R tips

Don’t panic!

You will get a feel for it soon.
And don’t forget, The Googles is your best friend.

The Workspace

Working directory

R uses this directory as default to read files from and to.
Set this at the start of each session.

`setwd(dir path)`	
Shortcut on a Mac	cmd + d
`getwd()`	returns your current working directory
`list.files()`	provides a list of all files in the working dir

WINDOWS WARNING

R gets confused if you use a path in your code like

```
c:\mydocuments\myfile.txt
```

This is because R sees "\" as an escape character. Instead, use

```
c:\\my documents\\myfile.txt
c:/mydocuments/myfile.txt
```

Three types of brackets

( )   for functions

`lm( )`	linear models
`head( )`	shows first rows of a dataset

[ ]   for indexing

If you want to access a particular part of your data

`mydata[ 1, ]`	first row
`mydata[ 2, 34]`	data at the 2nd row of the 34th column

{ }   for blocks in function

for example in a for loop

```
for(i in 1:10)
{
    print(i)
}
```

Data types

vector

- need to be of same *mode* (e.g. numeric, character, etc) with the exception of NA
- aka ‘atomic’ structure

matrix

- all the same *mode*
- set dimensions (number of rows and columns)

list

- object containing order collection of objects (‘components’)
- can store different data types
- ‘recursive’ as their components can themselves be lists in their own right
- very versatile

data frame

- collection of lists
- all rows the same length (like in a matrix)
- special functions to work with dataframes

General tips

`#`	comment: use it excessively!
`ls()`	shows all the variables you have in the workspace
`quartz()`	opens new graphics window (handy to compare two plots)
`file.choose()`	although handy to find your data files, this does not leave any record of which file you read. Either use file path or file name + getwd()
`rm(list = ls())`	clears the entire workspace.

How to save a graphics file

```
# name and dimension of file. Can change file type

pdf("graphName.pdf", width = x, height = y)

    plotting functions

dev.off()  # closes the graphics file and saves it in the working dir
```

Location legend

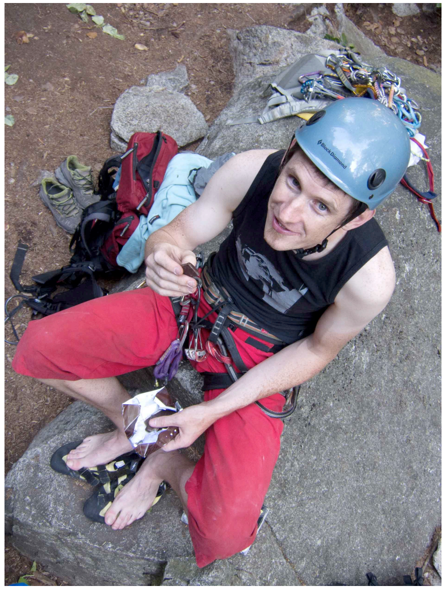
`legend( locator(1), …)`	uses the location of the cursor
`legend( x = value1, y = value2, …)`	more precise
`legend( x = “topleft”, …)`	easy and with ‘`index  =`‘ you can offset if

Don’t get something? Make a test data set you understand and use it.

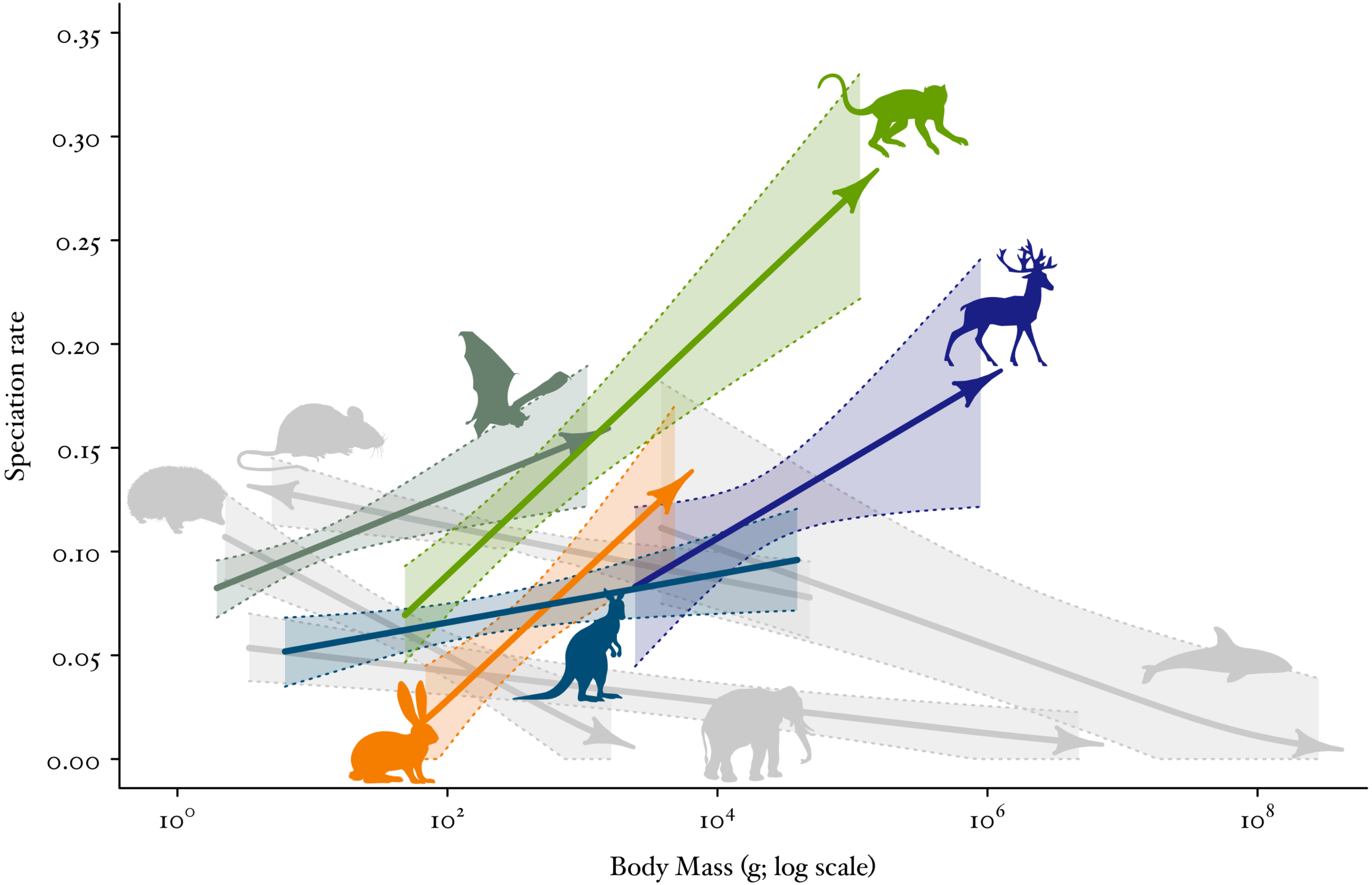
Cool R websites:

http://www.r-bloggers.com/	# loads of R coolness
http://www.statmethods.net/	# handy R tips
http://research.stowers-institute.org/efg/R/Color/Chart/	# loads of colour codes
http://addictedtor.free.fr/graphiques/thumbs.php	# loads of graphs

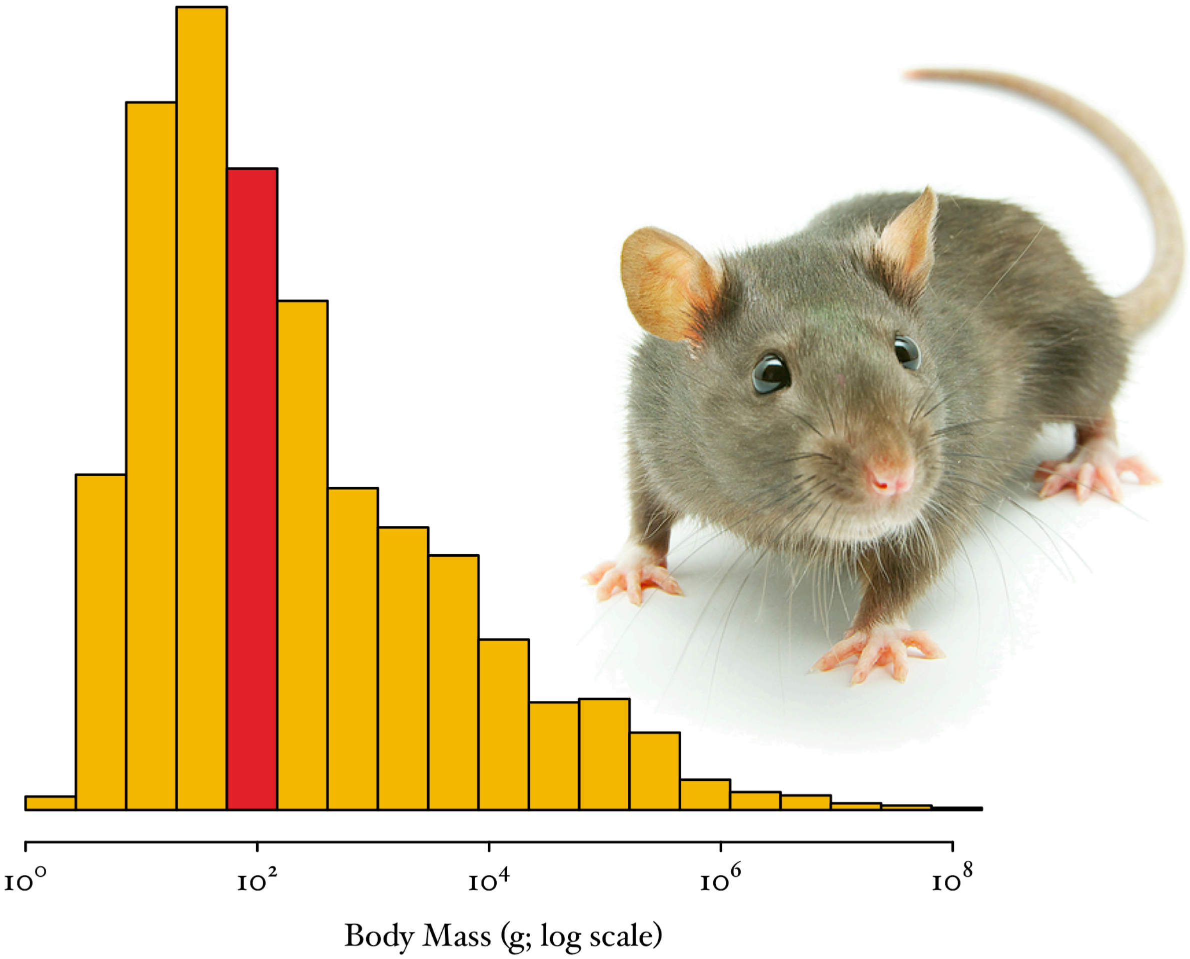
Graphics Time



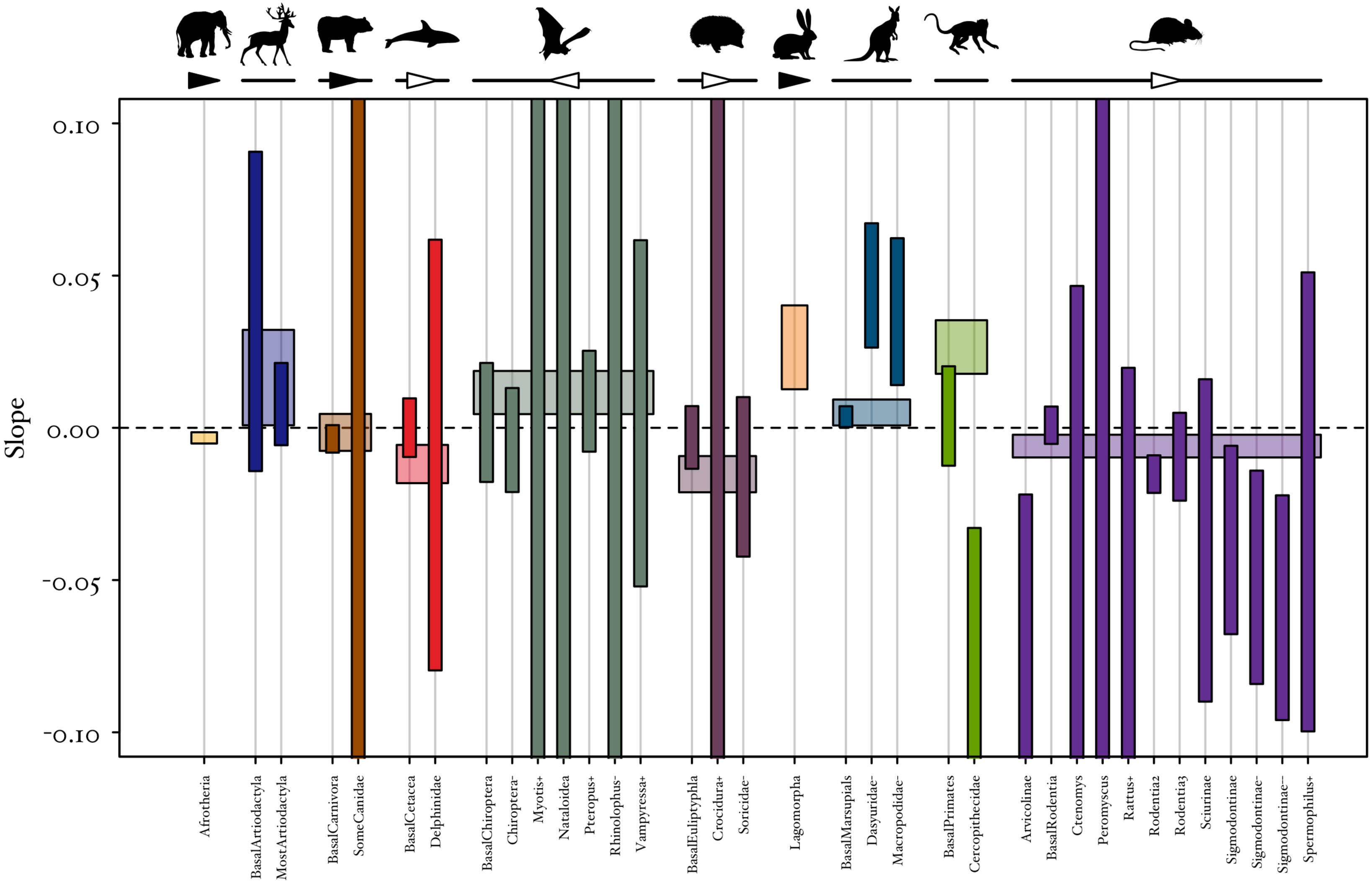
R (graph) Jedi Master

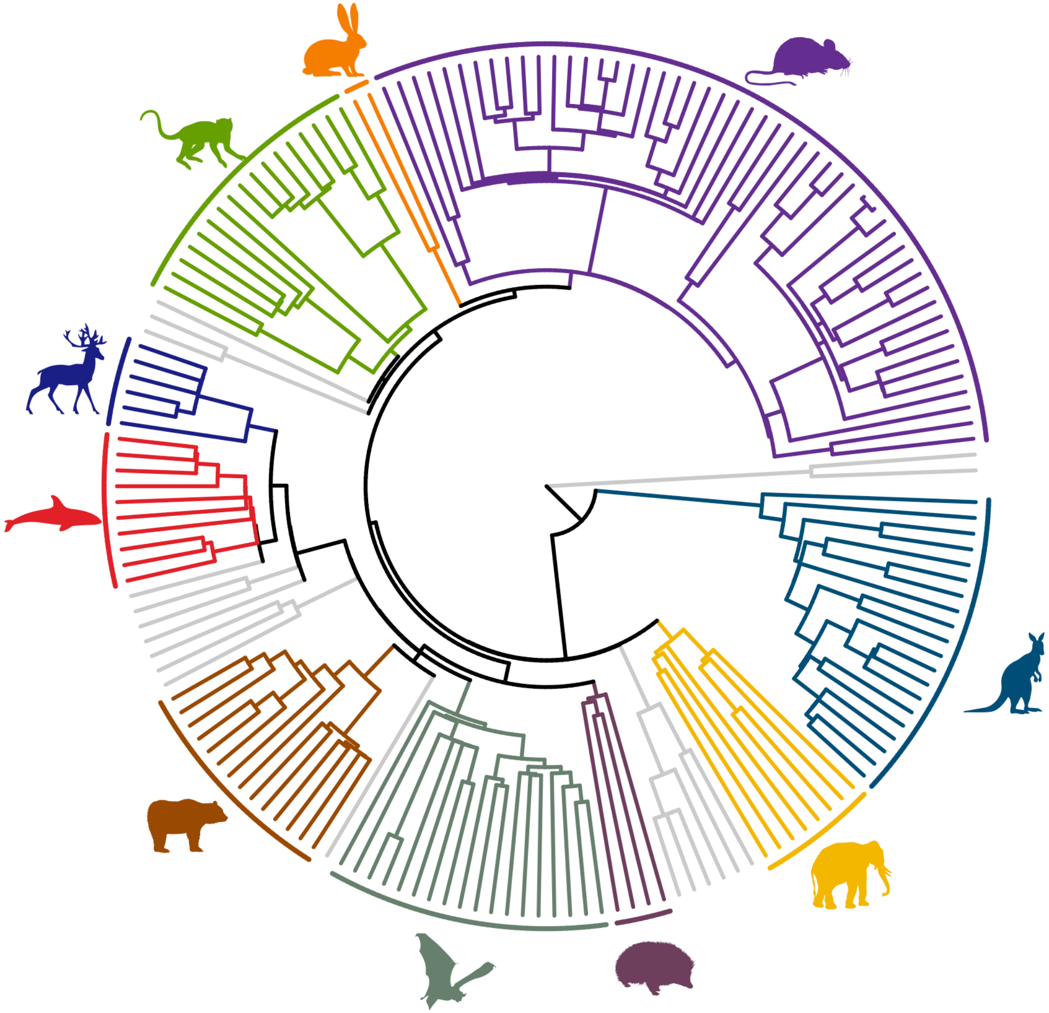


Speciation rate
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
10^0
10^2
10^4
10^6
10^8
Body Mass (g; log scale)



10^0
10^2
10^4
10^6
10^8
Body Mass (g; log scale)


Slope
0.10
0.05
0.00
-0.05
-0.10
Afrotheria
BasalArtiodactyla
MostArtiodactyla
BasalCarnivora
SomeCanidae
BasalCetacea
Delphinidae
BasalChiroptera
Chiroptera-
Myotis+
Nataloidea
Pteropus+
Rhinolophus-
Vampyressa+
BasalEuliptyphla
Crocidura+
Soricidae-
Lagomorpha
BasalMarsupials
Dasyuridae-
Macropodidae-
BasalPrimates
Cercopithecidae
Arvicolinae
BasalRodentia
Ctenomys
Peromyscus
Rattus+
Rodentia2
Rodentia3
Sciurinae
Sigmodontinae
Sigmodontinae-
Sigmodontinae--
Spermophilus+



all graphs made <u>only</u> using R