



# Generating landscape metrics in RStudio

## Introduction

In this exercise, you will learn how to update a simple R script with the location of your land-cover data in order to perform a fragmentation analysis. By comparing outputs for two different points in time, you can deduce how management activities are affecting the landscape.

## Objectives

- Run fragmentation analysis in RStudio
- Check output data

## Data

- `SouthernBluesPatchStats.R`

## Prerequisites

- You have RStudio installed on your machine
- You have thematic rasters to analyze





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## Part 1: Open R script

1. Open **RStudio** by selecting the **Start** menu, **All Programs**, **RStudio**, and then **RStudio** again.
2. From the toolbar in **RStudio**, select **File** and then **Open File**.
3. In the **Open File dialog**, navigate to the location where you've stored the R script **SouthernBluesPatchStats.R** – select it and then click **Open**.

## Part 2: Edit script

### A. User editable variables

1. Scroll to **line 9** of the script, labeled **User Editable variables** – this section contains the variables that need to be edited in order to run the script.
2. The first variable, **workspace**, is found on **line 15**. This variable defines the folder where your input data are stored. It is also the location of the output data. **Edit this to include the folder location of your raster(s)**.

**Note:** when you enter your file path, be sure to use double backslashes (\\) in lieu of single forward or back slashes in the filepath. If your data are stored in a served location (i.e., "\\IP\_Address\foldername"), be sure to double both slashes, yielding four (i.e., "\\IP\_Address\foldername").

3. The second variable, **classifiedRaster**, is found on **line 16**. This variable defines the filename of the raster to be analyzed. **Edit this to include the filename of your raster**.

**Note:** this script only analyzes one raster at a time. You will have to edit and run it twice to get fragmentation outputs for two different classifications.

4. The third variable, **noDataValue**, is found on **line 18**. Enter the noData value used in your raster here.
5. The fourth and final variable, **runClassStats**, is found on **line 19**. This specifies whether you want to run class statistics in addition to patch statistics – the default is to not run class statistics ("n"). To run class statistics, change this variable to "y".

```

8 #####
9 # User editable variables
10 # Define your inputs and outputs
11 #####
12
13 # Note the double slashes in the pathname.
14 # For windows the backslashes must be doubled.
15 workspace = "c:\\users\\bmschwert\\Downloads"
16 classifiedRaster = "Malheur_2012_preClassified.tif"
17
18 noDataValue = 0
19 runClassStats = "n"

```

## Part 3: Run the script

### A. Run the script

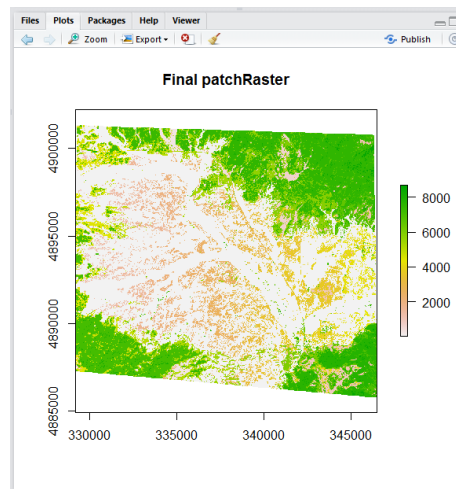
1. Place your **cursor inside the script** and press **CTRL + A** on your keyboard to select all text.

2. Press **CTRL + Enter** to run the script. You will see the steps processing below in the **Console**.

## Part 4: Evaluate results

### A. Plots

1. At the lower right of your RStudio screen, make sure that the Plots tab is selected.



2. Use the back and forward arrows to parse through the intermediate and final results.
3. Check the Console to find information such as processing time (an example subset took ~10 seconds to run).

```

Console C:/Users/bmschwert/Downloads/
[1] "Number of patches: 14"
[1] "*****"
>
> plot(patchRaster, main = "F-
> #print(as.matrix(patchRaste
> if(tolower(runClassStats)=='
+   clStats = classStat(r)}
>
> write.csv(outData,outFile)
> write.csv(clStats,cloutfile)
Error in is.data.frame(x) : ol
> writeRaster(patchRaster, fi
> print(proc.time()-timestart
  user system elapsed
  8.84   0.47   10.05
> # clean up all memory
> rm(list=ls())
>

```

4. Go to your **workspace** and find the output data (the following names are based on the files used to create the screen captures in this exercise):
  - i. Malheur\_2012\_preClassified\_patchStat.csv
  - ii. Malheur\_2012\_preClassified\_patchRast.tif

**Congratulations!** You have successfully completed this exercise. You now know how run a land-cover fragmentation analysis in RStudio.