1. Load the raw Biowide dataset

2. Explore the Dataset - review of the exploratory analysis.

Get an overview of the counts of observations and species per site.

Q1- What is the difference between No of observations and species richness?

Plot the Histogram-Density/boxplot of observations and sites for selected groups.

Q2 - What is the Average number of species +/-CI per site for each evaluated group.

Correlation of Species riches of sampled sites of different groups with latitude.

Q3 - Which correlation coefficient you used and why?

Create a table of the species richness of unique sampled locations for All evaluated Groups, Arthropoda, All vascular plants, and flowering plants.

3. Spatial point data frame

Create the spatial points from a data.frame using coordinates.

Define the coordinate system of the coordinates created object.

Create the the spatial points from a data.frame using SpatialPointsDataFrame

Q1-What is the diff between the two objects?

Project the SpatialPointsDataFrame to UTM/ETRS89

Q2 - What is the difference between projections and referencing?

4. Spatial Polygons

Load a SpatialPolygonDataFrame of the Regions <landsdele> of Denmark.

Project the SpatialPolygonDataFrame to UTM/ETRS89

Q1 - When you extract the coordinates of a SpatialPolygonDataFrame, what value is printed?

Extract the landsdele for each sampled site.

Add to the SpatialPolygonDataFrame a new attribute - Avg species richness of sampled sites.

Plot the SpatialPolygonDataFrame colouring the Regions <landsdele> by the Avg species richness for vascular plants.

Overlay the SpatialPointsDataFrame, sizing the points by the richness of vascular plants, and giveing the point a different shape by Regions <landsdele>.

5. Rasters-1: Reclassify and aggregate the raster

Load the subset of BASEMAP to be used in estimating land cover summaries.

Estimate - Nature Density (forests and protected light-open nature) and Agricultural Density at a 1km resolution.

Load the Nature Density and Agricultural Density raster.

Q1 - What is the projection of the raster?

Q2 - Do you need to re project this raster to extract its values using the SpatialPolygonDataFrame?

Extract Nature Density and Agricultural Density using the SpatialPointsDataFrame

6. Rasters-2: raster algebra.

Load the Mean monthly temperature at 1km resolution.

Q1 - What is the projection of the raster?

Q2 - Do you need to re project this raster to make raster operations?

Estimate temperature Seasonality - SD of Monty temperatures.

Estimate GDD -0 based.

Q2 - Do you need to re project TS and GDD rasters to make raster operations?

Re project TS and GDD rasters to UTM/ETRS89

Extract temperature Seasonality and GDD using the SpatialPointsDataFrame

7. Rasters-3: Plot categorical rasters

Plot the subset of BASEMAP.

Q1- What is the legend of this map showing?

create a cathegical raster

Use the rastViss package to plot the categorical raster?

Load the Road SpatialLinesDataframe For Denmark.

Q2 - Do you need to re project the SpatialLinesDataframe to ploit it over the landcover raster?

Re project the SpatialLinesDataframe to to UTM/ETRS89

Use the rastViss package to plot the categorial raster overlaying the SpatialLinesDataframe.