



## **Direct and indirect effects of drought and warming on decomposition processes in an upland grassland in the UK**

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For a quarter of a century, the Buxton Climate Change Impacts Study ("Buxton") has monitored changes in the plant community of an upland grassland in response to different climate treatments. Work at Buxton to date has identified shifts in both the abundance of individual species and the functional traits of the plant communities in different climate treatments. Furthermore, shifts in soil microbial communities have been linked to both the direct impact of the climate treatments and the changes in plant traits related to resource availability. My project investigates whether concerted changes in plant species, plant traits, and soil microbial communities affect plant-soil interactions and key ecosystem processes. I established experiments in plots subjected to summer drought, winter warming, and a combination of both treatments, and I timed my experiments to capture both the direct and legacy effects of the treatments. I conducted an experiment using leaf and root- litter of three native plant species to determine whether the changes in soil microbial communities within the treatment plots modify decomposition rates of plant material. Initial results show that decomposition rates varied more with plant species than among climate treatments, but that root litter mixtures decomposed faster than expected in plots subjected to the summer drought treatment. My findings contribute to our understanding of direct and indirect impact of climate change on ecosystem function.