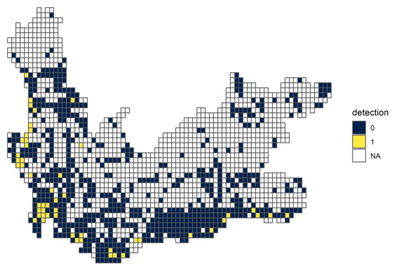
Download pentads (area of interest)

`getRegionPentads()`



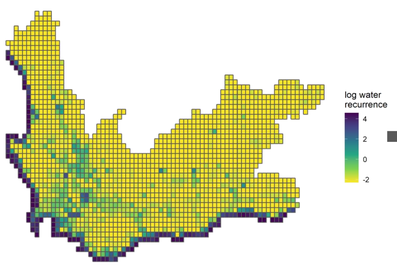
Download detection/non-detection data

`getAbapData()`



Annotate with variables from Google Earth Engine

`addVarEEimage()`



Re-format for occupancy modelling in a variety of R packages

`abapTo*()`

`{unmarked}`
`{ubms}`
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`...`

https://github.com/AfricaBirdData/ABAP OR

SCAN ME!

Accessibility

- ABAP API called directly from R, so data are imported seamlessly into R.
- Connect to Google Earth Engine (GEE) and annotate ABAP pentads with environmental variables. This only requires basic knowledge of GEE code. Thanks to `rgee*`!

Flexibility

- Access to the broad GEE catalog of environmental data,
- Format to various occupancy analysis R packages.

Reproducibility

- All workflow coded in R - no point and click,
- Access to long-term, stable databases such as ABAP and GEE,
- All data can be downloaded from remote databases for easy transfer.

`*https://github.com/r-spatial/rgee`

Ackowledgements

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