The Falls Creek Nutrient Network Site

Have you ever wondered what the small fences are for that you can see from the Mountain and Castle Trail? The fences are part of a global experiment examining the effect of fertiliser and grazing on grassland productivity and species richness. The fences are to exclude large herbivores such as deer, horses, rabbits and hares so that the grassland isn't grazed - they don't exclude insect herbivores though!

The Nutrient Network (aka NutNet), is an international research experiment that addresses fundamental questions about environment, productivity and plant diversity relationships in herbaceous plant communities. The network formed in 2008, starting out with a membership of ~40 sites globally which has now grown to more than 130 sites! This site, located in the Falls Creek Resort, is known officially as "bogong.au" and was established in 2009 by Dr Joslin Moore from Monash University and Dr John Morgan from Latrobe University.

Each site carries out exactly the same experiment where we add the three key plant nutrients – Nitrogen (N), Phosphorus (P) and Potassium (K) to plots in all possible combinations (separately, in pairs and altogether). We also fence plots to exclude grazers and fertilise one of these. We fertilise each spring and then monitor the response in summer. Each summer we measure the species richness, the abundance of each species, the amount of biomass produced and light availability. The bogong.au site was first monitored in summer 2009 (initial baseline monitoring) with the first fertiliser applied (and the fences built) in spring 2009.

Left: Joslin Moore adding nitrogen fertiliser to experimental field plots at the NutNet study site (Photo: Rowan Mott). Right: A volunteer takes light measurements that tell us about how much light is available at ground level (Photo: Bonnie Wintle). This is important information because plants need light to grow and often compete for light. The nutrient network has shown that increased competition for light in fertilised plots (because the plants grow more) can often result in local species extinctions when plots are fertilised.

The data from bogong.au has contributed to more than 30 scientific journal articles and help us to make important advances in understanding how grasslands work. The amount of Nitrogen and Phosphorous available to plants is increasing worldwide and changes in the distribution of both domestic and wild animals means that grazing patterns are also changing. The NutNet experiment helps us to understand how grasslands will change in the future in response to these changes. Visit the main website https://nutnet.org/ to find out more!