

The use of *Ranunculus repens* as an Indicator Species for Assessing the Extent of flooding in Turlough Basins.

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Abstract

Turloughs are temporary water bodies that are common in the karstic areas of south Galway and the east Burren complex and are listed as priority habitats in Annex 2 of the 1992 European Union Habitats Directive. The main threat to the conservation of the turlough habitat is damage by artificial drainage. The extensive flooding of rural communities by turloughs in 1994 resulted in public demands to reduce any future threat of flooding. Flood alleviation measures that involved the removal of surplus groundwater would potentially damage vegetation communities that occur around the upper fringes of turlough basins. Due to annual fluctuations in the extent of flooding of turlough basins, it has proved difficult to determine where the turlough vegetation communities effectively stop and where the terrestrial vegetation communities begin. We investigated a transect of the Hawkhill turlough, running from a higher area subject to occasional flooding through to an area 4m above the basin floor that receives several months of flooding each year. The vegetation cover was recorded in 1m×1m quadrats at intervals along this transect using the Domin scale. Distinctive zones of species were present, with an emergent aquatic community occupying the deepest zone, ephemerals occurring in the open mud community above the aquatic zone, a damp grassland community occurring at 2m from the bottom of the transect and a drier grassland community occupying the upper elevations 4–7m from the base. *Ranunculus repens* is one species that traverses the boundary between drier and seasonally flooded grassland; its leaf dissection, calculated as an index from digitised leaf outlines, increased with decreasing elevation. This association between leaf dissection and depth and duration of flooding could be used to identify zones within turlough basins that are governed by hydrological processes.