Exercises all based on those in Zuur, Leno, Meesters (2009) A beginners guide to R.

Exercise 1. In Chapter 16 of Zuur et al. (2009), a study is presented analysing numbers of amphibians killed along a road in Portugal using generalised additive mixed modeling techniques. In this exercise, we use the plot command to visualise a segment of the data. Open the file Amphibian\_road\_Kills.xls, prepare a spreadsheet, and import the data into R.

The variable, TOT\_N, is the number of dead animals at a sampling site, OLIVE is the number of olive groves at a sampling site, and D Park is the distance from each sampling point to the nearby natural park. Create a plot of TOT\_N versus D\_park. Use appropriate labels. Make the same plot again, but use points that are proportional to the value of OLIVE (this may show whether there is an OLIVE effect).

Exercise 2. In class sibling negotiation behaviour was plotted versus arrival time for each nest in the owl data. A graph for each nest was created and saved as a jpg file. Do the same for the temperature data in the file temperature.xls, which contains temperature observations made at 31 locations (denoted as stations in the spreadsheet) along the Dutch coastline. (The data were collected and provided by the Dutch institute RIKZ. Sampling began in 1990, and the final measurements in the spreadsheet were taken in December 2005, a period of 16 years. Sampling frequency was 0–4 times per month, depending on the season). In particular: plot the temperature data versus time for each station, and save each graph as a separate jpg file.