**Practice 1**

1. **Selectivity calculation (in Excel)**

File: Tadpole\_diet\_data.xlsx

D = (Rk - Pk) / [(Rk + Pk) - (2Rk Pk)]

Formula:

|  |
| --- |
| Rk = proportion of item “k” used/consumed  Pk = proportion of item “k” available  D varies from -1 to +1:  D = 1 → total preference for “k”  D = 0 → “k” is used/consumed in the available proportion  D = -1 → “k” is available but is not used/consumed |

Do tadpoles change their food preferences as they develop?

1. **Niche analyses (count data) in EcoSim**

(obs: EcoSim is not available for Mac. There is a version for R, but it does not have all the functions)

File: Tadpole\_diet\_data.xlsx

Do tadpoles change their niches as they develop?

1. **Discriminant analyses in R**

File: transect11\_day.txt

|  |
| --- |
| For beginners:  Download R from <https://www.r-project.org/>  You can use this site for guidance and to also download RStudio  <https://rstudio-education.github.io/hopr/starting.html#rstudio> |

File with explanations for the practice:

Script\_niche1.R

Which lizard species had the highest probability to be correctly assigned to species based on its habitat use data?

1. **Niche analyses (continuous variables) in nicheROVER (R)**

https://cran.r-project.org/web/packages/nicheROVER/vignettes/ecol-vignette.html

File: transect11\_day.txt

File with explanations for the practice:

Script\_ROVER.R

Choose two species and discuss how their niches overlap each other’s.

If you had to collect data specifically for niche analyses, what else would you measure?

Once you understood everything, you can experiment with your own data or just changing the datasheet and observing how the results change (you can build your own dataset from the original datasheet “Reptiles Menabe\_Functional traits\_raw data.xlsx”)

Additional information

**Some ways to install packages in R:**

install.packages("EcoSimR")

#This is the easiest way to install a package, but sometimes it does not work

#In case it happens, there are other options you can try:

install.packages("githubinstall")

library(githubinstall)

githubinstall("EcoSimR")

#This should install directly from GitHub using just the name of the package

install.packages("install\_github")

install\_github("GotelliLab/EcoSimR")

#This should install from GitHub using the name of the developer and the package

library(devtools)

devtools::install\_github("GotelliLab/EcoSimR")

#Here we use devtools to install the package from GitHub – in this example, just this option worked