

A 2030 Vision for the Severn Vale Catchment.



The Arlingham Loop - Looking east to the Cotswolds, Gloucestershire.

1.0 Our Vision

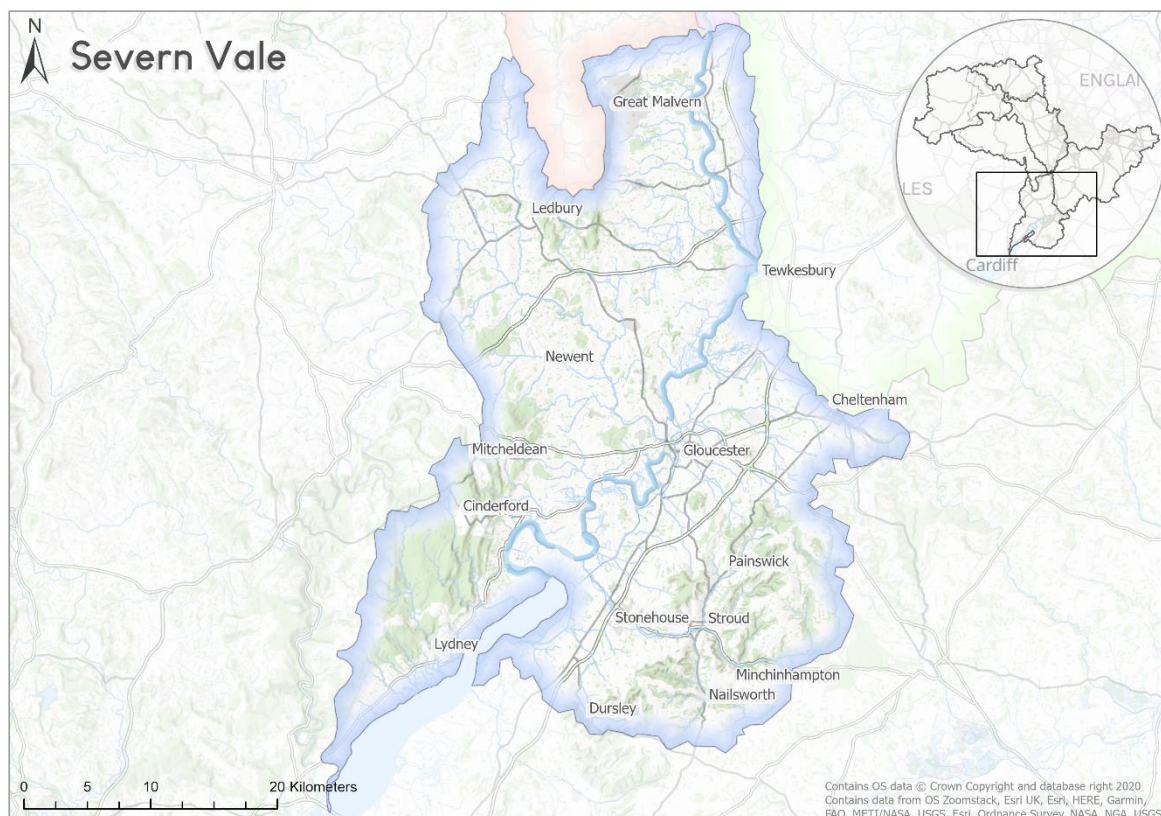
Imagine the meandering lower reaches of the Severn - a bountiful, complex wildlife haven as it makes its way south through the Severn Vale towards the Estuary. To the north of the Severn Vale catchment, picture vibrant clear waters, flowing freely, full of fish, through restored river channels of the Worcestershire and Herefordshire countryside to the east of the Malvern Hills Area of Outstanding Natural Beauty. Imagine these rivers and streams diverse in hydrological features; riffles, gravel bars and islands, trees that have fallen into the channel, and other woody material, all hosting a range of habitats for the wildlife found in and out of the river channels.

As the Severn itself flows through the low-lying landscape from Worcester south towards Tewkesbury where it meets the Warwickshire Avon, imagine expansive wetland habitats extending across the floodplains. Picture a rich mosaic of floodplain meadows supporting a plethora of breeding wading birds, alive with an abundance of invertebrates and supporting a complex food web where mammals, fish and plant life thrives. Imagine that flooding, whilst a natural seasonal occurrence, doesn't impose extensively on communities as it once did – the floodplains and wetlands now a fully functioning store for both water and carbon.

Heading further south through the catchment, picture a landscape in which the expansive woodland of the Forest of Dean to the west of the catchment sees brooks and rivers with high quality in-channel habitats, reaping the benefits of such a large source of woody material. Wet woodlands, dominated with alder and willow captures sediment and keeps the rivers clean. To the east, the Cotswolds AONB sees clear limestone rivers bursting with life and further South into the Vale and towards the estuary, wetlands and floodplains boast immense biodiversity.

Each year, communities celebrate the return of European eel, shad and salmon throughout the catchment. Imagine that solutions have been implemented at each barrier to migratory fish, and in rivers such as the Frome, eelers thrive in high quality and well-connected habitat whilst trout dart beneath well-shaded reaches. As freshwater meets the saline waters of the estuary, excited onlookers await the Severn bore which surges on up the estuary flanked by the Forest of Dean to the west and the Cotswold escarpment and Stroud Valleys to the east. From source to sea, the River Severn has now travelled 220 miles and ends its course in biodiverse estuarine waters.

2.0 The Severn Vale Catchment



The Severn Vale covers approximately 1465km² and includes many small rivers and brooks that drain into the lower River Severn or directly into the Severn estuary. The landscape is diverse with mixed urban, agricultural and forested areas. The main urban areas include Gloucester, Cheltenham, Ledbury, Lydney and Stroud. It is a unique landscape with many fantastic qualities: from the spa town of Cheltenham and the Cotswold escarpment in the east to the extensive woodlands of the Forest of Dean in the west. Perhaps notably, the catchment is probably the most important river system in the UK for the European Eel and boasts the famous natural phenomena of the Severn Bore.

The Severn Vale has several sites of international importance for wildlife conservation. Both Walmore Common and a part of the Severn Estuary are designated RAMSAR sites, due to the internationally important numbers of wildfowl that use them. These sites are also designated as Special Protection Areas (SPAs) under the EU Birds Directive and EU Habitats Directive. Furthermore, a larger part of the Severn Estuary is also designated as Special Area of Conservation (SAC). The Severn Vale has 120 Sites of Special Scientific Interest (SSSI's) - of these, 43 are water dependant biological sites. There is one National Nature Reserve (Cotswold Common and Beechwoods) and there eleven Local Nature Reserves within the catchment.

Work to improve the water environment in the Severn Vale will focus on improving rivers and streams themselves as well as bringing about landscape-scale changes in the broader catchment, as outlined in our 2030 aspirations below.

3.0 Environmental Priorities and Aspirations

3.1 In-channel & Riparian Habitat Improvements

Background

The Severn is one of the most important rivers in the UK for migratory fish, especially endangered species such as the Atlantic Salmon, European Eel and Twaite Shad. Historically, before the impacts of habitat loss, degradation, and barriers, the Severn Vale would have provided high quality and well-connected habitat for a range of fish.

A range of activities have impacted river habitats; dredging, straightening and narrowing, water abstraction, modifications such as weirs to support industry and agricultural practices in the broader catchment. Arable and pastoral farming are often both present adjacent to the waterbodies with no buffer zones. This is a significant issue both for the riparian habitats and in-channel water quality, especially where fields are used for grazing livestock. Where there is unrestricted access to the river, livestock can trample riverbanks, increasing erosion and the transfer of fine sediment. A healthy riparian buffer zone alongside rivers allows marginal habitat to develop, which provides habitat for various species. Vegetation, including ground flora, shrubs and trees all help to stabilise banks and reduce erosion whilst shading the channel, and offers vital habitat for other riverine wildlife, such as kingfishers, otters and white-clawed crayfish.

A well-functioning in-channel habitat and riparian improvements throughout the catchment will undoubtedly support freshwater species but also have the added benefit of reducing flood risk downstream especially where Nature-based Solutions (NbS) and Natural Flood Management (NFM) are utilised.

Statement of Intent

We will strive to re-naturalise rivers and streams in each of the Severn Vale sub catchments with the aspirations of increasing species habitat, improving flow dynamics, and improving riparian connectivity. This will be done by adding features such as woody-debris and where possible incorporating NFM (Natural Flood Management) to bring the added benefit of reducing downstream flood risk.

2030

Aspirations:

- Improve in-channel habitat across 10% (100km) of the catchment's watercourses including features such as backwater margins, large woody debris, pools & riffles (see Appendix II).
- Support 10 Ark sites for native crayfish.
- 100km riparian buffer strips, including fencing, on banks of watercourse (also contributing to 3.4)
- 100km riparian tree planting to offer shading to offset temperature rises and control soil and nutrient loss.
- 7500 NFM measures (also contributing to 3.5)
- Reduce impact of invasive non-native species across 50km of riparian habitat.

3.2 Improving Connectivity Along the River

Background

A variety of species including fish and invertebrates depend on the ability to move between river reaches to seek appropriate habitat to meet life cycle requirements. A lack of connectivity within almost all UK rivers is the aftermath of a once industrialised river network. The weirs, locks and tidal gates we installed to drive development have suppressed natural processes such as fish migration and river morphology. Often restrictions in longitudinal connectivity within rivers prevent feeding, spawning, and seeking refuge areas in low flows or during flood events. Physical modifications and barriers prevent migration and alter hydrological regimes, amongst other impacts, which hinder fish populations as well as leading to wider ecological consequences.

There are many areas for opportunity. Work will be focused on the key areas identified within the Fishier Frome Project which addresses habitat deficiencies and the obstructions from historical structures on the River Frome.

Statement of Intent

We will continue to work with key partners to remove barriers to freshwater species and unlock habitat which provides for key stages of invertebrate and fish life cycles.

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Aspirations:

- Reduce impacts of barriers to freshwater species by improving longitudinal connectivity on 40% of the catchment's watercourses – 400km unlocked for freshwater species (see Appendix II). This will include:
 - Complete removal where possible
 - Installation of fish passage solutions including naturalised by-passes, pre-barrages or technical fish passes for as broad a range of fish species as possible.

3.3 Floodplain and Wetland Habitat Restoration

Background

The Severn Vale is mostly low lying with areas of floodplain up to one mile wide. Previously, the lower reaches of the Severn Vale would have been a mosaic of floodplain meadows, marshes, and wetlands, but these habitats have been heavily degraded and lost in places where development has taken place. These habitats are also vital for wading and wetland birds such as curlew. Floodplain meadows are particularly important for carbon and water storage due to their dense root networks and deeper soils, typically suffering less from over compaction.

Sitting in the floodplains of the Severn Vale, a mosaic of extensive wetland habitats occupies the floodplains. The wetlands of Ashleworth, Chaceley Meadow, Coombe Hill and Tewkesbury Ham capture and hold flood water in the winter months and offer habitat for over-wintering wildfowl, waders, ground nesting birds and birds of prey. Come summertime, marsh marigold, ragged-robin, and great burnet flourish, attracting an array of insects and ground nesting birds.

Currently, grassland makes up 60% of the floodplain area in the Severn Vale ([WWT, 2022](#)), with arable at 25%, therefore a move from arable and species poor grassland to more species rich grassland would greatly improve species diversity, offering habitat to species such as the increasingly rare curlew, as well as mitigating against growing flood risk.

Statement of Intent

As exemplified by projects undertaken by Worcestershire Wildlife Trust at Longdon and Eldersfield Marshes, we will endeavour to create and restore floodplain and wetland habitats as part of a wetland complex which will bring about multiple benefits of attenuating flood water, increasing biodiversity and reducing the impacts of diffuse pollution through sediment filtering.

We will continue to work with partners across the catchment to enable this habitat improvement and make the vision of a healthy, thriving wetland habitat a reality.

Whilst significant gains can be made with restoring existing habitats, as exemplified by organisations such as the Wildfowl and Wetland Trust (WWT), there is a vital need to engage with agricultural communities where for example, ponds on farms can be an important haven for wetland wildlife.

2030 Aspirations:

- Restoration or enhancement of 5000ha of wetland habitat, including floodplain meadows and wet woodlands.
- Reconnect 20km of rivers with floodplains through for example; re-meandering, removing embankment, reprofiling banks.
- Establish 150 off-line wetland features, such as ponds and scrapes, in the broader catchment, including on farms.

3.4 Pollution – Keeping our Water Clean

Background

Water quality in the catchment is impacted by point and diffuse sources in both rural and urban settings. In the Leadon catchment, for example, diffuse rural pollution is evident whereas in the Forest of Dean, legacy coal and iron-ore mining have their own array of environmental impacts.

Further, water companies' storm overflows from combined sewer systems can lead to ecological harm due to their impact on water quality. For example; organic pollution can result in low levels of dissolved oxygen and increasing levels of ammonia can promote harmful algal blooms. The overflow discharges can also contain other pollutants such as heavy metals, carbonic compounds, and sewage detritus.

Runoff from highways and highway drainage can also impact water quality of our rivers and water courses. Interventions such as targeted constructed wetlands, swales and tree & hedgerow planting will all help to slow and hold back runoff. For example, projects such as the Severn Treescapes: Wye to Wyre under DEFRA's Trees Call to Action Fund, will be instrumental in delivering enhanced tree cover in the broader catchment area which will restore and connect woodland and hedgerows.

Statement of Intent

Reducing the impacts of diffuse pollution from both urban and rural land will require significant reductions in nutrient inputs (e.g., phosphates and nitrates from fertilisers) and sediments from soil-erosion and run-off. We will work with landowners, water companies' asset management plan process (AMP) and businesses in the catchment to raise awareness, shift perspectives and promote implementation of regenerative farming practices and catchment-scale initiatives to improve water quality.

- 2030 Aspirations:
- 3000ha of improved agricultural land with a focus on soil management techniques including cover crops, aeration, de-compaction.
 - 100km riparian buffer strips, including fencing, on banks of watercourse (contributing to 3.1 above)
 - 30km Hedgerow restoration for improved habitat connectivity, slowing the flow and livestock welfare.
 - 2500ha native woodland creation and restoration in the wider catchment.

3.5 Flood Risk and Water Use Management

Background

In many areas industry (including water companies) and agriculture are sourcing too much water from rivers and the underlying aquifers. The impacts of over-abstraction can be seen in catchments such as the Frome, where its characteristic springs, pools, and stable flows are showing increasing signs of stress. Hydrological stress from over abstraction is also impacting on morphological conditions, causing increased sedimentation and reduced connectivity with riparian margins. Over-abstraction also reduces dilution of effluent causing increased risk for direct ecological damage.

The Severn Vale catchment has seen large-scale flooding in recent years. Indeed, the Stroud Valleys, Forest of Dean and the areas directly adjacent to the main stem of the River Severn around Tewkesbury and Gloucester have seen dramatic flood events. As outlined in the Flood Risk Management Plans (FRMPs), Gloucester and Cheltenham were identified as being a Flood Risk Areas (FRAs) at significant risk of flooding from main rivers and surface water respectively.

Widespread and localised flooding has significantly impacted communities, businesses and infrastructure and more needs to be done to improve resilience to flood risk, whether the cause of flooding is related to surface water runoff, rivers or groundwater. Overall, there is a real need to equalise the often-extreme nature of water availability in the catchment - too little, or too much - ~~especially~~ inespecially in the face of the developing biodiversity and climate crises.

Statement of Intent

Efforts will be taken to engage with businesses, water companies, local authorities and landowners to identify opportunities to combat and raise awareness of flood risk and water management issues across rural and urban environments in the catchment.

We will improve ecological resilience to low flows and abstraction through a range of in-channel restoration and engaging with stakeholders to address over-abstraction.

- 2030 Aspirations:**
- Deliver 7500 Natural Flood Management interventions in headwater water courses, including leaky woody dams and attenuation ponds.
 - Deliver 15 rural and urban SuDS interventions in key flood risk areas including Gloucester and Cheltenham.

4.0 Key Partners and Stakeholders

Engagement with partner organisations and strategic stakeholders will be fundamental to working at the scale we intend. Alongside eNGOs, businesses, educational institutions, local communities, farmers and private landowners, we will endeavour to proactively engage with any stakeholder that wishes to be involved.

5.0 Community Engagement

The Severn Vale catchment partnership nurtures positive collaborations between numerous organisations including statutory agencies, non-governmental organisations (NGOs) farm cluster groups, water companies and private investment. Project delivery ranges in scale from small scale interventions to large programmes covering whole catchments. We will take steps to proactively engage and involve communities and groups to harness local knowledge and increase awareness of water environment issues.

An important mechanism for delivering catchment-scale change will be enabling farmers to access advice for water storage, healthy soils and tree planting through upcoming initiatives such as ELMS and EWCO. We will endeavour to facilitate this awareness raising workstream.

6.0 Opportunity Mapping

Various opportunity mapping exercises are underway with partners operating in the catchment to capture 'shovel ready' projects. We will continue to build on these to develop a comprehensive bank of opportunities.