



## **Rapid mapping of floodplain morphology and habitat using terrestrial laser scan data**

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Floodplain heterogeneity is significantly influenced by the sediment dynamics of the active channel and the flooding regime. These processes, combined with biotic responses, create a potentially complex pattern of habitats helping to maintain physical and ecological diversity. Current legislation (e.g. EU Water Framework Directive) requires knowledge of the 'whole' river system, including floodplain and riparian habitats in order to optimise their ecological 'status' or health. A method of rapid classification and mapping of floodplain units is demonstrated for the River Litton at its junction with the River Wharfe in North Yorkshire. The technique uses terrestrial LiDAR data scanned from appropriate vantage points along the valley side using a medium range laser scanner. Geomorphic unit delineation is based on local topography and habitat units are mapped using local measures of the vegetation character when differenced from the ground surface. The resultant units are compared directly with morphology and habitat information sampled by traditional surveying at the same time as the laser survey. It is clear that broad scale mapping using the laser scanner data provide a rapid, yet accurate technique for differentiating the geomorphic and ecologic units present. Issues exist concerning scan area surface visibility affecting the overall quality of the final unit maps, and this is discussed with reference to recent

developments in low level helicopter-based airborne scan data.