

PST32 - Farmland pond management improves pollinating invertebrate biodiversity in the agricultural landscape

Walton, R.^a, Sayer, C.D.^a, Axmacher, J.^a, and Bennion, H.^a

^aPond Restoration Research Group, Environmental Change Research Centre, University College London, UK

Farmland ponds in the UK have been classified as being in a state of poor ecological health and low biodiversity. Among other factors, such as agricultural intensification and water quality declines, pond terrestrialisation linked to the cessation of traditional pond management since the 1960s is a key driver of pond degradation. Concurrently, many important pollinating invertebrates, such as bees and lepidopterans have seen significant declines in species richness and abundance, particularly in the wider agricultural landscape. Recent research has shown that the re-introduction of pond management (scrub and occasional sediment removal) has major benefits for aquatic biodiversity by creating open-canopy macrophyte dominated systems. However, the importance of ponds and pond management to pollinating invertebrate communities remains little known. Nine ponds in North Norfolk, UK were sampled from May to October 2016 for pollinator richness and abundance. Ponds were equally distributed into three categories – no management, recently restored, and past restoration with an ongoing management regime. Pollinators were sampled using pan traps, thirty minute visual observations, and light traps for nocturnal flower visitors. Terrestrial and aquatic plant zones were surveyed for species in flower. Time-lapse cameras were used to obtain photographs of plants in flower to detect pollinating invertebrate visits throughout the day. Results revealed that pollinator biodiversity was significantly higher at recently managed ponds, which contained abundant and diverse marginal plant communities. Unmanaged ponds had the lowest results in floral and pollinator diversity. This research demonstrates that pond systems can be important for pollinating insect communities and that scrub management may actually benefit pollinating invertebrate richness and abundance. Our study alludes to an exciting link between pond and pollinator conservation in agricultural landscapes.