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# PHOTO GALLERY

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## RECOVERY FROM DIFFUSE POLLUTION

Ian Donohue et al.



Photo 1. Lough Carra, a mostly shallow calcareous lake located in a low-lying agricultural landscape in the west of Ireland, where the effects of the Great Irish Famine were most dramatic. The catchment of the lake has never contained urban areas or contaminant point sources of any significance, and thus provides an excellent location for the examination of rates of ecosystem recovery from human depopulation and associated reductions in diffuse nutrient pollution at the landscape scale. Photographer: Ian Donohue.



Photo 2: Castle Carra, a thirteenth century rectangular great tower, now in ruins, was built on the shores of Lough Carra by the de Staunton family. The family subsequently adopted the Irish version of the name, Mac an Mhílidh (pronounced MacEivilly), which translates to “son of the warrior.” The area around Lough Carra was, at one stage, known as MacEivilly’s Country. The castle is one of a number of Norman castles in the area of Lough Carra, illustrating the historical importance of agriculture and availability of natural resources in the locality. Photographer: Chris Huxley.

We know remarkably little about the recovery of aquatic ecosystems from reductions in human pressures at landscape scales. Conventional understanding suggests recovery from diffuse pollution should take considerably longer than from point sources, owing to contaminant retention within catchments. The Great Irish Famine (1845-1850) caused dramatic reductions in human populations and agricultural intensity, comprising one of the most significant human disasters of the century. We found, however, that recovery of Lough Carra after the famine was rapid and monotonic, demonstrating that recovery from diffuse pollution can occur over temporal scales similar to that from reduction of pollution from point sources.



Photo 3. The shores of Lough Carra with Croagh Patrick in the background, on the summit of which St. Patrick, the patron saint of Ireland, fasted in the fifth century. Many thousands of barefoot pilgrims repeat his ascent up the hill every year. The area around Lough Carra is rich in archaeological remains, some dating back over 2500 years. Photographer: Elaine McGoff.

These photographs illustrate the article “Rapid ecosystem recovery from diffuse pollution after the Great Irish Famine,” by Ian Donohue, Manel Leira, William Hobbs, Luis León-Vintró, Jennifer O’Reilly, and Kenneth Irvine, published in *Ecological Applications* 20(6):1733–1743, September 2010.