

Awarded to Jennelle Anderson for their dissertation: ‘Assessing the eco-hydromorphological effects and persistence of natural large wood in rivers’ completed while at Queen Mary University of London.

Abstract:

Since the 17th century large wood (LW) has actively been removed from river channels for flood management and navigational purposes. However, more recently the (re)introduction of LW is being promoted in numerous river restoration projects. LW (re)introduction can deliver multiple hydromorphological and ecological benefits. Despite this, the outcomes of restored LW remain highly variable. Hence, further research is needed to determine which LW designs provide the widest range of benefits. Restored LW is often more effective if they emulate the structure of natural LW accumulations. This study characterised the physical structure and spatial distribution of LW at Turkey Brook in Enfield, which has experienced minimal management of in-channel LW. Moreover, the influence of LW on water flow, fine sediment accumulation, and mesohabitat diversity was assessed, and the temporal persistence of LW accumulations over a six-month period was presented. The results demonstrated that a broad range of LW forms is present in a natural, wooded riparian zone, including channel-spanning accumulations that cause a step in the water surface level, or single pieces of LW that only partly span the channel. Structurally complex, channel-spanning LW forms delivered the widest range of hydromorphological and ecological benefits. Lastly, LW forms with a high number of wood pieces, and with wood piece lengths greater than the channel width appear to be the most persistent.