

Practice quiz question 6

Section 1

The multivariate dataset '*canopy.inverts.csv*' can be downloaded from moodle. This dataset contains the community composition of Diptera and Hemiptera from different types of forest in Ireland. Samples were obtained by canopy fogging so represent the canopy invertebrates of these forests. The forest types included in the study are Affor and Refor (afforested and reforested conifer plantations) Ash and Oak (natural forest) and NS (Norway Spruce conifer plantations).

Several environmental variables were also recorded;

canopy.cover = canopy cover measured by spherical densitometer

soil.pH = average soil pH taken in each forest patch

ground.cover = average vegetation cover at ground level

under.light = understory vegetation height (m)

under.divers = understory plant species diversity (Shannon diversity)

Using the *vegan* package for community analysis;

- a) Produce a NMDS ordination plot showing the different sites, using forest 'type' as the site. Write a results sentence describing the plot [3 marks]
- b) Carry out a statistical test to investigate if there is a difference in the invertebrate communities between the forest types. Write a results sentence describing the results [2 marks]
- c) Carry out an analysis to assess if the environmental variables are significantly influencing the invertebrate community. Interpret the results. [3 marks]
- d) Finally, produce an ordination plot of the species data showing any significant environmental variables as vectors on the plot. Write a sentence describing the plot [2 marks]