

Restoring Resilient Ecosystems – Future restoration should enhance ecological complexity and emergent properties

Emily Waddell, University of Stirling

Restoration projects often aim to re-create baseline reference communities, with target species or species lists. However, how do you define these baselines, and crucially, are these communities resilient to future environmental change? The Restoring Resilient Ecosystems (RestREco) project aims to deliver a step change in restoration science, by considering ecosystem complexity, multi-functionality, and resilience as fundamental aims for restoration projects. Here, we define complexity as the number of components in a system and the number of connections among them. Focusing on broadleaf woodlands and calcareous grassland at different stages of transition from degraded states, a wide range of ecological data has been collected to calculate multiple complexity metrics. Using these data and information of each site (e.g., age, previous land-use), we will determine the drivers of complexity in these restored ecosystems. We predict that more complex sites support more emergent properties, including multi-functionality and resilience to perturbations.