

Urban ecological corridors in Ouro Preto: loading corridors

Tulaci Bhakti, Bernardo Niebuhr, Joao Carlos Pena

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```
# Set up

# Clean everything before beginning

rm(list = ls())

# Data folder
corrdir <- 'simulated_corridors/'
stdir <- 'input/Raster_finais/'
mapdir <- 'input/Shapefiles/'

# Output folder
outdir <- 'output/'

# Load data
```

Loading data

Reading and plotting the data, for visualization purposes.

RSFI maps

Corridors without urban zone

```
# species
sp <- c('A. leucophthalmus', 'C. caudata', 'P. leucoptera', 'S. scansor', 'X. fuscus')

# files
files <- list.files(paste0(corrdir, 'corredores_nozoning/'), pattern = 'RSFI.tif',
                    include.dirs = T, full.names = T)
files_tif <- files[endsWith(files, '.tif')]

corridors_no_zone <- list()
for(i in 1:length(files_tif)) {
  corridors_no_zone[[i]] <- raster(files_tif[i])
}
names(corridors_no_zone) <- sp
# plot(corridors_no_zone[[1]])
# plot(corridors_no_zone[[3]])
```

Corridors with urban zone

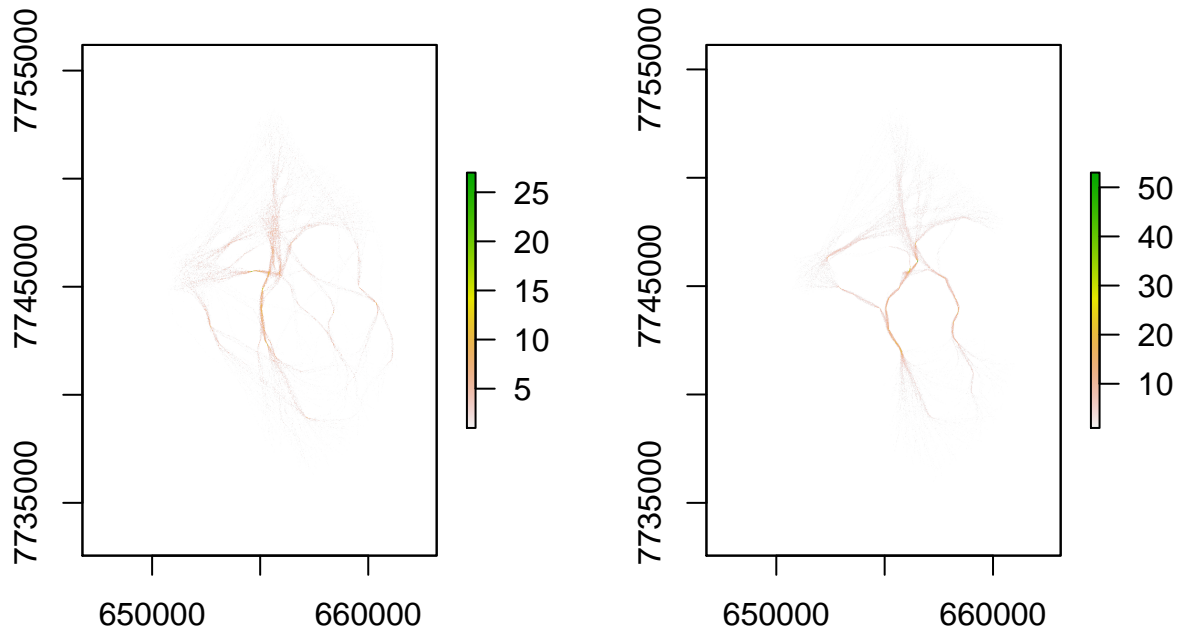
```
files <- list.files(paste0(corrdir, 'corredores_zoning/'), pattern = 'RSFI.tif',
                    include.dirs = T, full.names = T)
files_tif <- files[endsWith(files, '.tif')]
```

```

corridors_zone <- list()
for(i in 1:length(files_tif)) {
  corridors_zone[[i]] <- raster(files_tif[i])
}
names(corridors_zone) <- sp
# plot(corridors_zone[[1]])
# plot(corridors_zone[[3]])

# plot
par(mfrow = c(1, 2))
plot(corridors_no_zone[[3]])
plot(corridors_zone[[3]])

```



```

par(mfrow = c(1, 1))

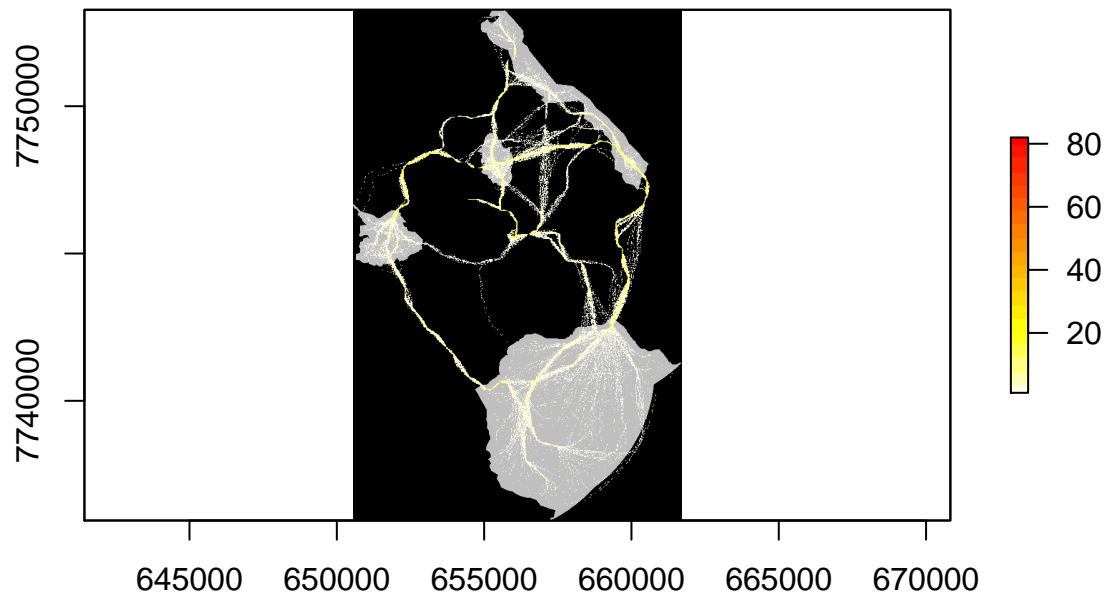
```

Source fragments

```

ST.map <- raster(paste0(stdir, 'Fragmentos_fonte2.tif'))
plot(ST.map, legend = F, col = grey(0.75), colNA = 1)
plot(corridors_zone[[1]], add = T, col = rev(heat.colors(20)))

```



Land use

Land use classes:

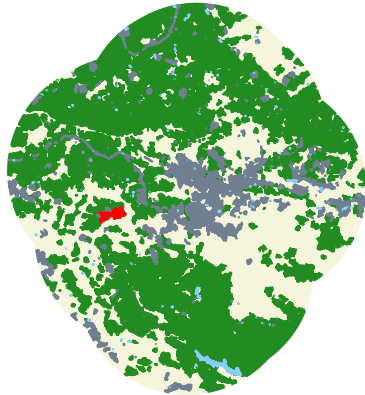
- 1: water
- 2: matrix
- 3: forest
- 4: minning
- 5: urban

```
land.use.map <- rgdal::readOGR(mapdir, 'Classe_uso_solo')
cols1 = c('LightSkyBlue', 'beige', 'forestgreen', 'red', 'SlateGray')[land.use.map$Classe]
```

Urban zones

```
urban.zone.map <- rgdal::readOGR(mapdir, 'Zoneamento_completo')
cols2 = grey.colors(length(levels(urban.zone.map$Layer)))[urban.zone.map$Layer]

# Plot
par(mfrow = c(1, 2))
plot(land.use.map, col = cols1, border = cols1)
plot(urban.zone.map, col = cols2, border = cols2)
```



```
par(mfrow = c(1, 1))
```

Shapefiles

Each shapefile corresponds to a different corridor simulation.

Corridors' shapefiles without urban zone

```
ff <- list.files(paste0(corrdir, 'corredores_nozoning/corridors_shape/'), pattern = '.shp',
  recursive = TRUE, full.names = T)

corr.shp.sem.zona <- list()
corr.shp.sts.sem.zona <- list()
sp <- c('aleuco', 'ccaudata', 'pleuco', 'sscans', 'xfuscus')

for(i in 1:length(sp)) {

  corr.sp <- list()
  corr.sts <- list()

  inds <- grep(sp[i], ff, value = T)
  for(cont in 1:length(inds)) {
    #print(paste(i, ',', cont, ',', inds[cont]))
    corr.sp[[cont]] <- rgdal::readOGR(inds[cont])

    tt <- stringr::str_split(inds[cont], 'S_')[[1]][3]
    ini <- stringr::str_split(tt, '_T_')[[1]][1] %>% as.numeric
    fin <- stringr::str_split(tt, '_T_')[[1]][2] %>%
      stringr::str_split('_M') %>%
      first() %>% first() %>%
      as.numeric

    corr.sts[[cont]] <- c(ini, fin)
  }

  corr.shp.sem.zona[[i]] <- corr.sp
  corr.shp.sts.sem.zona[[i]] <- corr.sts
}
```

Corridors' shapefiles with urban zone

```
ff <- list.files(paste0(corrdir, 'corredores_zoning/corridors_shape/'), pattern = '.shp',
                recursive = TRUE, full.names = T)

corr.shp.com.zona <- list()
corr.shp.sts.com.zona <- list()
sp <- c('aleuco', 'ccaudata', 'pleuco', 'sscans', 'xfuscus')

for(i in 1:length(sp)) {

  corr.sp <- list()
  corr.sts <- list()

  inds <- grep(sp[i], ff, value = T)
  for(cont in 1:length(inds)) {
    #print(paste(i, ',', cont, ',', inds[cont]))
    corr.sp[[cont]] <- readOGR(inds[cont])

    tt <- stringr::str_split(inds[cont], 'S_')[[1]][3]
    ini <- stringr::str_split(tt, '_T_')[[1]][1] %>% as.numeric
    fin <- stringr::str_split(tt, '_T_')[[1]][2] %>%
      stringr::str_split('_M') %>%
      first() %>% first() %>%
      as.numeric

    corr.sts[[cont]] <- c(ini, fin)
  }

  corr.shp.com.zona[[i]] <- corr.sp
  corr.shp.sts.com.zona[[i]] <- corr.sts
}
```

Txts

Output corridor text files without zones

```
ff <- list.files(paste0(corrdir, 'corredores_nozoning/'), pattern = '.txt',
                recursive = TRUE, full.names = T)

corr.txt.sem.zona <- list()
for(i in 1:length(ff)) {
  corr.txt.sem.zona[[i]] <- read.table(ff[i], header = T, sep = ',')
}
str(corr.txt.sem.zona)

# # Add 900 rows with NA
# mm <- data.frame(matrix(NA, nrow = 900, ncol = ncol(corr.txt.sem.zona[[4]])))
# names(mm) <- names(corr.txt.sem.zona[[4]])
# corr.txt.sem.zona[[4]] <- rbind(corr.txt.sem.zona[[4]], mm)
```

Output corridor text files with zones

```
ff2 <- list.files(paste0(corrdir, 'corredores_zoning/'), pattern = 'v2.txt',
                 recursive = TRUE, full.names = T)
```

```
corr.txt.com.zona <- list()
for(i in 1:length(ff2)) {
  corr.txt.com.zona[[i]] <- read.table(ff2[i], header = T, sep = ',')
}
str(corr.txt.com.zona)
```

Save corridors loaded

```
save.image(paste0(corrdir, 'corridors_loaded.RData'))
```