



Severn Vale  
Catchment  
Partnership

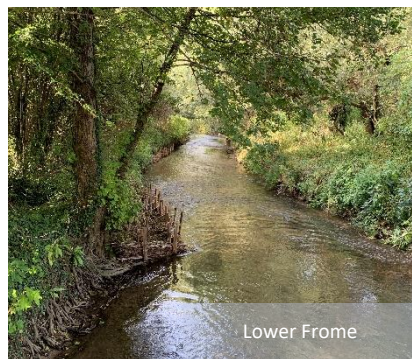
# River Frome, Stroud, Gloucestershire Vision and Strategic Action Plan



Weir upstream of Stroud Cricket Club



Arundel Mill Pond



Lower Frome

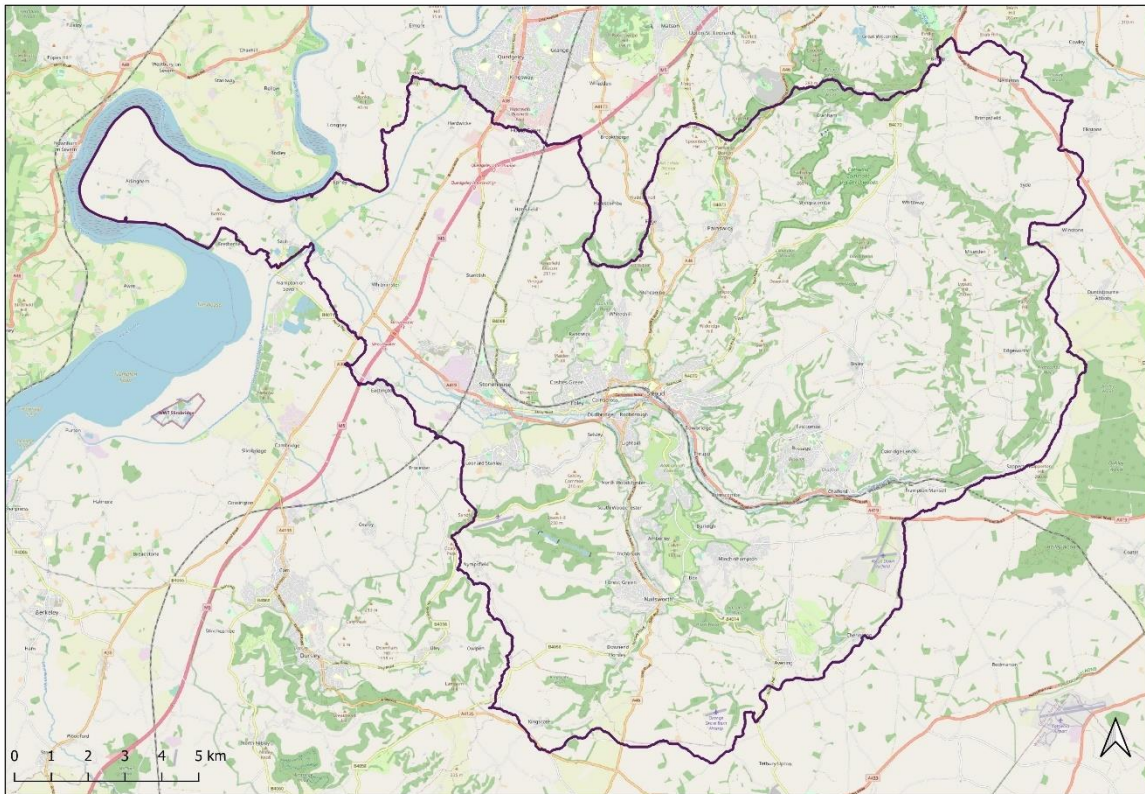
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## Our Vision for the River Frome

A crystal clear, limestone river bursting with life, teeming with fish as they make their way up the Frome from the Severn Estuary. Eels living out their lives before returning to the Sargasso Sea to breed. Salmon migrating upstream to healthy, gravelly spawning grounds. Wetlands, floodplains and woodlands full of plants and trees, removing carbon from the air and storing it. Thriving populations of insects, birds and mammals on wildlife-rich farmland and towns and villages. A river in which flooding causes minimal human suffering, and droughts rarely make the river run dry. A place where you want to live, work and play.

## What makes the Frome catchment special?



The Frome's source is on the western side of the Cotswolds near Caudle Green, and it flows into the Severn Estuary at Upper Framilode. It takes in a landscape mosaic of Cotswold beech woodlands, mixed farming and urban settlements. The Frome starts its life in the Cotswold limestone, where springs and flushes bubble up from the ground, in many places forming soft stony deposits or "tufa" on the ground, logs and stones. Tufa forming streams provide a unique ancient wild habitat in the River Frome, with rare insects and mosses.

Tributaries which feed the Frome include the Slad Brook, Painswick Stream, Nailsworth Stream, Ruscombe Brook and Holy Brook and the Stroudwater Navigation and Thames and Severn Canal also fall within the catchment. The lower reaches lie adjacent to the Severn Estuary RAMSAR site, Special Protection Area, Special Area of Conservation and SSSI designations.

The River Frome and its tributaries are home to many wonderful species of plants and animals. There are notable populations of endangered, white-clawed crayfish and the critically endangered European eel. We have water vole, kingfisher, otter, trout and meadows full of cuckoo flower, oxeye daisy and

yellow rattle. These species are present but, in many cases, just hanging on, and this document sets out how we can help make more space for nature to thrive, bringing socio-economic benefits to the area along the way.

## Environmental Priorities and Objectives

This document sets out the environmental priorities and objectives that have been agreed through consultation with a wide range of stakeholders. Whilst the plan seeks to include ambitious and specific objectives to be delivered by 2030, other works should, and will, be considered when opportunities for improvement arise. All these objectives and opportunities can only be realised through collaborative working.

### Climate Change Resilience

As climate change impacts continue to materialise in coming years, several ecological, hydrological and habitat impacts can be anticipated within the Frome catchment, and indeed throughout the Severn Basin and beyond. Climate change resilience will therefore be woven into all planned interventions and work will take account of the latest data and evidence. This plan also considers broader environmental objectives such as the government's 25 Year Plan.

#### 1. Making it easier for fish to migrate and move through the Frome catchment

##### Background

The River Frome is a watercourse with a rich history, shaped by its industrial past and evidenced by reports of a rich salmonid fishery. Indeed, young salmon are still present in the river below Saul Junction. Today, the Frome and its tributaries support moderate to good fish populations which are restricted by habitat fragmentation. Physical structures, such as navigation weirs and mills, have disconnected the Frome by impeding migration capabilities. In the latest survey, over 50 obstructions to fish passage were present within the catchment, all of which have inherent impacts on the river's ecological status.

Despite a lack of longitudinal connectivity, habitat quality throughout the Frome and its tributaries can be generalised as 'good'. It is our ambition to reconnect the river, allowing fish to move from the Severn right through to its headwaters. By achieving this, we will build resilience into the fragmented ecosystem and set the foundations for healthy fish populations. Of course, improved connectivity must be coupled with the provision of suitable habitats and efforts to rectify other fishery bottlenecks.

White-clawed crayfish have been recorded in a number of headwater streams within the Frome catchment. As such, care must be taken to prevent American signal crayfish, or the fungal disease they carry, being spread to these areas. The arguments for removing obstacles to fish migration must be weighed against the potential for an obstruction to be preventing signal crayfish moving into an area and wiping out populations of white-clawed crayfish.

##### Statement of Ambition

We will make the river channel passable up and downstream for fish and aquatic species, including implementing multi-species fish passes at all high priority barriers throughout the Frome catchment. In-stream habitat restoration will complement this improved connectivity, ensuring species have access to the variety of habitats necessary to complete the different stages of their life cycles.

##### 2030 Objectives

- Implement fish passage solutions at Whitminster Weir, Fromebridge Mill and Ryeford Mill
- Scope further fish passage or barrier removal opportunities, working upstream towards Chalford, to include Ebley Mill and the Nailsworth stream weir at Sainsburys

- Seek funding for at least 5 additional barrier removals or easements across the catchment
- Seek funding for suitable instream habitat works to support barrier removals/easements
- Retain and expand existing white-clawed crayfish habitats and populations

## 2. Making space for wildlife in and around the Frome

### Background

As well as storing vast quantities of floodwater, healthy river floodplains can support a huge range of wildlife, including many declining freshwater species. The Severn Vale is a stronghold for European eels, a protected species, which enter the estuary in spring months and live in the ditches, wetlands and waterbodies until they reach maturity and migrate back to sea.

The aspiration is to create a wetland complex that will provide a safe space for wildlife, store carbon in the face of climate change and hold and filter water. The mosaic of habitats will include wet woodland, scrub-edges, surface flow marsh, marginal vegetation, reedbeds, floodplain meadows, scrapes and ponds. Appropriately sited trees and woodland along sediment and run-off pathways will interrupt flow routes and increase soil infiltration, reducing flooding and the amount of sediment, nutrients or pollutants reaching a river channel.

Woody debris is a vital component of the river ecosystem. It is an important food source for invertebrates, provides refuge for fish and crayfish, and diversifies flow patterns. Large woody debris (LWD) helps scour gravels and create deeper pools which can be vital refuges for a variety of species during low flows. Brown trout create nests or 'redds' and spawn in fast flowing, well oxygenated flows. In locations where the river is homogeneous in character and the gravels are sat beneath a layer of silt then the introduction of LWD would be advantageous for aquatic life.

Previous Natural Flood Management (NFM) projects in the Stroud valleys introduced woody debris into the tributaries of the Frome and helped to create diversity of flow. This work will continue, however, in the main river Frome upstream and below Stroud there is a paucity of woody debris and for long stretches the bed is relatively flat and uniform, this will be addressed.

### Statement of Ambition

We will continue to introduce woody debris into tributaries by introducing features, such as LWD, that are associated with more natural river systems and diversity of flow types. NFM interventions will be incorporated into our general approach to river restoration and contribute to the reduction of downstream flood risk. We will focus our work on floodplain connectivity in the headwater floodplains, downstream of Ebley Meadows and west of the A38.

### 2030 Objectives

- Re-naturalise the river channel by introducing woody debris at 30 sites
- Restore 50ha of wetland mosaic in the lower Frome catchment, reinstating natural processes
- Establish or restore 100ha of new botanically rich grasslands and 20ha of wet woodland
- Reconnect 5km of headwater river with the floodplain by removing embankments and re-meandering straight sections of river
- Decommission 3 mill ponds to create floodplain habitat

## 3. Working in the wider landscape of the River Frome

### Background

The River Frome flows from the Cotswold plateau in the east, through the five valleys of Stroud, across the Severn Vale, and then into the River Severn. The geology of these three distinct areas has dictated

land use. The free draining soils of the Cotswold plateau have made it easy to cultivate the land, making arable farming the dominant land use. The steep slopes and wetter valley floor of the Stroud valleys have made agricultural improvements difficult, therefore this area has retained many natural habitats, such as woodland and unimproved grassland. Within the Severn Vale the deep wet soils are ideal for grassland, with dairy and beef farming dominating the land use. More recently maize has become an important dairy farming crop.

Each area has its own issues. Arable farming on the free draining Cotswold soils leaches phosphorus and nitrate into aquifers. The valley systems suffer from diffuse water pollution – soil poaching from livestock, muck spreading etc. The Vale problems include nutrient and pesticide run-off as well as urban pollution entering the river in Stroud and Stonehouse. The removal of the basic payment scheme, and the introduction of the new Environmental Land Management (ELM) scheme based on the idea of public money for public goods, will alter farming practices and provide opportunities to influence change.

### **Statement of Ambition**

We will promote ELMs options and regenerative farming practices, focusing on those holdings at high risk of generating diffuse pollution. This will require a better knowledge of water quality in the catchment and critical areas for wildlife. We will work with partners and existing funding mechanisms such as DEFRA's Catchment Sensitive Farming programme.

### **2030 Objectives**

- Create farm case studies for the three farming zones, identifying what options, including regenerative farming, could be adopted to improve the water environment and wildlife
- Work with 30 landowners to help them select appropriate ELMs options to improve the water environment and adopt regenerative farming practices

## **4. Cleaning up our rivers**

### **Background**

Clean water is vital for life and for wildlife and people to thrive and enjoy. Like most lowland watercourses in the UK, water quality in the Frome is impacted by runoff from both rural and urban sources. In rural areas, agricultural sources include nutrient and sediment inputs from fertilisers and livestock management, as well as point sources from sewage treatment works (both private and water company-owned), the sewerage system and septic tanks. In urban areas, inputs from the surface and foul water sewerage systems are the key sources of pollutants. The surface water system can be contaminated unwittingly by activities in residential, business and commercial areas throughout the towns and villages. There are also storm overflows which operate by discharging sewage into rivers, which should only occur during heavy rainfall.

There is no single solution to improving water quality – it needs a deeper level of understanding and an integrated approach by multiple stakeholders to effect real change. The Frome is of relatively good quality compared to other rivers in the Severn Vale. If we can tackle the key sources of pollution, alongside other measures, this could be a beautiful, thriving river system once more.

The problem of litter and microplastics is one that is now found in every river system, and unfortunately the Frome is no exception. The catchment is blessed with an extensive network of public footpaths, adjacent to, or in close proximity to, rivers and canals. This provides plenty of opportunity for litter to be dropped but also for action to be taken to remove it and engagement with communities who will benefit from an enhanced water environment.

### **Statement of Ambition**

We will strive for the Frome to achieve Good Ecological Status under the Water Framework Directive along its entire length, including key tributaries. To do this, we will engage local communities, work to reduce the frequency of sewer spills across the area, work with partners to deliver support to farmers and encourage the development of green and blue infrastructure across the catchment.

### **2030 Objectives**

- Reduce sediment and nutrient input to the Frome upstream of the Daneway and in the Painswick stream, working with farmers and landowners
- Run annual Yellow Fish and misconnection campaigns, engaging 10 schools, residential and business communities
- Work with Severn Trent, Highways, Local Authorities and communities to deliver a programme of blue-green infrastructure, intercepting highway, surface water and roof runoff through the creation of a minimum of 20 SuDs features
- Work with Severn Trent to significantly reduce sewer overflow frequency into the Frome

## **5. Restoring healthy flows in Stroud's rivers**

### **Background**

The River Frome needs enough water flowing along its entire length to sustain its health, but like all rivers it responds both to the weather and to groundwater levels. This means the river and communities downstream can suffer from the effects of floods, droughts and low flows caused by multiple impoundments and alterations to the river channel.

Like other parts of Gloucestershire, the Stroud Valleys suffered extensive flooding during the summer of 2007. Floods are not new in the Stroud Valleys and records speak of major flooding dating from 1820. Flooding has been made more likely by climate change and changes to the catchment. Surface run-off routes have been made smoother and run-off from fields and hard surfaces is greater in volume, which can add to the risks of flash and surface water flooding.

The River Frome also has many areas that dry out in low flows. Some of this is natural within a limestone area, but in other places, attempts to move the channel to the side of the floodplain cause the loss of water into the fissures within the rock. Water is also lost within the many on-line ponds and lakes, especially those without appropriate lining. Abstractions of water from the lower reaches of the Frome into the Gloucester and Sharpness canal also deplete flows.

The impacts of this on both local communities and the natural environment can be significant, causing anxiety to people and making the river difficult to migrate for fish and other species.

### **Statement of Ambition**

We will take a whole catchment approach to river flows and deliver interventions that allow rainfall to soak into the soils, reduce surface run off and slow down flows in streams and rivers to keep more water in the wider landscape, both to reduce the detrimental effects of floods and make the catchment more resilient to droughts. We will create and promote the concept of "Sponge Farms", which aim to increase and retain water storage on-farm. We will restore and maintain flows by moving channels or reducing leakage from ponds and impoundments

## 2030 Objectives

- To double the current number (750) of natural flood and drought management measures across the catchment
- Seek funding to identify the causes of zero flows in at least 2 sections of the river and, where possible, develop proposals to reduce or reverse these impacts
- To offer the Stroud Frome as a demonstrator for NFM in the Local Nature Recovery Scheme

## 6. Taking action on Invasive & Non-Native Species

### Background

Non-native species are those that occur outside their natural range due to direct or indirect introduction by humans. Many introduced species do not present a problem but those that spread and outcompete native species can threaten ecosystems, habitats or native species and are termed invasive non-native species (INNS).

The River Frome and surrounding watercourses support a range of rare and important species, such as white-clawed crayfish, otters and dippers. There have been numerous restoration projects in the Frome catchment which aimed to address protection of these by reducing and where possible eradicating INNS. In the Frome catchment we have identified Himalayan balsam and giant hogweed. In addition, in the Painswick Stream, American skunk cabbage, and in the lower Frome floating water fern. Invasive animal species include American mink, which impacts many native species including water vole, and Chinese mitten crab, which have previously been identified in the Gloucester and Sharpness canal.

### Statement of Ambition

We will reduce the impact of invasive species by monitoring existing populations (see section 7) and actively removing populations or individuals. We will work to reduce the threat posed by invasive species and limit the spread of them where eradication is not possible.

## 2030 Objectives

- Control and remove Himalayan Balsam across 10ha of riparian habitat
- Seek funding to eradicate Giant Hogweed from the Frome catchment
- Run a biosecurity campaign focused on improving understanding of the spread of INNS between water courses and impacts on native wildlife

## 7. Monitoring and Data

### Background

Across the catchment, organisations are working together to bring about positive changes to the River Frome, its tributaries and the water that flows off the surrounding land. Where improvements are made, it is important to quantify the benefits through robust monitoring. Changes that affect water quality, increase habitat availability and impact on the quantity of water that flows across the catchment may take time to become established. Often the changes might be small, temporary or only observed during events such as heavy rainfall. It is only through a thorough understanding of the landscape and catchment that these cumulative effects can be described and the changes that they bring about be measured.

Without monitoring it can be unclear where interventions are needed and how effective past efforts and expenditure have been. Collecting and analysing data needs people on the ground to take



measurements and citizen scientists can be used to facilitate a broad range of standardised data collection. Water quality can be measured through programs such as Freshwater Watch (<https://freshwaterwatch.thewaterhub.org/>) and its changing effects on the instream invertebrates can be monitored through monthly RiverFly surveys (<https://www.riverflies.org/>). Physical changes to river flow can be categorised through modular river surveys (<https://modularriversurvey.org/>), and as communities become more engaged more approaches can be adopted. The collective strategy of the partnership means that data sharing can be easily facilitated, and the contributing organisations can harmonise data collection and analysis to the benefit of all.

### **Statement of Ambition**

We will improve understanding and knowledge of the Frome catchment for the benefit of all by supporting the establishment of smart hubs and encouraging individuals and communities to help protect, monitor and enjoy their river.

### **2030 Objectives**

- Improve water environment and invasive species monitoring, including citizen science initiatives, to support statutory monitoring
- Establish at least one smart river hub for the River Frome

## **8. Community Engagement and Partnership**

### **Background**

Central to the Frome catchment is the market town of Stroud with villages scattered throughout the five valleys including Ruscombe, Pitchcombe, Painswick, Slad, Bisley, Eastcombe and Chalford. The Frome then continues downstream adjacent to the smaller settlements of Whitminster, Frampton and Saul before joining the River Severn at Upper Framilode.

Effective community support can increase the sustainability of a project and is achieved through early and continuing engagement with local people. Offering opportunities to co-design plans and contribute through citizen science schemes can provide a sense of ownership while contributing to project monitoring and building a local evidence base.

### **Statement of Ambition**

This plan has been developed as part of the Severn Vale Catchment partnership. The group welcomes the opportunity to work with any organisation or individual with an interest in improving the water environment of the Frome. Flood Actions groups will be a key element to ensure residents that suffer from flooding are involved in any restorative work. In order to achieve the desired outcomes, we must work in partnership. For further information, or to get involved, please contact [XXX@XXXX.com](mailto:XXX@XXXX.com)

### **2030 Objectives**

- Work with Gloucestershire Highways to install the names of rivers and streams on road bridges across the Stroud valleys to promote a better understanding of the catchment
- Work with 5 local communities to run river cleaning events, including the removal of industrial waste, replacing inappropriate substrate with natural habitat
- Run an annual event for all stakeholders to discuss progress towards achieving the Vision