

Catchment fragmentation and hydro-ecological modification of a raised bog wetland

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Abstract The occurrence of ecological communities of conservational value on the surface of raised bog wetlands requires that specific hydrological conditions are maintained. Marginal drainage, in the past 20 years, of Clara Bog, Ireland, has resulted in dramatic morphological changes. Differential peat consolidation has fragmented what was one high bog topographic catchment area into four distinct catchment areas. Runoff has reduced by ~40% from the original main catchment area and there has been a ~26% decrease of wet areas supporting growth of *Sphagnum* moss species. In undisturbed bog systems the recharge rate of water seeping through the bog body to the regional groundwater table is in the order of 40 mm/year. The downward seepage rate in Clara is between 90 and 140 mm/year. A reduction in pore water pressure, due to drainage of the regional groundwater table, has induced excess water loss from the peat substrate, resulting in hydroecological modification of the bog surface.

Key words hydroecology; subsidence; catchment; water balance; Ireland; peat bog