Brazil Municipalities Analysis

Project Workflow

5/23/2019

This is a workflow for raster data given a .TIF file or any raster format. This project come with the `here` package which will automatically set the directory to where this R project is located. There is no need to reset directories if you move the project from computer to computer. Additionally, the 'packrat' folder will automcatically install the packages needed for the project.

There is a `util.R` package which currently contatins frequent functions used for the workflow such as `raster.to.ESPG.3857(raster1 = )` which transforms most rasters from any projection to ESPG 3857 with a resolution of 30 meters.

```
# Necessary Libraries
library("landscapemetrics")
library("raster")
```

```
## Loading required package: sp
```

```
library("rgdal")
```

```
## rgdal: version: 1.4-3, (SVN revision 828)
##  Geospatial Data Abstraction Library extensions to R successfully loaded
##  Loaded GDAL runtime: GDAL 2.1.3, released 2017/20/01
##  Path to GDAL shared files: /Users/lmaragon/Dropbox/lma/Documents/STATS/EarthEngine/BrazilWorkflow/bi
##  GDAL binary built with GEOS: FALSE
##  Loaded PROJ.4 runtime: Rel. 4.9.3, 15 August 2016, [PJ_VERSION: 493]
##  Path to PROJ.4 shared files: /Users/lmaragon/Dropbox/lma/Documents/STATS/EarthEngine/BrazilWorkflow/
##  Linking to sp version: 1.3-1
```

```
library("dplyr")
```

```
##
## Attaching package: 'dplyr'
```

```
## The following objects are masked from 'package:raster':
##
##     intersect, select, union
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
library("here")
```

```
## here() starts at /Users/lmaragon/Dropbox/lma/Documents/STATS/EarthEngine/BrazilWorkflow/brazil_raste
```

```
# Import source code
source(here("scripts", "util.R"))
```

```
# Load in raster
geeRaster <- raster(here("data","raw","AC_acre_acrelandia_2000.tif"))
```

```r
# Check current raster
crs(geeRaster)
```

```
## CRS arguments:
##  +proj=longlat +datum=WGS84 +no_defs +ellps=WGS84 +towgs84=0,0,0
```

```r
# Transform our raster: EPSG 4326 --> EPSG 3857
# function used: raster.to.ESPG.3857(raster1 = )
transformedRaster <- raster.to.ESPG.3857(geeRaster)
```

```r
# Look at all the classes
original_classes <- unique(geeRaster)
new_classes <- unique(transformedRaster)
rbind(original_classes, new_classes)
```

```
##                 [,1] [,2] [,3] [,4] [,5] [,6] [,7]
## original_classes    0    3   15   21   24   25   33
## new_classes         0    3   15   21   24   25   33
```

```r
# Get pairwise edge pixels between 2 classes
get_adjacencies(transformedRaster, what = 'unlike')
```

```
## [[1]]
##       0     3    15  21 24 25 33
## 0    NA    NA    NA  NA NA NA NA
## 3  7889    NA    NA  NA NA NA NA
## 15 1568 74928    NA  NA NA NA NA
## 21  371 84454 48895  NA NA NA NA
## 24    0    10   637 237 NA NA NA
## 25    0    57   721 478 46 NA NA
## 33 1072  2493   667 505  0  6 NA
```