Wildlife corridor strategy

River Chess Smarter Water Catchments Project

October 2022

Working in partnership

Thames Water · The River Chess Association · Chilterns Chalk Streams Project · Chilterns Conservation Board · Chiltern Society – We care for the Chilterns · Buckinghamshire Council · Environment Agency · Affinity Water · Herts & Middlesex Wildlife Trust · Queen Mary University of London

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This document has been created for the purposes of Thames Water's Smarter Water Catchments initiative. Although Thames Water remain the primary client, this document will be made available to all partners associated with the project, in line with the true partnership ethos of the project. The work detailed in this report is based on the information available at the time. Any findings and/or recommendations will inform future phases of the project.

Executive summary

This document has been produced to provide a strategy and framework for the implementation of measures for the Smarter Water Catchment project on the River Chess focusing upon the Wildlife Corridor Theme. The document covers the whole of the River Chess Catchment.

The document also sets out to address the Year 2 Wildlife Corridor Milestones of the project. These milestones are addressed and embedded throughout the document, as follows;

- Che067- Develop strategy for native species re-introduction (Section 1.6.3)
- Che070- Develop strategy and plan for incrementally re-wilding and restoring natural processes on priority stretches of river (Section 1.5)
- Che071- Develop a strategy for enhancing connectivity, habitats, and species within the catchment (Section 1.6)

The document is a live document and will be subject to annual reviews and updates.

Work within the wildlife corridor theme follows an integrated approach and relies upon key players such as the Working Group and Theme Lead for project delivery. These organisations function within the wider project structure and utilise roles which are at the programme level to assist with project delivery.

The work detailed within this document is based on data and information that has been collated as part of Year 1, the strategy details how this information is used and built upon to inform progress. Key habitats and species are highlighted and measures for assessing action are provided. These include scoring matrixes to allow for an analytical approach for taking work forward.

The document also provides a summary to funding process and monitoring requirements, providing the framework for delivery of on the ground options to help enhance the catchment focusing on biodiversity outcomes.

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1 Introduction

1.1 Introduction to the Smarter Water Catchment Programme

The Smarter Water Catchment Programme (SWC) is a pilot programme, between Thames Water and local catchment partnerships, as both believe that further benefits and better value for customers and communities can be achieved by tackling multiple environmental challenges together, in partnership with key stakeholders. The programme will be partnership-led, with committed stakeholders, to determine the right course of action now, and in the next 10 years, through evidence-based monitoring and planning. This approach will encompass the 10-year plan, amended as required with annual plans, and opportunities.

This initiative is designed to test how we deliver this wider catchment-based approach, building better functioning river catchments that:

- Preserve, sustain and improve the river as a system
- Improve the natural capital of the catchment
- Improve access and create opportunities for enjoyment, education and appreciation of nature and the environment

The SWC approach is to take a systems-based view of the environment, collectively addressing multiple challenges and co-delivering solutions that make the most of opportunities on an even bigger scale.

1.2 Introduction to the Wildlife Corridor Theme Strategy

This strategy is a development of work (from Year 1) undertaken for the Smarter Water Catchment project on the River Chess, focusing upon the Wildlife Corridor Theme. The purpose of the document is to:

- Provide a formalised strategy for the aims of this theme,
- Support effective decision-making processes
- Benchmark what the project is seeking to achieve in relation to Wildlife Corridors

The strategy is a live document, which will be reviewed and updated as necessary (at minimum annually). The project is structured within the financial year with a review process undertaken between January-March to inform subsequent years. A log of the versions is included on the header page. The update will be undertaken as a shared responsibility between the Wildlife Corridor Theme lead and relevant support.

Aims, objectives and practical measures will overlap with other theme strategies within the project; these themes are:

- Improving Flow
- Water Quality
- Invasive Non-Native Species (INNS)
- Working Together
- Involving People

Each of the themes are developing a strategy apart from Improving Flow, which sits largely within the remit of the water companies, who will incorporate the requirements into their plans.

The strategy builds upon previous scoping documents, exercises and tasks undertaken within Year 1 and Year 2 of the project. These documents include:

- Wildlife corridors gap analysis (2022)
- Partnership Projects (2022)
- Scoping strategies (2022)
- Engage with Wilder Chess and Nature Recovery Strategy (2022)

The strategy has been created to guide future work within the River Chess Catchment throughout the lifespan of the project. Updates to the document will allow it to evolve and remain relevant.

Additionally, the document sets out to address the Year 2 Wildlife Corridor Milestones of the project. These milestones are addressed and embedded throughout the document. Milestones that are addressed within this strategy are as follows:

- Che067- Develop strategy for native species re-introduction (Section 1.6.3)
- Che070- Develop strategy and plan for incrementally re-wilding and restoring natural process on priority stretches of river (Section 1.5)
- Che071- Develop a strategy for enhancing connectivity, habitats, and species within the catchment (Section 1.6)

The strategy covers all land within the River Chess Catchment as shown in Figure 1. The work focuses upon the river and associated wetland habitats; however, the strategy includes approaches for wider habitats and locations in the catchment.

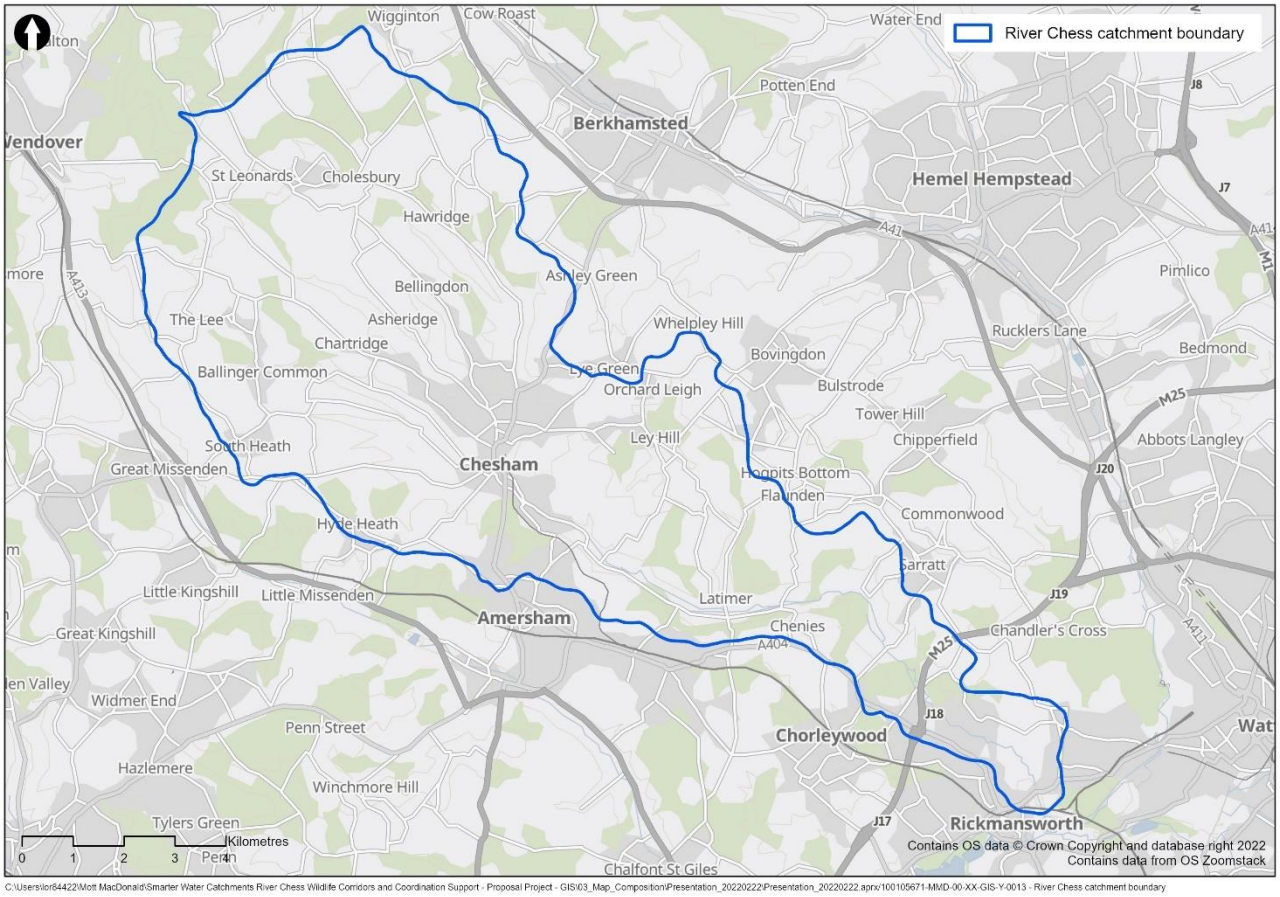

Figure 1- Catchment boundary.

1.3 Roles and responsibilities

The project wide structure is captured within the Terms of Reference, 2022. This sets out the roles and responsibilities of the stakeholders that are involved.

Specific to the Wildlife Corridor Theme, the strategy and direction of Wildlife Corridor tasks is a shared responsibility between the Nature Recovery Officer and the Theme Lead. Tasks will be assigned between these two roles with the Theme Lead predominantly taking an oversight role. In the absence of a Nature Recovery Officer (and in the interim prior to the commission of the role), Mott MacDonald will be providing consultancy support to progress topics included under the Wildlife Corridor Theme.

This work will be supported by the Wildlife Corridor Working Group, a group of relevant organisations/stakeholders, who have the opportunity to shape the direction of the work. The members of this group may change throughout the lifespan of the project, but this will be based on stakeholders' availability.

The Nature Recovery Officer and Theme lead will provide documentation, and opportunities for the working group to feed into the process, to ensure what is being proposed aligns with other work, and approaches within the catchment.

1.3.1 Decision making process

Decision making processes will vary depending on the topic. However, a general structure is described in Figure 2 below. This can be applied to determining strategy direction, project proposals, mitigation and habitat creation but is not limited to these topics.

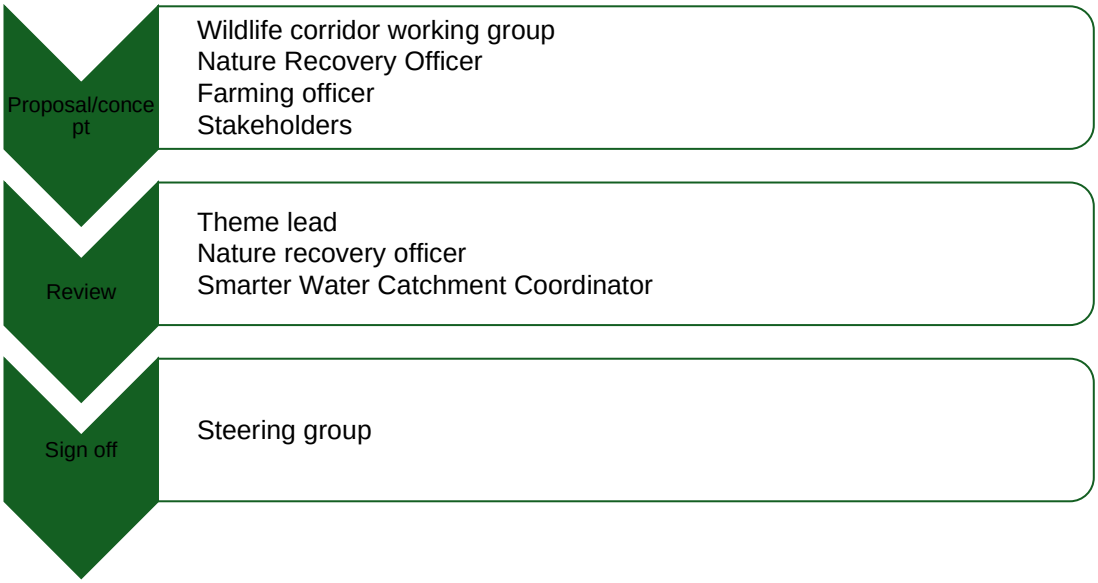

Figure 2- Decision making process

1.4 Overview of the Chess Catchment

The River Chess catchment is extremely important in a wide range of contexts, locally and globally. It is home to many people and an abundance of wildlife. It's also a vital green and blue space for visitors from inside and outside the catchment, accessibility being a major factor, with the underground network providing a direct link to London.

Habitats in the landscape are globally scarce, such as the chalk stream, lowland meadows and chalk grassland; therefore, some of the species supported by these habitats are rare and under threat.

The River Chess is a chalk stream, that makes up one of the rivers within the Colne catchment. It rises from a number of sources around Chesham, such as at Pednormead End, and flows for 11 miles through the Chilterns Area of Outstanding Natural Beauty, to meet the River Colne in Rickmansworth. The River Chess is one of only 283 chalk streams that have been identified in England. Emphasising this scarcity, England supports the majority of all the chalk streams in the world. The River Chess is renowned for its lush margins, clean gravel bed and crystal-clear, oxygenated waters. Plants like the white-flowered water crowfoot grow abundantly in its fast flow, and fish such as brown trout lay their eggs in the riverbed. The river, in turn, is also strongly influenced by habitats within the catchment.

Systems within the River Chess catchment provide a wide range of benefits including, food, water, biodiversity, ecosystem services and recreation. Examples of ecosystem services include flood amelioration, clean air and water. If in good condition and well connected the habitats present within the catchment can provide wide reaching benefits and help provide a more resilient landscape for both people and wildlife.

These services will become more vital but also under greater pressure as we start to deal with the effects of Climate Change.

We are all dependent on the world we live in – having healthy and resilient landscapes helps us all to thrive, supporting future generations of people and wildlife. Reflecting this importance, this strategy seeks to support and enhance a healthy landscape for future generations.

Figure 3 below gives a simplified overview of habitats within the catchment. The map is based on mapping data and will be refined as part of future work.

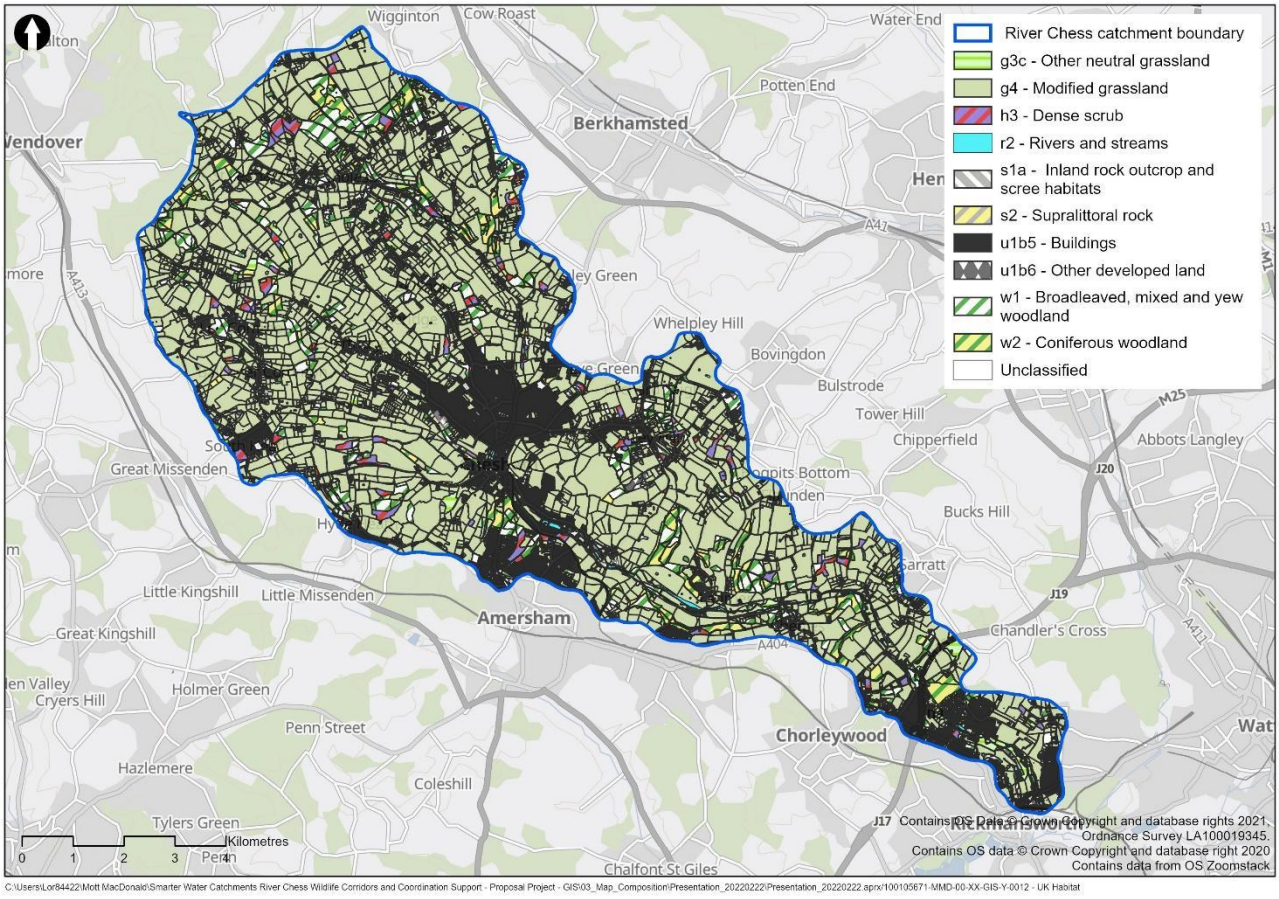

Figure 3- Overview of habitats present in the catchment.

1.4.1 Baseline

A baseline was created as part of Year 1 work and details of the baseline are included in previous reporting. Understanding the baseline involved the assessment of biological records within the catchment, habitats present and protected sites (with an ecological focus). Baseline collation was undertaken as a desk-based activity.

This process identified that although there is data, understanding trends and current distribution of species based on existing data can be restrictive. Information available is dependent on data that has been submitted to records centres and locations that people (public and recorders/surveyors) can access.

Certain species data, such as for water voles is comprehensive, as there has been monitoring schemes within the catchment for many years. Similarly, survey data for invertebrates and fish is available.

1.4.2 Building upon the baseline

Specific species surveys and data is often focused upon the riverine environments and there are gaps in understanding across the wider catchment for terrestrial habitats and species. To better understand species distribution and trends within the catchment, a survey programme is proposed to build and reinforce knowledge.

Target species groups are being considered for further survey. Specific species groups have been chosen as they give an indication of wider habitat availability/condition, potentially identifying actions in the catchment, and utilise existing survey programs to streamline implementation.

These species groups include; butterflies, birds, and plants.

This data will be used to look at species in the catchments and surveys will be targeted for locations where improvements are proposed. Data for these locations will help inform understanding before and after work has been undertaken and support the monitoring process.

The surveys will be based upon methodologies that are already being utilised in the wider Chilterns as part of the 'Tracking the Impact'[1] survey program being run by the Chilterns Conservation Board. The catchment will be split into squares parcels of land (tetrads) and a survey programme will be undertaken with the support of Citizen Science Volunteers and the project Citizen Science Officer. This will include surveys for plants, butterflies and birds. Each method will be based on exiting methodologies with have been developed by Plantlife, British Trust for Ornithology (BTO) and Butterfly Conservation Trust.

This survey programme will help increase the understanding of the baseline for each of these species groups, supporting data collection across the wider Chilterns, linking up with existing projects to support widespread data collection. Secondary benefits such as engaging with people, and getting people engaged with the program are also likely to be realised as part of this work.

This process is being developed and once finalised, relevant documentation will be produced and included as an appendix.

1.5 The River Chess

1.5.1 Overview- Re-wild and restoring natural process on priority stretches of river

The habitat within the catchment of the River Chess is a landscape that has been modified for thousands of years. Rewilding in the context of this strategy will be about working to develop (and enable) less managed, more complex habitats that are influenced by natural processes, rather than being primarily shaped by human management. Natural processes include movement and natural fluctuation of the river (including accretion/erosion), areas of inundation, succession and ecosystem services (filtration and attenuation).

This strategy sets out the key goals and provides a framework to identify priority stretches of a river.

1.5.2 Scope of approach

This work will focus upon the river and tributaries including winterbournes and associated habitats[2]. The scope of the approach is to be in part guided by the National Chalk Stream Strategy, 2022[3] and will seek to deliver the 'trinity of ecological health'. This trinity is the balance of natural flow, natural habitat, and clean water; all in combination are important for a healthy chalk stream.

Natural flow and clean water are being predominately delivered by other themes within this project but are important considerations for measures to be developed and brought forward. Natural habitat is an important focus of this strategy.

[1] The Chilterns AONB - Tracking the Impact

[2] Associated habitats are considered to be features which are hydrologically linked through surface water connection; for example, floodplain and wetted marginal habitats. Habitats may include, but are not limited to, floodplain meadows, wet woodland, reedbeds, ditches and ponds.

[3] Chalk Stream Strategy - CaBA (catchmentbasedapproach.org)

1.5.3 Aims

The aims of this are as follows:

- Create new areas of habitat which are in decline or are important within the catchment (see 1.4.2)
- Restore existing areas of habitat, to increase the biodiversity that these areas can support
- Improve connectivity so that target species can better move through the catchment

1.5.4 Priority stretches

The River Chess is a chalk stream and as such the entire length of the river is considered a Priority Habitat; however for the purposes of this project priority stretches are to be considered to help guide further activities to be undertaken.

The work is focused at a catchment scale, requiring the identification and development of on-the-ground practical opportunities. To support the identification of opportunities, priority stretches of the river will be highlighted and scored. The scoring will provide a decision-making structure to inform how work is progressed and where funding should be directed. This process will apply to both river habitats and connected habitats.

The river will be split into reaches to support the delivery approach.[4]

Priority reaches will include;

- River reaches in poor condition
- Areas where improvements can be made and will provide longer term benefits (>15 years)
- Where possible multiple benefits can arise from the work for example, water quality, landowner adoption, community engagement
- Land in public ownership
- Where works target connectivity of habitats (terrestrial and aquatic)

A simplified scoring system will be used to assign a category to each of the stretches of river. Details are included in Table 1 below.

Factor	Score	Score description
Scope for improvement	1-5	1-Natural channel, with good variety of morphological structure and biota. Natural habitats surrounding the channel (limited scope for improvements) 2- Can improve one aspect of the river condition. 3- Can improve two- five aspects of the river condition. 4- Can improve two- five aspects of the river condition, in addition to wider benefits such as target species improvements.

[4] The river will be demarcated using the approach utilised by other survey methods that have preceded this work. In particular, water vole surveys, which have been undertaken on the river for many years.

		5- Can improve wide range of features of the river including flow, morphology and biota. Wide ranging benefits.
Landowner engagement, public ownership and public access.	1-5	1-Landowners known and responsive (but not committed) 2- Mixed response from landowners 3-Landowners full engaged 4- Land with public access 5- Land in public ownership
Potential longevity of changes	1-5	1- Benefits for 0-5 years or time scale unknown 2- Benefits for 5-10 years 3-Benefits for 10-20 years 4-Benefits for 20-30 years 5- Benefits for >30 years
Additional benefits[5]	1-5	1-Likely benefits unknown 2- Addresses three benefits 3-Improvements- addresses six benefits 4- Multiple benefits across themes and addresses nine benefits 5- Significant improvements within the catchment covering all themes and addresses 12 benefits
Where work improves habitat connectivity	1-5	1-Very localised (>10m) 2-Local (10-100m) 3-Moderate (100m-500m) 4-Wider connectivity (500m-1000m) 5- Widespread connectivity (>1000m)

[5] Based on the Smarter Water Catchment twelve additional benefits: partnership resilience, raising awareness and support, promoting community engagement, delivering economic benefits, promoting community engagement, improving public access and site connectivity, promoting health and wellbeing, creating and enhancing habitat, protecting heritage, protecting biodiversity, reducing flood risk, improving river flow, reducing pollution/improving water quality, reducing carbon footprint.

Table 1: River priority stretch scoring system

This information will be mapped so that the river and associated habitats can be colour coded to inform the progression of projects within the catchment.

Stretches will be split into;

- Priority target
- Beneficial target
- Currently a non-critical target

The priority stretches map should be reviewed annually to capture any changes. This should be undertaken between January-March by the Nature Recovery Officer and reviewed by the Steering Group.

Once priority stretches have been identified, MoPRh surveys using the MoPRh methodology[6] will be undertaken where it is possible to do so to understand more about the specifics of the river in that location.

1.5.5 River restoration methodologies to be employed on priority stretches

Methodologies will be developed based on the MoRPh results for each section, focusing on topics where the stretches score poorly. Methods used will focus on a range of outcomes, including:

- Increasing sinuosity of a channel
- Increasing velocity of a channel and reducing sedimentation
- Removing barriers to movement within the channel
- Stabilising banks/reducing poaching
- Increasing marginal vegetation provision
- Increasing diversity within the channel including availability of clean gravel

Where possible, methods will aim to minimise disruption whilst maximising gain. This means that 'low technology' solutions will be sought wherever practicable. These methods will utilise natural processes supporting natural regeneration of diversity within the channel, focused upon provision of;

- Flow deflectors (utilising woody debris)
- Bank supports (posts, brash, etc)
- Fencing to allow for natural regeneration (using a combination of cattle proof fencing and fencing such as chestnut palings)
- Inclusion of gravel to raise bed height
- Installation of woody debris
- Management of marginal vegetation to create bankside diversity
- Influencing exiting bankside management practices and providing preferential management plans where applicable
- Influencing bank side activities, for example where possible directing preferred walking routes away from bank crests
- Creating supporting habitats adjacent to priority stretches of river (ponds, ditches, meadows, etc)

Where priority stretches are affected by hard engineering, more careful examination of feasibility and methodology will be required. If options are being considered which require this approach, the steering group will be consulted and the requirement for additional support explored; such as the engagement of consultants for technical support.

Measures developed will need to reflect wider project and themes. Engaging local groups, the Involving People Theme will be an important mechanism for engaging with the longer-term delivery of projects such as ongoing maintenance.

[6] MoRPh Rivers – Modular River Survey

1.6 Enhancing connectivity, habitats and species within the catchment; in conjunction with species reintroduction.

The approach to improving connectivity includes addressing habitat availability, connectivity and condition; all of which help create a better-connected landscape for wildlife.

1.6.1 Connectivity

Species need the ability to move through the landscape to adapt to a changing climate and to recover populations where they have been lost. Increasing and improving connectivity allows species to move better through the catchment, allowing for more robust populations of species with greater species diversity.

Connectivity will focus on three key areas;

- Within the river and associated habitats (priority)
- Hedgerows and woodland
- Field margins, set aside areas, etc

Other habitats such as heathland are known to be important, with limited distribution in the catchment and will be considered on a case-by-case basis dependent on when there is opportunity to engage with landowners in relation to these habitats.

Topic	Method
River and associated habitats	• Removal of barriers to movement within the channel (weirs, pipes, syphon extended culverts). • Provision of bypass features if and when features cannot be removed (fish pass, bypass channel).
Hedgerows and woodland	• Assess connectivity and condition of hedgerows (Farmers, Farming Officer and citizen scientists). • Plant hedgerows (either through farmers applying for funding, or through work parties)
Field margins and set aside	• Assess connectivity and condition of field margin habitats (Farmers, Farming Officer and citizen scientists). • Allow for set aside (either through farmers applying for funding, or through work parties)

Table 2: Improving connectivity

Actions

- Map and categorise barriers within the river channel (build upon mapping work that has been completed by the Environment Agency, and ground truthing data that is held by The Rivers Trust[7])
- Map opportunities, conduct assessment of opportunities and progress higher scoring opportunities
- Farming officer to engage with farmers in relation to hedgerow and farming habitat assessment and enhancement

[7] Catchment Based Approach (CaBA) | The Rivers Trust

- Tailor promotion information and information around grant application process to encourage schemes which align with these goals

1.6.2 Habitats

There is a diverse range of habitats within the catchment, however this work will target key habitat types; recognising the need for a focused scope. These habitats have been chosen for a range of reasons. These are as follows:

- Sensitive habitats with limited distribution but present within the catchment
- Can support highly biodiverse ecosystems with a range of rare and protected species
- Having more of these habitats in better condition within the catchment supports other outcomes of the Smarter Water Catchment Programme, for example, improved water quality
- Interlinked habitats, providing the opportunity for wider benefits.
- Habitat provides connectivity within the catchment

Additional habitats will be considered on a case-by-case basis, for example where there is an opportunity identified by a landowner; a bottom-up approach will be taken when consulting with landowners. However, opportunities for the key targeted habitats will be prioritised.

For these habitats the strategy seeks to increase their extent and improve their condition. Linking together habitats will better connect the landscape to support a biodiverse, well-connected environment that promotes and provides natural solutions.

The focus will be upon these key habitats;

- Chalk stream
- Chalk grassland
- Floodplain meadows
- Wet woodland
- Ponds, ditches and associated wetlands

The goals for these habitats are detailed in Table 3 below.

Habitat type	Goal	Mechanisms
Chalk stream	• Enhance connectivity (remove, or improve features which limit this) • Restore sections of the river to more naturalised forms with varied flow regimes. Narrow channels, increase gravel provision, creating greater sinuosity in channels • Increase and improve marginal habitats along the length of the watercourse, create a diverse assemblage of dense marginal plant growth • Protect banks, reducing erosion from footfall • Reduce sedimentation, improving the provision of gravel	• Remove structures in channel • Install woody debris, flow deflectors, and narrow channels • Include suitable gravel in the channel • Lay willow or install faggots along edges to stabilise and narrow channels • Plant or provide fencing that directs people and dogs away from bank edges • Increase flow to reduce sedimentation

		• Reduce sedimentation from source
Chalk grassland	• Increase extent of habitat • Increase condition of existing habitat • Restore areas of habitat	• Restore grasslands through sensitive management methods. • Develop management plans for degraded grassland • Support communities to undertake sensitive management on existing habitat • Create grassland habitat on chalk substrate (identify locations and support landowners and communities to be able to do this)
Floodplain meadows	• Increase extent of habitat- reconnect areas of the floodplain to the river, change topography to allow this to happen, enable natural processes. Develop management plans and sensitive grazing regimes to support this process • Increase condition of existing habitat- Identify where it is, undertake condition assessments and then put into place management plans to support the restoration of the habitat • Restore areas of habitat- identify areas of the floodplain where management processes can be changed to allow natural generation of habitat • Reinforce good slope management procedures to ensure soil management, reduce run off, etc. Engage with land managers to get good practice measures embedded within land management	• Farming officer to help identify opportunities and link up landowners with the resources to make this happen. • Identify opportunities where this could be done alongside the river and actively approach landowners • Remove man-made banks • Change management of low-lying habitat alongside the river • Lower the topography through excavation oof shallow depressions in low lying locations close to the river • Pond up springs and ditches to increase the amount of water held on the land
Wet woodland	• Increase extent of habitat • Increase condition of existing habitat • Restore areas of habitat	• Farming officer to help identify opportunities and link up landowners with the resources to make this happen • Increase wetland habitats adjacent to woodland, through wetland creation

Ponds ditches and associated wetlands	• Increase extent of habitat (create new ponds and ditches offline but in proximity to the river, creating areas where water quality is improved) • Increase condition of existing habitat- Restore ponds and ditches which are no longer functioning/require de-silting • Restore areas of habitat	• Engage with local communities and landowners to create wetland habitat • Farming officer to help identify opportunities and link up landowners with the resources to make this happen • Engage/build relationships with specialist organisations to help drive this forward where opportunities are identified

Table 3: Primary Habitat Focus

Secondary habitat types include;

- Hedgerows
  Field margins, 'set aside' land and other farmland benefitting from ELMs, or other provision, to improve the natural capital of the area

Habitat type	Goal	Mechanism
Hedgerows	• Enhance connectivity restoring hedgerows and where possible creating new hedgerows where they have previously been lost (Se section 1.4.1) • Improve management techniques for hedgerows	• Identify gaps in hedgerows that significantly limit connectivity • Discuss with landowners, community groups ways of restoring hedgerows • Get local communities and landowners to survey hedgerows and identify locations where this could be achieved • Create and support sensitive hedgerow management plans
Field margins and ELMS supported land	• Increase extent of habitat: wider margins, more provision of longer areas of grassland even around non-arable areas that are not cut or ploughed • Increase condition of existing habitat: identify where it is, undertake condition assessments and then put into place management plans to support the restoration of the habitat	• Farming officer to discuss options with landowners and support them to access funding • Farming officer to support the identification of where management plans would be useful and help provide information to set them up • Get citizen scientist involved to help encourage interest in these habitats and identify valuable habitats

Table 4: Secondary Habitat Focus

Actions

- Engage and engage with organisations who undertake practical implementation of habitat improvements
- Tailor promotion information and information around grant application process to encourage schemes which align with these goals
- Map opportunities, conduct assessment of opportunities and progress higher scoring opportunities
- Farming officer to engage with farmers in relation to strategy goals

1.6.3 Species and species reintroduction

Species

An assessment of the baseline of species distribution was undertaken in Year One, utilising biological records and studies that were on-going within the catchment. This identified gaps in knowledge within the catchment, and therefore a program of monitoring to be undertaken by citizen scientists is to be developed. This approach is detailed in Section 1.2.2.

Species reintroduction

Species distributions and populations are largely dependent on the condition and availability of habitat. Improved condition and extent of habitats will help natural re-colonisation of species with high levels of mobility; for example, some of the invertebrate and bird species identified within the scoping exercise for species reintroduction in Year One.

The few exceptions relate to species being considered for species reintroduction. These include species which would struggle to colonise habitats present within the catchment, but suitable habitats exist to support the species.

The three species being considered are;

- Marsh Fritillary
- Adder
- Beaver

A feasibility assessment will be undertaken within the wildlife corridor theme for each species to assess the suitability of reintroduction within the catchment. This feasibility assessment will include an assessment of the benefits to the species, the river, catchment considering how this aligns with wider priorities as detailed in the wider strategy. This will be compared to the potential costs and requirements for implementation.

1.7 Decision making structure for identifying Outline Projects

Outline Projects. Outline projects will be scored to assess and compare the benefit and feasibility. The process detailed below is designed to be a basic project optioneering approach, after which more in-depth assessment will be required. Each factor has been given equal weighting.

The assessment will be undertaken by the Nature Recovery Officer, then reviewed by the Theme Lead. Oversight by the Steering Group will then be undertaken for final sign off.

Factor	Score	Score description
Feasibility	1-5	1-Very challenging to execute 2-Difficult to implement 3-Moderately implementable 4- Implementable 5- Easily implementable

Complexity	1-5	1-Very complex (planning, multiple partners etc) 2-Complex 3-Aspects of complexity 4- Implementable 5- Easily implementable
Scale of project	1-5	1-Very localised (>10m) 2-Local (10-30m) 3-Moderate (30m-100m) 4-Large (<100m) 5- Major (in excess of 100m, multiple locations, and multi-phased)
Opportunity benefits (cross theme)	1-5	1-Likely benefits unknown 2- Addresses single goal 3-Improvements- addresses single theme (but multiple goals) 4- Multiple benefits across themes 5- Significant improvements within the catchment covering all themes.
Opportunity benefits (temporal)	1-5	1- Benefits for 0-5 years or time scale unknown 2- Benefits for 5-10 years 3-Benefits for 10-20 years 4-Benefits for 20-30 years 5- Benefits for >30 years
Cost	1-5	1. +£1,000,001 2.£500,001-1,000,000 3.£250,001-500,000 4. £100,001-£250,000 4.-£10,000-100,000 5.£0-£10,000
Match funding	1-5	1. No match funding

		2. 1-25% match funding 3. 26-50% match funding 4. 4- 51-75% match funding 5. 5- 76-100% match funding
Priority reach		1. Currently a non-target 2-3 Beneficial Target 4-5- Priority Target

Table 5: Decision making assessment criteria

2 Maintenance and Monitoring

2.1 Maintenance

Maintenance will be required for most of the work that is undertaken as part of this strategy. For each project undertaken and brought forward as part of smarter water catchments, a statement relating to maintenance will be required. This statement will be used to define the actions required. For many of the projects a maintenance plan will be required alongside the statement to ensure that the planned outcomes are realised over the longer term. Each maintenance plan should set out timings, methods and expectations to allow sites to be monitored against clear goals.

2.2 Establishing goals

Monitoring to establish clear goals, provide the greatest value and demonstrate change will be established prior to work being undertaken. We will use the SMART protocol (specific, measurable, achievable, relevant and time bound) and will be documented for each project that is proposed.

2.3 Monitoring

Monitoring is required pre and post work, to understand the change and document the outcomes of work undertaken. Monitoring prior to restoration should include two MoRPh surveys six months apart, to account for seasonal differences (for example autumn/spring compared with summer), Post-work monitoring should be undertaken annually, for a minimum of five years and beyond where possible.

MoRPh surveys provide a broad range of outputs. Where possible these should be combined with the indicator species stated above. Where water vole surveys are conducted (as part of existing monitoring work), the results from before and after will be compared. This will again be undertaken for a minimum of five years, from when the data is collected.

Riverfly monitoring will also be used to compare before and after assemblages of invertebrate species using the sections of restored habitats.

Additional monitoring can be specified based on the Outline Project that is being progressed, but all projects must have a monitoring component embedded into the project plan.

Monitoring should be reported annually.

3 Funding Mechanisms

To aid the delivery of this strategy two grants have been created:

- Landowner Grants – Year 2- The SWC currently have a landowner grant scheme application soon to be opened. This scheme will look to make funds available to Landowners within the River Chess Catchment who are completing a project that would facilitate Improving Water Quality, Improving Water Flow, Improving Wildlife Corridors and/or Managing Invasive Non-Natives.
- Community Grants – Simultaneously the SWC currently have a Community Fund scheme. The Community Grant Fund is looking to support local organisations, charities and groups to address one or more of the six key themes of the Chess Smarter Water Catchment Pilot. Applications opened on 23rd August 2022, deadline for applications is 1st April 2023 for the first year of funding. Applicants will receive notification of successful application within two months of the proposal being received. The maximum grant allocation that can be applied for is up to £5,000 for 1 year. Further details are provided on the grant funding page hosted by the Chilterns Society.[8]

3.1 Match funding

Partnership working is at the core of SWC by enabling more than one organisation to financially support the delivery of projects, this not only increases the capital yield of the Thames Water investment within the catchment, it also promotes ownership and further reaching engagement with what the initiative is trying to achieve. It is upon these principles that SWC ask for projects to seek match funding this can include in-kind voluntary time and resources will also be considered as match funding where appropriate.

3.2 Biodiversity Net Gain

Biodiversity net gain (BNG) is set to be a mandatory requirement for some aspects of development in 2023. 10% net gain will be needed to satisfy these regulations. This requirement provides an opportunity for an additional external funding stream for landowners, who are considering habitat condition improvements or habitat creation.

For external projects where BNG is not possible on a site, there is the option of undertaking off site compensation/BNG. This is where landowners could look to benefit and could potentially provide BNG for a fee. The full scope of this mechanism is not detailed within this strategy however, habitat improvement/creation could be funded through this mechanism.

3.3 Mechanisms for funding delivery

Landowner Grants funding is currently held by the Chilterns Conservation Board. All applications need to be submitted via email as follows; steph.horn@chilternsanob.org.

Community Grant funding is currently held by the Chilterns Society. All applications must be submitted through the online portal found here: The Chiltern Society - Chess Smarter Water Catchment Community Grants (beaconforms.com)and guidance notes found here: Chess-Smarter-Water-Catchment-Community-Fund-Guidance-Notes.pdf (chilternsociety.org.uk)

Items of note:

- Partners and stakeholders are able to apply for grants as well as external applicants
- Applicants fielded and aided via the Community officers, Nature Recovery Officer or the Farming Officer are strongly encouraged; however, these roles on the decision-making panel will appointed by an impartial member of the SWC team.

[8] River Chess Community grants of up to £5K available now, do you qualify? - Chiltern Society

4 Conclusion

This strategy is an important step to help focus action to deliver change in line with key objectives. The strategy will remain a live document which will periodically be required to be updated and the project develops. It will remain a central focus for the Wildlife Corridor theme, capturing changes and building on work undertaken.

The success of the strategy is dependent on a few factors which will need to be focused upon as the strategy begins to be developed. This includes the integration of these measures within the wider project approach, engagement and implementation through stakeholders, and an ongoing review process to ensure that the approach remains viable and appropriate.

4.1 Next steps

The next steps are to begin the implementation and continued development of this strategy. These steps include;

- Create an action plan for the implementation of measures discussed within the strategy. To be in place for Year Three of the Program. Within this time bound goals will be set.
- Develop and incorporate wider project strategies within this document.
- Disseminate strategy to the other themes within the Smarter Water Catchment Program
- Hold a workshop in order to give opportunity for engagement with strategy and next steps.
- Review strategy in September 2023.

Working in partnership

Thames Water
The River Chess Association
Chilterns Chalk Streams Project
CHILTERNS CONSERVATION BOARD
Chiltern Society
We care for the Chilterns
Buckinghamshire Council
Environment Agency
Affinity Water
Herts & Middlesex Wildlife Trust
Queen Mary University of London