Biodiversity data visualizations

Vijay Barve
Research interests

- Patterns of spatial distributions of different biodiversity elements and processes behind the patterns
- Citizens’ contribution to biodiversity documentation
- Biodiversity Informatics (IT tools for Biodiversity researchers)
rvertnet

- R wrapper VerNet 2.0 data portal
- Single command access for most of the VertNet data in R
- Majority of functionality supported by APIs is available
- Handy in automation
rgbif

- R wrapper GBIF data portal
- Single command access for most of the GBIF data in R
- Majority of functionality supported by APIs is available
- Handy in automation
Rgbif Examples

- Quickly check distribution of a species
Rgbif Examples

```r
library(rgbif)
dan_ple=occurrencelist(sciname = 'Danaus plexippus',
                          coordinatestatus = TRUE,
                          maxresults = 1000,
                         latlongdf = TRUE, removeZeros = TRUE)
```
Rgbif Examples

```r
library(maps)
library(ggplot2)
world = map_data("world")
ggplot(world, aes(long, lat))
  + geom_polygon(aes(group = group), fill = "white",
                 color = "gray40", size = .2)
  + geom_jitter(data = dan_ple,aes(decimalLongitude,
                                   decimalLatitude), alpha=0.6,
                size = 4, color = "red")
  + opts(title = "Danaus plexippus")
```
Rgbif Examples

- Quickly compare two species

Blue Jay and Scrub Jay
Rgbif Examples

- Finding gaps in the data
bdvis

Biodiversity data visualization

- Plan to work on this summer
- Visualizations to understand coverage and gaps in data
  - Geographic
  - Temporal
  - Taxonomic
  - Completeness analysis
Geographic coverage

- visualize the data points on maps, density maps at different scales like Country level, Degree grid…
Temporal coverage

- visualize the data on different temporal scales like monthly / annual counts, seasonality of data by months, weeks or days, Chronohorogram
Taxonomic coverage

- visualize the taxonomic coverage of data in Tree Map formats by Number of records per species and number of species covered.
Completeness analysis

- to assess and visualize completeness of biodiversity inventory of the region (measure of how exhaustive is the sampling in the study area)
More Examples and sample code at http://vijaybarve.wordpress.com/

Source code of the R packages https://github.com/vijaybarve

Personal homepage http://people.ku.edu/~vijaybarve/

Email vijaybarve@ku.edu / vijay.barve@gmail.com