# IN SEARCH OF THE SALMON

The Water & Wildlife Sculpture Trail



The Water & Wildlife Sculpture Trail highlights some of the key species of the Crake catchment, some you may recognise instantly and others you may not.

There are six sculptures to discover: adult mayfly, Atlantic salmon, stonefly nymph, dipper, Arctic charr and otter. There was much debate about which species to choose so the booklet also features three more species, to represent more of the wildlife that depend on our water.

We wanted to raise awareness of our freshwater environments, be they small becks or large lakes and of the wildlife within and around them.

Water quality is declining and pressures on our river systems are increasing.

The freshwater invertebrates that underpin all aquatic life depend on healthy watercourses and so are our natural indicators of water quality.

Concern for and conservation of our becks, rivers and wildlife is not new, for Arthur Ransome, author of *Swallows and Amazons* expressed disquiet for how we treated our natural resources back in 1929.

"We hurry the water off the fields in a manner altogether contrary to nature and good fishing. We clean out the becks, smooth their floors, and fling weeds and stones alike out on the banks, thinking of the becks simply as a means of taking water away as quickly as it comes. We have busied ourselves making one-time excellent becks into places no trout would stay in if he could get elsewhere."

#### Arthur Ransome, "Rod and Line",

(Jonathan Cape, 1929) © Arthur Ransome Literary Estate

The sculptures were carved by artist Danny Clahane, based on illustrations from Ellie Chaney. The slate was kindly donated by Burlington Stone. Stonewaller Peter Watson, blended them beautifully into the walls. We are grateful to the landowners who agreed to host the artwork and have supported the work of the project.



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## AT WATER YEAT



### Adult Mayfly Ephemeroptera

Mayflies are amongst the oldest winged insects known, dating back 300 million years. When at rest their wings are held upright, giving them their name of "Upwings". Mayflies spend up to two years as a nymph before emerging as an adult and living for just a few days to mate, lay eggs in the river and die. Unusually for an insect, mayflies have two winged adult forms; the dull coloured sub-imago or dun and then its last moult to a more brightly coloured imago or spinner. Both adult and nymph are identified by their three tails.

Flat-bodied mayfly have external featherlike gills on their bodies and can be found on the underside of rocks. Olives are agile, darting through the water whilst true mayflies burrow into the silt and gravel.

It is usually mayflies that anglers mimic in their lures when fly fishing.

## Greenholme Beck

Greenholme Beck is considered to have good spawning habitat along its length from the village of Water Yeat up to the fell. In the past, a section of the beck had been re-routed and straightened to pass over a weir and supply Water Yeat Mill via a leat. Over time the condition of the weir deteriorated, the pool below filling with stone, making it difficult for salmon to access the excellent spawning grounds upstream. Fish surveys over several years recorded fewer salmon and even their absence upstream, though they were found downstream, making work on this beck essential.

### Atlantic salmon Salmo salar

The decline of salmon over recent years tells us that our rivers are in trouble. This iconic species is facing problems with migration, poor water quality in rivers, and out at sea.

Atlantic salmon begin life in our becks and rivers before heading out to sea, negotiating all kinds of barriers, adapting their bodies to live in saltwater rather than freshwater. Only 10% of eggs laid reach this smolt stage. After spending up to four years in the oceans and seas the salmon then begin the migration back, bypassing barriers, leaping weirs and waterfalls and evading predators. It is estimated that for every hundred returning salmon only five make it back to spawn where they were born.

Working with the landowner and interested parties, a "new" channel was dug following the beck's original course, bypassing the weir. The leat remains to supply water to neighbouring areas, respecting their protected rights and the weir has been sympathetically restored,

preserving local heritage. The migrating salmon and trout can now reach 2 km more of spawning grounds. Trees have also been planted to further improve the surrounding habitats.

*NB: There is no public access at this point though there are footpaths nearby where you can pass Greenholme Beck higher up.* 

## ON TORVER BECK



### Stonefly Nymph Plecoptera

There are 34 species of stonefly in the British Isles. Nymphs require highly oxygenated water and are particularly sensitive to organic pollution such as agricultural runoff and slurry. Some however can tolerate heavy metal pollutants, such as water running through abandoned mine workings.

Stonefly nymphs and adults are easily recognisable by their two tails.

The nymphs can take up to three years to reach maturity, moulting their larval skin between 10 and 20 times. They eat algae and decomposing leaves and breathe through their skin.

As an adult, stoneflies are mostly nocturnal and live from a couple of days to a few weeks.

#### Dipper Cinclus cinclus

Dippers live up to their name and spend most of their day, bobbing up and down on rocks and flicking their tail and dipping in and out of the water. The plump whitefronted bird will walk into the water searching for stonefly and mayfly nymphs, often using their short wings to swim underwater. They have a third transparent eyelid, known as a nictitating membrane which they close, to enable them to see underwater. Dippers fly low to the water, defending their stretch of beck or river and may use a nest site for several generations. Nests are made in crevices along river banks, behind waterfalls and under bridges. In favourable conditions dippers will have two broods a year.

Dipper populations can be affected by pollution incidents that wipe out their invertebrate food supply so depend on clean and healthy watercourses.

## Torver Beck

Torver Beck begins on the lower slopes of the Coniston and Torver fells and winds its way down to the shore of the lake over a distance of 8.2kms (5miles). At this point where the Cumbria Way crosses the beck, dippers and grey wagtails are often seen. Both species rely on the water being healthy enough for a plentiful supply of freshwater invertebrates. If you carefully lift a small rock at the edge of the beck, you may see some for yourselves but remember to place it back how you found it.

Despite the abundance of invertebrates Torver Beck is classified as poor, due to weirs and waterfalls and other ecological barriers to migratory fish.

## AT BRANTWOOD



#### Arctic Charr Salvelinus alpinus

A fish from the Lake District's glacial past, the Arctic charr is found in deep cold lakes such as Coniston Water. Once abundant their numbers are declining. Arctic charr is an excellent indicator for climate change as one of the main threats is a rise in water temperature. The range of the Arctic charr will shrink northwards and the species will eventually disappear from the Lake District completely. The enrichment of the lake through siltation and phosphate pollution will also have an adverse effect on the charr population.

## Brantwood and Coniston Water

Brantwood was the home of John Ruskin, an eminent Victorian artist and social critic. Ruskin was also a pioneering conservationist, keen for all people to recognise the beauty around them and one of the inspirations for the formation of the National Trust and the National Parks.

Coniston Water, also well known for its speed records and as the setting for Swallows and Amazons, now faces different challenges. The lake is becoming more nutrient rich (eutrophication) through agricultural run-off and domestic inputs from sewage systems. When added to rising water temperatures algae growth becomes excessive, leading to increasing occurrences of toxic blue-green algae and oxygen depletion. Conserving Coniston & Crake is working to reduce these impacts. Numerous clean and healthy becks run into Coniston Water but from the northern tip of the lake there are remaining metal inputs from spoil heaps, a legacy of its industrial and mining past.

Hopefully this stone charr will not be the last seen at the lake.

## NEAR BOUTHREY BRIDGE

### Otter Lutra lutra

Much loved but elusive, the otter needs clean healthy rivers, an abundant source of food, safe places to rest and good vegetation to hide their holt in. They mainly feed on fish, particularly eels, salmon and trout. Otters are excellent swimmers, well adapted to life in the water, with webbed feet, thick warm fur and the ability to close their ears and nose when underwater.

Otters are often seen along the River Crake and occasionally at the southern end of Coniston Water so keep a look out for their footprints in the soft mud and spraints left to mark their territory.

Whilst some populations are improving from the massive decline in the 1970s, others are just holding on. Suitable, safe habitats and a sustainable food source are key.



## The River Crake, Bouthrey Bridge

The River Crake acts as a corridor allowing otters to move between feeding areas and resting/breeding sites. At Bouthrey Bridge there is an otter pass built into the bridge itself. Kingfishers are often seen here too.

Whilst looking for otters you may notice lighter-coloured sections in the river. These will be redds, the spawning scrapes made by salmon and trout. The river upstream of Bouthrey Bridge is very straight, with little flow diversity, long flat beds of compacted gravel and high level of sediments. Too much sediment restricts the amount of oxygen to the eggs and fry in the gravels, so despite the excellent spawning activity by salmon and trout, survival rates have been poor. The project has tried to mitigate these issues in a variety of ways. Each September, volunteers rake out the sediment from the gravels ahead of the spawning season (October- December)

To improve flow diversity selected trees are felled at the bankside and anchored into place with steel cable, known as Large Woody Debris (LWD) Mimicking natural processes LWD also provides shade for fish and additional resting spots for wildlife.

## WATCH OUT FOR



### Kingfisher Alcedo atthis

A flash of bright blue along the River Crake, the Kingfisher is both unmistakable and unforgettable.

This small bird excels at fishing but is particularly vulnerable to habitat and water degradation and harsh winters. Hard engineering along rivers can reduce suitable nesting sites as the birds excavate tunnels into the riverbank.

It is also important that there are plenty of invertebrates for small fish to feed on as kingfishers need to eat their own bodyweight in fish each day. Look for them at the southern end of the lake, too.

#### European Eel Anguilla anguilla

Eels hatch in the Sargasso Sea, off the Bahamas then migrate across the Atlantic using the Gulf Stream, a journey of some 4000 miles, taking around a year to reach the European coast. These tiny transparent "glass eels" then change to elvers as they swim through the river systems, sometimes crossing roads and fields. For the next twenty years or more they live in our becks and rivers, initially feeding on invertebrates then small fish until they get the urge to breed. They then make the return journey to the Sargasso Sea, breed then die.

It is estimated that the eel population has declined by 95% in the past thirty years, largely due to overfishing and the illegal trade in glass eels as well as barriers to migration and degraded freshwater habitats. Warming sea temperatures and changes to the Gulf Stream also have an effect, making the European eel one of the world's most endangered species.



### Caddisfly Trichoptera

Also known as sedge flies, there are two main groups; cased caddis and caseless "free swimming" caddis. They breathe through their skin so need welloxygenated water and like most riverflies, live much longer in the water as nymphs than they do as a flying adult.

Cased caddis nymphs construct their incredible mobile shelters out of a variety of materials. The nymphs produce a gluey silk thread by which the tiny pieces of gravel, sand or plant are stuck together.

Caseless caddis nymphs make a fixed shelter, usually on the underside of a rock, from which they cast out a net to catch their food in, including other invertebrates.

Adult caddisflies have hairy wings, held roof-like over their bodies and may live for a month. Being largely nocturnal they are a good food source for bats.

### The Artists

**Danny Clahane:** Having studied at Canterbury College of Art and Wimbledon School of Art for his MA, Danny developed his skills with leading sculptors Stephen Cox and Glynn Williams. He is now based in based in South Lakeland and working primarily in stone. Further examples of Danny's work can be seen at Crosthwaite School and Ambleside Parish Centre. www. dannyclahane.co.uk

Ellie Chaney: Now living and working in South Lakeland, Ellie started her studies in Fine Art at Goldsmiths College, London then completed an MA in Art as Environment in Manchester. She is an artist who is passionate about nature, with detail and care showing through her illustrations. Ellie produced the beautiful Tiny Voyages of Discovery, the story of Sir John Barrow and Dragley Beck. www.eleanorchaney.com

## The Slate

We are indebted to the **Holker Group and Burlington Stone** for the kind donation of the slate used in the trail. We were keen to use local materials and chose pieces of Kirkby and Elterwater slate.

Arthur Ransome www.arthur-ransome-trust.org.uk

Brantwood www.brantwood.org.uk We hope we have created an enduring legacy of the Conserving Coniston & Crake project and a reminder of what there is in our world that we don't see at first glance.

### Need to Know

When following the trail, be aware of other visitors and respect the communities where the sculptures are situated. Please be considerate in parking: to view the otter you should consider parking at Water Yeat and walking to Bouthrey Bridge. Please respect the sites and do not climb on the walls.



**Conserving Coniston & Crake,** a three-year National Lottery Heritage Funded project, with the aim of improving water quality, habitat and biodiversity in the Coniston and River Crake catchment area through practical conservation work and community engagement.

The project, initiated by the Coniston and Crake Catchment Partnership, is managed by South Cumbria Rivers Trust and supported by The National Trust and the Lake District National Park Authority.

f 🥑 @ConistonCrake Website: www.ccc.scrt.co.uk

**South Cumbria Rivers Trust** is a registered charity whose purpose is to protect, conserve and rehabilitate the aquatic environments of South Cumbria.

#### **f S**CumbriaRiversTrust Website: www.scrt.co.uk

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