

White-Clawed Crayfish: Use of Drainage Ditches

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White-clawed crayfish *Austropotamobius pallipes*, Ireland's only native crayfish, is the largest mobile invertebrate in aquatic systems in Ireland. It is viewed as a keystone species which is under threat across its European range from habitat loss, pollution, competition from introduced non-native species (such as the North American Signal Crayfish *Pacifastacus leniusculus*) and in particular from crayfish plague or *aphanomycosis* (Matthews and Reynolds 1995). As such it is listed for protection on Annex II and V of the Habitats Directive (92/43/EEC) and Appendix II of the Bern Convention and nationally under the Wildlife Act 1976 and the Wildlife (Amendment) 2000.

On a broad scale its distribution is largely dictated by a combination of local geology and water quality factors. It favours areas with relatively hard, mineral rich waters on calcareous rocks (Holdich 2003) and as such is widely distributed throughout the limestone rich Irish midlands and west. In Ireland, crayfish have been recorded from a wide variety of habitats, including canals, mill races, streams, rivers, lakes, reservoirs and water-filled quarries. However, little mention is generally made of the use of drainage ditches that are hydrologically connected to such habitats despite these being ubiquitous in the Irish landscape. Demers *et al.* (2005) found that crayfish were most commonly encountered in unpolluted waters, but that they were also found in slightly polluted and moderately polluted water, so the potential would seem to exist for movement of crayfish into such habitats, as long as other factors are suitable.

In a recent study of 27 watercourses conducted by Atkins in east Co. Galway (hydrometric areas 26 and 29), which included rivers, streams and drainage ditches on a total of seven different sub-catchments, crayfish were recorded at six sites (22% of sites) (under NPWS licence no. C69/2007).

Of the above 27 sites, five drainage ditches were surveyed; three additional watercourses which were degraded small stream habitats, in many ways characteristic of drains, were also surveyed. Adult crayfish (*i.e.* two to three year plus individuals) were recorded in two ditches and in two of the three degraded ditch-like small streams; in all cases these were either trapped or caught in a sweep net. One site was within 30 m of a river where large numbers of young crayfish were also captured. In a separate study in Co. Tipperary, an adult crayfish was also encountered in a drainage ditch which connected a wetland pond to the River Multeen Special Area of Conservation.

While we do not as yet have adequate data to look at habitat factors positively associated with distribution, the presence of in stream macrophyte cover, especially *Apium nodiflorum*, was notable, as was the presence of cobble and gravel substrate in the base of the ditches and positive for the presence of

crayfish.

The above results indicate that drainage ditches cannot be discounted as a potential habitat for white-clawed crayfish and highlights the need for further work in this area. Consideration should be given to the potential role of ditches as refugia (*e.g.* for repopulating watercourses in the event of pollution events; or as safe refugia for young in high flow conditions or in cases of high population density), availability of foraging habitat, and the possibility that they may play a role in terms of crayfish movement and habitat connectivity.

In particular, the study highlights the need for the adoption of an agreed methodology for the evaluation of ecological importance and assessment of development related impacts on ditches in Ireland. To this end we understand that Ms Jane Kavanagh is reading for a PhD under Dr Simon Harrison in University College Cork on the *Freshwater Ecology of Drainage Ditches* from which it is hoped to develop an appropriate survey and evaluation methodology.

References

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White-clawed crayfish
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