

Supplementary Materials for

Taxonomic revision of *Stigmatomma* Roger (Hymenoptera: Formicidae) in the Malagasy region

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R script for mapping species distribution
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Script for mapping species distribution in Madagascar

Reading species distribution data

```
setwd("directory that contains the distribution data ")  
samps = read.csv("distribution data.csv")
```

Downloading altitude data for Madagascar – raster layer##

```
require(raster)  
alt = getData("alt",country="MDG")
```

Reading ecoregion polygons – vector layers

```
require(rgdal)  
ned = readOGR("directory that contains the shape file","Dry Forests")  
ned2 = readOGR("directory that contains the shape file","Subhumid Forests")  
ned3 = readOGR("directory that contains the shape file","Humid forests")  
ned4 = readOGR("directory that contains the shape file","Succulent Woodlands")  
ned5 = readOGR("directory that contains the shape file","Spiny Thickets")
```

Standardizing projections of raster and vector layers

```
proj4string(ned5)  
crs.geo =  
CRS("+proj=longlat+datum=WGS84+no_defs+ellps=WGS84+towgs84=0,0,0")  
proj4string(alt) = crs.geo
```

Obtaining the shaded-relief of Madagascar

```
slope = terrain(alt,opt ="slope")  
aspect = terrain(alt,opt ="aspect")  
hill = hillShade(slope,aspect,40,270)
```

Mapping shaded-relief, altitude, ecoregions, and distribution points

```
require(scales)  
plot(hill,col=grey(0:100/100),legend=FALSE)  
plot(alt,col=grey(0:100/100,alpha=0.30),legend=FALSE,add=TRUE)  
plot(ned,col=alpha("brown",0.30),border=FALSE,add=TRUE)
```

```
plot(ned2,col=alpha("limegreen",0.30),border=FALSE,add=TRUE)
plot(ned4,col=alpha("green4", 0.30),border=FALSE,add=TRUE)
plot(ned3,col=alpha("orange",0.30),border=FALSE,add=TRUE)
plot(ned5,col=alpha("yellow",0.30),border=FALSE,add=TRUE)
points(samps$LocLongitude,samps$LocLatitude,pch=21,col="black",bg="white",
cex=1)
```

Script for mapping species distribution in Seychelles

```
## Reading species distribution data ##
```

```
setwd("directory that contains the distribution data ")
```

```
samps = read.csv("distribution data.csv")
```

```
## Reading altitude data for Seychelles ##
```

```
require(rgdal)
```

```
alt = readGDAL("altitude file.tif")
```

```
## Setting projection of altitude data ##
```

```
require(raster)
```

```
crs.geo = CRS("+proj=longlat +datum=WGS84 +no_defs +ellps=WGS84
+towgs84=0,0,0")
```

```
proj4string(alt) = crs.geo
```

```
## Rasterizing elevation data ##
```

```
altraster = raster(alt)
```

```
## Obtaining the shaded-relief of Seychelles ##
```

```
slope = terrain(alt,opt="slope")
```

```
aspect = terrain(alt,opt="aspect")
```

```
hill = hillShade(slope,aspect,40,270)
```

```
## Mapping shaded-relief, altitude, and distribution points ##
```

```
require(scales)
```

```
plot(hill,col=grey(0:100/100),legend=FALSE)
```

```
plot(altraster,col=terrain.colors(6,alpha=0.30),legend=FALSE,add=TRUE)
```

```
points(samps$LocLongitude,samps$LocLatitude,pch=21,col="black",bg="yellow",
cex=1)
```