

The Environment Agency need to complete environmental surveys for a number of different species and habitats to help inform the design of the Kendal Flood Risk Management Scheme. These surveys will be undertaken across Burneside, Staveley and Ings as well as in the upper catchment and the Stock Beck catchment. All of our surveyors are fully qualified and licenced to undertake this work. This fact sheet provides some further information about those surveys.

We have been undertaking ecological surveys across the catchment over the last two years. These surveys are vital in helping us to understand the wildlife present on the site and the best ways to try and avoid impacts from our scheme. Results from all of our surveys will feed in to our Environmental Impact Assessment (EIA) and Habitats Regulations Assessment (HRA). Due to the Coronavirus pandemic, our surveys have had to start slightly later this year. However, we have reviewed our programme and can confirm that this will not affect the quality of the results.

If you have any questions, comments or concerns about these surveys you can contact us on the details below.

### Otter surveys

Otters are semi-aquatic and so our surveys focus on the banks of rivers, streams and wetlands. Our surveyor will walk along the banks looking out for footprints, spraints (droppings) or evidence of their dens known as 'holts'. They may also find areas known as 'laying-up' areas or 'couches' where otters will rest within vegetation, or feeding remains such as fish, frogs and crayfish which also provide evidence of otter activity.



European otter © Environment Agency

### Badger surveys



Badger © Mark Davison/CWT

Badgers are one of our most iconic mammals. They can be found in woodland, farmland, and grassland as well as in towns and gardens. The surveys are completed on foot in suitable locations and are focused on signs that badgers are in the area. Badger presence can be confirmed by some of their distinctive field signs such as footprints or hairs, which are triangular in cross-section. Surveyors also look for droppings and entrances to their underground dens known as 'setts'.

### Habitat and vegetation surveys

Our surveyors will walk the length of the river channels to undertake a River Habitat Survey. This is a specific survey which records physical features of a river that are of particular value to wildlife such as pools and riffles, and areas of erosion and deposition. It is used to determine the quality of the habitat present and whether the river has been modified or is affected by other pressures. The survey allows us to understand how different parts of the river are used by fish, crayfish, and other species at different life stages.

During the survey we will also record the different plant species in and adjacent to the river.



River Gowan © Environment Agency

### Contact Us

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## Bat surveys



Brown long-eared bat © John Altringham

We have completed initial surveys and identified the trees and structure which have the potential to support roosting bats. Our next step is to undertake further surveys of those trees and the wider area to understand how bats use the site. This will involve climbing some of these trees using an inspection camera known as an 'endoscope' to see into crevices. We will also undertake dawn and dusk emergence surveys to record bats leaving or returning to their roosts. To monitor bats in the wider area, our surveyors will walk set routes or 'transects' using handheld bat detectors which identify bat species by their calls. They will also set up static detectors which will be placed in a tree or on a structure for up to a week at a time to record any bats that fly nearby.



Example static bat detector © NHBS / Anabat

## Aquatic surveys



White-clawed crayfish © Environment Agency

We will carry out surveys within the river channel between July and September to avoid the sensitive breeding and overwintering periods for the species that live there. Our surveyors will be in the river looking for crayfish under rocks and stones to understand how the population is spread throughout the area. We also use a technique called electrofishing to briefly and harmlessly stun fish so that they can be netted and counted. This involves surveyors with specialist electric backpacks connected to an anode to deliver a small current in to the water. We will also use a bathyscope to allow us to see more clearly under the water surface and observe the river bed.

At the same time, our surveyors will take samples of river water to test its temperature, pH, nutrient levels, and sediment load.

## Arboricultural (tree) surveys

The presence of trees in the landscape is a key consideration in our scheme design. Root systems, stems, canopies and allowances for future growth all need to be factored into the design where possible. We will undertake surveys of all trees and hedgerows that could be impacted by our scheme. These will be done by a trained arboriculturalist who has extensive knowledge of trees in relation to construction, and their value in the landscape. They will visually assess each tree and categorise it in line with British Standard "Trees in relation to construction – Recommendations" based on their size, position, age, and expected remaining life span.



Mature English Oak © Environment Agency

## Geomorphological surveys



River bed material © Environment Agency

Geomorphological surveys aim to understand the processes that cause the different physical features in the environment. A walkover survey of all watercourses in the area will be undertaken to characterise and map different areas of geomorphological forms and processes. This will include particle size surveys which require us to walk through the river and measure the size of the river bed material. This help to identify areas of erosion, deposition, pools and riffles, and understand how stable the river bed is. We can then better predict how the river will react to any interventions resulting from our scheme.

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