Scientific Computing :: Drop In

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Session: 2
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Activity: R Coding

Visualise tree maps

Download the small data set in file `Plot1.txt` from `https://github.com/apommerening`. The ASCII file has 101 observations relating to the data of research plot 1 in Lligwy Woods on the Isle of Anglesey in North Wales. The data are from a natural woodland of ash (*Fraxinus excelsior* L.) and sycamore (*Acer pseudoplatanus* L.), where I studied the question of species alternation.

Your task is to write an R script which is capable of producing spatial maps of plot 1 in Lligwy Woods. First I would like you to consider the standard `plot()` function for producing scatterplots in R. Try to start with plotting the Cartesian coordinates first, then add information on stem diameter (*dbh*) marks and later also information on the different species. Is there also a possibility to add tree numbers, in case you wish to use the map for identifying trees in the field?

Then I would like you to use the `spatstat` package. This package has been designed for point process analyses, see Baddeley *et al.* (2016). With the `spatstat` package you can also use the `plot()` function, however, it requires a point process object (`ppp`) as input. Try to work out how to produce a map of trees in in `spatstat`. Again start with simple maps and make them more sophisticated in subsequent steps. What difference is there to the standard `plot()` function?

References

Baddeley, A., Rubak, E. and Turner, R., 2016. *Spatial point patterns. Methodology and applications with R.* CRC Press, Boca Raton.

Pommerening, A., Zhao, Z. and Grabarnik, P., 2018. Considering allometric relationships in the analysis of spatial tree patterns. *Russian Journal of Ecosystem Ecology* 3, DOI 10.21685/2500-0578-2018-2-1 (available on `www.pommerening.org`).