



Mevagissey County Parish

Biodiversity Audit

Ref:  
BE800

Date:  
23<sup>rd</sup> January 2023

Prepared by:  
Dr Janine Bright CMIEEM CEnv

For:  
Mevagissey CP



Bright Environment Ltd  
Meadow Cott, Chute Lane, Gorran Haven, Cornwall, PL26 6NU  
T:07974204078 E:janine@brightenvironment.net W:www.brightenvironment.net

## CONTENTS

1. Introduction .....	3
2. Aims .....	3
3. Methods .....	3
3.1 Ecological evaluation .....	4
3.2 Personnel.....	4
4. Statutory Designated sites of nature conservation value .....	5
4.1 Falmouth Bay to St Austell Bay SPA.....	5
5. Non-Statutory Designated sites of nature conservation value .....	6
5.1 County Wildlife Sites .....	6
6. Areas of land owned and managed by conservation organisations and Community groups .....	9
6.1 Nature conservation organisations.....	9
6.2 Heligan Gardens .....	10
6.3 Community owned conservation sites .....	11
7. Cornwall Biodiversity Action Plan (BAP).....	12
7.1 BAP priority species that occur in Mevagissey Parish .....	12
7.2 BAP priority habitats that occur in Mevagissey Parish.....	12
8. Areas of semi-natural habitat .....	16
9. Areas of biodiversity value not covered by any of the afore mentioned categories..	19
10. Notable species that occur in Mevagissey Parish.....	19
10.1 Marine mammals .....	19
10.2 Terrestrial mammals .....	19
10.3 Reptiles and amphibians.....	20
10.4 Non-vascular plants .....	20
10.5 Birds.....	21
10.6 Higher plants .....	22
10.7 Fish .....	22
10.8 Fungi .....	22
10.9 Invertebrates .....	23
11. Identification of potentially valuable wildlife corridors and ideas for biodiversity strategies. ....	24
12. References and bibliography.....	26

## 1. INTRODUCTION

Bright Environment was commissioned by Mevagissey Parish Council in March 2022 to undertake a biodiversity audit of Mevagissey Parish. The biodiversity audit is to inform the Neighbourhood Development Plan (NDP).

## 2. AIMS

The report will identify important sites/areas for biodiversity and notable/valuable and legally protected habitats and species within the parish.

Public authorities (including Parish councils) have a duty (under the Natural Environment and Rural Communities Act 2006) to have regard to conserving biodiversity as part of policy or decision making. The National Planning Policy Framework states that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature. Decision making should also contribute to the goals of Biodiversity 2020, which is a national strategy for England's wildlife and ecosystem services.

The biodiversity audit will provide information to help Mevagissey PC meet core planning principles, identify areas, species and habitats that are priorities for action and inform strategic approaches on a landscape scale.

## 3. METHODS

The biodiversity audit has been compiled through a desk-based study as follows.

The following information was gathered from the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS) for the Parish Boundary:

- A Wildlife Resource Map for Neighbourhood planning. This is a pdf document showing the following:
  - statutory conservation designations (shown as dark green on the map)
  - non-statutory conservation designations (shown as mid green on the map)
  - areas of semi-natural habitat (shown as light green on the map)
- Notable species records (the selection criteria for species selected as notable is drawn from the Joint Conservation Committee JNCC Species of Conservation Concern SOCC list with additions of Red Data Book Species from Red Data Book for Cornwall and the Isles of Scilly 2009, but excluding 'Global Red list status, Lower risk - least concern' species and 'Red listing based on 2001 IUCN guidelines, Least concern' species. Notable species are defined in Appendix 3).
- Maps of priority habitats (identified by the biodiversity action plan for Cornwall and the UK) including the Cornish hedge project.

Aerial photographs were studied to identify potential habitats of value that were not included in the ERCCIS data.

Local conservation groups (National Trust, Heligan Gardens and Three Bays Wildlife Group) were consulted to gather any additional information they may have.

The report is structured in the following sections:

- Designates sites (statutory and non-statutory)
- Areas owned by conservation organisations and community groups
- Cornwall biodiversity action plan
- Semi-natural habitats
- Areas of biodiversity value not covered by the above.
- Notable species
- Identification of potentially valuable wildlife corridors and ideas for biodiversity strategies

The report includes a series of map extracts; however, it is intended that the interactive Wildlife Resource Map produced by ERCCIS should be used alongside this document. The resource map is included in Appendix 1 together with guidance notes on how to access (turn on and off) the various layers of the map.

A draft report was prepared and circulated to Mevagissey CP, Heligan Gardens and Three Bays Wildlife Group for comments / additions prior to production of the final report.

### **3.1 Ecological evaluation**

Notable habitats and species are identified as a result of being included within county, national and international legislation and planning policy. This includes lists Biodiversity Action Plan priorities, red/amber lists and legally protected features. A summary of wildlife legislation and policy is included as Appendix 4. The designations afforded to notable species in this report are not listed within the main text. Species designations can be found within Appendix 3 together with a key for abbreviations used within ERCCIS list of Species of Conservation Concern (SOCC). In addition, species of local value as identified by The Three Bays Wildlife Group are detailed.

### **3.2 Personnel**

This report was prepared by Dr Janine Bright. Dr Bright has been a full member of the Chartered Institute of Ecology and Environmental Management (CIEEM) since 2001 and has been a Chartered Environmentalist (CEnv) since 2005. Dr Bright has a BSc in Environmental Science and a PhD in Ecology. She has worked as an ecological consultant since 1999. Dr Bright routinely prepares ecological appraisals for planning applications, undertakes protected species licensing and monitoring and prepares biodiversity management plans. Protected species licenses: dormice (2016-21698-CLS-CLS) and bats (2020-49235-CLS-CLS survey level 2).

## 4. STATUTORY DESIGNATED SITES OF NATURE CONSERVATION VALUE

### 4.1 Falmouth Bay to St Austell Bay SPA

All of the marine habitat and coastline (up to high tide mark) within Mevagissey parish, with the exception of the area of water within Mevagissey harbour wall, is within the Falmouth Bay to St Austell Special Protection Area (SPA) (see Figure 1). SPA's provide protected areas for bird species of European conservation importance. They are protected under the Wildlife & Countryside Act 1981 (as amended), and The Conservation of Habitats and Species Regulations 2010 (HM Government, 2010) (HM Government, 1981 as amended) and consent from Natural England is a statutory requirement if an action (within or outside a SPA boundary) is likely to have a significant effect on the features for which a SPA was designated.

This SPA covers 25,898 ha of the marine environment incorporating five shallow, sandy bays; Falmouth Bay, Gerrans Bay, Veryan Bay, Mevagissey Bay and St Austell Bay. It also includes Carrick Roads, an estuarine area which meets the sea between Falmouth and St Mawes, and part of the tidal Helford River.

Falmouth Bay to St Austell Bay SPA has the largest population of wintering black-throated divers in the UK, making this the most important site for this species. The site is the only SPA in England classified for wintering great northern diver. It is the most southerly area in the UK to regularly hold great northern divers and so it contributes to the range requirements of this species.

Falmouth Bay to St Austell Bay SPA is the third SPA in the UK classified for wintering Slavonian grebe and holds 1.4% of the GB total for this species.

All of the marine habitat and coastline (up to high tide mark) within Mevagissey parish is therefore of European nature conservation value for birds.

The intertidal habitats within Mevagissey harbour itself are likely to be of significant value for foraging birds at low tide.

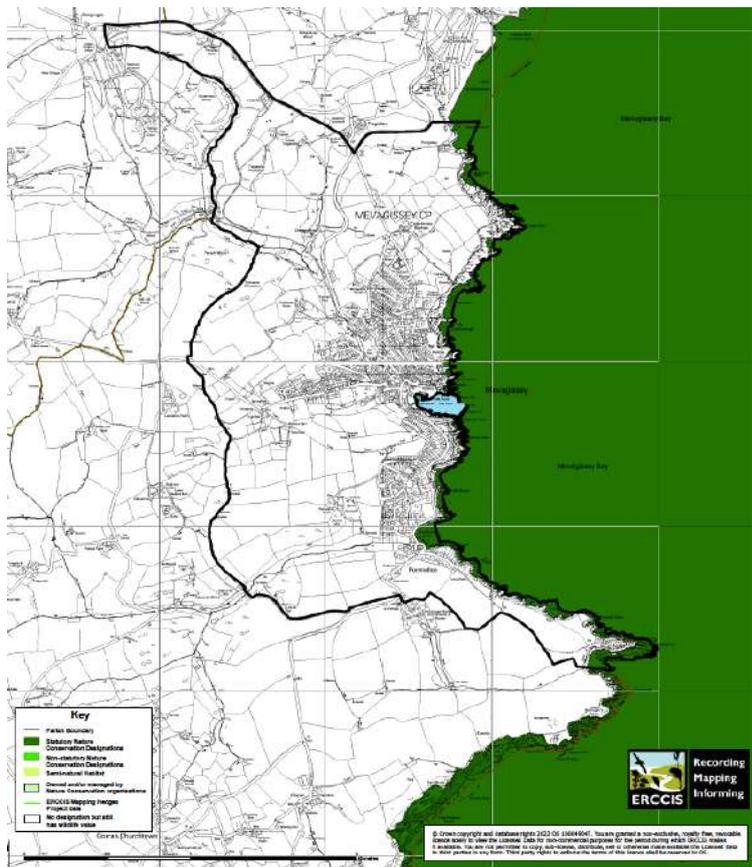


Figure 1. Special Protection Area (dark green shading) within Mevagissey parish (please refer to interactive Wildlife Resource Map to read legend and zoom features).

## 5. NON-STATUTORY DESIGNATED SITES OF NATURE CONSERVATION VALUE

### 5.1 County Wildlife Sites

County Wildlife Sites (CWS) are designated by the Cornwall Wildlife Trust and Cornwall County Council. They are designated in accordance with a set of criteria (ERCCIS & CWT, 2010). Although not statutory designations, they are shown on local plans and are given greater protection through the planning process with respect to development. They are prime sites for wildlife in Cornwall, having been identified as supporting species, groups of species or habitats of at least county importance. Mevagissey Parish has 3 County Wildlife Sites (CWS) within its boundaries as follows:

- Chapel point
- Galowras Mill Valley
- Temple Treleven & Horsemoor Woods

The sites are marked as mid green on the Wildlife Resource Map and shown on Figure 2 below.

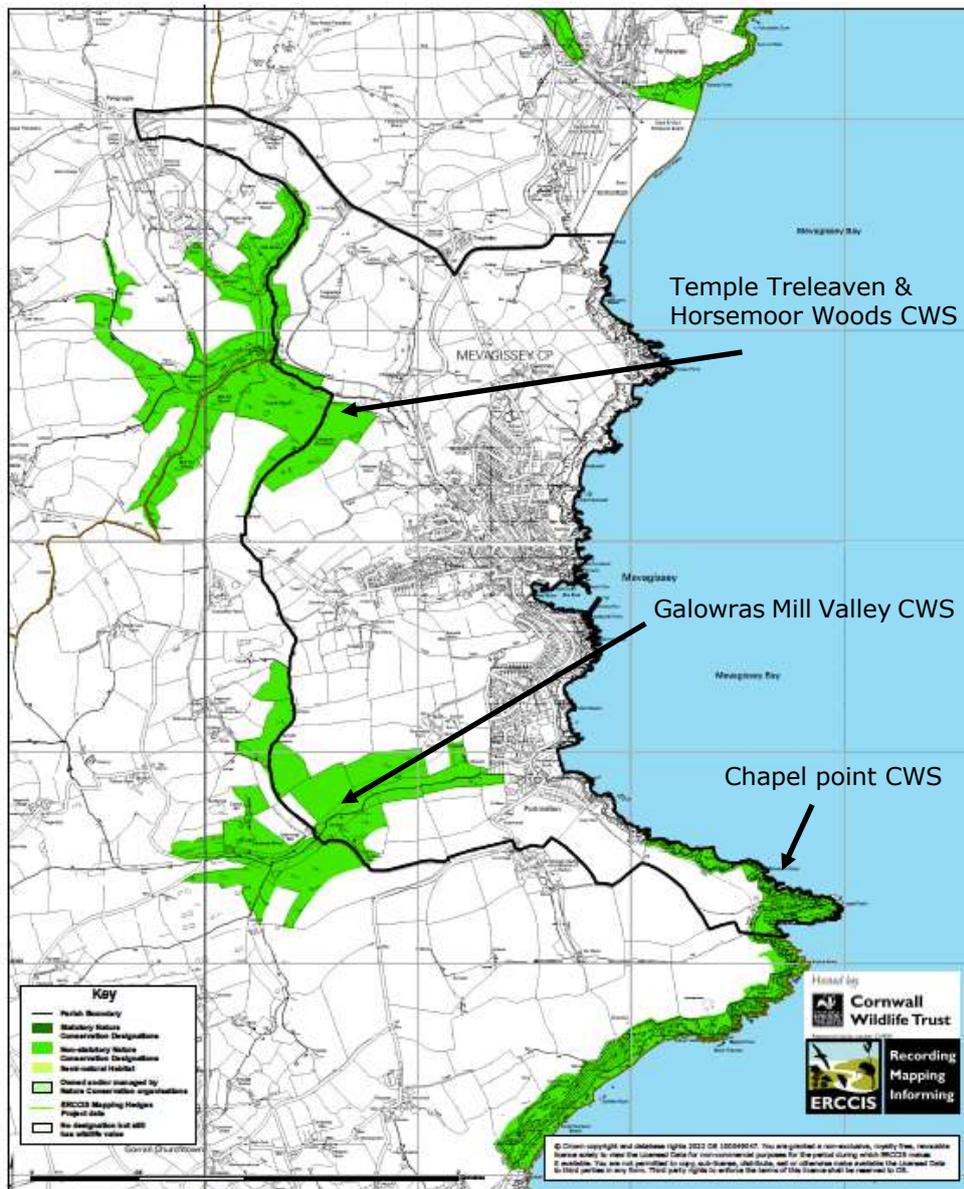


Figure 2. County Wildlife Sites (green shading) within Mevagissey parish (please refer to interactive Wildlife Resource Map to read legend and zoom features).

The citation sheets for these CWS's are included in Appendix 2. Extracted site summaries and notable features are included below.

### 5.1.1 Chapel point CWS

The site includes a narrow section of the south coast extending from Great Perhaver Point to Turbot Point along high exposed cliffs and around Chapel Point towards Portmellon along lower and more stable cliffs.

There are a range of coastal scrub habitats, mainly comprising blackthorn, bramble, gorse and bracken, and coarse grassland along parts of the more inaccessible areas of cliff amongst areas of unvegetated sheer rock. Moderately species-rich maritime grassland occurs within the scrub in places and also more extensively on the cliff tops above Turbot Point, where there is also a small area of unimproved pasture. Some of the rocky outcrops support rich and diverse communities, including many lichens and bryophytes. The site also extends to mean low water mark, encompassing the intertidal habitats.

BAP Priority Habitats: Maritime Cliff and Slopes.

BAP Priority Species: records of adder and slow-worm.

Other notable species: plant records include Nationally Scarce Cornish moneywort (abundant on the banks of the stream flowing into Colona Beach) and early meadow grass, along with Near Threatened common cudweed. Many birds are associated with the coastal scrub and include Amber Listed whitethroat and kestrel. Badger has been recorded at Chapel Point (protected under the Protection of Badgers Act 1992).

Not in the citation, but the site is an important seal haul out site being one of only two known haul outs on the south coast of Cornwall. Giant gobies have been recorded and it is thought that there may be a seagrass bed off Portmellon.

### 5.1.2 Galowras Mill Valley CWS

The site is located at the head of a Y-shaped valley, which is low-lying and steep-sided and runs east towards Portmellon Cove. It is relatively undisturbed and comprises a range of habitats.

There are three major areas of oak-dominated woodland along the valley sides; these include the ancient semi-natural woods of Galowras and Treninick to the west of the site which are separated by a narrow band of ash-dominated woodland. Diversity is further increased by an area of hazel coppice, a small woodland of Cornish elm to the north, and a recent broadleaved plantation to the south. A series of herb-rich meadows occur on the northern valley slopes, along with damp meadows in the valley bottom, and patches of dense scrub occur throughout the site.

BAP Priority Habitats: Upland Oakwood, Upland Mixed Ashwoods.

BAP Priority Species: moths recorded here include rustic *Hoplodrina blanda* and dot moth *Melanchra persicariae*.

Other notable species: common spotted orchid (Scarce in Cornwall).

Not in citation sheet but the site supports abundant wood anemones and wood sorrel (indicators of ancient woodland) and is an important site for silver washed fritillary and supports green and purple hairstreak. Other orchids present are marsh and early purple orchid and bluebell is abundant. The site is at threat from the schedule 9 invasive weed variegated yellow archangel. The south facing grassland between Penwarne manor and Galowras mill would benefit from gorse management (see section 11). There are rich waxcap grasslands on both sides of Portmellon valley bottom indicating lack of agricultural improvement. Hairy birds foot trefoil has been recorded on tracks.

### 5.1.3 Temple Treleaven & Horsemoor Woods CWS

The site occupies a large system of sheltered valleys supporting a variety of woodland types. Mixed broadleaved woodland is the dominant habitat, which includes areas of ancient semi-natural woodlands within Temple Wood and Mill-hill Wood along the southern slopes and along the north western valley. These are structurally well-developed and support a rich and diverse ground flora, possibly including some remnant oak/ash woodland.

The remainder of the site has largely been replanted and includes broadleaved woodland along the large stream valley of Old Wood, areas of mixed woodland, beech plantation and the ornamental

woodland at Treleaven Plantation, with a variety of coniferous and deciduous species. Many streams flow through the valleys and the site also includes several pools and a small, moderately herb-rich meadow in the valley bottom.

BAP Priority Habitats: Upland Mixed Ashwoods (probably the priority habitat).

BAP Priority Species: bullfinch and song thrush are amongst the many birds which inhabit the woodlands and several bat species have been recorded here including greater horseshoe, lesser horseshoe and noctule (all Red Data Book species and fully protected under legislation including the Wildlife and Countryside Act 1981).

Other notable species: Nationally Scarce Cornish moneywort and evidence of badger.

## 6. AREAS OF LAND OWNED AND MANAGED BY CONSERVATION ORGANISATIONS AND COMMUNITY GROUPS

### 6.1 Nature conservation organisations

In addition to the designated sites listed in section 4 and 5, some land within Mevagissey Parish is owned and managed by nature conservation organisations. This includes a small area of land that is owned by the National Trust (see Figure 3) and also areas of land owned by Heligan gardens (Figure 4).

The area of land owned by the National Trust (see Figure 3) is a small area of deciduous woodland and bracken on the maritime slope between Chapel Point and Portmellon. It is managed under the National Trust woodland management plan and is monitored for ash die back as well as tree safety, being adjacent to the coast path. The objectives of the National Trust would be to allow natural regeneration of trees when ash is removed from the small copse (pers. comm. Harriet Wherry, 2022).

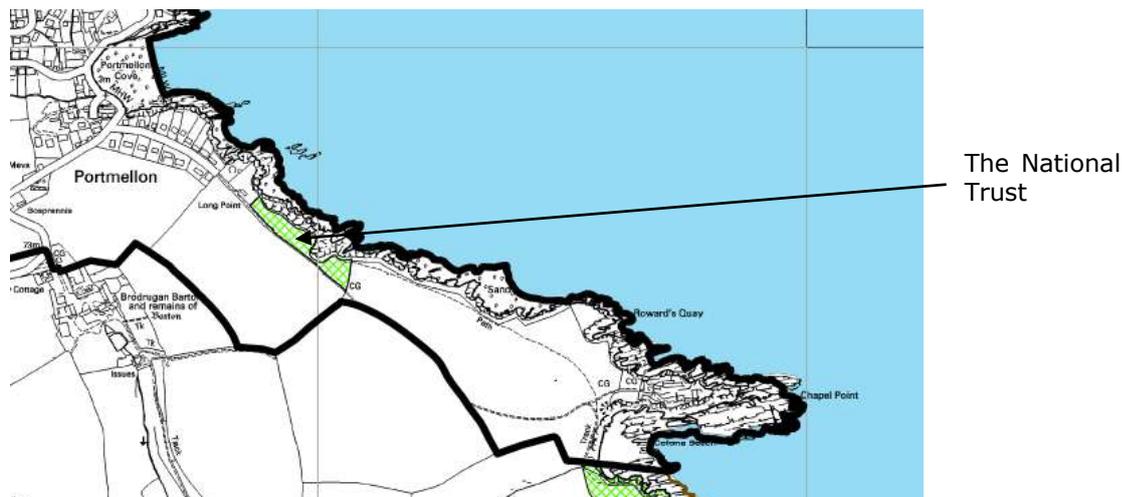


Figure 3. Areas owned by conservation organisations (green shading) within Mevagissey parish (please refer to interactive Wildlife Resource Map to read legend and zoom features).

One of the aims of the National Trust is to achieve high nature status of land in its ownership. This is achieved through the following:

- Ensuring existing priority habitat is in good condition.
- Habitat restoration and creation.
- Wildlife friendly farming practices.
- Making the most of opportunities for other features that are of value for wildlife but are not necessarily recognised as priority habitat e.g nest boxes and bird seed strips.
- Joined up / landscape scale/ functioning networks approach. Encouraging a diverse mosaic of well-connected habitats that have resilience with changing conditions.

The National Trust is involved in two projects that are associated with predicted increased coastal erosion due to climate change, increased storms and sea level rise. These are named 'Shifting Shores' and 'Future Coast'. The latter is involved with acquiring additional land make space for coastal change processes to function and for habitats to roll-back. The National Trust is also a lead organisation for the Cornwall Biodiversity Action Plan project 'All of the coast' (see section 7).

## 6.2 Heligan Gardens

The land within Mevagissey Parish that is managed by Heligan Gardens is indicated on Figure 4.

Heligans' main ethos is to 'encourage biodiversity and to connect people with nature'. Most of the land owned by Heligan Gardens within the Mevagissey Parish is regenerative grazing (orange shading on Figure 4) and conservation grazing fields (yellow shading on Figure 4). The green areas on Figure 4 are areas of woodland in Heligan Gardens management.

Regenerative grazing involves higher-intensity, short grazing periods with long resting times in-between, using a system of paddocks. It keeps the sward height high and encourages regrowth and development of plant and root systems, which also improves soil microbiology and function. At Heligan the aim is to improve soils. The regenerative grazing fields are divided into segments and each section is grazed by sheep and cattle for a short amount of time, before the livestock is then moved on to the next section.

Conservation grazing is the use of livestock where the primary objective is to manage the site for wildlife. At Heligan the main aims are to manage these fields to enhance their biodiversity. This will be achieved by a low stocking density (likely three cows) which will allow plants to flower and set seed more easily. The lower stocking density will allow a tussocky grassland to develop, providing key habitat for small mammals and barn owl hunting habitat.

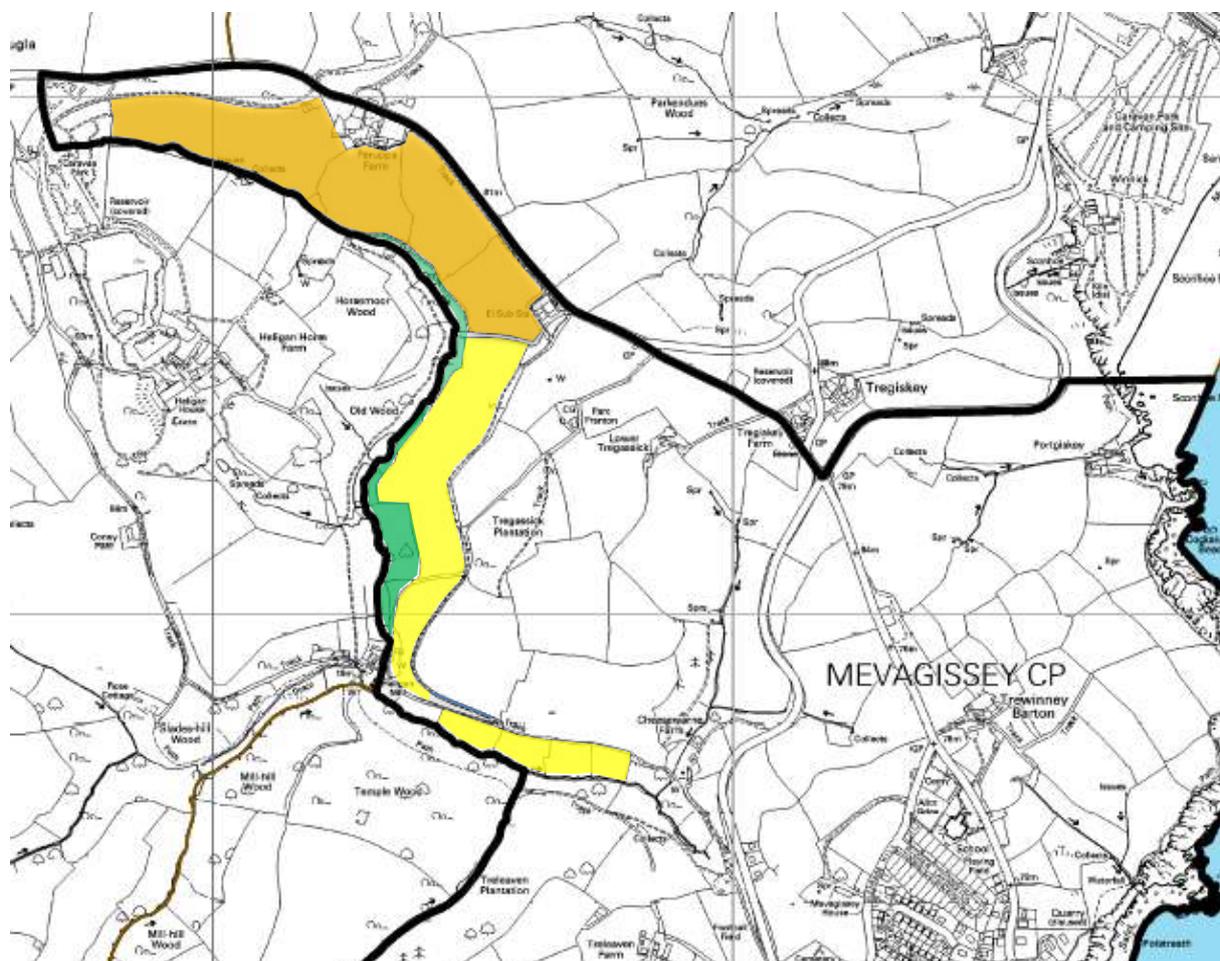
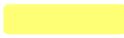


Figure 4. Land within within Mevagissey Parish that is managed by Heligan Gardens.

Key		Conservation grazing
		Regenerative grazing
		Woodland under Heligan Gardens management.

The primary biodiversity action plan priority (BAP) habitats at Heligan are ancient woodland, rough grassland, traditional hay meadow and hazel coppice areas. In the fields at the southernmost part of the estate, heading down towards Mevagissey known as Cheesewarne, there has not been active management for a number of years, with thick scrub and bramble becoming the dominant feature. But despite this, these fields are some of Heligans' most botanically biodiverse, with records for ragged robin (*Silene flos-cuculi*) and bird's foot trefoil (*Lotus corniculatus*). In addition to bramble and scrub, Cheesewarne Moor field also contains an area of wet meadow, where southern marsh orchids (*Dactylorhiza praetermissa*) have established. In the near future, these fields will be incorporated into a conservation grazing rotation.

Heligan Gardens are currently in the process of reintroducing two Eurasian Beavers into a purpose-built 12-hectare enclosure which lies just within the Mevagissey Parish boundary. One of the primary aims of the project is to help protect Mevagissey from flooding, as the Mevagissey stream runs through the beaver enclosure. It is hoped that as a result of beaver activity that rate at which water flows through the valley will be slowed. At the time of writing (January 2023) the beavers had not arrived yet but were imminent.

Heligan Gardens are also potentially looking to release water voles onto the estate, but at the time of writing this project was in the early stages of development and not a certainty.

### **6.3 Community owned conservation sites**

There are no community / Parish owned conservation sites. The play parks (near Mevagissey Activity Centre and Pentillie) are owned by Cornwall Council.

## 7. CORNWALL BIODIVERSITY ACTION PLAN (BAP)

In 1996 the Cornwall Biodiversity Initiative (CBI) produced *Cornwall's Biodiversity Volume 1: Audits and Priorities*. Following on from the recommendations in this document, Action Plans were produced for the Cornish priority habitats and species. These were published in *Cornwall's Biodiversity Volume 2: Action Plans*.

A further volume, *Cornwall's Biodiversity Volume 3: Action Plans 2004*, has been produced. This highlights the UK BAP priority habitats and species that occur in Cornwall. It comprises of 25 habitat and 127 Species Action Plans, each written by local experts. *Cornwall's Biodiversity Volume 3: Action Plans 2004* guides local conservation work to contribute to UK BAP targets. It also ensures that Cornwall's wildlife continues to be an inspiration for future generations.

Mevagissey Parish supports many habitats and species that have been identified as priorities for conservation in the Cornwall BAP. These are listed in sections 7.1 and 7.2

In 2011, the CBI produced *Volume 4: Priority Projects*. This document identifies priority project areas for biodiversity within the county. One of these project areas is relevant to Mevagissey Parish, namely 'All of the Coast'. This project covers all of Cornwall's coastline, identified as an important area for biodiversity. The focus of the project is to identify opportunities to link, buffer or expand areas of habitat which are currently protected by site designations (listed in section 4 and 5). Delivery of the project will be via farmer advice, agri-environment scheme targeting, RSPB projects and involvement of local landowners and communities. One strategy is BAP habitat re-creation behind the coast to enable roll back as the coast erodes through predicted increased storminess. Lead organisations for this project are Natural England, National Trust, RSPB and Cornwall Wildlife Trust.

### 7.1 BAP priority species that occur in Mevagissey Parish

Notable species (defined in section 3.1) that occur in Mevagissey Parish are listed in section 10. BAP priority species are identified in section 10 with an Asterix (\*). These species have been identified as priorities for conservation and action plans with targets have been set. BAP priority species are afforded protection in the planning system.

### 7.2 BAP priority habitats that occur in Mevagissey Parish

The following habitats that occur within Mevagissey Parish have been identified as priorities for conservation and action plans with targets have been set. BAP priority habitats are afforded protection in the planning system.

For land in their ownership, the National Trust has identified, mapped and assessed the condition of all BAP priority habitat. This will aid the National Trust to focus their conservation work in the future.

#### 7.2.1 Hedgerows

The vast majority of the fields and enclosures within Mevagissey Parish are Cornish hedgerows, comprising stone and earth banks supporting a native flora. Most support a dense woody/shrubby structure and some support lines of mature native trees. Hedges can provide valuable habitat for wildlife including birds, reptiles, invertebrates and mammals. They provide corridors via which wildlife can travel through agricultural landscapes, linking larger areas of semi-natural habitat.

Hedgerows are also given extra protection under the Hedgerow Regulations 1997. Whereby those that qualify as being 'ecologically or archaeologically important' are afforded additional protection.

The network of hedgerows within Mevagissey Parish are of high ecological value acting as a web of linear woodland/semi-natural habitat across the landscape, providing a wealth of diverse niches. Hedgerows are marked as a layer on the Wildlife Resource Map in Appendix 1.

#### 7.2.2 Rivers including BAP priority species

Not all rivers qualify as BAP priority habitat but as the watercourses within the parish support notable species (otter, eel and brown trout) they qualify. Watercourse catchments provide important wildlife corridors often with associated priority habitat (wetlands and woodlands) associated with them. Eels and brown trout have been recorded in Mevagissey stream. Jeremy Roberts of Three Bays Wildlife Group undertakes Westcounty Rivers Trust riverfly monitoring of Mevagissey stream.

West Country Rivers Trust have undertaken some projects on the Mevagissey and Portmellon Streams through the South Cornwall River Improvement Project (SCRIP) (WRT, 2015 included as Appendix 5). The rivers are described as small coastal catchments where the headwater are dominated by agriculture which is the main pressures acting on these water bodies. There are large areas of woodland on both streams. The lower section of the Mevagissey stream is culverted which is known to prevent the movement of migratory fish. There are also culverts in the upper catchment which restrict the movement of fish. The Mevagissey river failed Water Framework Directive (WFD) for fish (poor). An electrofishing survey found no fish within the stream attributed to a previous fish kill event. The water quality is reported to be generally good which would make re-colonisation possible. Under the project a culvert in the Mevagissey stream was modified. The culvert originally presented a complete obstruction to migrating fish upstream, the diameter was too small and its invert position was set too high. The culvert was removed under SCRIP and replaced with a large culvert which would allow access to multiple species of fish under all flow regimes (WRT, 2015).

Significant barriers to migratory fish are still present in the Mevagissey stream. There is a culvert from the sea to the car park and a long culvert that runs under the football pitch. WRT report that it's unlikely that any contractors will be able to fit an eel pass for example within the long culvert and furthermore the velocities through the culvert will make it very difficult for fish to be able to swim at the sustained velocity necessary to get through it (Matt Healy, pers. comm, 2022).

Within the SCRIP the Portmellon stream road culvert was identified by a walkover survey to be a potential obstruction to migrating fish upstream. The large concrete apron provided extremely shallow water levels, making it very difficult for fish to approach or enter the culvert during all flows. A wooden baulk was installed to increase the water depth on approach to the culverts (WRT, 2015).

Sanctuary wood culvert is situated on the Portmellon Stream. Erosion had occurred at the exit of the culvert to such an extent that a 1m height difference had been created thus preventing fish passage. The stream was backfilled with material from the existing banks and the levels raised to so that scour could not occur and fish passage could be reinstated (WRT, 2015).

### 7.2.3 Ponds of high ecological value

Not all ponds qualify as priority BAP habitat. To qualify they must meet certain criteria, one of which is that they are of high ecological value.

The pond system in the valley at Galowras Mill (upstream from Portmellon valley) would qualify. There is also a large pond to the north of Galowras Mill that would qualify.

The series of ponds in the valley at Heligan Gardens are just beyond the parish boundary. They were created in the 1990's during Heligan's restoration. The leet system once supplied water to Heligan Mill further down the valley. There is a constant flow of water through the ponds and they retain their water all year round. They are also used by a variety of wildlife including the following:

- Moor hens
- Ducks
- Grey herons
- Kingfishers
- Emperor dragonflies
- Broad- bodied chasers
- Numerous damselfly species (Azure, Common Blue, Blue-tailed, Large red)
- Otter (Occasionally passes through the valley)
- Canada geese
- Common frogs
- Newts
- Toads
- Rudd (Primary fish in these ponds)

#### 7.2.4 Arable field margins

Some arable field margins qualify as priority BAP habitat, including the following:

- Cultivated, low-input margins.
- Margins sown to provide seed for wild birds
- Margins sown with wild flowers or agricultural legumes and managed to allow flowering to provide pollen and nectar resources for invertebrates.
- Margins providing permanent, grass strips with mixtures of tussocky and fine-leaved grasses.

It is possible that some arable margins within the parish qualify, especially those under stewardship agreements.

#### 7.2.5 Woodland

The following woodland types that occur within Mevagissey Parish are priority habitat for conservation.

- Areas of wet woodland dominated by alder and grey willow qualify.
- Traditional orchards. There was an orchard at Penwarne Manor but it is no longer present. The apple press from this orchard is housed in Mevagissey museum.
- Woodland pasture and parkland.
- Lowland mixed deciduous woodland

The largest stands of woodland within the parish are:

- Galowras Mill Valleys
- Temple Treleven & Horsemoor Woods (It is understood that this is owned and managed by Tremayne Estate).
- Woodland near Cheesewarne Farm
- Tregassick Plantation
- Band of woodland between the multiuse trail and road at Heligan Campsite (This is owned by Tremayne Estate and recently underwent understorey clearance).
- Plantation west of Wingfield and north of Galowras
- Valley woodland strip at Portgiskey.
- Relatively young woodland in valley south of Tregoney Hill.

#### 7.2.6 Lowland meadows unimproved grassland

Grasslands that have not been 'agriculturally improved' by the addition of fertilisers and pesticides can be floristically rich and offer valuable habitat. Enclosures that have a long history as a hay meadow and have not been ploughed for many years would qualify. Also, grasslands that are not actively managed or grasslands that are extensively managed. Most examples of this habitat will be localised pockets throughout the parish.

The best examples of unimproved grasslands are the grasslands occurring on the hill side between Penwarne Manor and Galowras Mill and from there extending northwards up the joining valley; extensively managed grassland in ownership of Heligan between Tregassick Plantation and the valley of Old Wood, and, extensively managed grassland near the coast (notably at Chapel point and near Portgiskey).

#### 7.2.7 Lowland dry acid grassland

Pockets of acid grassland are present on the coastal cliffs and are characterised by the presence of heath bedstraw, sheep's fescue, sheep's sorrel, common bent grass, bristle bent grass and tormentil. They can also support heathers.

### 7.2.8 Lowland calcareous grassland

Pockets of lowland calcareous grassland are present on the coastal cliffs and are characterised by the presence of sheep's fescue, wild thyme, common bent grass and heathers.

### 7.2.9 Coastal and floodplain grazing marsh

Grazing marsh is defined as periodically inundated pasture, or meadow with ditches which maintain the water levels, containing standing brackish or fresh water. The ditches are especially rich in plants and invertebrates. Areas are grazed and some are cut for hay or silage. These habitats are important for breeding waders such as snipe, lapwing and curlew and for wintering wildfowl. The wet grasslands at Portmellon valley will qualify as this habitat.

### 7.2.10 Coastal vegetated shingle

Coastal shingle habitats supporting pioneering species such as sea kale, sea pea, Babington's orache, sea beet and sea campion of high ecological value. This priority habitat is present in small pockets at Portgiskey, Polstreath beach, Polkirt beach and Colona beach.

### 7.2.11 Purple moor grass and rush pasture

There is marshy grassland habitat dominated by soft rush (*Juncus effusus*) in the valley between Gallowras Mill and Portmellon; and also, in small pockets at flushes and springs.

### 7.2.12 Reedbeds

Reedbeds support a distinctive breeding bird assemblage and can support several nationally rare bird and invertebrate species. Many remnant sites of reedbeds in Cornwall are small and fragmented. There is a notably large area of reedbed between Portmellon and Gallowras.

### 7.2.13 Maritime cliff and slopes

This includes sloping to vertical faces on the coastline where a break in slope is formed by slippage and/or coastal erosion. The cliffs and slopes support specialised ledge communities (with rock samphire and rock sea spurry) and maritime grasslands (with red fescue, thrift, buckthorn plantain, sea carrot and sea plantain). Maritime cliffs are very important for sea bird colonies and notable birds. The seepages and springs can be of particular value to invertebrates. Coastal cliffs can also support areas of lowland heath habitat which is also BAP priority habitat. This priority habitat extends all along the coastal boundary of the parish and is of high biodiversity value. It supports a mosaic of valuable habitats and associated faunal communities being of particular value for rare/scarce plants, invertebrates and birds.

### 7.2.14 Intertidal under boulder communities

This habitat is found from the mid-shore down to the extreme lower shore, and encompasses areas of boulders (greater than 256mm diameter) that support a diverse underboulder community. The underboulder habitat, along with fissures, crevices and any interstitial spaces between adjacent boulders, form a series of microhabitats that add greatly to the biodiversity of a shore. These support sea mats, sponges, sea squirts and tube worms. Qualifying habitat is likely to be present along the coast of the parish.

### 7.2.15 Seagrass beds

Local divers report seagrass beds off Portmellon and there are records south of Mevagissey harbour (see Figure 5). It is possible that other patches are present. TBW were involved in a survey for this habitat in 2021.

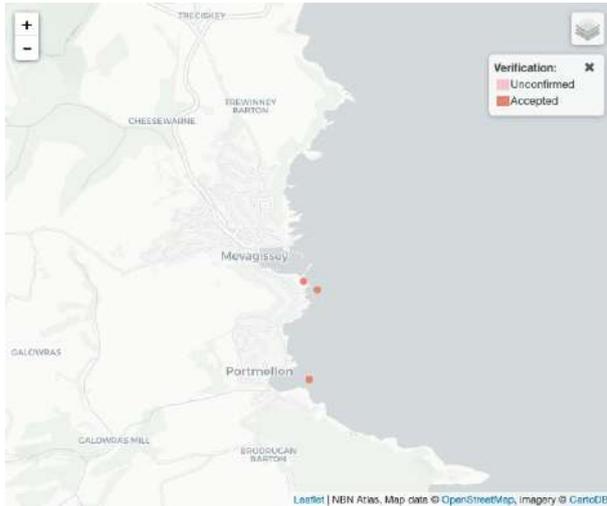


Figure 5. Records for seagrass/eel grass within Mevagissey Parish <https://species.nbnatlas.org>

### 7.2.16 Tide swept channels

This is defined as high energy environments including deep tidal streams and tide-swept habitats supporting characteristic marine communities rich in diversity, nourished by a constantly renewed food source brought in on each tide. It is very likely that this habitat is present in gulleys around the coastline.

### 7.2.17 Subtidal sands and gravels

Many of the inshore habitats are important nursery grounds for juvenile commercial fish species such as flatfishes and bass and support good invertebrate assemblages. The sandy area associated with the beaches in the parish will qualify as this priority habitat. Seashore surveys have been undertaken by TBW at Portmellon.

### 7.2.18 *Sabellaria alveolata* Reefs

*Sabellaria alveolata* reefs are formed by the honeycomb worm *Sabellaria alveolata*, a polychaete which constructs tubes in tightly packed masses with a distinctive honeycomb-like appearance. These reefs can be up to 30cm or even 50cm thick and take the form of hummocks, sheets or more massive formations. The honeycomb worm has been recorded at Portmellon and it is possible that there are small areas of this priority habitat there.

## 8. AREAS OF SEMI-NATURAL HABITAT

Semi-natural habitat is habitat that has been altered by man's activity but still retains some of its ecological integrity. Not all semi-natural habitat has been identified as priority habitat for conservation in the BAP's, but nonetheless contributes significantly to the local biodiversity. All semi-natural habitat is considered to be of biodiversity value providing niches for wildlife and supporting a richer flora and fauna than intensively managed farmland or urban land. Examples of semi-natural habitat include rough grassland, woodland, ponds, wetlands (some of which will qualify as BAP habitat). Areas of interlinked semi-natural habitat provide important landscape scale wildlife corridors. Areas of semi-natural habitat are shown as light green on the Wildlife Resource Map for Neighbourhood planning. A screenshot of the resources map is included as Figure 6. Please utilise the zoomable pdf version of the map in Appendix 1 for greater resolution.

Mevagissey Parish has a belt of semi-natural habitat following the coastline. The majority of the inland semi-natural habitat is associated with watercourses. Perhaps the steeper gradients or wetter ground has meant that these areas have not been favoured by farming.

Notable areas of semi-natural habitat that are outside of designated sites of nature conservation value and outside of ownership by conservation organisations are as follows:

- Area of woodland at Penwarne Manor outside of the CWS.

- Areas of extensively managed grassland at Gallowras Mill outside of CWS.
- Areas of woodland near Cheesewarne Farm including a watercourse.
- Tregassick Plantation.
- Band of woodland between the multiuse trail and the road at Heligan Campsite.

There are two notable omissions on the Wildlife Resource Map of semi-natural habitat. These are shaded red on Figure 6 and includes the following:

- A 2Ha plantation site to the west of west of Wingfield and north of Galowras. This was planted approx. 30 years ago and is currently a naturalised and undisturbed area of native woodland known to support deer, badger and good bird populations. It has a large pond within.
- The valley to the south of Tregoney Hill is now naturalised.

The resource map incorrectly identifies a relatively new housing estate 'Polkirk Heights' as semi-natural habitat. Also, some garden habitats at Portmellon Park near Portmellon valley are incorrectly marked as semi-natural (these are hatched in blue in Figure 6).

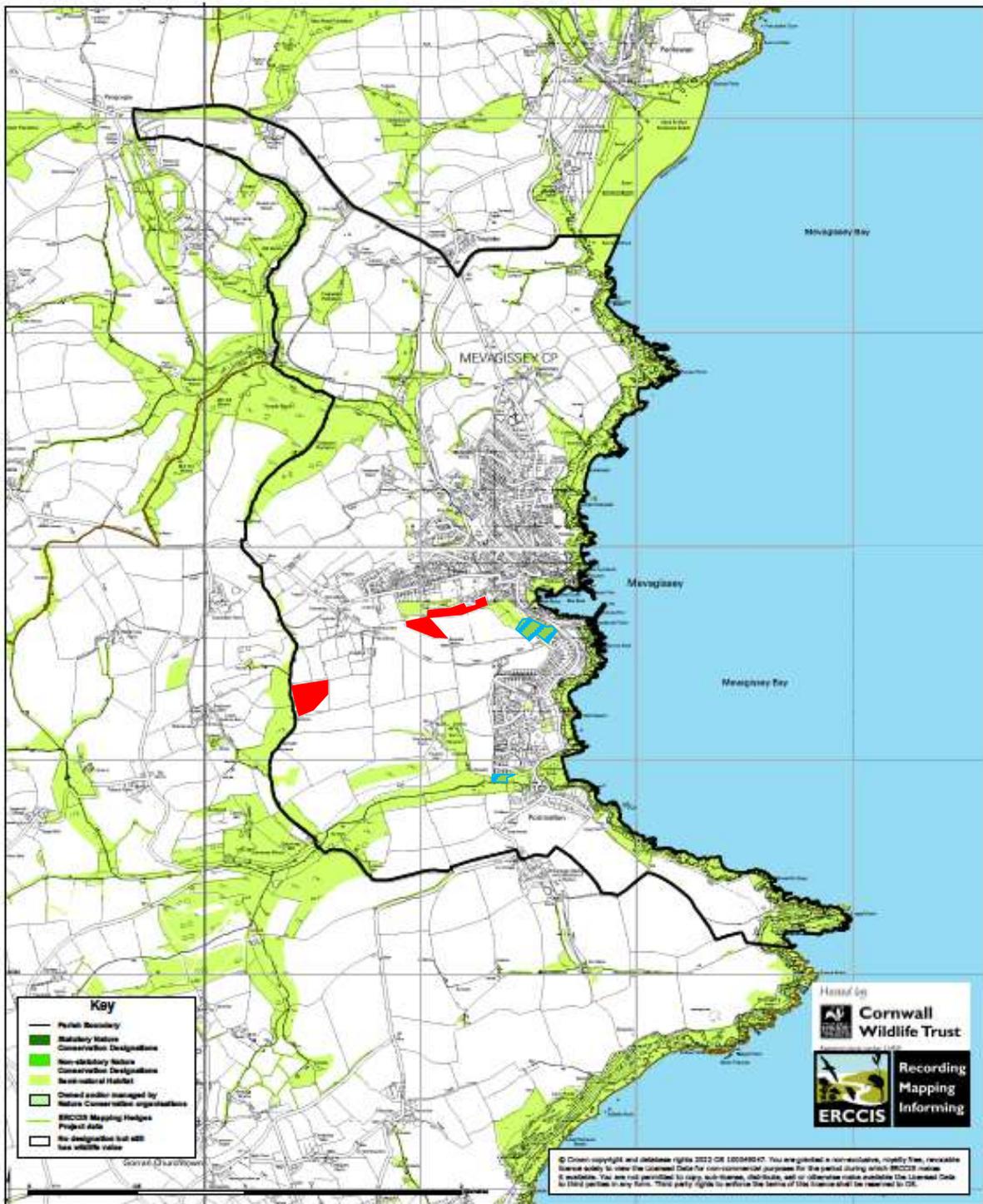


Figure 6. Green shading are areas of semi-natural habitat within Mevagissey Parish (please open Wildlife Resources Map to zoom). Red shading are areas of semi-natural habitat not identified by the Wildlife Resource Map. Blue hatch are incorrectly shaded areas of amenity/urban space.

## 9. AREAS OF BIODIVERSITY VALUE NOT COVERED BY ANY OF THE AFORE MENTIONED CATEGORIES

Whilst large open and agriculturally improved grassland fields, not classified as semi-improved habitat, are not considered to be of ecological value in their own right; they may be of value for wintering birds that favour large open fields where predation risk is low.

Of note is a submerged fossilised forest at Portmellon. Submerged Forests' refer to a group of palaeosols found beneath present-day offshore sediments. Analysis of the macrofossils present at Portmellon include specimens of fossilised oak, hazel, alder, bog bean and bramble (French, 1999).

**It is important to note that any developments proposed within Mevagissey Parish should consider biodiversity as part of the planning proposal; and that this applies whether or not the area in question lies within one of the highlighted areas/features in this audit. The planning process will seek ecological information to assess the current biodiversity value of the site. The mitigation hierarchy should be adopted whereby impacts should first be avoided; if unavoidable then mitigation to reduce impacts should be implemented, and finally any unmitigated impacts should be compensated. Planning policy requires developments to result in a net gain for biodiversity and where a 'major' development is proposed this gain must be quantified using the Biodiversity Metric (Panks, *et.al.*, 2022). Cornwall Council's adopted Climate Emergency Development Plan Document (CEDPD, 2023) which comes into effect in early February requires all major developments to provide, through the retention of existing and / or the establishment of new tree canopy coverage equal to at least 15% of the site area (excluding areas of the site that are priority habitat types). Minor developments should include where appropriate and practicable provision of new canopy.**

## 10. NOTABLE SPECIES THAT OCCUR IN MEVAGISSEY PARISH

The following notable species have been recorded in Mevagissey Parish as identified by ERCCIS, local recorders and wildlife groups. Notable species are defined in section 3.1. The designations afforded to notable species are not listed within the main text. Species designations can be found within Appendix 3 together with a key for abbreviations used within ERCCIS list of Species of Conservation Concern (SOCC). The summary list does not include details of where the records were obtained. This data is held within the Excel Spreadsheet for the ERCCIS data search, which also accompanies this report. Species with an Asterix(\*) are identified as BAP priority species. Although not included on any of the listed defined in section 3.1 there are some species that are of local value as identified by the Three Bays Wildlife Group. These are also detailed.

### 10.1 Marine mammals

There are records for the following notable marine mammals sited within the 1km squares associated with Mevagissey parish. The records are taken from ERCCIS and local wildlife groups.

- Common dolphin\*
- Long finned pilot whale\*
- Grey seal
- White beaked dolphin\*
- Common porpoise\*
- Bottle nosed dolphin\*

There is an important seal haul out near Chapel Point.

### 10.2 Terrestrial mammals

There are records for the following *notable* terrestrial mammals within Mevagissey parish. The records are taken from ERCCIS and local wildlife groups.

- European Otter\* 14 records
- Badger 17 records
- Stoat 5 records

- Weasel 2 records
- Hedgehog 19 records
- Brown hare 1 record
- Harvest mouse 1 record from 2022
- Common shrew 3 records
- Pygmy shrew 1 record
- Polecate has been sighted near Heligan.
- Daubentons 4 records
- Noctule\* 2 records
- Natterers bat 1 record
- Common pipistrelle 13 records
- Pipistrelle (species not identified) 10 records
- Soprano pipistrelle\* 4 records
- Brown long-eared\* 5 records
- Greater horseshoe\* has been recorded near Mevagissey by author
- Lesser horseshoe\* 15 records

The author is aware of a maternity colony of lesser horseshoe bats and a maternity colony of common pipistrelle bats at Penwarne Manor.

Dormouse nest tube/box surveys have been carried out on National Trust land within the parish and within Portmellon Valley (for three consecutive years pre 2020) but no records have been obtained.

### 10.3 Reptiles and amphibians

There are records for the following *notable* reptiles and amphibian within Mevagissey Parish. The records are taken from ERCCIS and local wildlife groups.

- Slow worm\* 17 records
- Adder\* 13 records
- Common lizard\* 9 records
- Grass snake 6 records
- Leathery turtle\* 2 records
- Common toad\* 6 records
- Common frog 9 records
- Palmate newt 3 records

### 10.4 Non-vascular plants

There are records for the following *notable* non-vascular plants within Mevagissey Parish. The records are taken from ERCCIS and local wildlife groups.

Lichens	Mosses	Algae	Chromists
Porina rosei	Don's Thread-moss	Callithamnion tetricum	Wig Wrack or Sea- loch
Porina rosei	Nicholson's Beard- moss	Drachiella spectabilis.	Egg Wrack
Ramalina pollinaria	Aloe Haircap		Laminaria ochroleuca
	Bristly Pottia		

## 10.5 Birds

There are records for the following *notable* birds within Mevagissey Parish. The records are taken from ERCCIS and local wildlife groups.

Arctic skua*	Goldcrest	Mandarin Duck	Shrike
artic tern	Goldfinch	Manx Shearwater	Siskin
Balearic Shearwater*	Grasshopper Warbler*	Marsh Tit*	Skylark*
Bar-tailed Godwit*	Great Black-backed Gull	Meadow Pipit	Slavonian Grebe
Barn Owl	Great Crested Grebe	Mediterranean Gull	Snipe
Black Guillemot	Great Northern Diver	Merlin	Snow Bunting
Black Kite	Great Skua	Mistle Thrush	Song Thrush*
Black Redstart	Great Spotted Woodpecker	Moorhen	Sparrowhawk
Black Tern	Great Tit	Mute Swan	Spotted Flycatcher*
Black-headed Gull	Green Sandpiper	Night-heron	Squacco Heron
Black-necked Grebe	Green Woodpecker	Nuthatch Eider	Starling*
Black-throated Diver*	Greenfinch	Oystercatcher	Stonechat
Blackbird	Grey Heron	Pacific Diver	Storm Petrel
Blue Tit	Grey Phalarope	Peregrine	Surf Scoter
Brambling	Grey Plover	Pheasant	Swallow
Bullfinch*	Grey Wagtail	Pied Flycatcher	Swift
Buzzard	Hen Harrier*	Pied Wagtail	Tawny Owl
Canada Goose	Herring Gull*	Puffin	Teal Mallard
Carrion Crow	Hobby	Purple Sandpiper	Tree Pipit
Chough	Hooded Crow	Quail	Tree Sparrow
Cirl Bunting	Hoopoe	Razorbill	Treecreeper
Coal Tit	House Martin	Red Kite	Turnstone
Collared Dove	House Sparrow*	Red-breasted Merganser	Turtle Dove*
Common Guillemot	Iceland Gull	Red-legged Partridge	Velvet Scoter
Common Gull	Jackdaw	Red-necked Grebe	Water Rail
Common Sandpiper	Jay	Red-throated Diver	Waxwing
Common Scoter*	Kestrel	Reed Bunting*	Wheatear
Common Tern	Kingfisher	Richard's Pipit	Whimbrel
Coot	Kittiwake	Ring Ouzel	White Stork
Cormorant	Knot	Robin	Whitethroat
Cuckoo*	Lapwing*	Rock Dove	Whooper Swan
Curlew*	Lesser Black-backed Gull	Rock Pipit	Willow Warbler
Dipper	Linnet	Rook	Wilson's Petrel
Dunlin	Little Auk	Roseate Tern*	Wood Warbler
Duncock*	Little Egret	Rough-legged Buzzard	Woodchat
Fieldfare	Little Grebe	Sand Martin	Woodcock
Firecrest	Little Gull	Sandwich Tern	Woodpigeon
Fulmar	Little Owl	Scaup*	Wren Redwing
Gannet	Little Tern	Scopoli's Shearwater	Wryneck
Garganey	Long-tailed Duck	Sedge Warbler	Yellow Wagtail*
Glaucous Gul	Magpie	Shag	Yellow-browed Warbler
		Short-eared Owl	Yellowhammer*

## 10.6 Higher plants

There are records for the following *notable* higher plants within Mevagissey Parish. The records are taken from ERCCIS and local wildlife groups.

Stinking Chamomile	Little Kneeling Eyebright	Bitter-vetch	Balm-leaved Figwort
Box	Wild Strawberry	Hairy Bird's-foot-trefoil	Cornish Moneywort
Heather	Fritillary	Hoary Stock	Ragged-Robin
Dotted Sedge	Western Ramping-fumitory	Welsh Poppy	Goldenrod
True Fox-sedge*	Purple Ramping-fumitory*	Common Cow-wheat	Field Woundwort
Angular Sea-fig	Sea-buckthorn	Wood-sorrel	Devil's-bit Scabious
Sea-kale	Bluebell	Lousewort	Common Valerian
Mossy Stonecrop	Marsh Pennywort	Tormentil	Heath Speedwell
Sowbread	Marsh Ragwort	Dwarf Cherry	Eelgrass
Sea Carrot	Sheep's-bit	Sanicle	

## 10.7 Fish

There are records for the following *notable* fish within Mevagissey Parish. The records are taken from ERCCIS and local wildlife groups.

- European Eel\*
- Shadefish
- Montagu's Blenny
- Seahorse
- Pilot fish
- Plaice\*
- Sand goby
- Mackerel\*
- Sole\*
- Blue-fin tuna\*
- Horse mackerel\*
- Thresher
- Six-gilled shark
- Basking Shark\*
- Brown/Sea Trout\*

## 10.8 Fungi

There are records for the following *notable* fungi within Mevagissey Parish. The records are taken from ERCCIS and local wildlife groups.

- Copper Mushroom
- Agaricus luteomaculatus
- Pink Disco
- Athelopsis galzinii
- Basiodendron cinereum
- Devil's Fingers

- Dendrothele sasae
- Zoned Tooth\*
- Hydropus floccipes
- Hyphodontia alutacea
- Lepiota ignivolvata
- Ivy Parachute
- Holly Parachute
- Mauve Bonnet
- Mycena pseudocorticola
- Steely Bonnet
- Pholiota lucifera Oak Polypore
- Slender Coral\*
- Toothed Toughshank
- Runner Bean Rust
- Hazel Gloves (Hypocreopsis rhododendri)

The unimproved grassland at Portmellon valley are known to support good populations of waxcaps.

## 10.9 Invertebrates

There are records for the following *notable* invertebrates within Mevagissey Parish. The records are taken from ERCCIS and local wildlife groups.

Butterfly transects (two transect route) have been undertaken in Portmellon valley by TBW as part of the UK Butterfly Monitoring Scheme. TBW also undertake bumblebee surveys and at the time of writing hold 5 year's worth of data.

Anelasmacephalus cambridgei	Beaded Chestnut*	Pied Grey*	Mullein Wave*
Leptura aurulenta	Green-brindled Crescent*	Autumnal Rustic*	White Ermine*
Lily Beetle	Ear Moth*	White-line Dart*	Buff Ermine*
Stag Beetle*	Mouse Moth*	Ghost Moth*	Feathered Gothic*
Black Oil-beetle*	Garden Tiger*	Rustic*	Blood-vein*
Cabbage Flea Beetle	Horse-Chestnut Leaf-miner*	Rosy Rustic*	Cepero's Ground- hopper
Monarch	Mottled Rustic	Rosy Minor*	Prickly Stick-insect
Dingy Skipper*	White-spotted Pinion*	Brindled Beauty*	Unarmed Stick-insect
Wall*	Small Square-spot*	Lackey*	Aepophilus bonnairei
Gwynne's Mining Bee	Long-legged China-mark*	Dot Moth*	Western Conifer Seed Bug
Grey Dagger*	Small Phoenix*	Spindle Knot-horn*	Pale Giant Horsefly
Knot Grass*	Galium Carpet*	Oblique Carpet	Enantiulus armatus

Crustacean - European spiny lobster and Haplophthalmus danicus have been recorded within the Mevagissey Parish.

Echinoderm - Asterina phylactica has been recorded within the Mevagissey Parish.

Portuguese man of war has been recorded within the Mevagissey Parish.

Honeycomb (*Sabellaria alveolata*) worms have been recorded at Portmellon.

## 11. IDENTIFICATION OF POTENTIALLY VALUABLE WILDLIFE CORRIDORS AND IDEAS FOR BIODIVERSITY STRATEGIES.

The biodiversity audit is a baseline evaluation tool rather than a management plan. Ideas for future management and projects are included as below.

- Look at opportunities for re-wilding and gain of semi natural habitat. This should be strategically located on a landscape scale. For example, inland from coastal semi-natural habitat to widen corridor and accommodate erosion. Focusing on river catchments is logical as any seminatural habitat will enhance existing wildlife corridors and have value functions in reducing soil erosion (taking steep land out of cultivation) and flood protection (attenuating peak flow in rivers by slowing down the movement of water). There is a Four Valleys Project which is looking at linking the valleys of Gorran Haven, Portmellon, Mevagissey and Pentewan.
- For BAP priority species and habitats and BAP projects (all of the Coast) within the parish explore options for achieving targets and actions for these.
- Look at opportunities for sea grass restoration.
- Encourage wildlife recording and data collection. Notable records should be sent to the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS). This could include a periodic review and update of this document.
- Support the work of Three Bays Wildlife Group, Heligan Gardens and other biodiversity/conservation groups actions.
- Investigate working with local farmers and new ELMs to improve habitat for wildlife, improving and widening hedgerows and expanding woodland edges. The south facing hill between Penwarne and Gallowras has become heavily invaded by course. This would benefit from scrub removal to restore swaths of grassland through the scrub which would be of value to invertebrates and flora.
- The seal haul out within Mevagissey Parish is of very high importance being one of only two known haul outs on the south Coast of Cornwall and also a known and rare pupping area in some years. The site is of importance for vital rest for moulting seals and post-pupping females. The seals are very vulnerable to disturbance. Recent disturbance control measures at the seal haul out site have been implemented, with the aim of allowing access but reducing the risk of disturbance. This has involve fencing and habitat creation/re-wilding in an effort to reduce disturbance to seals. This re-wilding has benefited other species too; choughs and harvest mouse have recently been recorded. Cornwall Seal Group Research Trust have been monitoring the site since 2014 with (at the time of writing) over 600 surveys carried out. Potential disturbance of the seals should ideally be monitored and measures to minimise disturbance and protect this important site supported.
- Seek opportunities to manage the ponds in Portmellon valley. It is understood that these ponds were created in the 1970's but have become silted up. This could be extended to include pond and scrape creation in the wetland areas of Portmellon valley.
- It is of relevance to report that a tree warden has been appointed at Mevagissey parish.
- Seek opportunities for the control of invasive weeds and species. The following invasive species have been recorded within the Mevagissey parish. All are listed under Schedule 9 of the Wildlife and Countryside Act making it an offence 'to cause them to spread'.
  - Three cornered leek
  - New Zealand Pigmyweed
  - Montbretia
  - Waterweed Elodea
  - Japanese knotweed
  - Giant knotweed
  - Yellow Archangel
  - False Virginia- creeper
  - *Rhododendron ponticum*

- Japanese Rose
- Harpoon Weed
- Wireweed
- Water Fern (*Azolla filiculoides*)
- Flatworm *Australoplana sanguin*

## 12. REFERENCES AND BIBLIOGRAPHY

- BS (2013) 42020:2013 Biodiversity. Code of practice for planning and development. British Standards Institute, London.
- CBI [Cornwall Biodiversity Initiative] (1997-2004) Cornwall's Biodiversity Volumes 1, 2 & 3. Cornwall Wildlife Trust, Truro.
- CEC [Council of the European Communities] (1979) Council Directive 79/409/EEC on the Conservation of Wild Birds [Referred to as EC Birds Directive]. Official Journal of the European Communities: L103.
- CEC [Council of the European Communities] (1992) Council Directive 92/43/EEC of 21 May 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora [Referred to as EC Habitats Directive]. Official Journal of the European Communities: L206.
- CEDPD (2023) Climate Emergency Development Plan Document.  
<https://www.cornwall.gov.uk/planning-and-building-control/planning-policy/adopted-plans/climate-emergency-development-plan-document/>
- CIEEM [Chartered Institute of Ecology and Environmental Management] (2017) Guidelines for Ecological Report Writing. 2nd Edition. CIEEM, Winchester.
- CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester.
- CIEEM [Chartered Institute of Ecology and Environmental Management] (2017) Guidelines for Preliminary Ecological Appraisal Second Edition.
- Cornwall Council (2015) Cornwall's Environmental Growth Strategy. Cornwall Council, Truro.
- Cornwall Council (2016) Cornwall's Local Plan Strategic Policies 2010-2015. Cornwall Council, Truro.
- Cornwall Council (2018) Cornwall Planning for Biodiversity Guide. Cornwall Council, Truro.
- Cornwall Wildlife Trust (CWT) (2007) Biodiversity and Geological Conservation: Planning Good Practice Guidance for Cornwall. CWT.
- Department for Communities and Local Government, (2012). National Planning Policy Framework. London ISBN: 978-1-4098-3413-7
- Eaton et al. (2015) Birds of conservation concern 4: the population status of birds in the UK, Channel Islands and Isle of Man. British Birds 108: 708-746.
- ERCCIS [Environmental Records Centre for Cornwall and the Isles of Scilly] (to 2020) Erecords computer database. Cornwall Wildlife Trust. Unpublished.
- French, C. N. (1999). The 'Submerged Forest' palaeosols of Cornwall. Geoscience in south-west England, 9, 365-369.
- HM Government (1981 as amended) The Wildlife and Countryside Act 1981. HMSO, London.
- HM Government (1992) Protection of Badgers Act 1992. HMSO, London.
- HM Government (1997) The Hedgerow Regulations 1997. HMSO, London.
- HM Government (2000) The Countryside and Rights of Way Act 2000. HMSO, London.
- HM Government (2006) The Natural Environment and Rural Communities Act 2006. HMSO, London.
- HM Government (2010) The Conservation of Habitats and Species Regulations 2010. HMSO, London.
- IUCN (2012) IUCN Red List Categories and Criteria. Version 3.1. Second edition on. IUCN, Gland.
- IUCN (2012) Guidelines for Application of IUCN Red List Criteria at Regional and National Levels. Version 4.0. IUCN, Gland.
- IUCN (2016) Guidelines for Appropriate Uses of IUCN Red List Data. Version 3.0. Adopted by the IUCN Red List Committee.
- IUCN (2017) Guidelines for Using the IUCN Red List Categories and Criteria. Version 13. Prepared by the Standards and Petitions Subcommittee.
- JNCC [Joint Nature Conservation Committee] (2010) Handbook for Phase 1 Habitat Survey. JNCC, Peterborough.

JNCC [Joint Nature Conservation Committee] (2011) UK BAP Priority Species and Habitats. Available at <http://jncc.defra.gov.uk>.

O'Brien, H. S., Win, I., Parsons, M., Allcock, Z. and Reid, J. B. 2014. The numbers and distribution of inshore waterbirds along the south Cornwall coast during winter: JNCC.

Office of the Deputy Prime Minister (ODPM) (2005). Government Circular: Biodiversity and Geological Conservation – Statutory Obligations and their Impacts within the Planning System. The Stationery Office Ltd. London.

Panks, S., White, N., Newsome, A., Nash, M., Potter, J., Heydon, M., Mayhew, E., Alvarez, M., Russell, T., Cashon, C., Goddard, F., Scott, S., Heaver, M., Scott, S., Treweek, J. Butcher, B. and Stone, D. (2022). Biodiversity metric 3.1: Auditing and accounting for biodiversity – User Guide. Natural England.

Spalding, A. (Ed.) (1997) Red Data Book for Cornwall and the Isles of Scilly. Croceago Press, Camborne.

Stace, C. (1991) New Flora of the British Isles. Cambridge University Press, Cambridge.

Stewart, A., Pearman, D.A. & Preston, C.D. (Eds.) (1994) Scarce Plants in Britain. JNCC, Peterborough

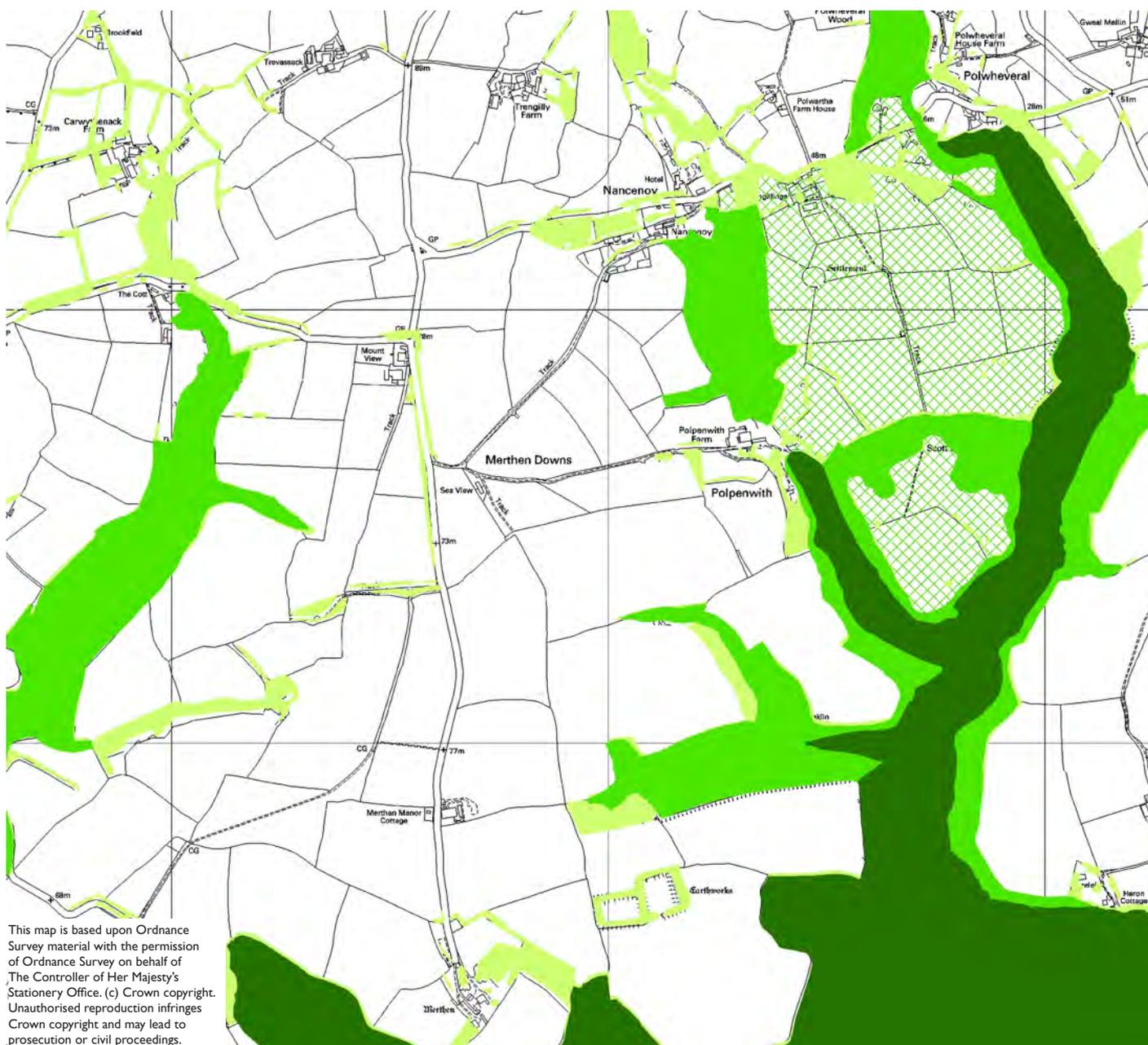
WRT (2015). South Cornwall River Improvement Project (SCRIP). Westcountry Rivers Trust.

## Appendix 1. ERCCIS Wildlife Resource Map for Neighbourhood Planning



# Wildlife Resource Map for Neighbourhood Planning

## Guidance notes



# 1 Introduction

Any development, from a loft conversion to a housing estate has the potential to affect wildlife. By wildlife we mean the whole range of plants and animals found in Cornwall (also referred to as biodiversity). Sites that are important for their geology can also be affected. The information below will enable you to site development where the impacts on wildlife will be minimal. Good design can further reduce impacts and can even enhance your area for wildlife.

## 2 Background information

### 2.1 Sites important for wildlife

There are several designations that cover sites of wildlife and geological value in Cornwall. These include sites with international and national statutory designation and local non-statutory designation and are shown on your map. **The best practice approach is to avoid locating development on designated sites.**

Your map shows:

**Statutory designations** in **dark green**; Special Protection Areas (SPA), Special Areas of Conservation (SAC), Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR).

**Non-statutory designations** in **mid-green**; County Wildlife Sites (CWS) and County Geological Sites (GGS).

**Semi-natural habitat** in **light green**.

This reflects the hierarchy of protection as laid out in the National Planning Policy Framework. Areas of land that we know are owned or managed by conservation organisations are also shown for your information.

Designated sites generally contain **semi-natural habitats**; these are areas which are not highly modified for example; rough grassland, woodland, traditional orchards, scrub, Cornish hedges, marshes and ponds, heathland, coastal habitats and old quarries and mine sites. Semi-natural habitats provide food and shelter for plants and animals, so tend to be richer in species than other areas. Some areas of semi-natural

habitat are designated as **Biodiversity Action Plan (BAP) habitats** which are recognised nationally as being important for wildlife. However, many areas of semi-natural habitat lie outside designated areas and are not classed as BAP habitat. These areas are nonetheless important for the plant and animal species they contain and as a link between other areas important for wildlife. Ideally **development will be sited to avoid areas of semi-natural habitat.**

#### What about the white areas?

The areas shown white on the map will still have wildlife issues associated with them, as explained in section 2.2 below. Your map gives an indication of where the most sensitive wildlife areas are located. When looking at the white areas with a view to allocating land for development you will need to consider all the other planning issues such as historic environment, landscape, transport, flood risk, land stability and contamination.

#### How you can use your local knowledge to add to the map

The semi-natural habitat information on your map is derived from aerial photographs, for this reason it is worth you **checking this information on the ground** as there may be patches of semi-natural habitat that have been missed.

Please note that **Cornish hedges** are not generally mapped.

You may have people in the Parish who can add information to the map. For example, surveys of Cornish hedges may highlight particular stretches that are very important for wildlife due to their function of linking areas of semi-natural habitats, their structure, age or the animal and plant species they contain. You may then decide not to allocate land adjacent to these hedges, or insist on them being buffered and that only existing gateways be used.

## 2.2 Wildlife species

There is a whole range of animal and plant species in Cornwall that are protected under national and/or international species protection legislation. Designated sites and other areas of semi-natural habitat are particularly rich in protected species but protected species are also often found outside designated sites. There are many other species which have no legal protection and a best practice approach would be to aim to enhance wildlife generally as part of a development, not just protected species.

The protected species groups that are particularly relevant to development in Cornwall are:

**Bats** are present across the county and have international protection. They feed on insects so are more likely to be found where there is **semi-natural habitat**. Bats also use linear features such as hedges and streams as navigation routes to travel to and from feeding areas and summer and winter roost sites. A whole range of **buildings and structures** can be used for breeding roosts and hibernation roosts. Bats are affected indirectly by **lighting associated with new developments** and some will desert roosts and foraging areas when there is light pollution.

**Dormice** are generally found throughout Cornwall but with a concentration in **central and eastern Cornwall**, they are particularly associated with woodland, scrub and hedge habitats, especially old or ancient boundaries.

**Otters** are present across the county associated with **rivers and streams** and have international protection. Otters will cross roads where their passage is blocked by culverts or flooding under bridges.

**Badgers** have national protection. They are found across the county in many habitats, they are **often affected by developments**. A licence is required if badgers are likely to be disturbed as part of a development.

**Birds** have differing levels of protection depending on the species. They must **not be disturbed during the nesting season** from early spring through the summer. New developments can include enhancements for birds such as nesting sites and appropriate planting schemes. In winter birds can congregate in large numbers on agricultural grassland that has **no designation and little semi-natural habitat**.

**Amphibians and reptiles** are generally associated with **semi-natural habitats and gardens**. Some amphibians and all reptiles have some protection. Careful site selection can minimise impacts. Hibernation sites are important in the winter months.

**Rare and protected insects and other invertebrates** are generally associated with designated sites and semi-natural habitats so **impacts can often be avoided by careful site selection**.

**Flowering plants, fungi, lichens, liverworts, mosses and stoneworts**. Many species in these groups are protected but these are **generally associated with designated sites and semi-natural habitats** so impacts can often be avoided by careful site selection.

In addition, **non-native invasive species** such as **Japanese knotweed, giant hogweed** and **Himalayan balsam** may be present and are likely to have a cost implication for developers since they may

need to be removed from a site. Removal of invasive species could be carried out as an enhancement for biodiversity either on or off-site.

Detailed species information is available from the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS). Please be aware that a lack of record does **not necessarily mean that a species is absent** from an area, just that it has not been recorded. It is likely that detailed species information and surveys will be required by developers when they are drawing up individual planning proposals.

### **Key principles to protect wildlife and geology in Neighbourhood Plans** -

these can be written into Development policies in your plan:

- Avoid both **statutory** and **non-statutory** designated sites (shown in **dark green** and **mid-green** on your map)
- Avoid non-designated areas which contain large or linked areas of semi-natural habitat (shown in **light green** on your map).
- Consider the potential **protected species implications** of sites before finalising plans-it is far better to scope these at the outset to prevent costly delays later.

- Where sites contain patches of **semi-natural habitat** make sure these can be **retained and ideally linked** together as part of the intended end land use.
- Ensure there is potential to retain, restore and re-create **habitat linkages such as hedges** as part of developments.
- Look for **enhancement** opportunities to **create, expand, buffer and link semi-natural habitats** on-site.
- Consider the potential for **creating new semi-natural habitat off-site** if opportunities on-site are limited, this is known as 'biodiversity offsetting'. It may be possible to pool contributions from several developments.

Much more detail is available in the Biodiversity and Geological Conservation-Planning Good Practice Guidance for Cornwall [http://www.cornwall.gov.uk/default.aspx?page=12898#planning\\_good\\_practice](http://www.cornwall.gov.uk/default.aspx?page=12898#planning_good_practice).

An ecological consultant can help to interpret data from ERCCIS and give recommendations for your neighbourhood plan. You can find an Ecological consultant here: [www.cieem.net/members-directory/search](http://www.cieem.net/members-directory/search).



## Appendix 2. Citation sheets for designation sites within Mevagissey Parish

**SITE INFORMATION**

Location:  
0.5 miles south of Mevagissey

Grid Reference:  
SX022428

Parish:  
ST GORAN CP

Area:  
40 Ha

**Important note about access to CWS**

The County Wildlife Site designation does not confer public access.

**What does the designation County Wildlife Site mean?**

County Wildlife Sites (CWS) are the most significant areas for wildlife in Cornwall outside Sites of Special Scientific Interest (SSSIs) and Special Areas of Conservation (SACs). County Wildlife Sites contain features that are of substantive nature conservation value at a county level of significance. There are over 490 sites in Cornwall under both public and private ownership and they range from small ponds, copses and linear features, such as river valleys, to wetlands, ancient woodlands and large moors. They make up approximately 10% of the county's land area.

CWS were identified and selected in the 1980s and 1990s using a combination of aerial photograph data, local knowledge and, where possible, ground based surveys. CWS are selected through the application of a set of criteria agreed by Cornwall's Local Sites Partnership.

**The benefits and implications of owning a County Wildlife Site**

Owning a CWS brings both implications and benefits to the landowner:

- CWS can attract grant aid through Defra's Environmental Stewardship schemes
- Cornwall Wildlife Trust can provide free management advice for landowners
- As the CWS designation is non-statutory, there are no restrictions placed on agricultural operations
- Landowners/Managers remain in control of all land management decisions
- Access is by landowner permission, no rights of access are created.
- Where substantial land use changes are proposed on a CWS, the Local Authority will take wildlife into account along with all other planning considerations

**Progress towards achieving National Indicator NI197 Improved Local Biodiversity**

Active conservation management is being achieved on this site

**Activity****Site Description**

The site includes a narrow section of the south coast extending from Great Perhaver Point to Turbot Point along high exposed cliffs and around Chapel Point towards Portmellon along lower and more stable cliffs.

There are a range of coastal scrub habitats, mainly comprising blackthorn, bramble, gorse and bracken, and coarse grassland along parts of the more inaccessible areas of cliff amongst areas of unvegetated sheer rock. Moderately species-rich maritime grassland occurs within the scrub in places and also more extensively on the cliff tops above Turbot Point, where there is also a small area of unimproved pasture. Some of the rocky outcrops support rich and diverse communities, including many lichens and bryophytes. The site also extends to mean low water mark, encompassing the intertidal habitats.

**BAP Priority Habitats:** [Maritime Cliff and Slopes](#)

**BAP Priority Species:** records of adder *Vipera berus* and slow-worm *Anguis fragilis*.

**Other notable species:** plant records include Nationally Scarce Cornish moneywort *Sibthorpia europaea* (abundant on the banks of the stream flowing into Colona Beach) and early meadow grass *Poa infirma*, along with Near Threatened common cudweed *Filago vulgaris*. Many birds are associated with the coastal scrub and include Amber Listed whitethroat *Sylvia communis* and kestrel *Falco tinnunculus*. Badger *Meles meles* has been recorded at Chapel Point (protected under the Protection of Badgers Act 1992).

**Management**

Approximately 17ha are in Entry Level Stewardship (ending 2012).

**Further Information**

This summary sheet was produced using information held by the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS). For further details or a comprehensive/notable species search please contact the Wildlife Information Service, email: [wis@cornwallwildlifetrust.org.uk](mailto:wis@cornwallwildlifetrust.org.uk).

For further information regarding Biodiversity Action Plan (BAP) Priority Habitats and Species refer to UKBAP. Note that species listed may be subject to more than one conservation status and may also be protected under legislation such as the Wildlife and Countryside Act 1981 or the Conservation of Habitats and Species Regulations 2010. Refer to JNCC for full current taxon designations.

**Contact Us**

To make a comment regarding this County Wildlife Site, please fill in a [feedback form](#).

To submit a species record to ERCCIS, please use the online recording system at [www.orks.org.uk](http://www.orks.org.uk)

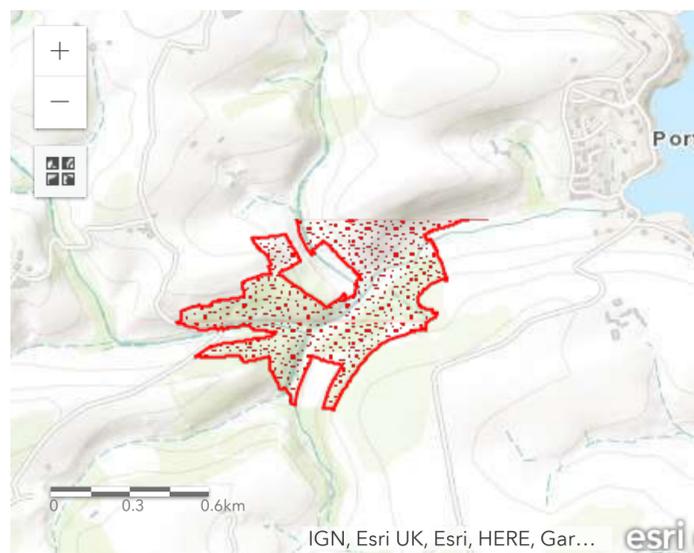
## SITE INFORMATION

Location:  
0.5 miles west of Mevagissey

Grid Reference:  
SX004437

Parish:  
MEVAGISSEY CP

Area:  
48.3 Ha



### Important note about access to CWS

The County Wildlife Site designation does not confer public access.

### What does the designation County Wildlife Site mean?

County Wildlife Sites (CWS) are the most significant areas for wildlife in Cornwall outside Sites of Special Scientific Interest (SSSIs) and Special Areas of Conservation (SACs). County Wildlife Sites contain features that are of substantive nature conservation value at a county level of significance. There are over 490 sites in Cornwall under both public and private ownership and they range from small ponds, copses and linear features, such as river valleys, to wetlands, ancient woodlands and large moors. They make up approximately 10% of the county's land area.

CWS were identified and selected in the 1980s and 1990s using a combination of aerial photograph data, local knowledge and, where possible, ground based surveys. CWS are selected through the application of a set of criteria agreed by Cornwall's Local Sites Partnership.

### The benefits and implications of owning a County Wildlife Site

Owning a CWS brings both implications and benefits to the landowner:

- CWS can attract grant aid through Defra's Environmental Stewardship schemes
- Cornwall Wildlife Trust can provide free management advice for landowners
- As the CWS designation is non-statutory, there are no restrictions placed on agricultural operations
- Landowners/Managers remain in control of all land management decisions
- Access is by landowner permission, no rights of access are created.
- Where substantial land use changes are proposed on a CWS, the Local Authority will take wildlife into account along with all other planning considerations

### Progress towards achieving National Indicator NI197 Improved Local Biodiversity

Active conservation management is being achieved on this site

### Activity

### Site Description

The site is located at the head of a Y-shaped valley, which is low-lying and steep-sided and runs east towards Portmellon Cove. It is relatively undisturbed and comprises a range of habitats.

There are three major areas of oak-dominated woodland along the valley sides; these include the ancient semi-natural woods of Galowras and Treninick to the west of the site which are separated by a narrow band of ash-dominated woodland. Diversity is further increased by an area of hazel coppice, a small woodland of Cornish elm to the north, and a recent broadleaved plantation to the south. A series of herb-rich meadows occur on the northern valley slopes, along with damp meadows in the valley bottom, and patches of dense scrub occur throughout the site.

**BAP Priority Habitats:** [Upland Oakwood](#), [Upland Mixed Ashwoods](#)

**BAP Priority Species:** moths recorded here include rustic *Hoplodrina blanda* and dot moth *Melanchra persicariae*

**Other notable species:** common spotted orchid *Dactylorhiza fuchsii* (Scarce in Cornwall)

### Management

Parts of the site are in Countryside Stewardship (ending 2011/2013).

### Further Information

This summary sheet was produced using information held by the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS). For further details or a comprehensive/notable species search please contact the Wildlife Information Service, email: [wis@cornwallwildlifetrust.org.uk](mailto:wis@cornwallwildlifetrust.org.uk).

For further information regarding Biodiversity Action Plan (BAP) Priority Habitats and Species refer to UKBAP. Note that species listed may be subject to more than one conservation status and may also be protected under legislation such as the Wildlife and Countryside Act 1981 or the Conservation of Habitats and Species Regulations 2010. Refer to JNCC for full current taxon designations.

### Contact Us

To make a comment regarding this County Wildlife Site, please fill in a [feedback form](#).

To submit a species record to ERCCIS, please use the online recording system at [www.orks.org.uk](http://www.orks.org.uk)

## SITE INFORMATION

Location:  
0.5 miles north west of Mevagissey

Grid Reference:  
SX001457

Parish:  
ST GORAN CP

Area:  
66.4 Ha



### Important note about access to CWS

The County Wildlife Site designation does not confer public access.

### What does the designation County Wildlife Site mean?

County Wildlife Sites (CWS) are the most significant areas for wildlife in Cornwall outside Sites of Special Scientific Interest (SSSIs) and Special Areas of Conservation (SACs). County Wildlife Sites contain features that are of substantive nature conservation value at a county level of significance. There are over 490 sites in Cornwall under both public and private ownership and they range from small ponds, copses and linear features, such as river valleys, to wetlands, ancient woodlands and large moors. They make up approximately 10% of the county's land area.

CWS were identified and selected in the 1980s and 1990s using a combination of aerial photograph data, local knowledge and, where possible, ground based surveys. CWS are selected through the application of a set of criteria agreed by Cornwall's Local Sites Partnership.

### The benefits and implications of owning a County Wildlife Site

Owning a CWS brings both implications and benefits to the landowner:

- CWS can attract grant aid through Defra's Environmental Stewardship schemes
- Cornwall Wildlife Trust can provide free management advice for landowners
- As the CWS designation is non-statutory, there are no restrictions placed on agricultural operations
- Landowners/Managers remain in control of all land management decisions
- Access is by landowner permission, no rights of access are created.
- Where substantial land use changes are proposed on a CWS, the Local Authority will take wildlife into account along with all other planning considerations

### Progress towards achieving National Indicator NI197 Improved Local Biodiversity

Active conservation management is being achieved on this site

### Activity

### Site Description

The site occupies a large system of sheltered valleys supporting a variety of woodland types. Mixed broadleaved woodland is the dominant habitat, which includes areas of ancient semi-natural woodlands within Temple Wood and Mill-hill Wood along the southern slopes and along the north western valley. These are structurally well-developed and support a rich and diverse ground flora, possibly including some remnant oak/ash woodland.

The remainder of the site has largely been replanted and includes broadleaved woodland along the large stream valley of Old Wood, areas of mixed woodland, beech plantation and the ornamental woodland at Treleven Plantation, with a variety of coniferous and deciduous species. Many streams flow through the valleys and the site also includes several pools and a small, moderately herb-rich meadow in the valley bottom.

**BAP Priority Habitats:** [Upland Mixed Ashwoods](#) (probably the priority habitat)

**BAP Priority Species:** bullfinch *Pyrrhula pyrrhula* and song thrush *Turdus philomelos* are amongst the many birds which inhabit the woodlands and several bat species have been recorded here including greater horseshoe *Rhinolophus ferrumequinum*, lesser horseshoe *Rhinolophus hipposideros* and noctule *Nyctalus noctula* (all Red Data Book species and fully protected under legislation including the Wildlife and Countryside Act 1981).

**Other notable species:** Nationally Scarce Cornish moneywort *Sibthorpia europaea* and evidence of badger *Meles meles* activity (protected under the Protection of Badgers Act 1992).

### Management

Approximately 21ha are in Entry Level plus Higher Level Stewardship (ending 2016).

### Further Information

This summary sheet was produced using information held by the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS). For further details or a comprehensive/notable species search please contact the Wildlife Information Service, email: [wis@cornwallwildlifetrust.org.uk](mailto:wis@cornwallwildlifetrust.org.uk).

For further information regarding Biodiversity Action Plan (BAP) Priority Habitats and Species refer to UKBAP. Note that species listed may be subject to more than one conservation status and may also be protected under legislation such as the Wildlife and Countryside Act 1981 or the Conservation of Habitats and Species Regulations 2010. Refer to JNCC for full current taxon designations.

### Contact Us

To make a comment regarding this County Wildlife Site, please fill in a [feedback form](#).

To submit a species record to ERCCIS, please use the online recording system at [www.orks.org.uk](http://www.orks.org.uk)

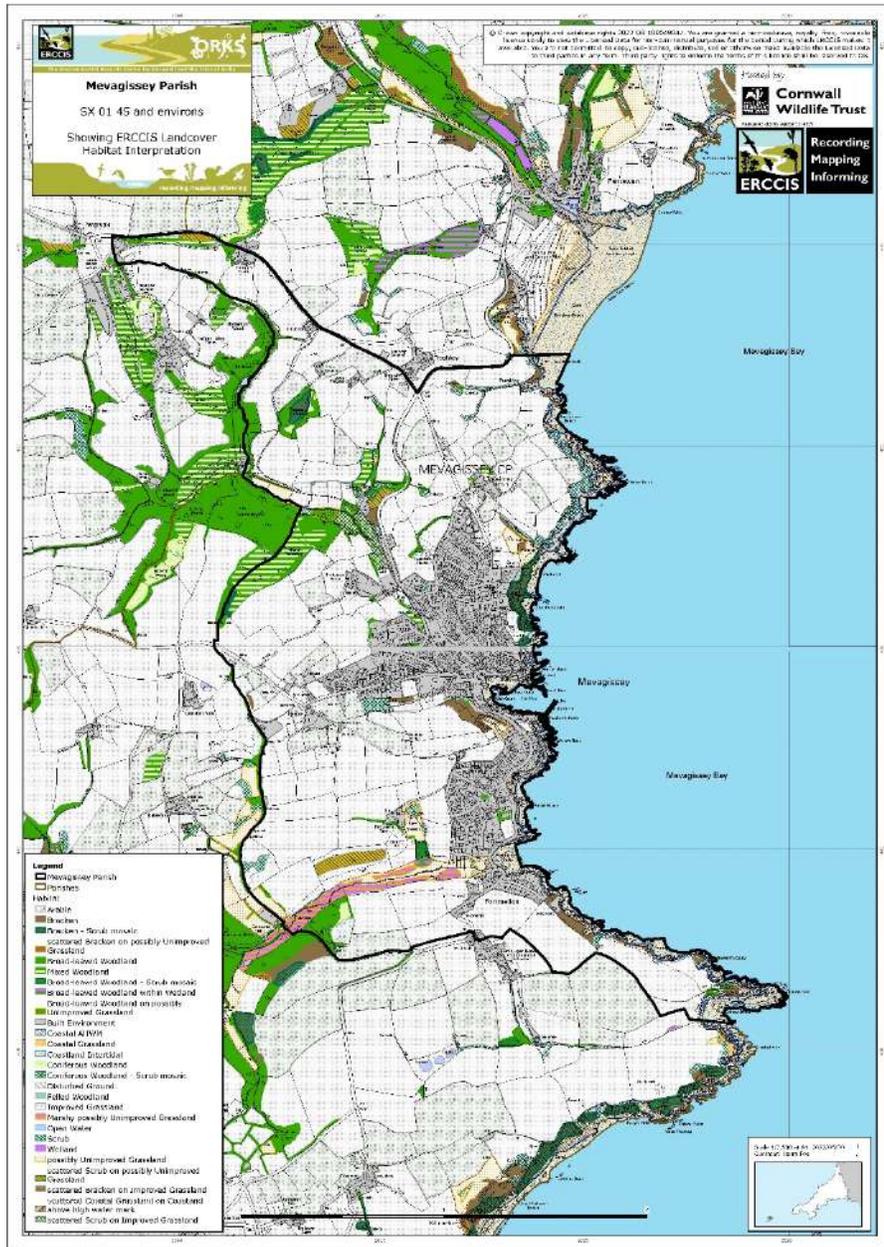
### **Appendix 3. Mevagissey Parish Notable Species records from ERCCIS**

Included here is a summary of the species of conservation concern (SOCC) recorded within Mevagissey Parish identified by the Environmental Records Centre for Cornwall and the Isles of Scilly (ERCCIS). At the end of Appendix 3 is a key for the abbreviations used within this list. The summary list does not include details of where the records were obtained. This data is held within the Excel Spreadsheet for the Data search, which also accompanies this report.



# Mevagissey Parish

## Species of Conservation Concern Summary





## WIS Report - Site: Mevagissey Parish - SX 01 45 and environs - 2022/06/06

### Environmental Records Centre for Cornwall and the Isles of Scilly

Five Acres, Allet, Truro, Cornwall, TR4 9DJ  
 Tel: (01872) 302 250  
 E-mail: [ercis@cornwallwildlifetrust.org.uk](mailto:ercis@cornwallwildlifetrust.org.uk)  
 Website: <http://ercis.org.uk>  
 Trust Website: <http://www.cornwallwildlifetrust.org.uk>

#### alga

Scientific Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
<i>Asparagopsis armata</i>	Harpoon Weed	2	1976	2019		WACA Sch 9 Pt 2		
<i>Callithamnion tetricum</i>	Callithamnion tetricum	4	1976	1981			Cornwall RDB	
<i>Drachiella spectabilis</i>	Drachiella spectabilis	2	2011	2011			Cornwall RDB	

#### amphibian

Scientific Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
<i>Bufo bufo</i>	Common Toad	6	1992	2017	Bern-A3	WACA-Sch5_sect9.5a		England_NERC_S.4 1, BAP-2007
<i>Lissotriton helveticus</i>	Palmate Newt	3	2003	2013	Bern-A3	WACA-Sch5_sect9.5a		
<i>Rana temporaria</i>	Common Frog	9	1987	2019	Bern-A3, HabDir-A5	WACA-Sch5_sect9.5a		

#### bird

Scientific Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
<i>Accipiter nisus</i>	Sparrowhawk	22	1999	2019	CMS_A2, ECCITES-A			Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding
<i>Acrocephalus schoenobaenus</i>	Sedge Warbler	4	1992	2004				Bird-Amber
<i>Actitis hypoleucos</i>	Common Sandpiper	4	1990	2020	CMS_A2, CMS_AEWA-A2		Cornwall RDB	Bird-Amber, Bird_RedList_GB_post2001-VU_Breeding
<i>Aix galericulata</i>	Mandarin Duck	2	1998	1999	CMS_A2	WACA Sch 9 Pt 1		
<i>Alauda arvensis</i>	Skylark	7	2000	2018	BirdsDir-A2.2			England_NERC_S.4 1, Bird-Red
<i>Alca torda</i>	Razorbill	24	1998	2022	CMS_AEWA-A2		Cornwall RDB	Bird-Amber
<i>Alcedo atthis</i>	Kingfisher	26	2000	2019	Bern-A2, BirdsDir-A1	WACA-Sch1_part1		
<i>Alectoris rufa</i>	Red-legged Partridge	1	2013	2013	BirdsDir-A2.1			
<i>Alle alle</i>	Little Auk	8	1990	2003	CMS_AEWA-A2			Bird_RedList_GB_post2001-DD_NonBreeding
<i>Anas crecca</i>	Teal	1	1991	1991	BirdsDir-A2.1, CMS_A2, CMS_AEWA-A2, ECCITES-C		Cornwall RDB	Bird-Amber
<i>Anas platyrhynchos</i>	Mallard	28	1987	2020	BirdsDir-A2.1, CMS_A2, CMS_AEWA-A2			Bird-Amber, Bird_RedList_GB_post2001-LC_Breeding, Bird_RedList_GB_post2001-NT_NonBreeding
<i>Anthus petrosus</i>	Rock Pipit	31	1995	2021	Bern-A2			
<i>Anthus pratensis</i>	Meadow Pipit	13	2000	2022	Bern-A2			Bird-Amber
<i>Anthus richardi</i>	Richard's Pipit	1	1992	1992	Bern-A2			
<i>Anthus trivialis</i>	Tree Pipit	1	2017	2017	Bern-A2			England_NERC_S.4 1, BAP-2007, Bird-Red
<i>Apus apus</i>	Swift	12	1989	2020				Bird-Red, Bird_RedList_GB_post2001-EN_Breeding



<i>Ardea cinerea</i>	Grey Heron	17	1987	2018	CMS_AEWA-A2			Bird_RedList_GB_post2001-LC_NonBreeding,Bird_RedList_GB_post2001-NT_Breeding
<i>Ardeola ralloides</i>	Squacco Heron	12	2004	2004	Bern-A2, BirdsDir-A1, CMS_AEWA-A2			
<i>Arenaria interpres</i>	Turnstone	57	1990	2020	Bern-A2, CMS_A2, CMS_AEWA-A2		Cornwall RDB	Bird-Amber, Bird_RedList_GB_post2001-VU_NonBreeding
<i>Asio flammeus</i>	Short-eared Owl	1	2017	2017	Bern-A2, BirdsDir-A1, ECCITES-A			Bird-Amber, Bird_RedList_GB_post2001-EN_Breeding
<i>Athene noctua</i>	Little Owl	5	1980	2000	Bern-A2, ECCITES-A		Cornwall RDB	
<i>Aythya marila</i>	Scaup	3	1991	2011	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1		England_NERC_S.4 1, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-EN_NonBreeding
<i>Bombycilla garrulus</i>	Waxwing	1	2012	2012	Bern-A2			
<i>Branta canadensis</i>	Canada Goose	4	2000	2021	BirdsDir-A2.1, CMS_A2	WACA Sch 9 Pt 1		
<i>Buteo buteo</i>	Buzzard	90	1987	2021	CMS_A2, ECCITES-A			
<i>Buteo lagopus</i>	Rough-legged Buzzard	1	2019	2019	CMS_A2, ECCITES-A			
<i>Calidris alpina</i>	Dunlin	6	2003	2020	Bern-A2, CMS_A2, CMS_AEWA-A2		Cornwall RDB	Bird-Red, Bird_RedList_GB_post2001-EN_NonBreeding, Bird_RedList_GB_post2001-VU_Breeding
<i>Calidris canutus</i>	Knot	1	2020	2020	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2		Cornwall RDB	Bird-Amber
<i>Calidris maritima</i>	Purple Sandpiper	18	1964	2021	Bern-A2, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1	Cornwall RDB	Bird-Red, Bird_RedList_GB_post2001-CR_Breeding, Bird_RedList_GB_post2001-EN_NonBreeding
<i>Calonectris diomedea</i>	Scopoli's Shearwater	1	1999	1999	BirdsDir-A1			
<i>Carduelis carduelis</i>	Goldfinch	64	1991	2022	Bern-A2			
<i>Cephus grylle</i>	Black Guillemot	6	1990	2006	CMS_AEWA-A2			Bird-Amber
<i>Certhia familiaris</i>	Treecreeper	1	2001	2001	Bern-A2			
<i>Chlidonias niger</i>	Black Tern	1	1998	1998	Bern-A2, BirdsDir-A1, CMS_AEWA-A2	WACA-Sch1_part1		Bird_RedList_GB_post2001-RE_Breeding
<i>Chloris chloris</i>	Greenfinch	29	1992	2021	Bern-A2			Bird-Red, Bird_RedList_GB_post2001-EN_Breeding
<i>Chroicocephalus ridibundus</i>	Black-headed Gull	29	1988	2022	BirdsDir-A2.2, CMS_AEWA-A2		Cornwall RDB	Bird-Amber, Bird_RedList_GB_post2001-LC_Breeding, Bird_RedList_GB_post2001-VU_NonBreeding
<i>Ciconia ciconia</i>	White Stork	1	2021	2021	Bern-A2, BirdsDir-A1, CMS_A2, CMS_AEWA-A2			
<i>Cinclus cinclus</i>	Dipper	1	2010	2010	Bern-A2			Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding



<i>Circus cyaneus</i>	Hen Harrier	1	2018	2018	BirdsDir-A1, CMS_A2, ECCITES-A	WACA-Sch1_part1	Cornwall RDB	England_NERC_S.4 1, Bird-Red, Bird_RedList_GB_post2001-VU_Breeding
<i>Clangula hyemalis</i>	Long-tailed Duck	1	2004	2004	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1		Bird-Red, Bird_RedList_GB_post2001-NT_NonBreeding
<i>Coloeus monedula</i>	Jackdaw	77	1988	2022	BirdsDir-A2.2			
<i>Columba livia</i>	Rock Dove	21	2004	2022	BirdsDir-A2.1, ECCITES-A			
<i>Columba palumbus</i>	Woodpigeon	70	1992	2022	BirdsDir-A2.1			Bird-Amber
<i>Corvus cornix</i>	Hooded Crow	1	2007	2007				Bird_RedList_GB_post2001-NT_Breeding
<i>Corvus corone</i>	Carrion Crow	46	1988	2022	BirdsDir-A2.2			
<i>Corvus frugilegus</i>	Rook	42	1988	2022	BirdsDir-A2.2			Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding
<i>Coturnix coturnix</i>	Quail	1	2011	2011	BirdsDir-A2.2	WACA-Sch1_part1	Cornwall RDB	Bird-Amber
<i>Cuculus canorus</i>	Cuckoo	2	1990	2011				England_NERC_S.4 1, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-VU_Breeding
<i>Curruca communis</i>	Whitethroat	6	1981	2018				Bird-Amber
<i>Cyanistes caeruleus</i>	Blue Tit	68	2000	2022	Bern-A2			
<i>Cygnus cygnus</i>	Whooper Swan	2	2003	2003	Bern-A2, BirdsDir-A1, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1		Bird-Amber, Bird_RedList_GB_post2001-EN_Breeding, Bird_RedList_GB_post2001-LC_NonBreeding
<i>Cygnus olor</i>	Mute Swan	8	1988	2015	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2			
<i>Delichon urbicum</i>	House Martin	41	1966	2021	Bern-A2			Bird-Red, Bird_RedList_GB_post2001-VU_Breeding
<i>Dendrocopos major</i>	Great Spotted Woodpecker	26	1992	2020	Bern-A2			
<i>Egretta garzetta</i>	Little Egret	10	1998	2011	Bern-A2, BirdsDir-A1, CMS_AEWA-A2, ECCITES-A		Cornwall RDB	
<i>Emberiza cirius</i>	Cirl Bunting	1	1991	1991	Bern-A2	WACA-Sch1_part1	Cornwall RDB	England_NERC_S.4 1, BAP-2007, Bird-Red
<i>Emberiza citrinella</i>	Yellowhammer	9	2000	2011	Bern-A2			England_NERC_S.4 1, BAP-2007, Bird-Red
<i>Emberiza schoeniclus</i>	Reed Bunting	3	1992	2010	Bern-A2			England_NERC_S.4 1, BAP-2007, Bird-Amber
<i>Erithacus rubecula</i>	Robin	90	1992	2022	Bern-A2			
<i>Falco columbarius</i>	Merlin	2	2004	2014	Bern-A2, BirdsDir-A1, CMS_A2, ECCITES-A	WACA-Sch1_part1		Bird-Red, Bird_RedList_GB_post2001-EN_Breeding
<i>Falco peregrinus</i>	Peregrine	9	1998	2010	Bern-A2, BirdsDir-A1, CMS_A2, ECCITES-A	WACA-Sch1_part1	Cornwall RDB	
<i>Falco subbuteo</i>	Hobby	1	2011	2011	Bern-A2, CMS_A2, ECCITES-A	WACA-Sch1_part1	Cornwall RDB	
<i>Falco tinnunculus</i>	Kestrel	28	1993	2022	Bern-A2, CMS_A2, ECCITES-A			Bird-Amber, Bird_RedList_GB_post2001-VU_Breeding



<i>Ficedula hypoleuca</i>	Pied Flycatcher	1	2019	2019	CMS_A2		Cornwall RDB	Bird-Amber, Bird_RedList_GB_post2001-VU_Breeding
<i>Fratercula arctica</i>	Puffin	16	1990	2003	CMS_AEWA-A2		Cornwall RDB	Bird-Red
<i>Fringilla montifringilla</i>	Brambling	3	2009	2010		WACA-Sch1_part1		
<i>Fulica atra</i>	Coot	2	1987	2012	BirdsDir-A2.1, CMS_AEWA-A2			Bird_RedList_GB_post2001-NT_Breeding, Bird_RedList_GB_post2001-NT_NonBreeding
<i>Fulmarus glacialis</i>	Fulmar	51	1991	2020				Bird-Amber
<i>Gallinago gallinago</i>	Snipe	10	1991	2011	BirdsDir-A2.1, CMS_A2, CMS_AEWA-A2		Cornwall RDB	Bird-Amber, Bird_RedList_GB_post2001-LC_Breeding, Bird_RedList_GB_post2001-NT_NonBreeding
<i>Gallinula chloropus</i>	Moorhen	26	1987	2020	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2			Bird-Amber, Bird_RedList_GB_post2001-VU_Breeding
<i>Garrulus glandarius</i>	Jay	20	1998	2021	BirdsDir-A2.2			
<i>Gavia arctica</i>	Black-throated Diver	52	1990	2022	Bern-A2, BirdsDir-A1, CMS_AEWA-A2	WACA-Sch1_part1	Cornwall RDB	BAP-2007, Bird-Amber, Bird_RedList_GB_post2001-VU_Breeding
<i>Gavia immer</i>	Great Northern Diver	75	1964	2022	Bern-A2, BirdsDir-A1, CMS_AEWA-A2	WACA-Sch1_part1	Cornwall RDB	Bird-Amber
<i>Gavia pacifica</i>	Pacific Diver	1	2020	2020		WACA-Sch1_part1		
<i>Gavia stellata</i>	Red-throated Diver	15	1997	2022	Bern-A2, BirdsDir-A1, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1	Cornwall RDB	
<i>Haematopus ostralegus</i>	Oystercatcher	33	1977	2022	BirdsDir-A2.2, CMS_AEWA-A2		Cornwall RDB	Bird-Amber
<i>Hirundo rustica</i>	Swallow	42	1992	2021	Bern-A2			
<i>Hydrobates pelagicus</i>	Storm Petrel	15	1990	2021	Bern-A2, BirdsDir-A1		Cornwall RDB	Bird-Amber
<i>Hydrocoloeus minutus</i>	Little Gull	5	1991	2009	Bern-A2, BirdsDir-A1, CMS_AEWA-A2	WACA-Sch1_part1		
<i>Ichthyaeus melanocephalus</i>	Mediterranean Gull	10	1991	2022	Bern-A2, BirdsDir-A1, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1	Cornwall RDB	Bird-Amber
<i>Jynx torquilla</i>	Wryneck	1	1988	1988	Bern-A2	WACA-Sch1_part1		BAP-2007, Bird_RedList_GB_post2001-RE_Breeding
<i>Lanius senator</i>	Woodchat Shrike	3	1992	1992	Bern-A2			
<i>Larus argentatus</i>	Herring Gull	96	1988	2022	BirdsDir-A2.2, CMS_AEWA-A2			Bird-Red, Bird_RedList_GB_post2001-DD_Breeding, Bird_RedList_GB_post2001-EN_NonBreeding
<i>Larus canus</i>	Common Gull	11	2007	2022	BirdsDir-A2.2, CMS_AEWA-A2			Bird-Amber
<i>Larus fuscus</i>	Lesser Black-backed Gull	18	1971	2022	BirdsDir-A2.2, CMS_AEWA-A2			Bird-Amber, Bird_RedList_GB_post2001-DD_Breeding
<i>Larus glaucooides</i>	Iceland Gull	19	2018	2018	CMS_AEWA-A2			Bird-Amber, Bird_RedList_GB_post2001-VU_NonBreeding
<i>Larus hyperboreus</i>	Glaucous Gull	19	1972	2022	CMS_AEWA-A2			Bird-Amber, Bird_RedList_GB_post2001-VU_NonBreeding



Larus marinus	Great Black-backed Gull	55	1998	2022	BirdsDir-A2.2, CMS_AEWA-A2			Bird-Amber, Bird_RedList_GB_post2001-EN_NonBreeding, Bird_RedList_GB_post2001-LC_Breeding
Limosa lapponica	Bar-tailed Godwit	2	2002	2004	BirdsDir-A1, BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2		Cornwall RDB	Bird-Amber
Linaria cannabina	Linnet	40	1991	2022	Bern-A2			Bird-Red, Bird_RedList_GB_post2001-NT_Breeding
Locustella naevia	Grasshopper Warbler	1	2004	2004				England_NERC_S.4 1, BAP-2007, Bird-Red
Melanitta fusca	Velvet Scoter	4	2022	2022	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1		Bird-Red, Bird_RedList_GB_post2001-VU_NonBreeding
Melanitta nigra	Common Scoter	19	1990	2022	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1	Cornwall RDB	England_NERC_S.4 1, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-CR_Breeding, Bird_RedList_GB_post2001-LC_NonBreeding
Melanitta perspicillata	Surf Scoter	4	2022	2022	CMS_A2			
Mergus serrator	Red-breasted Merganser	3	1998	1999	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2			Bird-Amber, Bird_RedList_GB_post2001-VU_NonBreeding
Milvus migrans	Black Kite	2	2003	2010	BirdsDir-A1, CMS_A2, ECCITES-A			
Milvus milvus	Red Kite	10	1998	2015	BirdsDir-A1, CMS_A2, ECCITES-A	WACA-Sch1_part1	Cornwall RDB	
Morus bassanus	Gannet	126	1985	2021	CMS_AEWA-A2			Bird-Amber
Motacilla alba	Pied Wagtail	7	2007	2022	Bern-A2			
Motacilla cinerea	Grey Wagtail	24	2001	2020	Bern-A2			Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding
Motacilla flava	Yellow Wagtail	2	2004	2007	Bern-A2			Bird-Red, Bird_RedList_GB_post2001-NT_Breeding
Muscicapa striata	Spotted Flycatcher	18	2000	2020	Bern-A2, CMS_A2			England_NERC_S.4 1, BAP-2007, Bird-Red
Numenius arquata	Curlew	11	1993	2020	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2		Cornwall RDB	England_NERC_S.4 1, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-EN_Breeding
Numenius phaeopus	Whimbrel	39	1990	2016	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1	Cornwall RDB	Bird-Red, Bird_RedList_GB_post2001-CR_Breeding
Nycticorax nycticorax	Night-heron	1	2013	2013	Bern-A2, BirdsDir-A1, CMS_AEWA-A2	WACA Sch 9 Pt 1		
Oceanites oceanicus	Wilson's Petrel	1	2018	2018	Bern-A2			
Oenanthe oenanthe	Wheatear	11	2004	2021	Bern-A2			Bird-Amber
Parus major	Great Tit	57	2004	2021	Bern-A2			
Passer domesticus	House Sparrow	71	1992	2022				England_NERC_S.4 1, BAP-2007, Bird-Red



<i>Passer montanus</i>	Tree Sparrow	2	2007	2007				England_NERC_S.4 1, BAP-2007, Bird- Red, Bird_RedList_GB_po st2001-VU_Breeding
<i>Periparus ater</i>	Coal Tit	37	2000	2021	Bern-A2			
<i>Phalacrocorax aristotelis</i>	Shag	39	1994	2022	Bern-A2			Bird-Red, Bird_RedList_GB_po st2001-EN_Breeding
<i>Phalacrocorax carbo</i>	Cormorant	25	1994	2022	CMS_AEWA-A2			Bird_RedList_GB_po st2001- LC_NonBreeding,Bir d_RedList_GB_post2 001-NT_Breeding
<i>Phalaropus fulicarius</i>	Grey Phalarope	3	1990	1998	Bern-A2, CMS_A2,CMS_AEWA-A2			
<i>Phasianus colchicus</i>	Pheasant	49	1987	2021	BirdsDir-A2.1			
<i>Phoenicurus ochruros</i>	Black Redstart	12	1989	2014	Bern-A2	WACA-Sch1_part1		Bird-Amber, Bird_RedList_GB_po st2001- EN_Breeding,Bird_R edList_GB_post2001- NT_NonBreeding
<i>Phylloscopus inornatus</i>	Yellow-browed Warbler	2	2011	2016				Bird-Amber
<i>Phylloscopus sibilatrix</i>	Wood Warbler	2	2000	2022			Cornwall RDB	England_NERC_S.4 1, BAP-2007, Bird- Red, Bird_RedList_GB_po st2001-VU_Breeding
<i>Phylloscopus trochilus</i>	Willow Warbler	13	1992	2021				Bird-Amber
<i>Pica pica</i>	Magpie	27	2000	2022	BirdsDir-A2.2			
<i>Picus viridis</i>	Green Woodpecker	14	1991	2020	Bern-A2			
<i>Plectrophenax nivalis</i>	Snow Bunting	1	1971	1971	Bern-A2	WACA-Sch1_part1		Bird-Amber, Bird_RedList_GB_po st2001- EN_Breeding,Bird_R edList_GB_post2001- LC_NonBreeding
<i>Pluvialis squatarola</i>	Grey Plover	3	2000	2003	BirdsDir-A2.2, CMS_A2,CMS_AEWA-A2		Cornwall RDB	Bird-Amber, Bird_RedList_GB_po st2001- VU_NonBreeding
<i>Podiceps auritus</i>	Slavonian Grebe	14	1965	2011	Bern-A2, BirdsDir-A1, CMS_A2,CMS_AEWA-A2	WACA-Sch1_part1	Cornwall RDB	Bird-Red, Bird_RedList_GB_po st2001- CR_Breeding,Bird_R edList_GB_post2001- NT_NonBreeding
<i>Podiceps cristatus</i>	Great Crested Grebe	2	2004	2014	CMS_AEWA-A2		Cornwall RDB	Bird_RedList_GB_po st2001- LC_NonBreeding,Bir d_RedList_GB_post2 001-VU_Breeding
<i>Podiceps grisegena</i>	Red-necked Grebe	16	1990	2011	CMS_AEWA-A2		Cornwall RDB	Bird-Red, Bird_RedList_GB_po st2001- CR_NonBreeding



<i>Podiceps nigricollis</i>	Black-necked Grebe	3	2000	2004	Bern-A2, CMS_AEWA-A2	WACA-Sch1_part1	Cornwall RDB	Bird-Amber, Bird_RedList_GB_post2001-EN_NonBreeding, Bird_RedList_GB_post2001-VU_Breeding
<i>Poecile palustris</i>	Marsh Tit	21	2001	2022	Bern-A2			Bird-Red, Bird_RedList_GB_post2001-VU_Breeding
<i>Prunella modularis</i>	Duncock	55	2000	2021	Bern-A2			Bird-Amber
<i>Puffinus mauretanicus</i>	Balearic Shearwater	13	1990	2017	OSPAR		Cornwall RDB	England_NERC_S.41, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-VU_NonBreeding
<i>Puffinus puffinus</i>	Manx Shearwater	62	1998	2020	Bern-A2		Cornwall RDB	Bird-Amber
<i>Pyrhocorax pyrrhocorax</i>	Chough	1	2004	2004	Bern-A2, BirdsDir-A1	WACA-Sch1_part1	Cornwall RDB	Bird_RedList_GB_post2001-VU_Breeding
<i>Pyrrhula pyrrhula</i>	Bullfinch	28	1988	2021				Bird-Amber
<i>Rallus aquaticus</i>	Water Rail	17	1998	2014	BirdsDir-A2.2, CMS_AEWA-A2		Cornwall RDB	
<i>Regulus ignicapilla</i>	Firecrest	13	2004	2020	Bern-A2	WACA-Sch1_part1		
<i>Regulus regulus</i>	Goldcrest	31	2000	2021	Bern-A2			
<i>Riparia riparia</i>	Sand Martin	2	2002	2020	Bern-A2		Cornwall RDB	
<i>Rissa tridactyla</i>	Kittiwake	84	1990	2020	CMS_AEWA-A2, OSPAR		Cornwall RDB	Bird-Red, Bird_RedList_GB_post2001-CR_Breeding
<i>Saxicola rubicola</i>	Stonechat	19	1992	2022	Bern-A2			
<i>Scolopax rusticola</i>	Woodcock	4	1991	2011	BirdsDir-A2.1, CMS_A2, CMS_AEWA-A2			Bird-Red, Bird_RedList_GB_post2001-LC_NonBreeding, Bird_RedList_GB_post2001-VU_Breeding
<i>Sitta europaea</i>	Nuthatch	31	1992	2021	Bern-A2			
<i>Somateria mollissima</i>	Eider	8	1990	2010	BirdsDir-A2.2, CMS_A2, CMS_AEWA-A2			Bird-Amber, Bird_RedList_GB_post2001-VU_NonBreeding
<i>Spatula querquedula</i>	Garganey	1	2021	2021	BirdsDir-A2.1, CMS_A2, CMS_AEWA-A2, ECCITES-A	WACA-Sch1_part1	Cornwall RDB	Bird-Amber, Bird_RedList_GB_post2001-CR_Breeding
<i>Spinus spinus</i>	Siskin	10	2010	2016	Bern-A2		Cornwall RDB	
<i>Stercorarius parasiticus</i>	Arctic Skua	34	1986	2004				BAP-2007, Bird-Red, Bird_RedList_GB_post2001-CR_Breeding
<i>Stercorarius skua</i>	Great Skua	40	1985	2015	CMS_AEWA-A2			Bird-Amber
<i>Sterna dougallii</i>	Roseate Tern	2	2020	2020	Bern-A2, BirdsDir-A1, CMS_A2, CMS_AEWA-A2, OSPAR	WACA-Sch1_part1	Cornwall RDB	England_NERC_S.41, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-EN_Breeding
<i>Sterna hirundo</i>	Common Tern	30	1974	2004	Bern-A2, BirdsDir-A1, CMS_AEWA-A2		Cornwall RDB	Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding



<i>Sterna paradisaea</i>	Arctic Tern	2	1975	1991	Bern-A2, BirdsDir-A1, CMS_A2, CMS_AEWA-A2			Bird-Amber, Bird_RedList_GB_post2001-VU_Breeding
<i>Sternula albifrons</i>	Little Tern	11	1980	1989	Bern-A2, BirdsDir-A1, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1		Bird-Amber, Bird_RedList_GB_post2001-VU_Breeding
<i>Streptopelia decaocto</i>	Collared Dove	14	2007	2015	BirdsDir-A2.2			Bird_RedList_GB_post2001-NT_Breeding
<i>Streptopelia turtur</i>	Turtle Dove	1	2019	2019	BirdsDir-A2.2, ECCITES-A			England_NERC_S.41, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-CR_Breeding
<i>Strix aluco</i>	Tawny Owl	7	2000	2020	Bern-A2, ECCITES-A			Bird-Amber, Bird_RedList_GB_post2001-NT_Breeding
<i>Sturnus vulgaris</i>	Starling	15	1988	2022	BirdsDir-A2.2			Bird-Red, Bird_RedList_GB_post2001-LC_NonBreeding, Bird_RedList_GB_post2001-VU_Breeding
<i>Tachybaptus ruficollis</i>	Little Grebe	4	2000	2003	CMS_AEWA-A2		Cornwall RDB	
<i>Thalasseus sandvicensis</i>	Sandwich Tern	53	1982	2020	Bern-A2, BirdsDir-A1, CMS_AEWA-A2		Cornwall RDB	Bird-Amber
<i>Tringa ochropus</i>	Green Sandpiper	1	1985	1985	Bern-A2, CMS_A2, CMS_AEWA-A2	WACA-Sch1_part1	Cornwall RDB	Bird-Amber, Bird_RedList_GB_post2001-EN_Breeding, Bird_RedList_GB_post2001-EN_NonBreeding
<i>Troglodytes troglodytes</i>	Wren	58	2003	2022	Bern-A2			Bird-Amber
<i>Turdus iliacus</i>	Redwing	14	1985	2022	BirdsDir-A2.2	WACA-Sch1_part1		Bird-Amber, Bird_RedList_GB_post2001-CR_Breeding, Bird_RedList_GB_post2001-LC_NonBreeding
<i>Turdus merula</i>	Blackbird	86	1992	2022	BirdsDir-A2.2			
<i>Turdus philomelos</i>	Song Thrush	31	1992	2022	BirdsDir-A2.2			Bird-Amber
<i>Turdus pilaris</i>	Fieldfare	2	2001	2022	BirdsDir-A2.2	WACA-Sch1_part1		Bird-Red, Bird_RedList_GB_post2001-CR(PE)_Breeding, Bird_RedList_GB_post2001-LC_NonBreeding
<i>Turdus torquatus</i>	Ring Ouzel	1	2004	2004	Bern-A2			England_NERC_S.41, BAP-2007, Bird-Red, Bird_RedList_GB_post2001-VU_Breeding
<i>Turdus viscivorus</i>	Mistle Thrush	5	1998	2016	BirdsDir-A2.2			Bird-Red, Bird_RedList_GB_post2001-VU_Breeding
<i>Tyto alba</i>	Barn Owl	61	1990	2014	Bern-A2, ECCITES-A	WACA-Sch1_part1	Cornwall RDB	
<i>Upupa epops</i>	Hoopoe	4	1964	2017	Bern-A2	WACA-Sch1_part1		
<i>Uria aalge</i>	Common Guillemot	31	1988	2022	CMS_AEWA-A2		Cornwall RDB	Bird-Amber



Vanellus vanellus	Lapwing	5	1991	2010	BirdsDir-A2.2, CMS_A2,CMS_AEWA-A2		Cornwall RDB	England_NERC_S.4 1, BAP-2007, Bird- Red, Bird_RedList_GB_po st2001- EN_Breeding,Bird_R edList_GB_post2001- VU_NonBreeding
-------------------	---------	---	------	------	--------------------------------------	--	--------------	--

### bony fish (Actinopterygii)

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Anguilla anguilla	European Eel	18	2003	2014	OSPAR		Cornwall RDB	England_NERC_S.4 1, BAP-2007
Argyrosomus regius	Shadefish	1	1998	1998			Cornwall RDB	
Coryphoblennius galerita	Montagu's Blenny	2	2003	2017			Cornwall RDB	
Hippocampus	Seahorse	1	2019	2019	ECCITES-B			
Lagocephalus lagocephalus	Pufferfish	1	2005	2005			Cornwall RDB	
Naucrates ductor	Pilot-fish	1	1998	1998			Cornwall RDB	
Pleuronectes platessa	Plaice	5	1966	2012				England_NERC_S.4 1, BAP-2007
Pomatoschistus minutus	Sand Goby	1	1976	1976	Bern-A3			
Salmo trutta	Brown/Sea Trout	3	2003	2003			Cornwall RDB	England_NERC_S.4 1, BAP-2007
Scomber scombrus	Mackerel	8	1962	2010				England_NERC_S.4 1, BAP-2007
Solea solea	Sole	1	2012	2012				England_NERC_S.4 1, BAP-2007
Thunnus thynnus	Blue-fin Tuna	2	2008	2018	OSPAR		Cornwall RDB	England_NERC_S.4 1, BAP-2007
Trachurus trachurus	Horse Mackerel	1	1976	1976				England_NERC_S.4 1, BAP-2007

### cartilagenous fish (Chondrichthyes)

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Alopias vulpinus	Thresher	1	2005	2005			Cornwall RDB	
Cetorhinus maximus	Basking Shark	12	1986	2017	Bern-A2, OSPAR	WACA- Sch5_sect9.1(kill/injuring ) ,WACA- Sch5_sect9.1(taking),W ACA- Sch5_sect9.2,WACA- Sch5_sect9.4.a,WACA- Sch5_sect9.4A,WACA- Sch5_sect9.4b,WACA- Sch5_sect9.5a,WACA- Sch5Sect9.4c	Cornwall RDB	England_NERC_S.4 1, BAP-2007
Hexanchus griseus	Six-gilled Shark	2	2003	2003			Cornwall RDB	

### chromist

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Ascophyllum nodosum	Wig Wrack or Sea-loch Egg Wrack	3	1976	1976				BAP-2007
Laminaria ochroleuca		1	2019	2019			Cornwall RDB	
Sargassum muticum	Wireweed	5	2011	2019		WACA Sch 9 Pt 2		

### coelenterate (=cnidarian)

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Physalia physalis	Portuguese Man'O War	12	2017	2017			Cornwall RDB	



### conifer

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
<i>Pinus sylvestris</i>	Scots Pine	1	1980	1980				Nationally Scarce

### crustacean

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
<i>Haplophthalmus danicus</i>	Haplophthalmus danicus	2	1999	1999			Cornwall RDB	
<i>Palinurus elephas</i>	European Spiny Lobster	1	2013	2013			Cornwall RDB	England_NERC_S.4 1, BAP-2007

### echinoderm

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
<i>Asterina phylactica</i>	<i>Asterina phylactica</i>	3	1996	1996			Cornwall RDB	

### fern

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
<i>Adiantum capillus-veneris</i>	Maidenhair Fern	1	1991	1991			Cornwall RDB	Nationally Scarce
<i>Azolla filiculoides</i>	Water Fern	2	2003	2004		WACA Sch 9 Pt 2		
<i>Trichomanes speciosum</i>	Killarney Fern	1	1990	1990	Bern-A1, HabDir-A2*, HabDir-A4	HabReg-Sch5, WACA-Sch8	Cornwall RDB	Nationally Rare

### flatworm

#### (Turbellaria)

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
<i>Australoplana sanguinea</i>	<i>Australoplana sanguinea</i>	1	1994	1994		WACA Sch 9 Pt 1		

### flowering plant

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
<i>Allium triquetrum</i>	Three-cornered Garlic	11	1993	2013		WACA Sch 9 Pt 2		
<i>Anthemis cotula</i>	Stinking Chamomile	1	2013	2013			Cornwall RDB	RedList_ENG_post2 001-VU, RedList_GB_post 2001-VU WL
<i>Betula pubescens</i> subsp. <i>pubescens</i>	Downy Birch	6	1991	2013				
<i>Buddleja davidii</i>	Butterfly-bush	18	1990	2013				
<i>Buxus sempervirens</i>	Box	3	2000	2001				Nationally Rare, RedList_ENG_post2 001-DD, RedList_GB_post 2001-DD
<i>Calluna vulgaris</i>	Heather	7	1980	2010				RedList_ENG_post2 001-NT, RedList_GB_post 2001-LC
<i>Carex punctata</i>	Dotted Sedge	2	1960	1976			Cornwall RDB	Nationally Scarce
<i>Carex vulpina</i>	True Fox-sedge	1	2013	2013				England_NERC_S.4 1, BAP-2007, Nationally Rare, RedList_ENG_post2 001-VU, RedList_GB_post 2001-VU
<i>Carpobrotus glaucescens</i>	Angular Sea-fig	2	2003	2009				
<i>Claytonia sibirica</i>	Pink Purslane	1	2013	2013				
<i>Cortaderia selloana</i>	Pampas-grass	3	2009	2014				
<i>Crambe maritima</i>	Sea-kale	1	2003	2003			Cornwall RDB	
<i>Crassula helmsii</i>	New Zealand Pigmyweed	1	2007	2007		WACA Sch 9 Pt 2		
<i>Crassula tillaea</i>	Mossy Stonecrop	1	1995	1995			Cornwall RDB	Nationally Scarce



<i>Crocossia pottsii</i> x <i>aurea</i> = <i>C. x crocosmiiflora</i>	Montbretia	24	1990	2013		WACA Sch 9 Pt 2	
<i>Cyclamen hederifolium</i>	Sowbread	4	2000	2014	ECCITES-B		
<i>Daucus carota</i> subsp. <i>gummifer</i>	Sea Carrot	2	2007	2014			Nationally Scarce
<i>Elodea</i>	Waterweed	1	1995	1995		WACA Sch 9 Pt 2	
<i>Erigeron karvinskianus</i>	Mexican Fleabane	9	1995	2014			
<i>Euphrasia confusa</i>	Little Kneeling Eyebright	3	1999	2008			RedList_ENG_post2 001- VU,RedList_GB_post 2001-DD
<i>Fallopia baldschuanica</i>	Russian-vine	2	1991	2014			
<i>Fallopia japonica</i>	Japanese Knotweed	21	1990	2016		WACA Sch 9 Pt 2	
<i>Fallopia japonica</i> x <i>sachalinensis</i> = <i>F. x</i> <i>bohemica</i>	<i>Fallopia japonica</i> x <i>sachalinensis</i> = <i>F. x</i> <i>bohemica</i>	1	2002	2002		WACA Sch 9 Pt 2	
<i>Fallopia sachalinensis</i>	Giant Knotweed	1	2004	2004		WACA Sch 9 Pt 2	
<i>Fragaria vesca</i>	Wild Strawberry	12	1980	2014			RedList_ENG_post2 001- NT,RedList_GB_post 2001-LC
<i>Fritillaria meleagris</i>	Fritillary	1	2013	2013			Nationally Scarce, WL
<i>Fumaria occidentalis</i>	Western Ramping- fumitory	1	2010	2010		Cornwall RDB	Nationally Scarce
<i>Fumaria purpurea</i>	Purple Ramping- fumitory	2	2008	2008		Cornwall RDB	England_NERC_S.4 1, BAP-2007, Nationally Scarce, RedList_ENG_post2 001- VU,RedList_GB_post 2001-LC
<i>Gunnera tinctoria</i>	Giant-rhubarb	1	1991	1991		IASO Sch2 Pt2	
<i>Hippophae rhamnoides</i>	Sea-buckthorn	1	2010	2010			Nationally Scarce
<i>Hyacinthoides non-scripta</i>	Bluebell	38	1980	2013		WACA-Sch8	
<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	7	1980	2010			RedList_ENG_post2 001- NT,RedList_GB_post 2001-LC
<i>Jacobaea aquatica</i>	Marsh Ragwort	10	1980	2013			RedList_ENG_post2 001- NT,RedList_GB_post 2001-LC
<i>Jasione montana</i>	Sheep's-bit	19	1980	2014			RedList_ENG_post2 001- VU,RedList_GB_post 2001-LC
<i>Lagarosiphon major</i>	Curly Waterweed	2	2007	2011		IASO Sch2 Pt2	
<i>Lamiastrum galeobdolon</i> subsp. <i>argentatum</i>	Yellow Archangel	12	1990	2014		WACA Sch 9 Pt 2	
<i>Lathyrus linifolius</i>	Bitter-vetch	1	2007	2007			RedList_ENG_post2 001- NT,RedList_GB_post 2001-LC
<i>Leycesteria formosa</i>	Himalayan Honeysuckle	3	1983	2009			
<i>Lotus subbiflorus</i>	Hairy Bird's-foot- trefoil	1	2007	2007		Cornwall RDB	Nationally Scarce
<i>Lysichiton americanus</i>	American Skunk- cabbage	3	1983	2017			
<i>Matthiola incana</i>	Hoary Stock	1	2014	2014		Cornwall RDB	
<i>Meconopsis cambrica</i>	Welsh Poppy	1	2013	2013		Cornwall RDB	Nationally Scarce



Melampyrum pratense	Common Cow-wheat	3	1980	1998			RedList_ENG_post2 001-NT,RedList_GB_post 2001-LC
Myriophyllum aquaticum	Parrot's-feather	3	2001	2010		IASO Sch2 Pt3	
Oxalis acetosella	Wood-sorrel	14	1980	2013			RedList_ENG_post2 001-NT,RedList_GB_post 2001-LC
Parthenocissus inserta	False Virginia-creeper	1	1995	1995		WACA Sch 9 Pt 2	
Pedicularis sylvatica subsp. sylvatica	Lousewort	1	1999	1999			RedList_ENG_post2 001-VU,RedList_GB_post 2001-LC
Petasites fragrans	Winter Heliotrope	15	1990	2014			
Potentilla erecta	Tormentil	5	1980	2008			RedList_ENG_post2 001-NT,RedList_GB_post 2001-LC
Prunus cerasus	Dwarf Cherry	1	1980	1980			RedList_ENG_post2 001-NT,RedList_GB_post 2001-LC
Prunus laurocerasus	Cherry Laurel	6	1993	2014			
Pseudosasa japonica	Arrow Bamboo	1	2009	2009			
Quercus ilex	Evergreen Oak	8	1980	2010			
Rhododendron ponticum	Rhododendron	6	1980	2013		WACA Sch 9 Pt 2	
Rosa rugosa	Japanese Rose	1	2014	2014		WACA Sch 9 Pt 2	
Sanicula europaea	Sanicle	12	1980	2010			RedList_ENG_post2 001-NT,RedList_GB_post 2001-LC
Sasa palmata	Broad-leaved Bamboo	1	2009	2009			
Scrophularia scorodonia	Balm-leaved Figwort	1	2000	2000		Cornwall RDB	Nationally Scarce
Sibthorpia europaea	Cornish Moneywort	9	1967	2000		Cornwall RDB	Nationally Scarce
Silene flos-cuculi	Ragged-Robin	18	1980	2019			RedList_ENG_post2 001-NT,RedList_GB_post 2001-LC
Solidago virgaurea	Goldenrod	1	1998	1998			RedList_ENG_post2 001-NT,RedList_GB_post 2001-LC
Stachys arvensis	Field Woundwort	4	1995	2014		Cornwall RDB	RedList_ENG_post2 001-NT,RedList_GB_post 2001-NT
Succisa pratensis	Devil's-bit Scabious	5	1995	2008			RedList_ENG_post2 001-NT,RedList_GB_post 2001-LC
Valeriana officinalis	Common Valerian	6	1998	2013			RedList_ENG_post2 001-NT,RedList_GB_post 2001-LC,WL
Veronica officinalis	Heath Speedwell	2	1998	1999			RedList_ENG_post2 001-NT,RedList_GB_post 2001-LC
Vicia sativa subsp. segetalis	Common Vetch	6	1998	2014			WL
Zostera (Zostera) marina	Eelgrass	4	2011	2011	Bern-A1	Cornwall RDB	RedList_ENG_post2 001-VU,RedList_GB_post 2001-NT

## fungus



Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Agaricus cupreobrunneus	Copper Mushroom	1	2003	2003			Cornwall RDB	
Agaricus luteomaculatus	Agaricus luteomaculatus	2	2000	2000			Cornwall RDB	
Aleurodiscus wakefieldiae	Pink Disco	2	2000	2000			Cornwall RDB	
Athelopsis galzinii	Athelopsis galzinii	4	2000	2000			Cornwall RDB	
Basidiodendron cinereum	Basidiodendron cinereum	4	2000	2000			Cornwall RDB	
Clathrus archeri	Devil's Fingers	9	1992	2011			Cornwall RDB	
Dendrothele sasae	Dendrothele sasae	2	2000	2000			Cornwall RDB	
Hydnullum conrescens	Zoned Tooth	2	2000	2000			Cornwall RDB	England_NERC_S.4 1, BAP-2007
Hydropus floccipes	Hydropus floccipes	6	2000	2000			Cornwall RDB	
Hyphodontia alutacea	Hyphodontia alutacea	1	2000	2000			Cornwall RDB	
Lepiota ignivolata	Lepiota ignivolata	1	2002	2002			Cornwall RDB	
Marasmius epiphyllodes	Ivy Parachute	5	1999	2000			Cornwall RDB	
Marasmius hudsonii	Holly Parachute	3	2000	2000			Cornwall RDB	
Mycena meliigena	Mauve Bonnet	1	2006	2006			Cornwall RDB	
Mycena pseudocorticola	Mycena pseudocorticola	1	2000	2000			Cornwall RDB	
Mycena pseudocorticola	Steely Bonnet	4	2000	2006			Cornwall RDB	
Pholiota lucifera	Pholiota lucifera	2	2000	2000			Cornwall RDB	
Piptoporus quercinus	Oak Polypore	1	1999	1999		WACA-Sch8		England_NERC_S.4 1, BAP-2007
Ramariopsis subtilis	Slender Coral	2	2000	2000			Cornwall RDB	
Rhodocollybia prolixa var. prolixa	Toothed Toughshank	1	1999	1999			Cornwall RDB	
Uromyces appendiculatus	Runner Bean Rust	3	2001	2001			Cornwall RDB	

### harvestman (Opiliones)

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Anelasmacephalus cambridgei	Anelasmacephalus cambridgei	1	1999	1999			Cornwall RDB	

### insect - beetle (Coleoptera)

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Leptura aurulenta	Leptura aurulenta	3	2011	2012			Cornwall RDB	Notable-A
Lilioceris lillii	Lily Beetle	1	2011	2011				RedList_GB_post200 1-NE
Lucanus cervus	Stag Beetle	1	2011	2011	Bern-A3, HabDir-A2*	WACA-Sch5_sect9.5a	Cornwall RDB	England_NERC_S.4 1, BAP-2007, Nationally Scarce
Meloe proscarabaeus	Black Oil-beetle	3	2021	2022				England_NERC_S.4 1, BAP-2007 Nationally Scarce
Phyllotreta cruciferae	Cabbage Flea Beetle	1	1983	1983				Nationally Scarce

### insect - butterfly

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Danaus plexippus	Monarch	5	1999	1999	CMS_A2			
Erynnis tages	Dingy Skipper	1	2011	2011				England_NERC_S.4 1, BAP-2007, RedList_GB_post200 1-VU
Lasiomata megera	Wall	16	1989	2021				England_NERC_S.4 1, BAP-2007, RedList_GB_post200 1-NT



### **insect - hymenopteran**

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Andrena bicolor	Gwynne's Mining Bee	1	2015	2015			Cornwall RDB	

### **insect - moth**

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Acronicta psi	Grey Dagger	6	2000	2011				England_NERC_S.4 1, BAP-2007
Acronicta rumicis	Knot Grass	5	2000	2003				England_NERC_S.4 1, BAP-2007
Agrochola lychnidis	Beaded Chestnut	6	1984	1984				England_NERC_S.4 1, BAP-2007
Allophyes oxyacanthae	Green-brindled Crescent	5	1984	1984				England_NERC_S.4 1, BAP-2007
Amphipoea ocullea	Ear Moth	3	2003	2003				England_NERC_S.4 1, BAP-2007
Amphipyra tragopoginis	Mouse Moth	4	1940	1985				England_NERC_S.4 1, BAP-2007
Arctia caja	Garden Tiger	2	2006	2006				England_NERC_S.4 1, BAP-2007
Cameraria ohridella	Horse-Chestnut Leaf-miner	1	2013	2013				
Caradrina morpheus	Mottled Rustic	1	1985	1985				England_NERC_S.4 1, BAP-2007
Cosmia diffinis	White-spotted Pinion	1	1985	1985			Cornwall RDB	England_NERC_S.4 1, BAP-2007
Diarsia rubi	Small Square-spot	18	1985	2011				England_NERC_S.4 1, BAP-2007
Dolicharthria punctalis	Long-legged China-mark	2	2003	2003				Notable-B
Ecliptopera silaceata	Small Phoenix	3	2000	2011				England_NERC_S.4 1, BAP-2007
Epirrhoe galiata	Galium Carpet	4	1940	2003				England_NERC_S.4 1, BAP-2007
Eudonia delunella	Pied Grey	5	2002	2011				Notable-B
Eugnorisma glareosa	Autumnal Rustic	4	1984	1985				England_NERC_S.4 1, BAP-2007
Euxoa tritici	White-line Dart	1	2011	2011				England_NERC_S.4 1, BAP-2007
Hepialus humuli	Ghost Moth	2	1985	1985				England_NERC_S.4 1, BAP-2007
Hoplodrina blanda	Rustic	5	1985	2011				England_NERC_S.4 1, BAP-2007
Hydraecia micacea	Rosy Rustic	17	1984	1985				England_NERC_S.4 1, BAP-2007
Litologia literosa	Rosy Minor	4	1985	1985				England_NERC_S.4 1, BAP-2007
Lycia hirtaria	Brindled Beauty	1	2011	2011				England_NERC_S.4 1, BAP-2007
Malacosoma neustria	Lackey	9	1985	2003				England_NERC_S.4 1, BAP-2007
Melanchra persicariae	Dot Moth	12	1985	2003				England_NERC_S.4 1, BAP-2007
Nephoterix angustella	Spindle Knot-horn	2	2003	2003				Notable-B
Orthonama vittata	Oblique Carpet	3	1995	2000				England_NERC_S.4 1, BAP-2007
Scopula marginepunctata	Mullein Wave	5	1940	1985				England_NERC_S.4 1, BAP-2007
Spilosoma lubricipeda	White Ermine	7	1985	2011				England_NERC_S.4 1, BAP-2007
Spilosoma lutea	Buff Ermine	10	1985	2011				England_NERC_S.4 1, BAP-2007
Tholera decimalis	Feathered Gothic	3	1985	1985				England_NERC_S.4 1, BAP-2007
Timandra comae	Blood-vein	3	1985	2011				England_NERC_S.4 1, BAP-2007

### **insect - orthopteran**



Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Tetrix ceperoi	Cepero's Ground-hopper	2	1989	1989			Cornwall RDB	Nationally Scarce

**insect - stick  
insect (Phasmida)**

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Acanthoxyla prasina subsp. geisovii	Prickly Stick-insect	1	2011	2011			Cornwall RDB	RedList_GB_post2001-NE
Acanthoxyla prasina subsp. inermis	Unarmed Stick-insect	15	1997	2017			Cornwall RDB	RedList_GB_post2001-NE

**insect - true bug  
(Hemiptera)**

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Aeopophilus bonnairei	Aeopophilus bonnairei	1	1998	1998			Cornwall RDB	Nationally Rare, RedList_GB_post2001-DD
Leptoglossus occidentalis	Western Conifer Seed Bug	1	2017	2017				RedList_GB_post2001-NE

**insect - true fly  
(Diptera)**

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Tabanus bovinus	Pale Giant Horsefly	1	2013	2013				Nationally Rare, RedList_GB_post2001-EN

**lichen**

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Porina rosei		1	2013	2013			Cornwall RDB	Nationally Scarce, RedList_GB_post2001-NT
Porina rosei	Porina rosei	1	2013	2013			Cornwall RDB	Nationally Scarce, RedList_GB_post2001-NT
Ramalina pollinaria	Ramalina pollinaria	1	1993	1993				Nationally Scarce

**marine mammal**

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Cetacea	Whales & Dolphins	2	1988	1992	HabDir-A4, ECCITES-A	HabReg-Sch2, WACA-Sch5 Sect9.1(kill/injuring),WACA-Sch5 Sect9.1(taking),WACA-Sch5 Sect9.4.a,WACA-Sch5 Sect9.4A,WACA-Sch5 Sect9.4b,WACA-Sch5 Sect9.5a,WACA-Sch5 Sect9.4c		
Delphinus delphis	Common Dolphin	26	1993	2021	Bern-A2, CMS_A2, CMS_ASCOBANS, HabDir-A4, ECCITES-A	HabReg-Sch2, WACA-Sch5 Sect9.4A,WACA-Sch5 Sect9.5a	Cornwall RDB	England_NERC_S.4 1, BAP-2007
Globicephala melas	Long-finned Pilot Whale	4	1975	1988	Bern-A2, CMS_A2, CMS_ASCOBANS, HabDir-A4, ECCITES-A	HabReg-Sch2, WACA-Sch5 Sect9.1(kill/injuring),WACA-Sch5 Sect9.1(taking),WACA-Sch5 Sect9.4.a,WACA-Sch5 Sect9.4A,WACA-Sch5 Sect9.4b,WACA-Sch5 Sect9.5a,WACA-Sch5 Sect9.4c	Cornwall RDB	England_NERC_S.4 1, BAP-2007
Halichoerus grypus	Grey Seal	25	1993	2021	Bern-A3, CMS_A2, HabDir-A2*, HabDir-A5	HabReg-Sch4		
Lagenorhynchus albirostris	White-beaked Dolphin	2	2005	2005	Bern-A2, CMS_A2, CMS_ASCOBANS, HabDir-A4, ECCITES-A	HabReg-Sch2, WACA-Sch5 Sect9.4A,WACA-Sch5 Sect9.5a	Cornwall RDB	England_NERC_S.4 1, BAP-2007



Phocoena phocoena	Common Porpoise	52	1989	2020	Bern-A2, CMS_A2, CMS_ASCOBANS, OSPAR, HabDir-A2*, HabDir-A4, ECCITES-A	HabReg-Sch2, WACA-Sch5_sect9.4A, WACA-Sch5_sect9.5a	Cornwall RDB	England_NERC_S.4 1, BAP-2007
Tursiops truncatus	Bottle-Nosed Dolphin	10	1992	2015	Bern-A2, CMS_A2, CMS_ASCOBANS, HabDir-A2*, HabDir-A4, ECCITES-A	HabReg-Sch2, WACA-Sch5_sect9.4A, WACA-Sch5_sect9.5a	Cornwall RDB	England_NERC_S.4 1, BAP-2007

### millipede

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Enantiulus armatus	Enantiulus armatus	1	1994	1994			Cornwall RDB	

### mollusc

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Ambigolimax valentianus	Iberian Threeband Slug	2	2004	2004				RedList_GB_post200 1-NA
Aplysia fasciata	Aplysia fasciata	3	2007	2008			Cornwall RDB	
Hygromia (Hygromia) cinctella	Girdled Snail	2	2004	2004			Cornwall RDB	RedList_GB_post200 1-NA
Melarhaphe neritoides	Small Periwinkle	2	2017	2018			Cornwall RDB	
Nucella lapillus	Dog Whelk	7	1976	2019	OSPAR			
Physella acuta		1	2016	2016				RedList_GB_post200 1-NA
Potamopyrgus antipodarum	Jenkins' Spire Snail	9	1983	2019				RedList_GB_post200 1-NA
Stagnicola palustris/fuscus/corvus	Marsh Pond Snail	1	1965	1965				RedList_GB_post200 1-DD

### moss

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Bryum donianum	Don's Thread-moss	1	1993	1993			Cornwall RDB	
Didymodon nicholsonii	Nicholson's Beard-moss	3	1993	2006			Cornwall RDB	
Pogonatum aloides	Aloe Haircap	6	1985	1993			Cornwall RDB	
Tortula viridifolia	Bristly Pottia	1	1950	1950			Cornwall RDB	

### reptile

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Anguis fragilis	Slow-worm	17	1981	2019	Bern-A3	WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.5a		England_NERC_S.4 1, BAP-2007
Dermodochelys coriacea	Leathery Turtle	2	2004	2004	Bern-A2, CMS_A1, CMS_A2, OSPAR, HabDir-A4	HabReg-Sch2, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c	Cornwall RDB	England_NERC_S.4 1, BAP-2007
Natrix helvetica	Grass Snake	6	2003	2012	Bern-A3	WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.5a		England_NERC_S.4 1, BAP-2007
Vipera berus	Adder	13	1991	2018	Bern-A3	WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.5a		England_NERC_S.4 1, BAP-2007
Zootoca vivipara	Common Lizard	9	1981	2019	Bern-A3	WACA-Sch5_sect9.1(kill/injuring), WACA-Sch5_sect9.5a		England_NERC_S.4 1, BAP-2007

### sea spider (Pycnogonida)

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Achelia simplex	Achelia simplex	1	1983	1983			Cornwall RDB	



## terrestrial mammal

Scientific_Name	Vernacular name	No.	First Year	Last Year	Legislative International	Legislative National	Status Local	Status National
Capreolus capreolus	Roe Deer	7	2010	2019	Bern-A3			
Erinaceus europaeus	West European Hedgehog	19	2013	2021	Bern-A3		Cornwall RDB	England_NERC_S.4 1, BAP-2007, RedList_GB_post2001-VU
Lepus europaeus	Brown Hare	1	2000	2000			Cornwall RDB	England_NERC_S.4 1, BAP-2007
Lutra lutra	Eurasian Otter	14	1982	2019	Bern-A2, HabDir-A2*, HabDir-A4, ECCITES-A	HabReg-Sch2, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c	Cornwall RDB	England_NERC_S.4 1, BAP-2007
Meles meles	Eurasian Badger	17	1985	2019	Bern-A3	Protection_of_Badgers_Act_1992	Cornwall RDB	
Micromys minutus	Harvest Mouse	1	2022	2022			Cornwall RDB	England_NERC_S.4 1, BAP-2007, RedList_GB_post2001-NT
Mustela erminea	Stoat	5	2005	2016	Bern-A3			
Mustela nivalis	Weasel	2	2005	2018	Bern-A3			
Myotis daubentonii	Daubenton's Bat	4	1995	2004	Bern-A2, CMS_A2, CMS_EUROBATS-A1, HabDir-A4	HabReg-Sch2, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c	Cornwall RDB	
Myotis nattereri	Natterer's Bat	1	1987	1987	Bern-A2, CMS_A2, CMS_EUROBATS-A1, HabDir-A4	HabReg-Sch2, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c	Cornwall RDB	
Nyctalus noctula	Noctule Bat	2	2003	2017	Bern-A2, CMS_A2, CMS_EUROBATS-A1, HabDir-A4	HabReg-Sch2, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c	Cornwall RDB	England_NERC_S.4 1, BAP-2007
Oryctolagus cuniculus	European Rabbit	23	1987	2018				RedList_Europe_post2001-NT, RedList_GB_post2001-NE
Pipistrellus	Pipistrelle	2	2015	2018			Cornwall RDB	
Pipistrellus pipistrellus	Common Pipistrelle	13	2013	2019	CMS_A2, CMS_EUROBATS-A1, HabDir-A4	HabReg-Sch2, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c	Cornwall RDB	
Pipistrellus pipistrellus	Pipistrelle	10	1996	2013	Bern-A2, Bern-A3, CMS_A2, CMS_EUROBATS-A1, HabDir-A4	HabReg-Sch2, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c		
Plecotus auritus	Brown Long-eared Bat	5	1991	2020	Bern-A2, CMS_A2, CMS_EUROBATS-A1, HabDir-A4	HabReg-Sch2, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c	Cornwall RDB	England_NERC_S.4 1, BAP-2007
Rattus norvegicus	Brown Rat	3	1996	2019				RedList_GB_post2001-NE
Rhinolophus hipposideros	Lesser Horseshoe Bat	15	1994	2017	Bern-A2, CMS_A2, CMS_EUROBATS-A1, HabDir-A2*, HabDir-A4	HabReg-Sch2, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c	Cornwall RDB	England_NERC_S.4 1, BAP-2007
Sciurus carolinensis	Eastern Grey Squirrel	11	2000	2019		IASO Sch2 Pt1		RedList_GB_post2001-NE
Sorex araneus	Eurasian Common Shrew	3	2010	2019	Bern-A3		Cornwall RDB	
Sorex minutus	Eurasian Pygmy Shrew	1	2018	2018	Bern-A3		Cornwall RDB	

# ERCCIS Notable Species Search – Abbreviations Details



This document gives further details of the abbreviation used in the notable species search undertaken by the Wildlife Information Service (WIS). The WIS notable species search will have all the fauna and flora listed on the latest JNCC "species designations" collation and the Red Data Book for Cornwall found within your study area. You can use this document to find the relevant abbreviation and to find further details on the legislation or status list of the notable species.

## The International and National (UK) Legislative Designations making up the ERCCIS species search list

Designation Abbreviations	Legislation	Legislation Details	Section of the Legislation	Designation Details
Bern:A1	Bern Convention	The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) - 1979.	Appendix 1	listed in Appendix I
Bern:A2			Appendix 2	listed in Appendix II
Bern:A3			Appendix 3	listed in Appendix III
Bonn:A1	Born Convention	The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention or CMS) - 1979	Appendix 1	listed in Appendix I
Bonn:A2			Appendix 2	listed in Appendix II
BirdsDir:A1	Birds Directive	The conservation of wild birds (the 'Birds Directive') Council Directive 79/409/EEC - 1979 (implement Bonn convention)	Annex 1	listed in Annex 1 - conservation measures
BirdsDir:A2.1			Annex 2.1	listed in Annex 2.1 - potentially be hunted (certain geographical areas)
BirdsDir:A2.2			Annex 2.2	listed in Annex 2.2- potentially be hunted
HabDir:A2	Habitats and species directive	Conservation of natural habitats and of wild fauna and flora (EC Habitats Directive) (92/43/EEC) - 1992 (implement Bern convention)	Annex 2 - priority species	listed in Annex 2 - endangered
HabDir:A2*			Annex 2 - non-priority species	listed in Annex 2 - Community interest
HabDir:A4			Annex 4	listed in Annex 4 - Community interest (killing, disturbance).
HabDir:A5			Annex 5	listed in Annex 5 - Community interest (taking and exploitation)
ECCITES:A	EC Cites	The 'Washington' Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) - 1975	Annex A	listed in Appendix I (all); Appendix II and III; non-CITES species.
ECCITES:B			Annex B	listed in Appendix II (all not Annex A); Appendix III; non-CITES
ECCITES:C			Annex C	listed in Appendix III (all - not in Annex A or B)
ECCITES:D			Annex D	listed in Appendix III (EU reservation); non-CITES species (some).
CMS_AEWA:A2	Convention on Migratory Species	Agreement on the Conservation of Populations of European Bats (EUROBATS) - 2000 & Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA) - 2008 & Agreement on the Conservation of Small Cetaceans of the Baltic, North East Atlantic, Irish and North Seas - 2008	Annex II	listed in Annex 2
CMS_ASCOBANS			ASCOBANS	listed Cetaceans
CMS_EUROBATS:A1			Annex I	listed Annex 1 - CHIROPTERA (Rhinolophidae and Vespertilionidae)
HabReg:Sch2	Conservation of Habitats and Species Regulations	The Conservation of Habitats and Species Regulations (Transposition of the Habitats Directive into UK legislation) - 2010	Schedule 2	listed in Schedule 2 - European protected species
HabReg:Sch3			Schedule 3	listed in Schedule 3 - taken or killed
HabReg:Sch4			Schedule 4	listed in Schedule 4 - European protected species
Protection of Badgers Act (1992)	Protection of Badgers Act	The Protection of Badgers Act - 1992	Protection of Badgers Act (1992)	
WACA:Sch1_part1	Wildlife and Countryside Act	Wildlife and Countryside Act - 1981 (Protected Birds, Animals and Plants - Schedules 1, 5 and 8)	Schedule 1 Part 1	listed in Schedule 1 - protected (at all times)
WACA:Sch1_part2			Schedule 1 Part 2	listed in Schedule 1 - protected (during the close season)
WACA:Sch5 _sect9.1(kill/injuring)			Schedule 5 Section 9.1 (killing/injuring)	listed in Schedule 5 - protected from intentional killing or injuring
WACA:Sch5 _sect9.1(taking)			Schedule 5 Section 9.1 (taking)	listed in Schedule 5 - protected from taking
WACA:Sch5 _sect9.2			Schedule 5 Section 9.2	listed in Schedule 5 - protected from being possessed or controlled
WACA:Sch5 _sect9.4a			Schedule 5 Section 9.4a	listed in Schedule 5 - protected from intentional damage/destruction
WACA:Sch5 Sect9.4A*			Schedule 5 Section 9.4A*	listed in Schedule 5 - intentionally or recklessly disturbed
WACA:Sch5 _sect9.4b			Schedule 5 Section 9.4b	listed in Schedule 5 - protected from intentional disturbance
WACA:Sch5 Sect9.4c			Schedule 5 Section 9.4c	listed in Schedule 5 - protected from their access to any structure
WACA:Sch5 _sect9.5a			Schedule 5 Section 9.5a	listed in Schedule 5 - protected from being sold or transported for sale
WACA:Sch5 _sect9.5b			Schedule 5 Section 9.5b	listed in Schedule 5 - protected from being for sale.
WACA:Sch8			Schedule 8	listed in Schedule 8 (Sections 13 1 and 13 2a)- protected from harm

## The National (UK) Status Designations making up the ERC CIS species search list

Designation Abbreviations	Status List	Status List Details	Section of the Status List	Designation Details
CRDB:RDB	<a href="#">Cornwall Red Data Book</a>	The Cornwall Red Data Book for Cornwall and the Isles of Scilly - 2nd Edition - 2009	Red Data Book	See 2009 Red Data Book
CRDB:End			Endangered	See 2009 Red Data Book
CRDB:Vul			Vulnerable	See 2009 Red Data Book
CRDB:Rare			Rare	See 2009 Red Data Book
CRDB:Data			Insufficient Data	See 2009 Red Data Book
CRDB:Ind			Indeterminate	See 2009 Red Data Book
CRDB:NotN			Notable (Nationally)	See 2009 Red Data Book
CRDB:NotA			National Notable A	See 2009 Red Data Book
CRDB:NotB			National Notable B	See 2009 Red Data Book
CRDB:NaSc			Nationally Scarce	See 2009 Red Data Book
CRDB:LoSc			Locally Scarce	See 2009 Red Data Book
CRDB:pRDB			Provisionally adopted	See 2009 Red Data Book
CRDB:pNS			Provisionally adopted	See 2009 Red Data Book
<b>BAP:2007</b>			<a href="#">UK Biodiversity Action Plan List</a>	Biodiversity Action Plan UK - A list of priority species - 2007
<b>England NERC S.41</b>	<a href="#">Biodiversity Lists - England</a>	Section 41 (England) of the NERC Act – 2006	England NERC Section 41	listed under Section 41 (England)

## The International Status Designations making up the ERCCIS species search list

Designation Abbreviations	Status List	Status List Details	Section of the Status List	Designation Details
RedList_Global_post94:CR	Global Red list status	Red listed and rare species	Critically Endangered	Section V - (Criteria A to E)
RedList_Global_post2001:CR			Critically Endangered	Section V - (Criteria A to E)
RedList_Global_post2001:EN			Endangered	Section V - (Criteria A to E)
RedList_Global_post94:EN			Endangered	Section V - (Criteria A to E)
RedList_Global_pre94:EN			Endangered	Section V - (Criteria A to E)
RedList_Global_post2001:VU			Vulnerable	Section V - (Criteria A to E)
RedList_Global_post94:VU			Vulnerable	Section V - (Criteria A to E)
RedList_Global_post94:NT			Near Threatened	Occurs in 15 or fewer hectads (not qualify for higher status)
RedList_GB_post94:EX			Red Listing based on 1994 IUCN guidelines	Red listed and rare species
RedList_GB_post94:CR	Critically Endangered	Section V - (Criteria A to E)		
RedList_GB_post94:EN	Endangered	Section V - (Criteria A to E)		
RedList_GB_post94:VU	Vulnerable	Section V - (Criteria A to E)		
RedList_GB_post94:DD	Data Deficient	Inadequate information to make an assessment of risk.		
RedList_GB_post94:NT	Near Threatened	Section V - (Criteria A to E)		
RedList_GB_post2001:EX	Red listing based on 2001 IUCN guidelines	Red listed and rare species	Extinct	Section V - (Criteria A to E)
RedList_GB_post2003:RE			Regionally Extinct	Section V - (Criteria A to E)
RedList_GB_post2001:EW			Extinct in the Wild	Section V - (Criteria A to E)
RedList_GB_post2001:CR			Critically Endangered	Section V - (Criteria A to E)
RedList_GB_post2001:EN			Endangered	Section V - (Criteria A to E)
RedList_GB_post2001:VU			Vulnerable	Section V - (Criteria A to E)
RedList_GB_post2001:LC			Least concern	Section V - (Criteria A to E)
RedList_GB_post2001:DD			Data Deficient	Inadequate information to make an assessment of risk.
RedList_GB_post2001:NT			Near Threatened	Section V - (Criteria A to E)
RedList_GB_Pre94:EX	Red Listing based on pre 1994 IUCN guidelines	Red listed and rare species	Extinct	Superseded by IUCN, includes not reviewed since 1994.
RedList_GB_Pre94:EN			Endangered	Superseded by IUCN, includes not reviewed since 1994.
RedList_GB_Pre94:VU			Vulnerable	Superseded by IUCN, includes not reviewed since 1994.
RedList_GB_Pre94:R			Rare	Superseded by IUCN, includes not reviewed since 1994.
RedList_GB_Pre94:Inde			IUCN (pre 1994) - Indeterminate	Superseded by IUCN, includes not reviewed since 1994.
RedList_GB_Pre94:Insu			IUCN (pre 1994) - Insufficiently known	Superseded by IUCN, includes not reviewed since 1994.
RedList_GB_Pre94:Thre			RDB - Threatened endemic	Superseded by IUCN, includes not reviewed since 1994.
Bird:Red	Red data categories - birds (not based on IUCN criteria)	Red listed and rare species	Bird Population Status: red	Globally Threatened according to IUCN criteria.
Bird:Amber			Bird Population Status: amber	Unfavourable conservation status in Europe
Status:NR	Rare and scarce species (not based on IUCN criteria)	Red listed and rare species	Nationally rare	Occurring in 15 or fewer hectads in GB. Excludes rare species (IUCN)
Status:NS			Nationally scarce	Occurring in 16-100 hectads in Great Britain.
Marine:NR			Nationally rare marine species	Occurring in eight or fewer 10km X 10km within 3 mile limit.
Marine:NS			Nationally scarce marine species	Occurring in nine to 55 10km X 10km within 3 mile limit.
Notable			Nationally Notable	Occurring within 16 to 100 10km squares. Superseded.
Notable:A			Nationally Notable A	occur in 30 or fewer 10km squares. Superseded.
Notable:B			Nationally Notable B	occur in between 31 and 100 10km squares. Superseded.

## **Appendix 4 Summary of relevant legislation, policies and case law**

### **Protection of Badgers Act (1992)**

Badgers are protected by the Protection of Badgers Act (1992) and the Wildlife and Countryside Act 1981 (as amended), Schedule 6. It is an offence to intentionally kill, capture, injure or ill-treat any badger and to obstruct, destroy or damage a badger sett or disturb badgers within a sett.

### **Hedgerow Regulations 1997**

Any hedgerows classified as 'important' under the 1997 Hedgerows Regulations cannot be removed without a Hedgerow Removal Notice issued by the relevant Local Authority unless previously approved as part of a planning permission.

### **National Planning Policy Framework 2012**

The National Planning Policy Framework (NPPF) sets out national planning policy that is committed to minimising impacts on biodiversity and providing net gains in biodiversity where possible. Under NPPF, local planning authorities have an obligation to promote the preservation, restoration and recreation of Priority habitats, ecological networks and the protection and recovery of Priority species as identified under the Natural Environment and Rural Communities Act (2006). Section 118 of the NPPF also requires enhancements for biodiversity. The NPPF also recognises the wider benefits of ecosystem services. For some projects net gain will be demonstrated through the use of the Biodiversity metric (Natural England, 2019)

### **Natural Environment and Rural Communities Act (NERC) 2006**

The Natural Environment and Rural Communities Act (NERC) requires all public authorities, including planning authorities to have regard to the purpose of conserving biodiversity whilst carrying out their normal functions. The NERC Act includes lists of Habitats and Species of Principal Importance (HPIs and SPIs) to the conservation of biodiversity (Section 41) that should be considered in the implementation of duties under the NERC Act. In line with government circular 06/2005 (ODPM, 2005) which provides supplementary guidance, the presence of a Priority species may be a material consideration when a planning authority is considering a development proposal.

The HPI and SPI listed under the NERC Act are largely also UK BAP Priority habitats and species. The UK Post-2010 Biodiversity Framework succeeds the UK BAP partnership; though its list of Priority species and habitats agreed under the UK BAP still form the basis of much biodiversity work in the UK. The current strategy for England is 'Biodiversity 2020: A Strategy for England's wildlife and ecosystem services'.

### **The Wildlife and Countryside Act 1981 (as amended) (WCA)**

The Wildlife and Countryside Act 1981 (as amended) is the primary legislation for England and Wales for the protection of flora, fauna and the countryside. Part 1 of the Act deals with the protection of wildlife.

Amended by the Countryside and Rights of Way (CRoW) Act 2000

Most European Protected Species are now covered under the Conservation of Habitats and Species Regulations (see below) but some activities are still covered by the WCA such as obstructing access to a bat roost.

The WCA prohibits the release into the wild of non-native animal species listed on Schedule 9. It is also an offence to 'cause the spread' of plants listed on Schedule 9.

All British birds, their nests and eggs are protected in law. It is an offence to deliberately take, kill or injure any wild bird or to take, damage, or destroy any nest or egg of any wild bird. The birds listed under Schedule 1 of the Wildlife and Countryside Act are afforded additional protection against intentional or reckless disturbance whilst building a nest or in or near a nest containing eggs or dependent young.

All species of reptile and amphibian are protected by the WCA. Under Schedule 5, Reptiles such as adder, common lizard, slow worm and grass snake are protected against intentional killing, injuring or selling, and smooth newt, palmate newt, common frog and common toad are protected only against sale. Species such as the smooth snake, sand lizard and great crested newt are afforded additional protection by European legislation as described below. These species are thought to be absent from Cornwall (apart from one site in north Cornwall where sand lizard has been reintroduced).

A number of invertebrates, including the white-clawed crayfish, are protected under Schedule 5 of the Act.

The CRoW Act also specifies the duty of Local Authorities to further the conservation of listed (UK BAP priority) habitats and species.

### **Conservation of Habitats and Species Regulations 2010 (as amended)**

The Conservation of Habitats and Species Regulations 2010 (as amended) are the means by which the EC Habitats and Species Directive (92/43/EC) is transposed in England and Wales and update the legislation and consolidate many amendments which have been made to the Regulations since they were first made in 1994.

These Regulations provide protection for European Protected Species (animals and plants listed in Annex IV Habitats Directive which are resident in the wild in Great Britain) including bats, dormice, great crested newts and otters. The Conservation of Habitats and Species (Amendment) Regulations 2012 placed new duties on public bodies to help "preserve, maintain and re-establish habitat for wild birds".

The designation and protection of domestic and European Sites e.g. Sites of Special Scientific Interest and Special Areas of Conservation (SAC) also falls within these Regulations.

Public bodies (including the Local Planning Authority) have a duty to have regard to the requirements of the Habitats Directive in carrying out their duties i.e. when determining a planning application.

European Protected Species (EPS) occurring in Cornwall: Bats, Dormice and Otter are protected under both the Conservation Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended), it is an offence to:

- Intentionally kill, injure or capture an EPS;
- Intentionally or recklessly disturb an EPS;
- Intentionally or recklessly damage, destroy or obstruct access to a place of shelter or breeding (for example, bat roosts, hedgerows used by dormice), and this applies regardless of whether the species is actually present at the time (for example, a bat roost used in the winter for hibernation is protected throughout the year, even during the summer when it is not occupied).
- Possess or transport a bat or any part of an EPS, unless acquired legally;
- Sell, barter or exchange bats, or parts of an EPS.
- Intentionally handle a wild EPS or disturb an EPS whilst using a place of shelter/ breeding unless licensed to do so by the statutory conservation agency (Natural England).

### **Town and Country Planning Environmental Impact Assessment Regulations 2017**

These regulations apply the amended EU directive "on the assessment of the effects of certain public and private projects on the environment" (usually referred to as the 'Environmental Impact Assessment Directive') to the planning system in England.

### **British Standard**

In 2013 the first British Standard on Biodiversity (BS42020) was produced. This sets the standard for assessment of biodiversity within the planning process.

### **Case Law**

There are several case laws in Britain relating to the duty of developers and planning authorities with respect to wildlife, resulting in several key principles summarised in the table below:

Case / Appeal	Providing support for
Morge v Hampshire County Council (2011)	'Disturbance' under the Conservation Regulations 2010 applies to an activity likely to impact negatively on the local population of a European Protected Species.
R v Cheshire East Council 'The Woolley Case' (2009)	Regarding European Protected Species, Local Authorities must apply the 'three tests' under the Conservation Regulations 2010 when deciding on planning applications: that there is no satisfactory

alternative, there is an appropriate reason for the development, and that the development will not affect the favourable conservation status of protected species present.

- |  |  |
|--|--|
| APP/P9502/A/08/2070105<br>(Appeal decision, Brecon, 2008)  | Para 18: Local Planning Authorities cannot condition provision of a mitigation scheme; detailed mitigation must be provided prior to determination.              |
| APP/C0820/A/07/2046271<br>(Appeal decision, Padstow, 2007) | Para 18: Full survey information must be provided prior to determination; not just for protected species, but also for BAP species (in this case corn buntings). |
| R v London Borough Council Bromley (2006)                  | Para 30: Environmental Impact Assessment required at outline planning stage.   |
| R v Cornwall County Council 'The Cornwall Case' (2001)     | Surveys for protected species cannot be conditioned; must be undertaken prior to determination.  |

### **Cornwall Inshore Fisheries and Conservation Authority**

<https://www.cornwall-ifca.gov.uk/recreational> - Guidance on recreational sea fishing laws.

[https://www.cornwall-ifca.gov.uk/Byelaws\\_Regulations](https://www.cornwall-ifca.gov.uk/Byelaws_Regulations) - Cornwall IFCA byelaws, regulations and codes of practice.

## Appendix 5 South Cornwall River Improvement Project (SCRIP) (WRT, 2015)



# The South Cornwall River Improvement Project

*A Catchment Restoration Fund Project*







The South Cornwall River Improvement Project (SCRIP) was a Catchment Restoration Funded Project, which was administered by the Environment Agency. The project was written and delivered by the Westcountry Rivers Trust and steered by its catchment partnership.

The project was delivered over three years (2012-2015), with the primary aim of delivering targeted action to make significant steps towards achieving Water Framework Directive (WFD) waterbody objectives set out in the 2009 River Basin Management Plans.

This report documents the works delivered under the SCRIP and describes how these works were targeted to ensure that efficient on the ground management was delivered effectively throughout the catchment.

Although the SCRIP has completed its final year, the work that has been delivered and the valuable information and data that has been collected will provide a solid foundation to build upon in the future. This not only provides wider benefits to the society and the environment, but also provides a valuable tool to aid in building a sustainable future for the catchment as whole.

Report written and compiled by Layla Ousley, Giles Rickard, Alex Taylor and Sarah Wigley

***Westcountry Rivers Trust***

Rain Charm House, Kyl Cober Parc, Stoke Climsland, Callington, Cornwall PL17 8PH  
tel: 01579 372140; email: info@wrt.org.uk; web: www.wrt.org.uk

*This document may be reproduced with prior permission of the Westcountry Rivers Trust.  
The copyright of all material remains with the originators unless otherwise stated.*



## Contents

Introduction.....	5
2014 WFD Report Cards.....	10
Delivery Overview.....	12
- Fish.....	14
- Metals.....	27
- Phytobenthos.....	32
- Phosphorus.....	35
- Stakeholders & Partnership.....	42
Project Summary.....	46
Project Achievements.....	47
Future Works.....	49



Image: River Warleggan



## The Catchment Restoration Fund

The Department for Environment, Food and Rural Affairs (Defra) created the Catchment Restoration Fund (CRF) in 2012 to help achieve the Water Framework Directive (WFD) status objectives set out for waterbodies in the 2009 River Basin Management Plans (RBMPs).

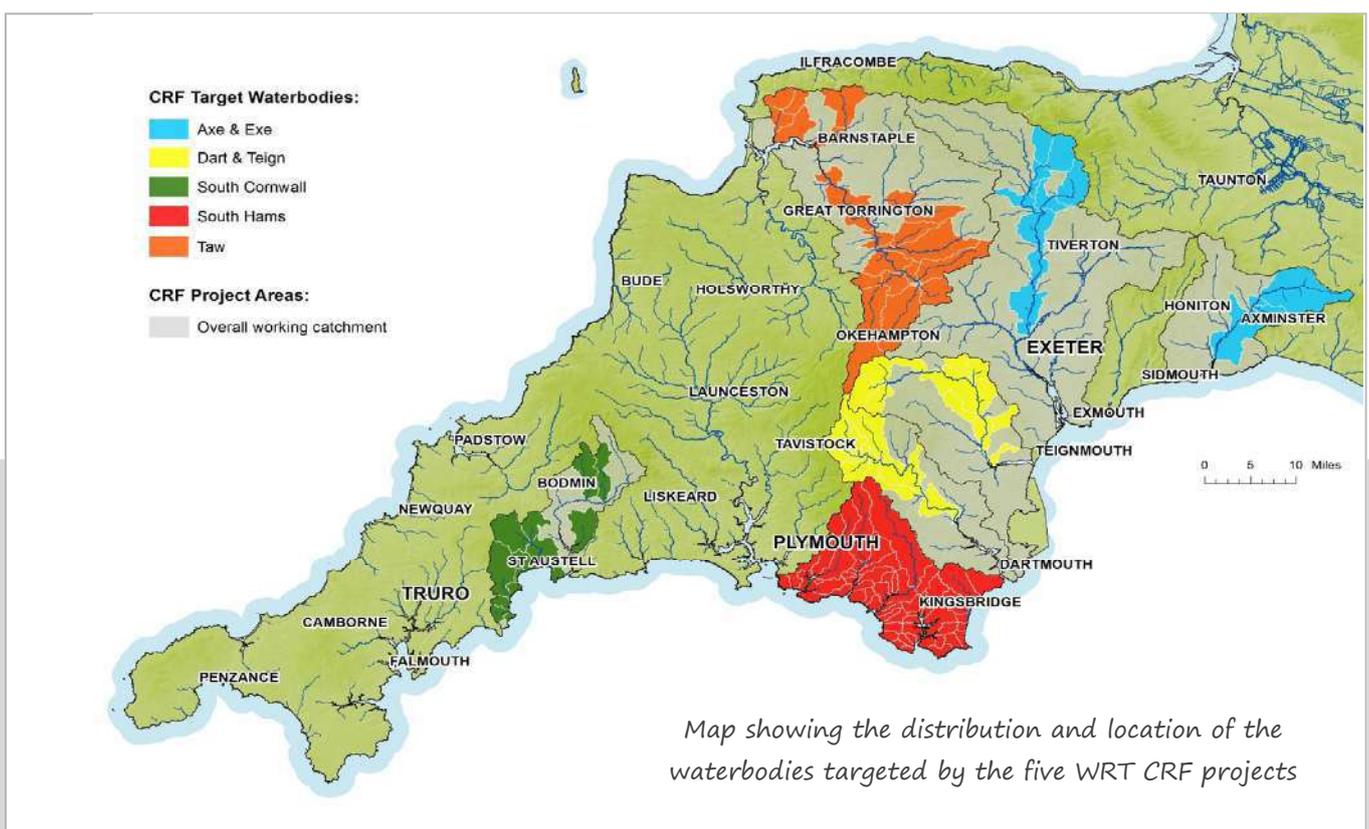
The fund was allocated for projects in England to be delivered in 2012/13, 2013/14 and 2014/15. The CRF was administered by the Environment Agency to support third sector organisations to deliver catchment-level projects designed to fulfil the following objectives:

- Restore natural features in and around watercourses;
- Reduce the impact of man-made structures on wildlife in watercourses;
- Reduce the impact of diffuse pollution that arises from rural and urban land use.

While the South West of England has some of the UK's most iconic and beautiful rivers, many of them are experiencing pressures, both current and historic, that limit their ability to function naturally and which cause them to become ecologically degraded.

In 2012, responding to these problems, the Westcountry Rivers Trust (WRT) secured CRF funding to deliver over £4 million of river restoration and catchment management work over three years on river catchments across the South West. These river and catchment restoration projects have been delivered on the rivers of the South Hams, the Axe and Exe, the Dart and Teign, the Rivers of South Cornwall and the Taw.

These river improvement projects were specifically developed using a rigorous evidence-led, partnership approach to mitigate the pressure acting on these rivers and improve the health of these precious and vital river ecosystems.





## River Catchment Overview

### St Austell Bay Rivers

The majority of these rivers share similar characteristics where the headwaters have been affected by historic and contemporary mining with the lower section channels being modified. The Par catchment rises around Criggan Moors near the villages of Roche and Bugle at an altitude of around 130m.

Many of the St Austell Bay rivers flow through water dependent designated areas including Breney Common SAC/SSSI, Red Moor SSSI and several County Wildlife Sites.

Due to historic engineering the lower section of the Par river is heavily modified and canalised and therefore lacks many features suitable for fish, invertebrates and many other forms of wildlife.

The St Austell River or 'The White River' has an area of approximately 39km and rises near Carthew and discharges at Pentewan Beach. The upper catchment is heavily influenced by historic and contemporary clay extraction which leads to heavy outflows of clay washing from extraction points, which have high suspended sediment and turbidity levels. These discharges have significant affects upon the water quality and ecology of the river. Below St Austell the river becomes heavily modified and straightened consequently reducing habitat diversity, providing few features to encourage fish and other aquatic fauna.

The Mevagissey, Port Mellon and Gorran stream are small coastal catchments. The headwaters are dominated by agriculture which is the main pressure acting on these water bodies. There are also large areas of woodland particularly in the Mevagissey stream. The lower section of the Mevagissey is culverted which is known to prevent the movement of migratory fish. There are also culverts in the upper catchment which restrict the movement of fish. The Mevagissey river failed WFD for fish (poor) although it is thought that the water quality is generally good, which would make re-colonisation possible.

The rivers of the St Austell bay area, although generally small do have a significant effect on bathing water quality, with the beaches Polkerris, Port Mellon

### South Cornwall Rivers

Catchment Size	426 km <sup>2</sup>
St Austell Bay Rivers	Par, St Austell & Portmellion
Fowey Rivers	Warleggan, St Neot & Lerryn
Designations	SSSI, SAC & AONB
Species	Atlantic Salmon, Bullhead, Trout, Otter, Eel, Lamprey
WFD RFF	Fish, Phosphate, Phytobenthos, Metals (Copper & Zinc)

and Gorran Haven only just passing the Bathing Water Directive limits).

### Fowey Rivers

The Warleggan and St Neot rivers rise on Bodmin Moor and are of similar size and topography. Both of these tributaries drain into the main river Fowey which is the largest river catchment in South Cornwall at 177km<sup>2</sup>. The headwaters can be considered extensive moorland which is conducive to good water quality, whereas further down the catchment there is more intensive mixed farming including dairy and arable farms.

There are also extensive areas of woodland in the catchment including more natural deciduous woodland and large coniferous plantations. There is no heavy industry in the catchment but there are large areas of historic mining which have left their legacy on the environment, resulting in high levels of copper and zinc in some streams. The Fowey is the principle water abstraction resource for Cornwall and as such is important in the delivery of multiple ecosystem services.

Although similar to the Warleggan in topology, the St. Neot river is impounded by Colliford Lake Reservoir which provides a significant proportion of Cornwall's mains water. This has had a huge effect on the flow regime, as well as affecting the transport of bed-load and penetration of migratory fish upstream. Water is released from the reservoir and transported downstream where it can then be extracted at Restormal on the main river near the tidal limit.

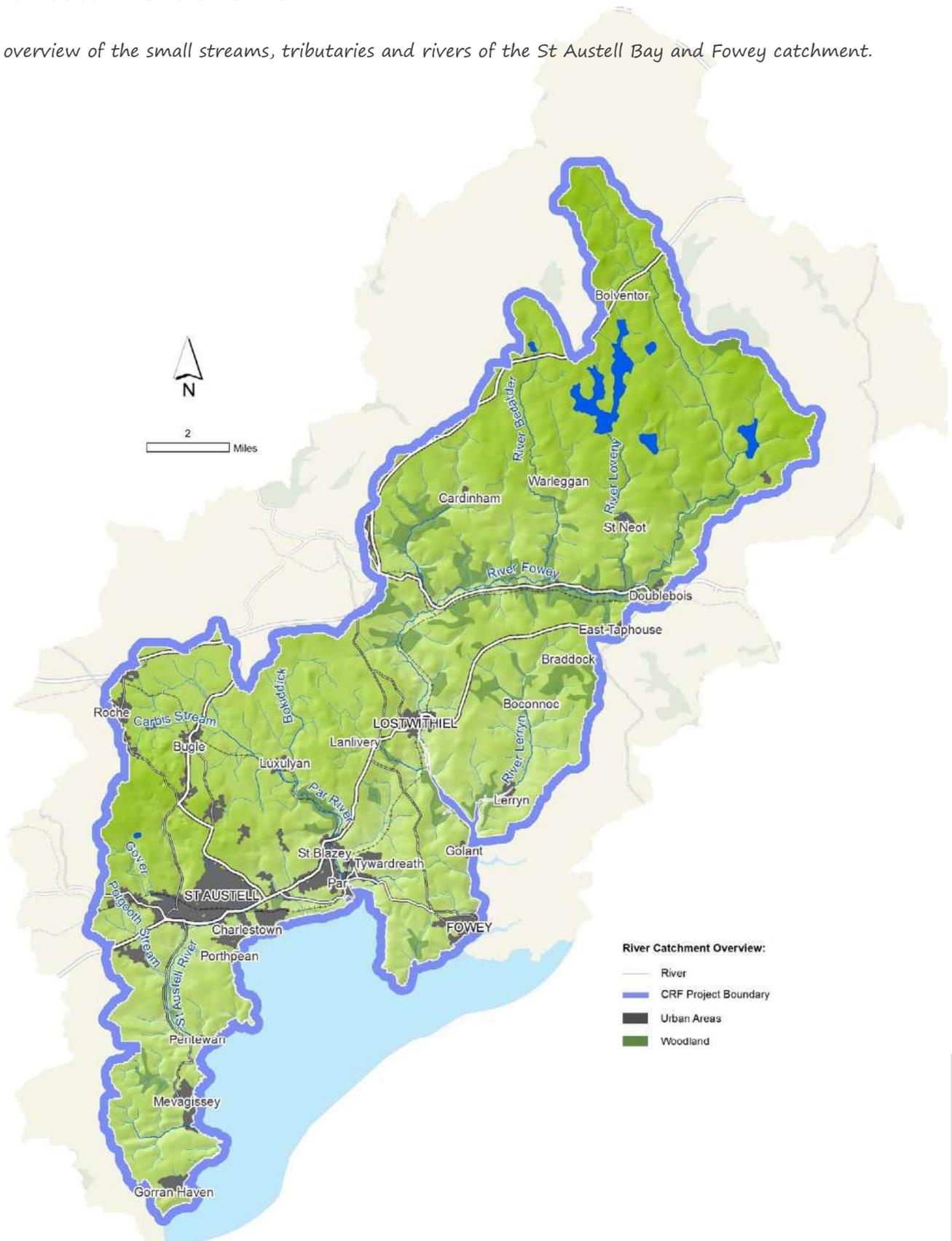
# Introduction

The South Cornwall  
River Improvement Project



## River Catchment Overview

An overview of the small streams, tributaries and rivers of the St Austell Bay and Fowey catchment.

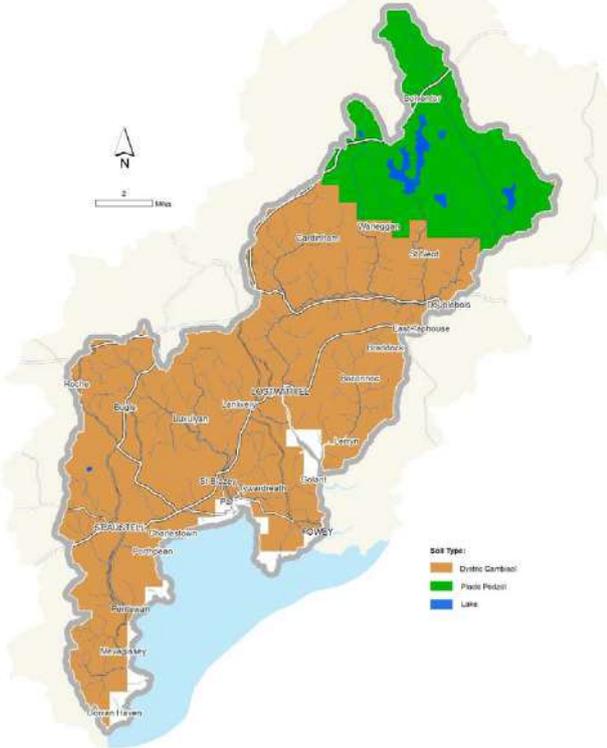




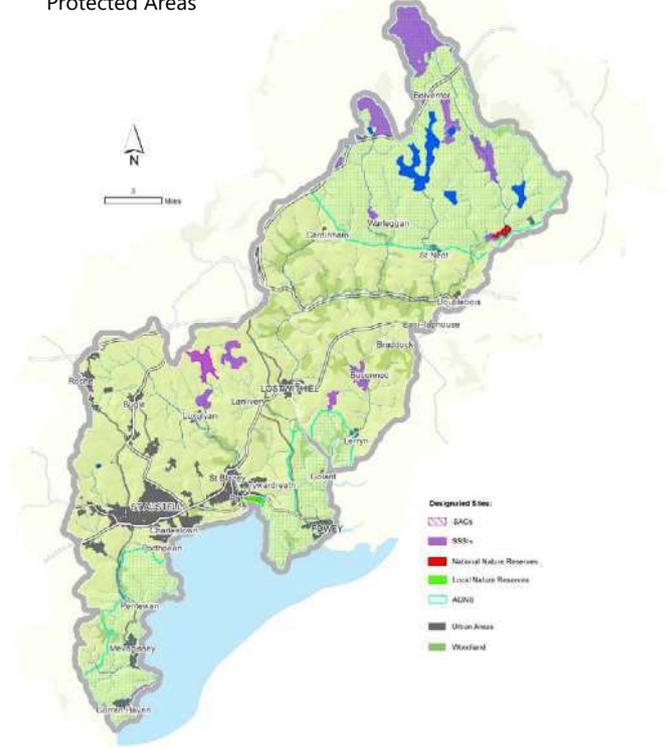
## River Catchment Overview

### Landscape Characteristics of the Teign & Dart

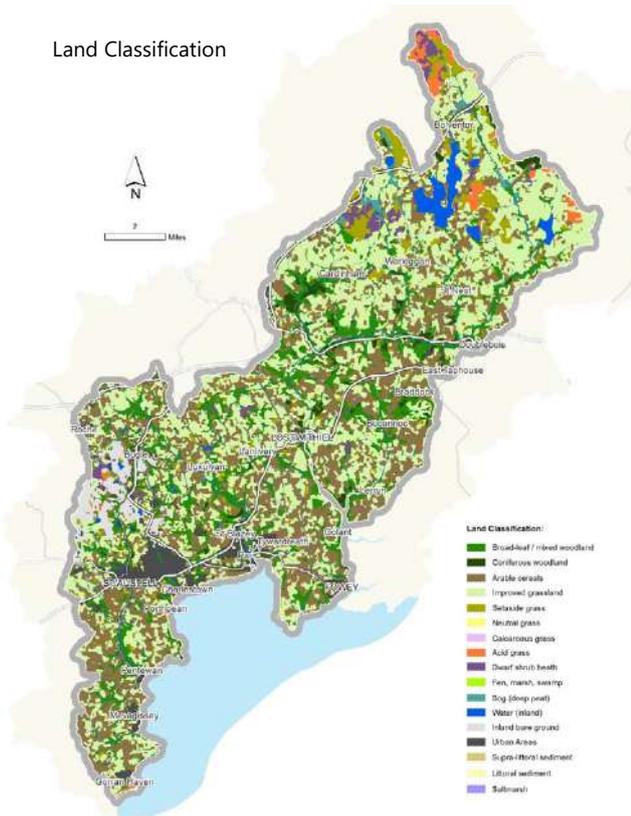
Distribution of soil type



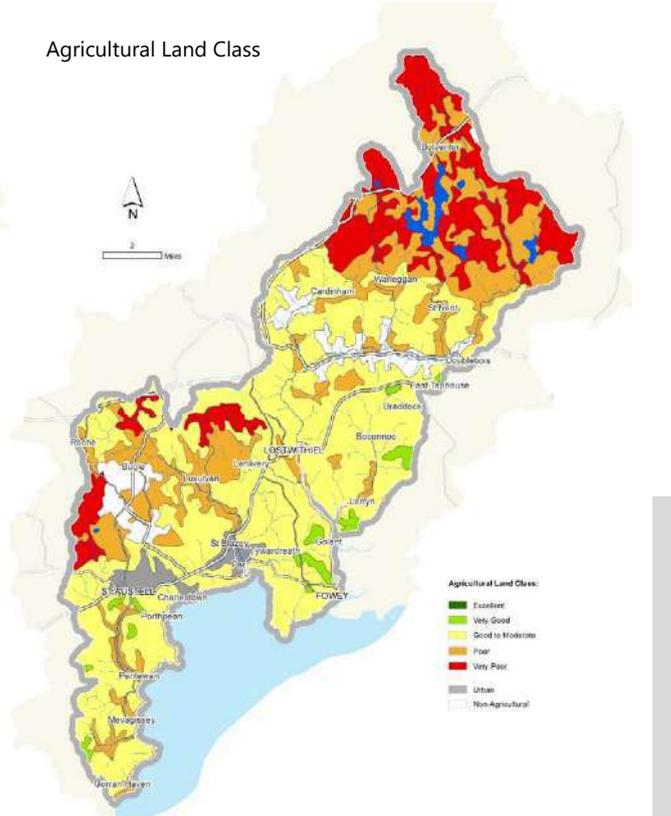
Designated Sites & Protected Areas



Land Classification



Agricultural Land Class





## WFD Classification

The most important set of evidence that we can use to assess the condition of the waterbodies in the Teign and Dart river catchments is their Water Framework Directive (WFD) classification. The associated Reason for Failure information collected by the Environment Agency also helps us target interventions to mitigate pressures acting on these waterbodies. This data is shown on the following two pages.

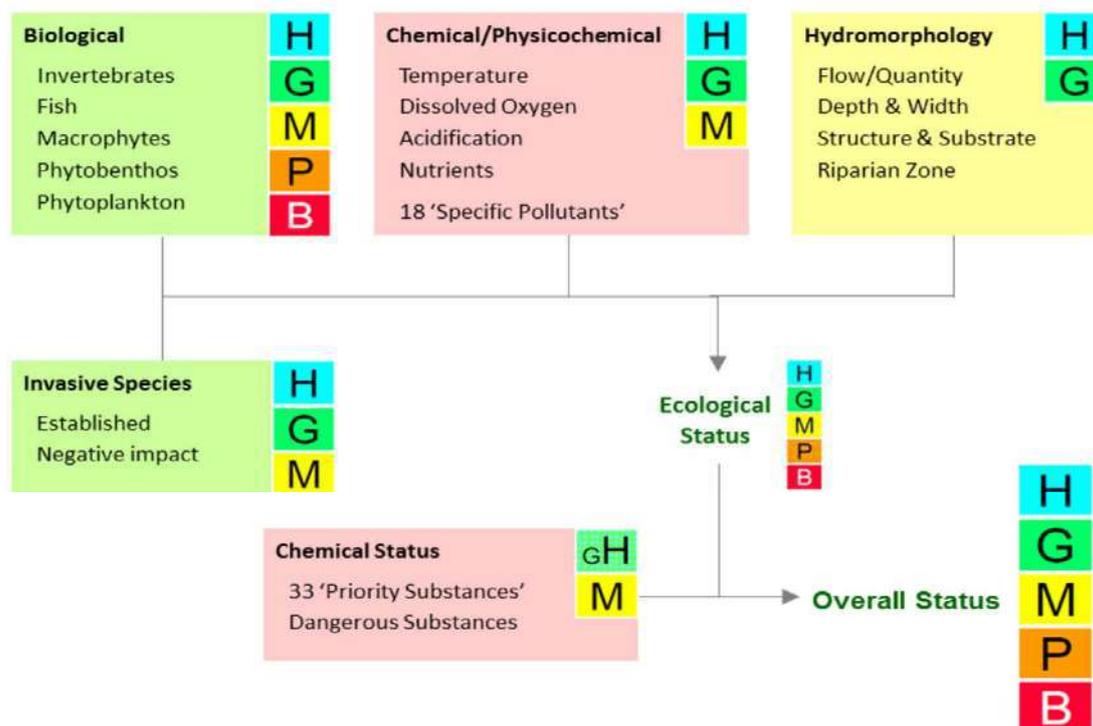
WFD condition assessments are currently undertaken by the Environment Agency using methodologies agreed with the UK Technical Advisory Group (UK TAG) and recommendations for remedial catchment management interventions are made through River Basin Management Plans (RBMPs).

For surface waters, such as rivers and lakes, the 'overall status' of a waterbody is comprised of an ecological and a chemical component. The ecological status of a waterbody is primarily measured using a series of biological parameters and is recorded on the scale high, good, moderate, poor and bad (with moderate or worse being regarded as failure).

To determine a WFD classification the degree of disturbance to each quality element is assessed against a 'reference value or set of values' for that element. A reference value for a biological quality element is a value identified from the range of values the quality element may have when subject to no or only very minor alteration as a result of human disturbance (i.e. when it is in a reference, or high status, condition).

In addition to the biological characterisation of waterbody condition, classifications are also supported by assessments of three further components of the environment: 1) morphology (physical structure); 2) hydrology (flow and water levels), and 3) chemistry (including general water quality, physico-chemistry, and chemical pollutants.). Annex V of the WFD identifies these components as 'elements supporting the biology'.

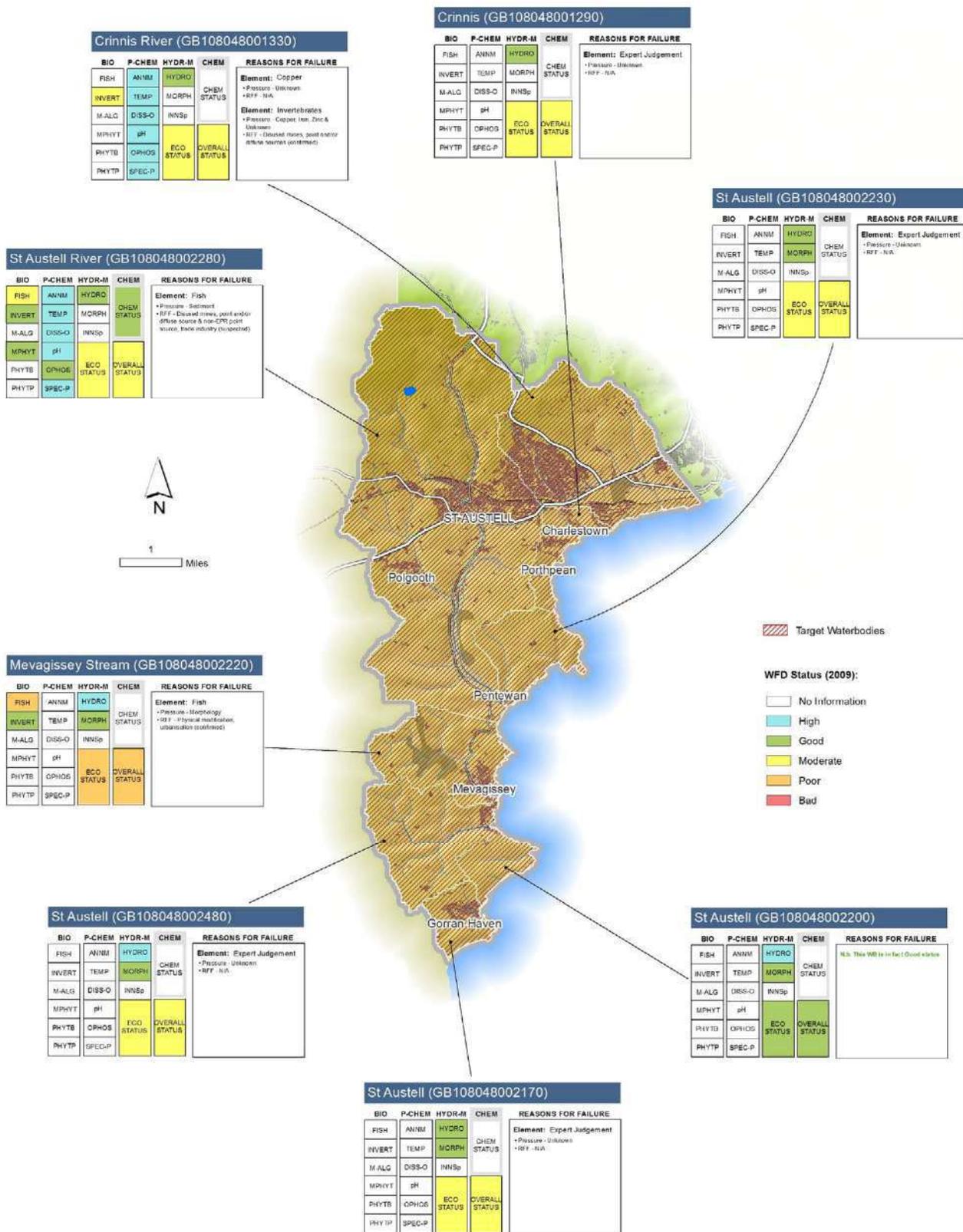
The schematic below shows how Overall WFD status is determined. Once the individual elements have been assessed the lowest classification recorded for any of the parameters will form the final WFD classification for that waterbody (this is referred to as 'one out, all out').





## West Catchment Report Card 2009

Map showing 2009 WFD Classifications and Reasons for Failure



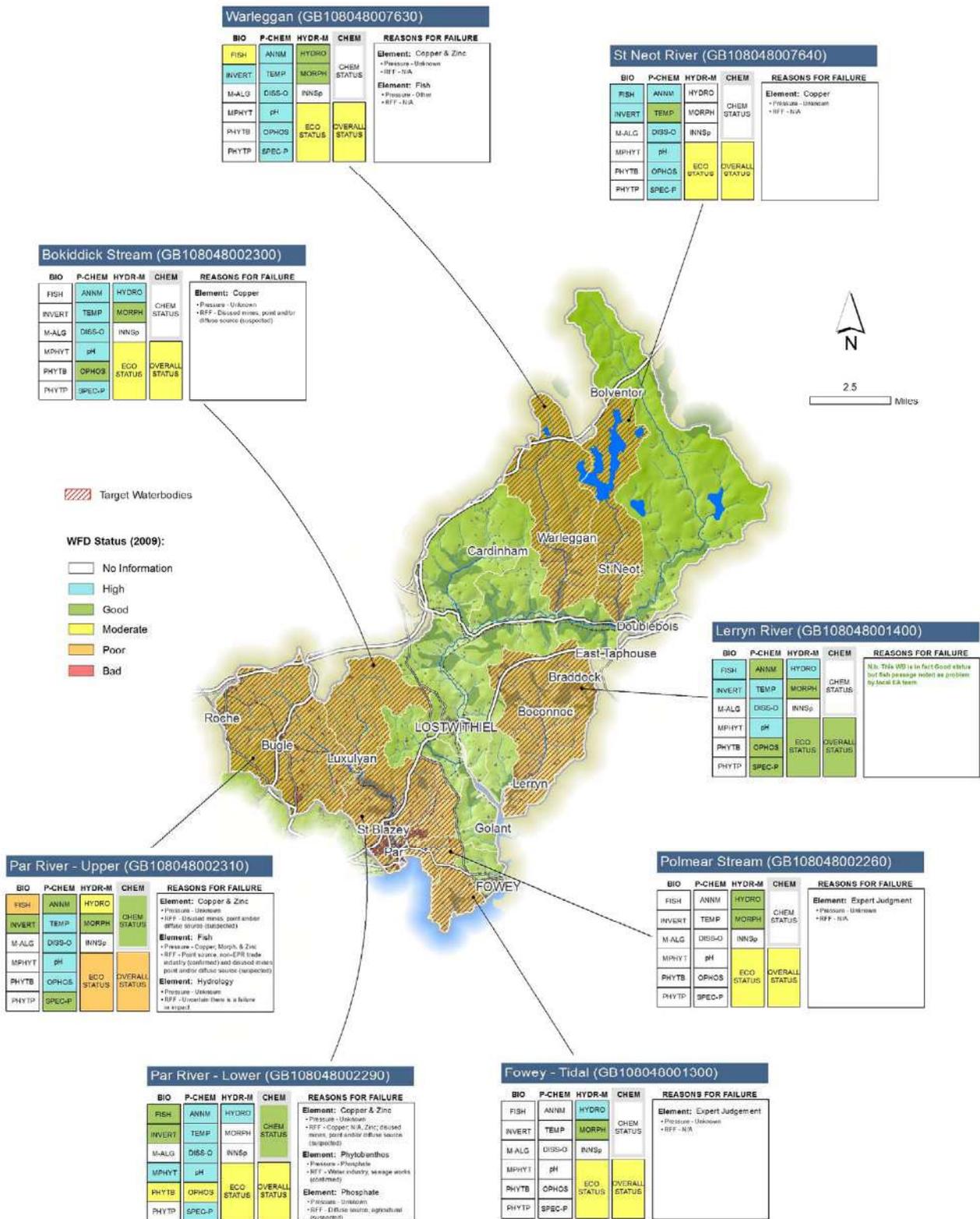
# Introduction

The South Cornwall River Improvement Project



## East Catchment Report Card 2009

Map Showing 2009 WFD Classifications and Reasons for Failure





## The South Cornwall River Improvement Project (SCRIP)

The catchments included within the South Cornwall Rivers Improvement Project (SCRIP) are the St Austell Bay Rivers and the Fowey.

There were a number of pressures that affect the WFD status of the South Cornwall Rivers, many of which have failed to reach good ecological status. The SCRIP aimed to improve the catchment's WFD status by restoring its rivers and riparian habitats through a variety of well monitored and practical methods.

Some benefits of the SCRIP include helping to improve water quality; improve the ecological health and biodiversity of the river and its surrounding habitats; create a better environment for recreation and angling, and conserve and restore fish populations.

The SCRIP was led by the WRT in partnership with IMERYYS, The Environment Agency, South West Water, Cornwall Council, The South West Rivers Association, Natural England, Cornwall AONB, Catchment Sensitive Farming, The Fowey Rivers Association, Heligan Gardens and the Forestry Commission.

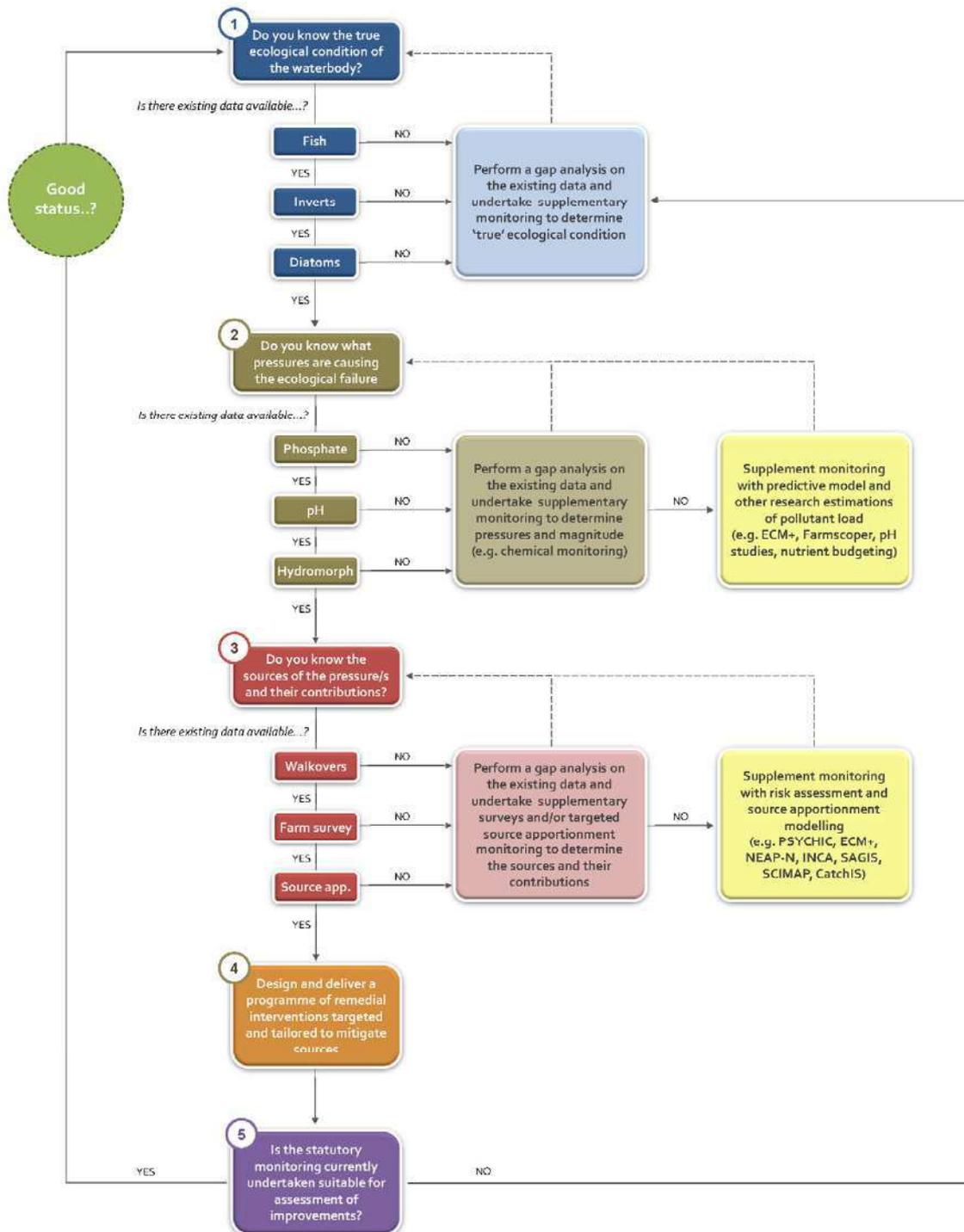


*St Austell China Clay Works by Paul Glendell*



## This report

This Catchment Restoration Funded Project report has been written from a WFD Reason for Failure point of view. This is because all of the work conducted within the project was designed to address specific environmental pressures, aiming to restore freshwater habitats to their natural condition and target waterbodies failing to reach good ecological status under the WFD. Therefore the report has been divided into specific chapters relating to each reason for failure, where a full account of the investigations and works conducted to address those failures have been made.



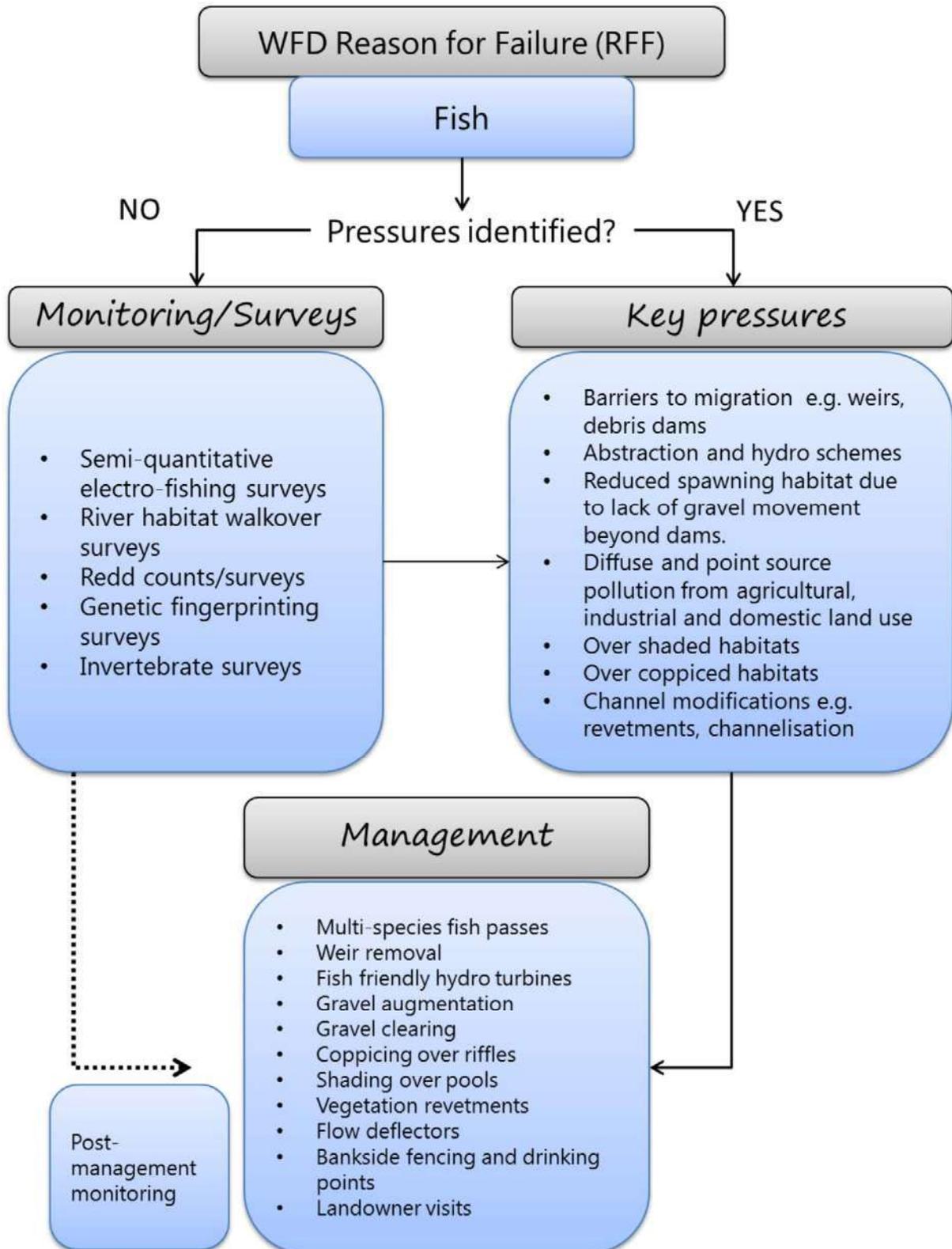


FISH



## Targeting interventions for fish

Flow diagram to illustrate how CRF works within the SCRIP were targeted and driven by WFD.





## Identification of pressures & Reasons for Failure

### *Investigative monitoring: a key component of fisheries management*

Monitoring is a key component of fisheries management. It is used to investigate the pressures which are causing the failure of a waterbody to reach WFD objectives and it is used throughout a management programme to assess its effectiveness. Monitoring is most effective if it is conducted regularly so that data can be collected even once a management project has ceased, as this ensures future management can be targeted efficiently and effectively.

Electrofishing surveys are the primary method to assess fish population densities, diversity and distribution within a river. Electrofishing is especially effective at monitoring the impact of a barrier on fish movement and the effectiveness of the intervention once the barrier has been removed or mitigated. Redd counting is another survey method which can be very useful in investigating the impacts of barriers and their mitigation.

The biological and physiochemical components of water quality can be measured in a number of ways. Biological methods commonly adopted include diatom, macrophyte and invertebrate sampling, which uses indicator species to assess the levels of nutrient enrichment or pH aberration within a river. In addition to the biological measures of river ecological health, the physical and chemical properties of the water are assessed through the taking and analysis of monthly water samples to determine whether the water is able to support the good ecological health of the river.

### *Barriers to Migration and Abstraction*

Many fish, particularly species that are highly migratory, require different riverine environments for the different phases of their lifecycle. Anadromous species in particular, such as salmon and sea trout, migrate in order to reproduce; therefore barriers to migration such as weirs, culverts and structures related to abstraction (such as hydro-electric machinery) can be significant factors underpinning failures in WFD fish status.

Other barriers, such as dams, not only inhibit migration, but they can also have a negative effect on the morphology of the river and the natural movement of substrate or bed-load material. Where dams are present, rivers downstream can become starved of substrate material and gravel (depletion) and therefore fish spawning potential in this downstream reach is decreased.

Habitat management, such as; weir removal, the installation of multi-species fish passes, fish friendly hydro turbines and the introduction of gravels below dams, are all effective but site specific options to adopt.

These methods, combined with appropriate monitoring, can be highly effective management tools that help to maintain or improve the connectivity within a river and improve the breeding potential for migrating fish.

Management options include:

- Multi-species fish passes
- Weir removal
- Fish friendly hydro-turbines
- Gravel augmentation/  
rehabilitation





### *Lack of habitat management*

When rivers have the subject of poor maintenance, there are a number of factors that can negatively affect the its potential to support healthy fish populations.

A healthy river system requires a patchy mosaic of shaded and open areas. Shading stabilises water temperature and provides protection for many fish species from predation. However, there is also a need for open unshaded areas as they play a key role providing sunlight to areas where juveniles fish occur. Light is needed to sustain the benthic community of the river, it encourages epithetic algae to grow which communities of scrapers and grazing invertebrates are reliant on, therefore providing valuable feeding grounds for juvenile fish.

In the past woody debris in the channel was thought to cause negative effects such as flooding and increased bankside erosion. However, if woody debris is secure, correctly sited and does not cause increased potential for erosion or flood risk, it is more commonly accepted to have many ecological and hydrological benefits.

Channel modifications such as revetments and channelisation can have significant negative effects on the river fauna. These homogeneous habitats often lack riparian vegetation; therefore shelter availability is low leading to a loss of suitable habitat to support fish and other aquatic species.

Management options include:

- Coppicing of riparian trees & woody debris management
- Vegetation revetments to protect banks
- Flow deflectors to create heterogeneous flow



### *Poor land management & diffuse pollution*

Land management practices, such as intensive farming, can place pressures on river health through sediment inputs caused by erosion and chemical pressures through the use of pesticides and fertilisers. These pressures can negatively impact macrophyte, invertebrate and fish communities, which, in turn, has a knock-on effect on the health of the whole ecosystem.

Fish populations, especially salmonid species, are extremely dependent on the supply of clean and well oxygenated water. For example, the accumulation of silt in spawning gravels can smother eggs and fry, while also impacting on the invertebrates which they feed on.

Management options include:

- Landowner engagement to give advice & grants
- Bankside fencing & alternative livestock drinking points
- Gravel cleaning





## Culvert Mitigation

There are a number of culverts through out the Mevagissey and St Austell river system. Historic culverts can cause delay to or may completely obstruct migrating fish. Some reasons for this are excessive water velocities, inadequate depth or culvert diameter, sudden change of invert level between the culvert and the watercourse, rapid change in stream hydraulics at the upstream inlet, lack of resting places, and debris dams causing a physical blockage or a combination of any of these factors.

Mitigation should therefore focus on removing or improving the above issues, providing works do not reduce the channel capacity or pose a flood risk.

### Portmellon Road Culvert

The Portmellon stream road culvert was identified by a walkover survey to be a potential obstruction to migrating fish upstream. The large concrete apron provided extremely shallow water levels, making it very difficult for fish to approach or enter the culvert during all flows.

A wooden baulk was installed to increase the water depth on approach to the culverts. The baulk was made out of untreated hardwood sleepers and was fitted by K. Hill and Partners Ltd.



### Mevagissey Culvert

The Mevagissey culvert originally presented a complete obstruction to migrating fish upstream, the diameter was too small and its invert position was set too high. The culvert was removed under SCRIP and replaced with a large culvert which would allow access to multiple species of fish under all flow regimes.



### Portmellon Culvert

Sanctuary wood culvert is situated on the Portmellon Stream. Erosion had occurred at the exit of the culvert to such an extent that a 1m height difference had been created thus preventing fish passage. The stream was backfilled with material from the existing banks and the levels raised to so that scour could not occur and fish passage could be reinstated. .





## Treskilling Stream Habitat Works

The Treskilling Stream is a tributary of the Par. This waterbody is failing for fish and hydromorphology. The reasons for failure are thought to be attributed to diffuse pollution from suspected disused mines and changes to flow heterogeneity from potential historical channelisation.

Long stretches of the Treskilling Stream lack flow heterogeneity which provides a habitat unable to support a diverse range of species. Without a combination of instream features such as coarse woody debris, vegetated banks, or a change in flow regime many species are unable to thrive. For example, a channelised (straightened) stream would have a slower flow, this can cause reduce oxygen levels in the water. Spawning fish and their young are reliant on fast flowing well oxygenated water to spawn. A channelized stream would also support less invertebrates for fish to feed on and suitable habitat for fish to rest or spawn upon.

### Investigation

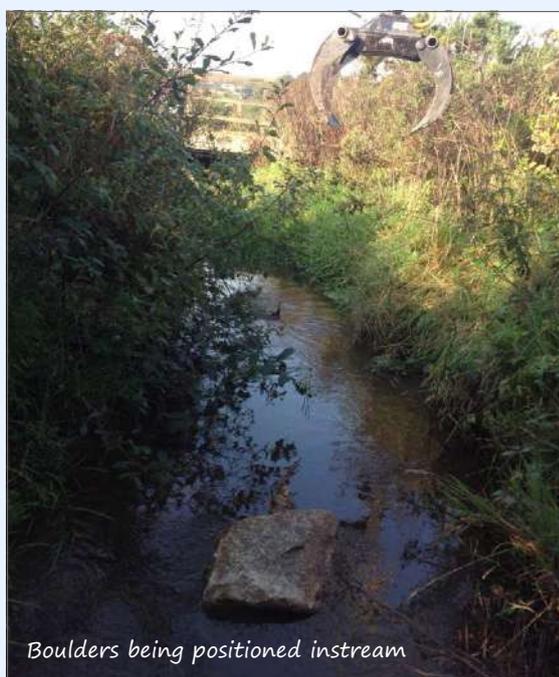
Recent Environment Agency fisheries survey data suggested that salmonids were absent from the river. WRT also undertook further fisheries surveys in 2013 but found no salmonids at two other survey locations along the river. The conclusion was, therefore, straightforward; with significantly improved water quality (validated through invertebrate and diatom surveys) the main priority on the Polgooth stream is to remove obstacles to migratory species of fish, allowing fish from the main river to access and re-populate the Polgooth.

### Delivery

The walkover survey identified four possible barriers to salmonid migration. Two small culverts which served as a river crossing, one weir and a large 35 m culvert which is a total barrier that prevents fish migrating from the St Austell River into the Polgooth Stream. Two of the four barriers were concrete piped culverts which were identified as a priority for removal. Following consultation with the landowners and Cornwall Council, permission was gained to remove the culvert as the crossing was no longer in use (right).



Channelised stretch of the Treskilling Stream



Boulders being positioned instream



3 of the 12 boulder deflectors in-situ

WATERBODY	Treskilling Stream
CATCHMENT	Fowey
WFD STATUS	FISH (POOR)
PRESSURE	Hydromorphology
MANAGEMENT	Flow deflectors
DESIGN	Boulder reintroduction
DATE:	September 2014



## Treskilling Stream Habitat Works

The river Lerryn rises near East Taphouse and flows through the Boconnoc estate before flowing into the Fowey estuary near Golant. The weir on the river Lerryn at Couch's Mill was noted several years ago as a possible barrier to fish as part of the previous Cornwall River Project, however at the time additional funds were needed to complete the work.

Through the SCRIP, supplemented with some additional match, worked to arrange for the deconstruction of the weir. The weir historically served a leat, however over time the leat has been taken out of use. It was important however, given its history that there was consultation with Cornwall archaeology regarding its archaeology value.

### Management

A SNIFFER assessment of the weir was also undertaken (a rapid assessment methodology to assess obstacles to fish migration), which highlighted that the weir is difficult for salmonids to pass in all but very high flows.

As removal is the best way to improve fish passage for all species and is often the cheapest, we were able to undertake a full removal whilst taking note of the design and construction materials originally used during building of the weir.

Minimising barriers to fish migration (up and downstream) can significantly help fish populations and allow adult fish to return to spawning grounds with the minimum of stresses along with allowing maturing smolts to freely move downstream and out to sea. Juvenile salmon have been found during surveys below the weir and it is hoped that this small population can increase given an easier chance to move and spawn further up the catchment.

WATERBODY	River Lerryn
CATCHMENT	Fowey
WFD STATUS	FISH (HIGH)
INVESTIGATION	Barrier Assessment
PRESSURE	Barrier to migration
MANAGEMENT	Barrier easement
DESIGN	Weir removal
DATE:	July 2015



BEFORE: Lerryn Weir in medium flow



BEFORE: Lerryn Weir in low flows. This is when fish would really struggle to migrate upstream.



July 2015



Sept 2015

AFTER: Lerryn Weir removed. Banks have been graded out and vegetation has started to become established encouraging stabilisation



## Reconnecting the Polgooth Stream

The Polgooth stream is the largest tributary in the catchment where fish failure is caused by the absence of salmonids (both salmon and trout). This was suspected to be linked to point and diffuse inputs of contaminants from historical mining sites, particularly effluent from china clay driers, which reduced the levels of available oxygen in the stream. However, these driers have since been decommissioned, improving the water chemistry conditions. Given that water quality conditions have improved in the number of years since effluent discharge ceased, the continued absence of salmonids was suspected to be linked to physical barriers to fish passage.

### Investigation

Recent Environment Agency fisheries survey data suggested that salmonids were absent from the river. WRT also undertook further fisheries surveys in 2013 and found no salmonids at two other survey locations along the river. The proposed intervention was, therefore, clear; with significantly improved water quality (validated through invertebrate and diatom surveys) the main priority on the Polgooth stream is to remove obstacles to migratory species of fish, allowing fish from the main river to access and repopulate the Polgooth.

### Delivery

The walkover survey identified four possible barriers to salmonid migration. Two small culverts which served as a river crossing, one weir and a large 35 m culvert which is a total barrier that prevents fish migrating from the St Austell River into the Polgooth Stream.

Two of the four barriers were two concrete piped culverts which were identified as a priority for removal. Following consultation with the landowners and Cornwall Council, permission was gained to remove the culvert as the crossing was no longer in use. (see below).



Before & After: Culvert removal

WATERBODY	Polgooth Stream
CATCHMENT	St Austell River
WFD STATUS	FISH (MODERATE)
INVESTIGATION	Walkover survey and biological monitoring
PRESSURE	Mine drainage & barrier to migration
MANAGEMENT	Barrier easement
DESIGN	Culvert removal
DATE:	2013-2014

The weir identified in the walkover was assessed to be a partial barrier to fish. In order to improve fish passage over the weir a pre-barrage or tail water back up would reduce the face height of the weir, and increase the take off depth aiding upstream migration. However, the large 35m culvert was the main priority barrier to improve under SCRIP, therefore funding was prioritised to improve the culvert and work on the weir would have to wait until future funding came available.



Weir identified upstream of 35m barrier

### Future Priorities

Under SCRIP, WRT contracted H20K to design a bypass channel to allow for upstream migration of all fish species and create new diverse in-river habitat upstream.

Although the EA approved the designs, and the landowners originally agreed to have the works completed, the works had to be postponed as the landowner had unfortunately decided to sell their land. The 35m barrier is now a priority for future works.



35 m long culvert



## Restoration Measures: Habitat Improvements

### *WFD Benefits of Coppicing & Woody Debris*

Rivers that have not been managed correctly can negatively affect the river's potential to support fish, consequently reducing its WFD status. A healthy river system requires a patchy mosaic of shaded and open areas. Shading stabilises water temperature and provides protection for many fish species from predation. However, some open sections are equally as important for providing sunlight to areas where juveniles are growing. Light is needed to sustain the river's benthic community, it encourages epiphytic algae to grow which communities of scrapers and grazing invertebrates are reliant on, therefore providing valuable feeding grounds for juvenile fish.

Although excessive amounts of loose woody debris in a water course can increase the potential for debris dams and flood risk, if managed correctly woody debris can add many ecological benefits to the river system:

- Provides shelter and food for a variety of fish and invertebrate species
- Increases channel diversity through bed scouring and improves spawning gravels
- Provides bank protection, reduces erosion

### *Action*

Sites targeted for action were informed from the local WIPs, habitat walkover surveys and the local Fisheries Associations. Coppicing management was divided into two areas.

1. Fisheries Management—coppicing aimed to improve fisheries habitat
2. Farming management - coppicing conducted prior to fencing being installed and/or aimed to reduce erosion and stabilise banksides, which also indirectly benefits fisheries habitats (see Phytobenthos chapter).

Fisheries coppicing aims to provide a patchy mosaic of shaded and open areas. The contractors were advised by WRT to coppice over highlighted riffle sites, and leave the pools shaded for resting fish. All debris dams were assessed by WRT and removed if they posed a risk to obstruction or flooding. At suitable sites, woody debris was secured into the banksides or river bed to improve habitat diversity and river morphology. All contracts specified that works near or in the watercourse must be compliant with PPG5 and CDM.





## Restoration Measures: Coppicing & Woody Debris Management

### St Austell River, Pentewan



### Bokiddick Stream 1



COPPICING OUTPUTS		
Waterbodies	Site	Length (km)
St Austell	Pentewan	0.275
St Austell	Portmellon	0.6
St Austell	Polgooth	0.08
Bokiddick	Breney Common (Upper)	0.27
Bokiddick	Breney Common (Upper)	0.4
Par (Upper)	Upstream Lavrean	0.1
Par (Upper)	Downstream Molinnis	0.05
<b>Total sites *</b>		<b>17</b>

### Bokiddick Stream 2





## Coarse Woody Debris Introduction

The Westcountry Rivers Trust adopted a variety of coarse woody debris (CWD) introduction methods under SCRIP, where native woody species such as alder, thorn, oak and willow were used as natural bankside revetments. A method known as 'pleaching' or 'hinging' was used where suitable tree species are cut and laid in the flow direction along the river bank, any branches that broke during this process were removed to avoid causing a flood risk. This method not only provides shelter for fish, but also offers bankside protection from erosion.

COARSE WOODY DEBRIS OUTPUTS			
Waterbody	Site	Metres	Structure
St Austell	Pentewan	-	V Flow Deflector
Par (Upper)	Upstream Lavrean	10	
Par (Upper)	Downstream Mollinis	20	
Bokiddick	Breney Common (Lower)	100	
<b>Total (metres)</b>		<b>130</b>	



A wooden deflector was introduced on the St Austell River at Pentewan (which is categorised as a Heavily Modified Waterbody) to improve flow heterogeneity. The deflector works with existing features to create a meander. This method was adapted from Church (1992) taken from the Environment Agency Restoration of Riverine Salmon Habitats, Technical report 44. Unfortunately, as the river is a flood alleviation channel permission was not granted by the EA to install more than one deflector in case the works would impede flow.

*Wooden deflector, St Austell River at Pentewan*

Other methods of introducing CWD in the river are brash revetments. This is where native tree species such as willow, alder, thorn and hazel are attached to the banks with untreated hardwood stakes. Brash faggots are then wired around the CWD to create habitat diversity for multiple species and strong protection against erosion. Approximately 20m of brash revetments on the Lower St Austell River were planned under SCRIP, but although flood defence consent was granted by the EA, other aspects of the planning process delayed completion of the works. However, all the planning and methods are currently in place and the Pentewan Steam will be made a priority for future works and 10m of bank were fenced off for





## Restoration Measures: Gravel Cleaning

Some types of land use management can give rise to physical pressures on the river corridor through sediment input caused by erosion, and chemical pressures such as agriculture and mining. These common pressures can negatively impact macrophytes, invertebrates and fish abundance, which may have a knock-on effect on the whole ecosystem. Fish populations, especially salmonid species are extremely dependent on the supply of clean and well oxygenated water. The accumulation of silt in their spawning gravels, and soil derived pollution that has a toxic effect on the fish directly, or on the invertebrates in which they feed on, are all causes for declines in fish diversity.

At the start of the SCRIP the upper Par catchment had a WFD status of Poor for Fish. Its reason for failure had been linked to diffuse pollution from surrounding clay mines which carry fine sediment with a high heavy metal content. This has caused heavy concretion of gravels and poor spawning potential. Historical electrofishing results (WRT & EA) also indicate that the Par supports a low fry density, despite it being a historically important salmonid spawning stream.

### Method

For the above reasons WRT conducted a gravel cleaning programme on the Par River. WRT adopted a variety of non-mechanical gravel cleaning methods tailored for individual sites. Works were conducted downstream to avoid siltation of cleaned areas. All pools were left, and where possible only riffle sites were cleaned. Most works were completed by hand using a mattock and fork to break up the compacted gravels, and rakes to release the fine sediment.



GRAVEL CLEANING SCRIP OUTPUTS		
Waterbody	Site	No of Sites *
Upper Par	Downstream of Luxulyan	1
Upper Par	Upstream of Higher Menadew	1
Upper Par	Bokiddick Stream –Thunder Park	1
Upper Par	Bokiddick Stream- Tregantle	1
<b>Total Sites</b>		<b>4</b>
<b>Investigation</b>	Habitat walkover surveys	
<b>Pressure</b>	Sediment input and oxidised iron and magnesium causing silted and compacted gravels	
<b>Management</b>	Gravel cleaning	

*\*Note: 1 site = 20m<sup>2</sup>*





## Monitoring

### *River Habitat Walkover Surveys*

Habitat Walkover Surveys use a fast but detailed method to assess the provision of fish habitat in a river system and to determine its condition. Walkover surveys also identify where there are potential threats to the condition of the fish habitats present and where barriers or obstacles exist in the river that may act to stop fish accessing those habitats.

Under SCRIP a total of 58km of habitat walkover surveys were taken on the Polgooth Stream, Crinnis Stream, Bokiddick, Gover, Mevagissey and Portmellon Stream. None of the catchment had been walked previously therefore it was vital to record as much information as possible to get a good baseline.

Information such as habitat type, notes of concern and barrier assessments were collected. This information was not only an important tool to inform on the ground management decisions, but it is also a way of monitoring any changes in the catchment during and/or after the project.



*Barrier assessments*



*Habitat assessments*

### *Electrofishing Surveys*

A catchment wide semi-quantitative electrofishing programme was conducted under SCRIP. A total of 15 electrofishing surveys were completed in 2013, and 10 in 2014. Some electrofishing sites were not revisited in 2014 due to some sites being unsuitable.

The only comparable Electrofishing surveys are those that have been carried out by the Environment Agency (EA), who have undertaken a number of fully-quantitative surveys (>30) that date back to around 1998.

The semi-quantitative survey is not intended to replace the existing EA sampling and monitoring programme mentioned above. The strength of this survey is to enable a quick, affordable, baseline semi-quantitative catchment wide view of the fry life stage only. Electrofishing surveys aided as a tool to inform appropriate habitat restoration works, and were also used to assess the effectiveness of those works against the Water Framework Directive (WFD) driven criteria.

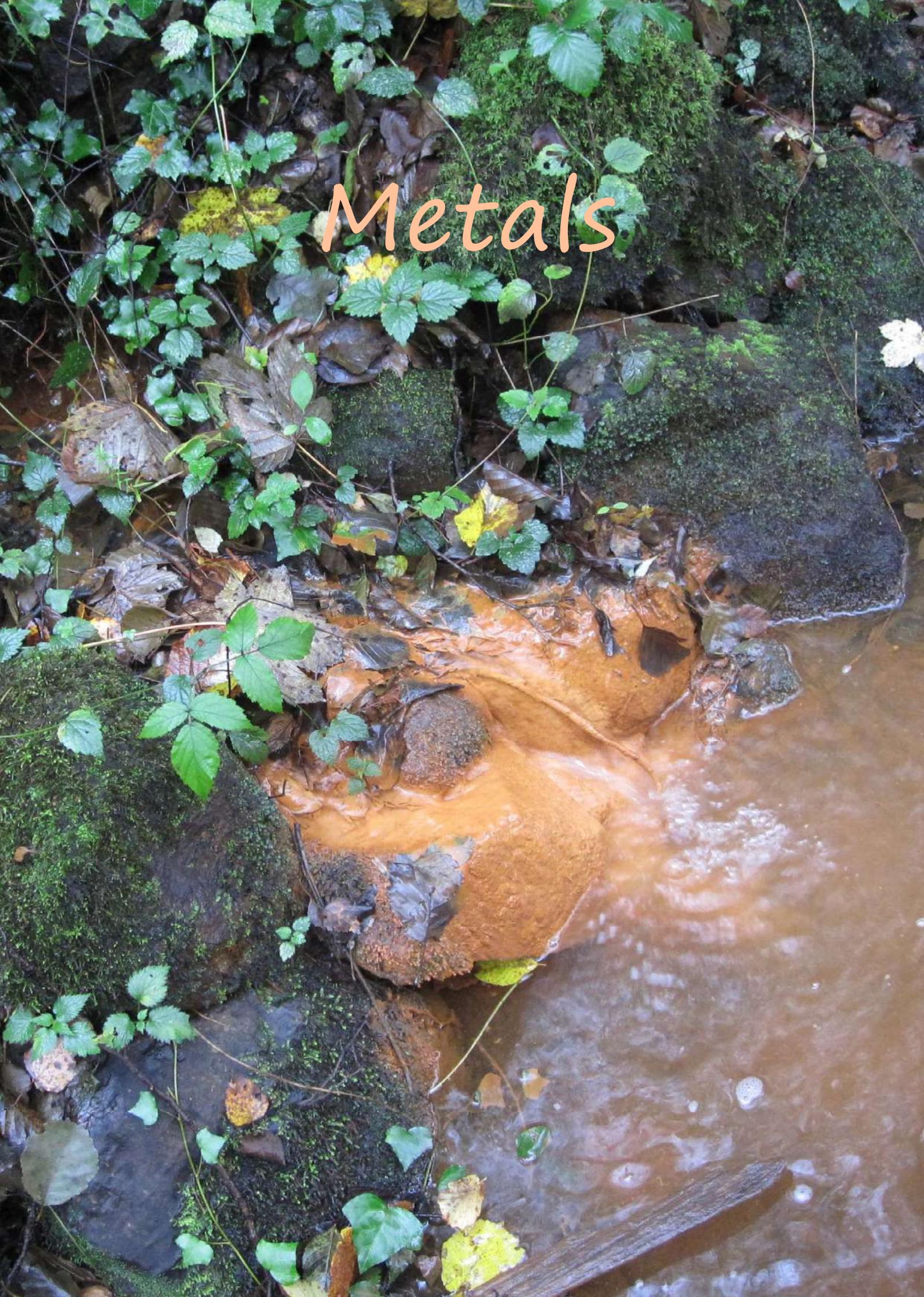
As a result of SCRIP's electrofishing programme Signal Crayfish were identified and reported. Following this the EA conducted a crayfish survey in 2014, which identified Signal Crayfish through out the Polgooth Stream.



### *Further Monitoring*

Where waterbodies were failing for Fish and/or defaulted to 'moderate' due to lack of data extra monitoring was undertaken. This included extra biological monitoring such as diatoms and invertebrate surveys. As more information was gathered about the catchment, it appeared that water quality, particularly metals, had a significant impact upon trout density. More information on this can be found in the Metals chapter.

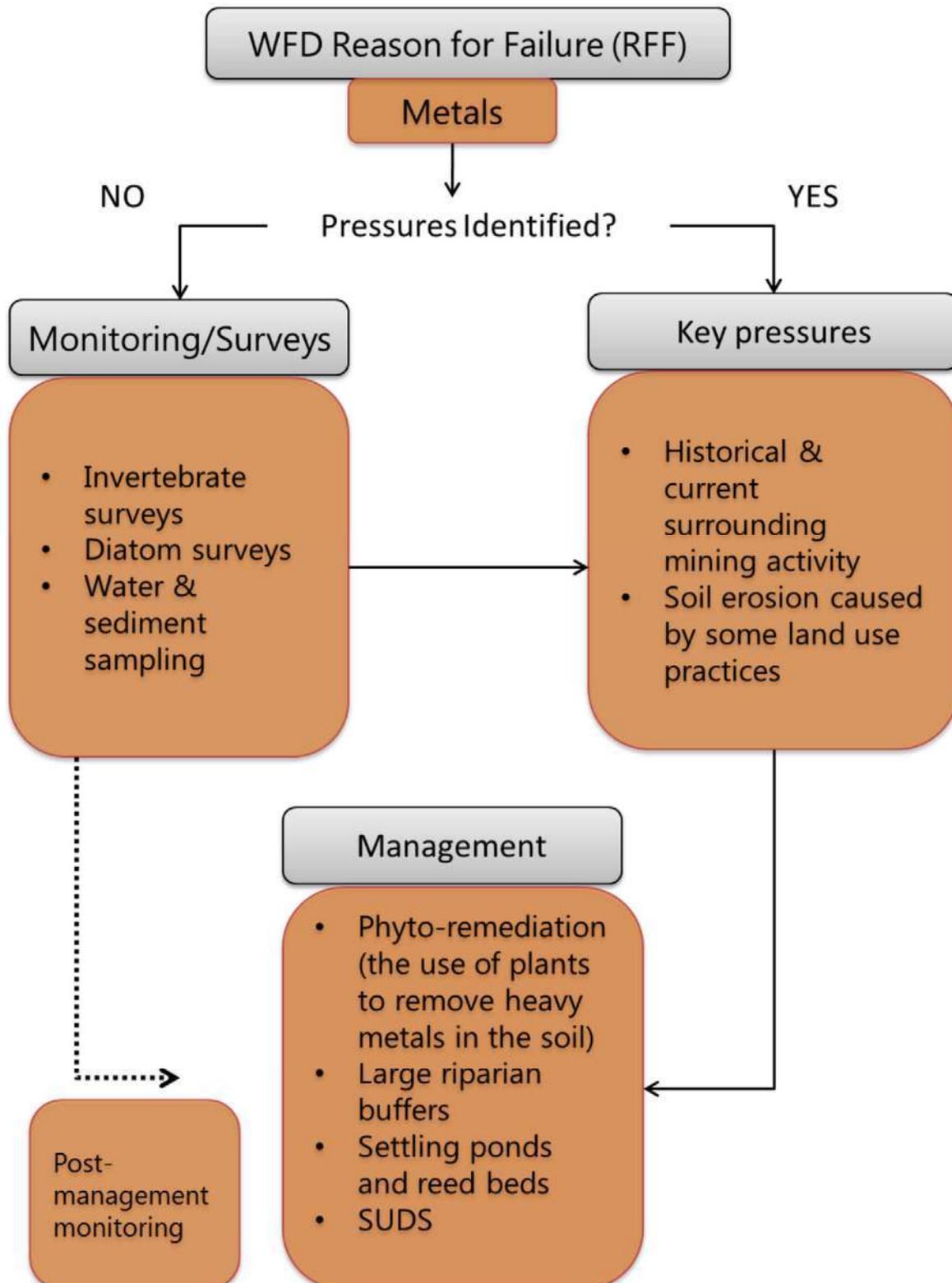
# Metals





## Targeting interventions for pH

Flow diagram to illustrate how CRF works within the SCRIP were targeted and driven by WFD.





## Heavy Metals in the Environment

### *Pressures*

Many river basins in England and Wales have been significantly contaminated with metals released from past mining operations. The Water Framework Directive (WFD) River Basin Characterisation exercise in 2005 estimated that 453 surface water bodies in seven of the eleven River Basin Districts were at risk of pollution by abandoned mines (Environment Agency, 2008).

In Britain mining for coal, metal ores and other minerals has taken place since the Bronze Age. However, although the mining peak was in the late nineteenth century, pollution still continues to be discharged from many sites. Research indicates that up to 90 per cent of metals are associated with sediment rather than liquid form, and metal contaminants are primarily mobilised and transported downstream, and deposited, by river processes.

### *Ecological Impact*

The impacts of minewater diffuse and point source pollution can be very serious on the freshwater environment. Some impacts include:

- reduced numbers and diversity of invertebrates;
- fish mortalities, particularly of sensitive salmonid species;
- loss of spawning gravels for fish reproduction and nursery streams;
- a reduction in numbers and biodiversity in the river corridor.

The ochre deposited by iron-rich mine waters can decimate freshwater ecology by smothering the river bed with iron hydroxides. Salmonids are particularly sensitive to such pollution as they require well aerated gravels to build redds. The lowered pH can cause damage to their gills, which can have a detrimental effect on the survival of smolts (a young salmonid at the stage when it migrates from freshwater to the sea).

Acidic conditions can also increase the solubility and toxicity of metals such as aluminium, copper, lead, zinc and cadmium. In some areas, particularly upland streams, the natural fish and invertebrate populations are greatly reduced because of minewater pollution. These streams are important as fish-breeding grounds and nursery areas for developing juveniles.

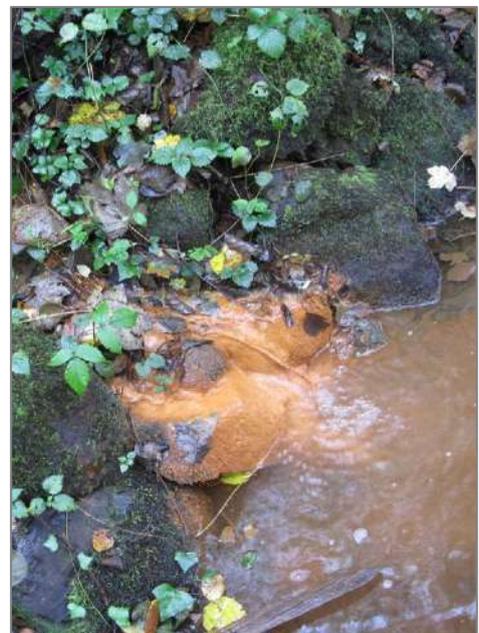
Any changes in the river's ecology can have a knock-on effect on the whole river ecosystem, for example, riverine birds and mammals such as dippers and otters may be unable to feed sufficiently.

### *Mitigation*

Many methods to mitigate against the impacts of mine pollution have been developed and are continually undergoing improvements.

In Cornwall, one of the largest minewater treatment plants in Britain was built to deal with pollution from the Wheal Jane tin mine. This plant prevents 670 tonnes of iron and 150 tonnes of zinc from entering the Restronguet Creek each year (EA, 2008).

The formation of wetlands around mining inputs is another method of mitigation that can work well to retain and remove heavy metals from the environment. By forming a complex matrix of plants and ponds it is possible to engineer the interaction of the metals with microbial and plant communities. These communities can remove metal contaminants from the environment via functions such as filtration, adsorption, precipitation, ionic exchange, microbiological degradation, and biological uptake and prevent transport through the environment (Wang et al 2014).





## Monitoring for metals on the Par

### *Background*

The Upper Par was found to be failing under WFD for Iron, Copper and Zinc, due to the historical mining heritage within the catchment. As this could be a contributing factor to the Moderate classification for fish, it was decided that an investigation should be conducted into the locations of these potential metal inputs and to assess whether any mitigation works could be carried out.

### *Monitoring Methods*

Spot samples taken along the River Par indicated that the metal inputs were occurring in the headwaters at Criggan moor. The Criggan moor catchment is complex and highly dendronous, making the determination of potential metal input locations, together with their potential influence, difficult. Due to this and the inaccessible nature of the sites, spot sampling was considered the most effective and cost efficient method to gain an overview of the metals situation in Criggan Moor. Samples were taken above and below tributaries & confluences to assess the potential contributions from each reach and analysed by the National Laboratory Service (NLS).

These results were then analysed using the Biotic Ligand Model. This model takes into account site specific abiotic factors such as DOC, Calcium and pH to assess the bioavailability of these metals at each sampling location.

### *Results*

Results showed that the concentrations of Iron, Copper & Zinc increased progressively upstream with exceedingly high levels being found in the upper headwaters on Criggan Moor.

This suggests that the source of the metal pollution is occurring in the upper headwaters and is being transported downstream via fluvial processes. WRT are currently looking into effective mitigation methods that will retain pollutants and reduce the amount of mining derived pollutants found downstream.

*Iron ochre deposits*



*Samples being collected*





## Reducing the impact of mining on the St Austell River

The St Austell River in South Cornwall has been failing to achieve good ecological status under the WFD, in part owing to fish failures. Sediment inputs from mining/quarrying sources have been identified as a key pressure underlying these failures in the catchment.

Owing to this, WRT liaised with IMERYS, a key stakeholder in the catchment, and instigated an investigation into mitigations works to reduce sediment inputs to river channels from IMERYS assets. Initial surveys undertaken by WRT identified key areas for targeted mitigation of sediment inputs and, in addition, potential input of iron ochre from a tributary running through IMERYS owned land.

Following this, WRT and IMERYS personnel undertook a joint site visit on 19th June, 2014 to discuss mitigation options.



### Reducing sediment inputs

A site visit was undertaken to identify the potential for increasing the sediment retention capacity at the IMERYS site and focused upon an area of existing sediment catch pits. The visit defined the options for improving sediment retention and these were highlighted as:

- Installation of an additional catch pit which will be linked to existing pits via union pipes.
- Increasing the volume of existing catch pits.
- Increased frequency of catch pit cleaning



- Installation of a filter on the current outflow pipe from the final catch pit to reduce the input of fine sediment to the river channel

### Reducing iron ochre inputs

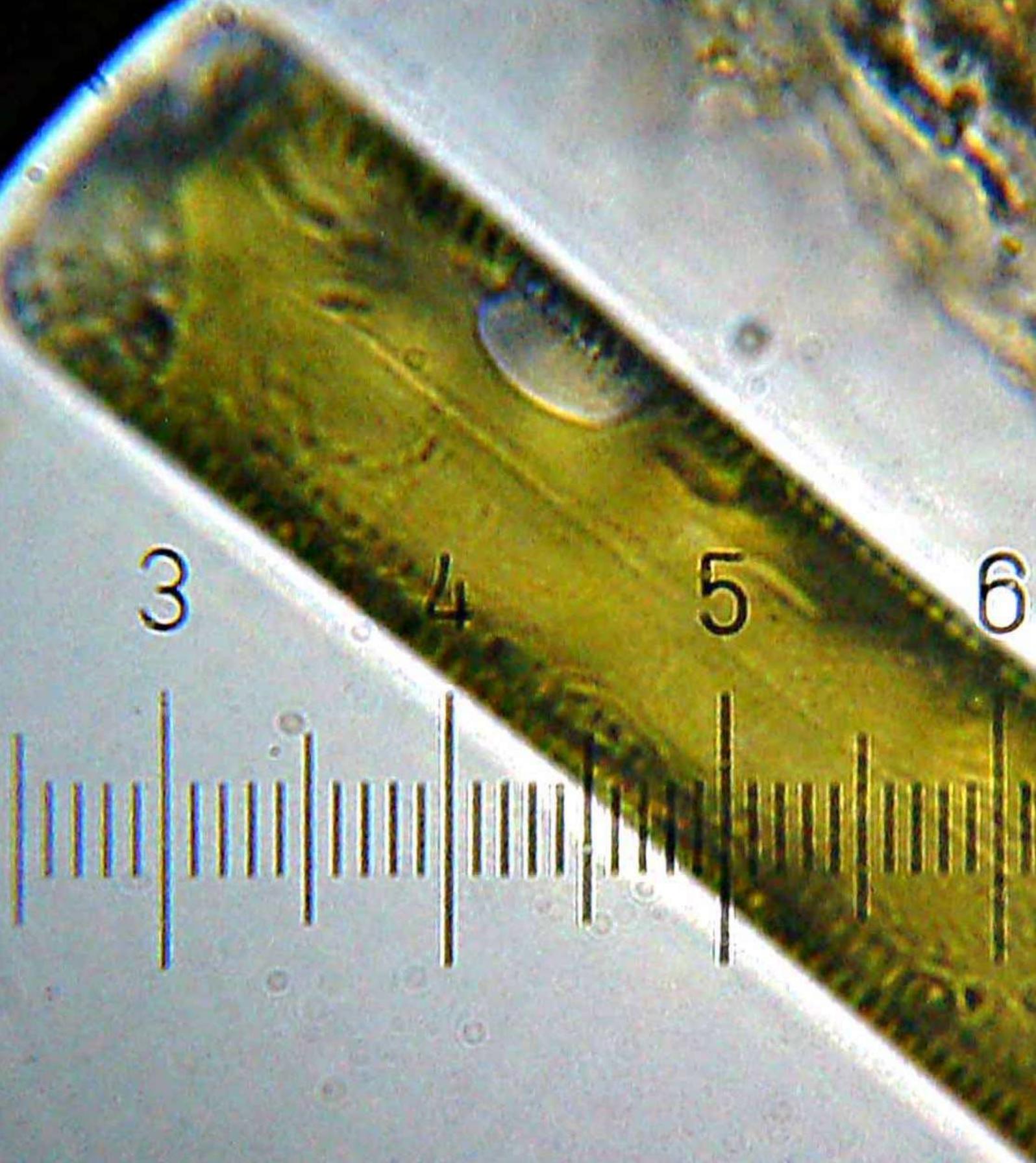
Initial walkover surveys undertaken by WRT identified that iron ochre was impacting upon a tributary, which runs through the IMERYS site at Lower Ninestones. The tributary enters the St Austell River where the iron ochre is deposited amongst the gravel bed. An invertebrate survey undertaken by WRT in the main river channel below the tributary input, returned low BMWP scores indicative of an impacted river system.

WRT has suggested making improvements to some historic catch pits at the site, which receive inputs from the tributary (and another drainage gully) and were originally designed to retain sediment from the site when it was in use (Figure 3). Although there is established vegetation at the site (Figure 4), WRT has advised that improved management of the area, to include changes to layout and flora, could have potential benefits for iron ochre removal.

### Future work

The proposed mitigation methods for reducing sediment inputs are being considered by IMERYS and WRT will assist in further works if they are deemed feasible. WRT is undertaking further investigation with regard to the proposed wetland area involving detailed consideration of the wetland design, which will be informed by expert advice from external parties.





3

4

5

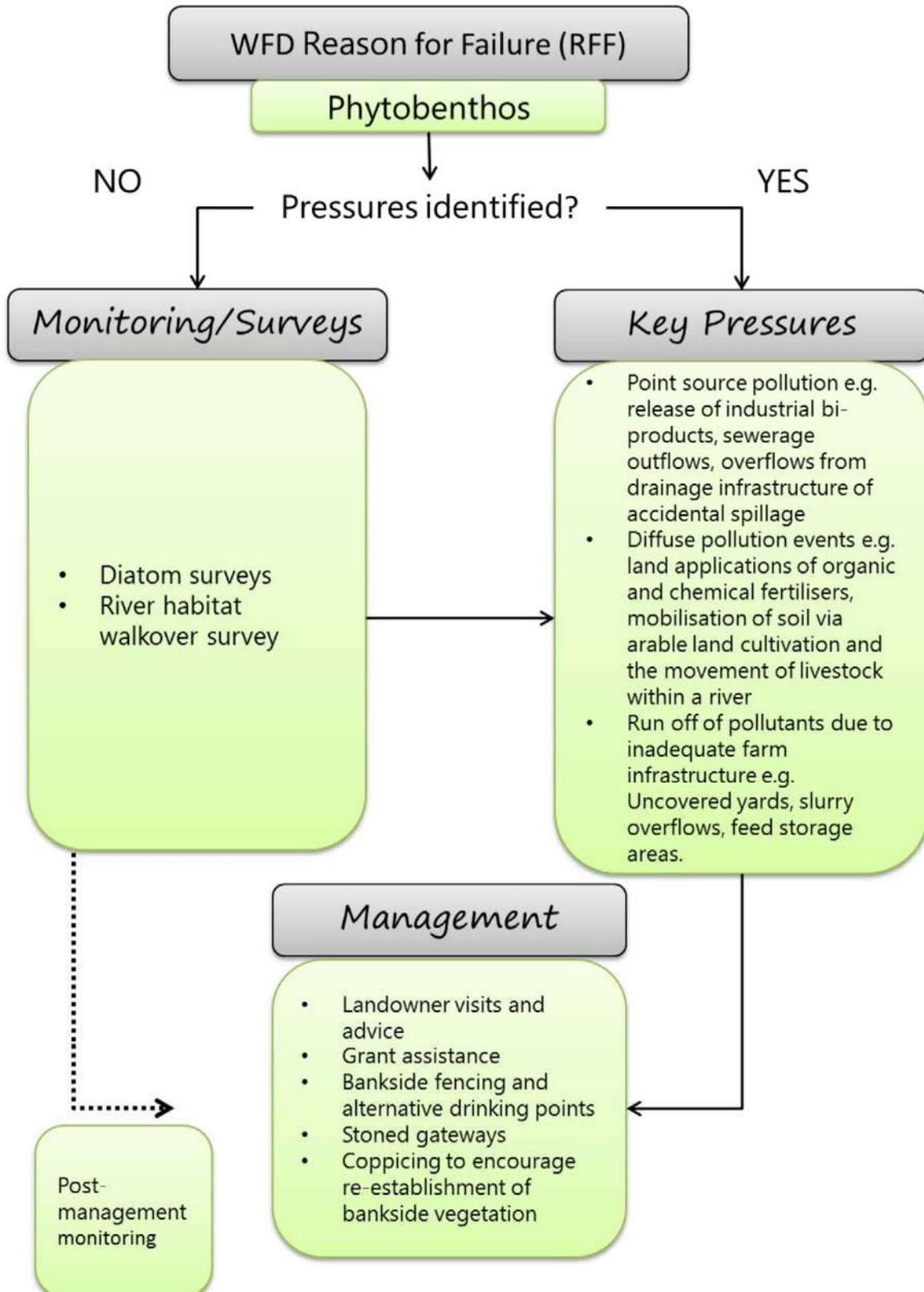
6

PHYTOBENTHOS



## Targeting interventions for Phytobenthos

Flow diagram to illustrate how CRF works within the SCRIP were targeted and driven by WFD.





## Phytobenthos

Phytobenthos are a benthic (they live attached to substrates such as rock/stone or large plants) sub-group of diatom algae. Most are unicellular, but they can exist as colonies in the form of filaments or ribbons.

The assessment of phytobenthos in a river is a well-established method for assessing water quality. It is widely accepted that a detailed evaluation of the structure and function of phytobenthic (diatom) communities in a river can provide robust evidence for assessing its ecological condition.

The criteria for the assessment of diatom communities for WFD classification were developed through the Diatoms for Assessing River Ecological Status (DARES) Project. This project assessed diatom assemblages at a series of reference sites and developed a model that allows the composition of the benthic diatom assemblage in a river to be predicted. Comparison of the predicted assemblage with that found through sampling allows the ecological condition of the river to be assessed.

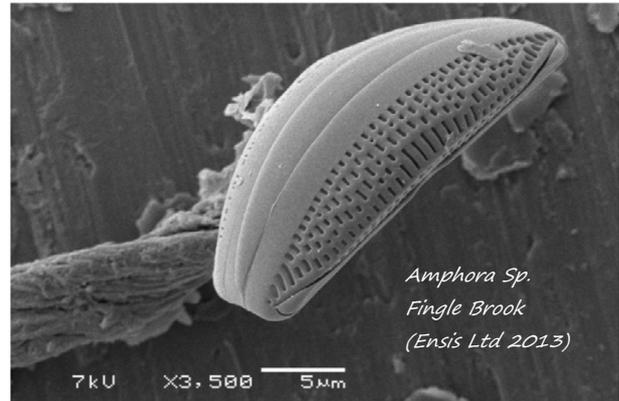
### Pressures

Phytobenthic community composition can be affected by a wide array of pressures, but they are particularly sensitive to changes in the pH and nutrient levels in the water and can be used to identify rivers impacted by these types of pollution.

Pollution of this type can be derived at specific locations along a river (point sources) or from the cumulative effects of many small, highly dispersed and often individually insignificant pollution incidents (diffuse sources).

Highly localised point sources of pollution occur when human activities result in pollutants being discharged directly into the aquatic environment. Examples include the release of industrial by-products, effluent produced through the disposal of sewage, the overflows from drainage infrastructure or accidental spillage.

Diffuse pollution can occur when large amounts of slurry, manure, chemical phosphorous-containing



fertilisers or agrochemicals are applied to land. If these processes coincide with high rainfall events, it can lead to run off or leaching from the soil and to the subsequent transfer of contaminants into a watercourse.

In addition, the intensive cultivation of land or the over disturbance of soil by livestock (poaching) can mobilise fine sediment, which may transfer to drains and watercourses by water running over the surface. Other diffuse sources include pollutants mobilised from farm infrastructure such as uncovered yards, slurry pits, feed storage areas and dung heaps.

### Monitoring

Waterbodies failing to reach good ecological status for Phytobenthos were monitored, and rivers that lacked biological data were investigated with diatom surveys.

SCRIP conducted a catchment wide biannual diatom sampling programme, with surveys carried out in Spring and Autumn. (2012,/13/14). The samples were analysed and reported by APEM and UCL/ENSIS. The diatom results played a vital role informing and targeting the farm advice.



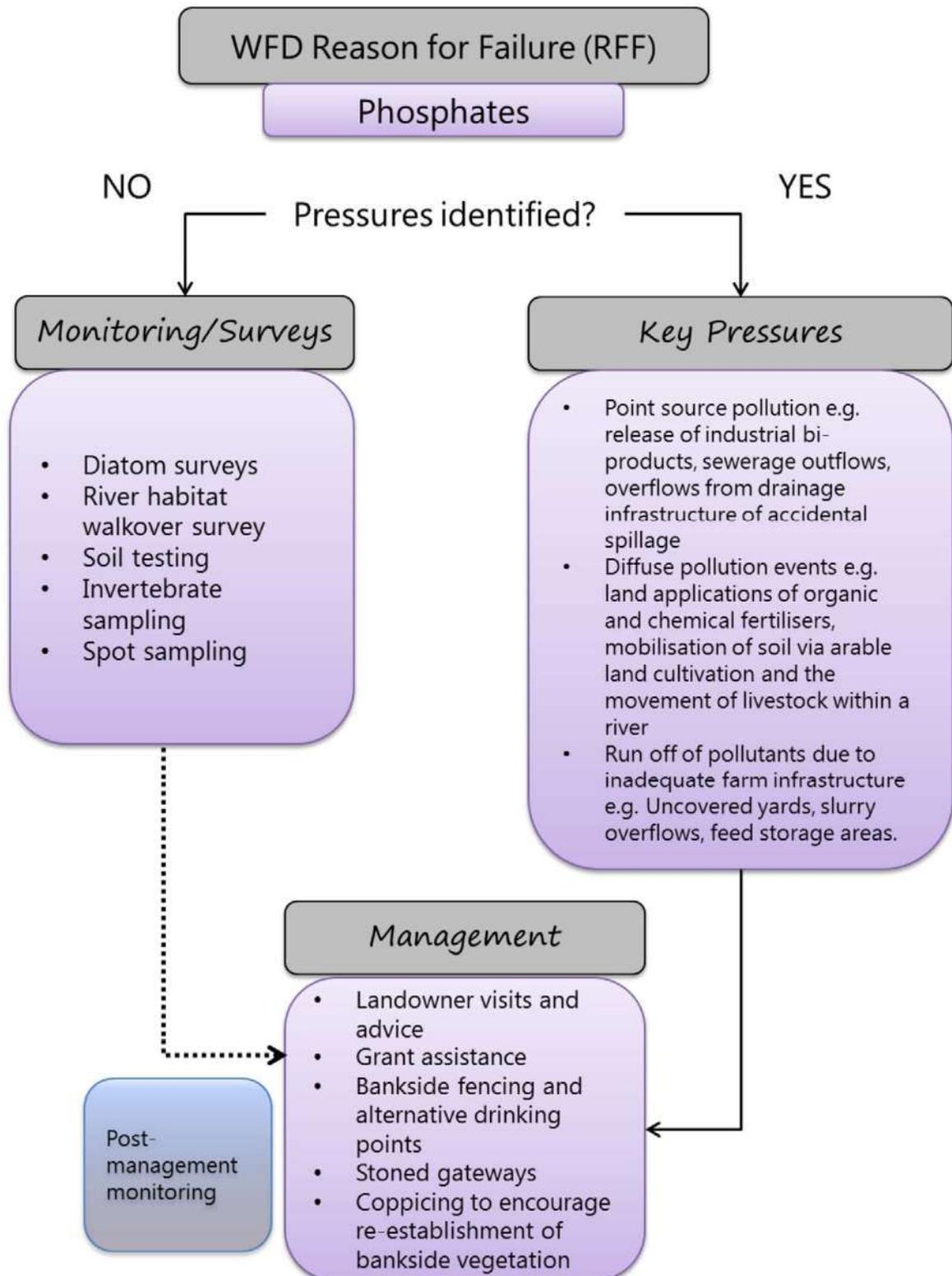


PHOSPHORUS



## Targeting interventions for Phosphorus

Flow diagram to illustrate how CRF works within the SCRIP were targeted and driven by WFD.





## Phosphorus

### Pressures

Numerous waterbodies in the River Taw catchment are currently failing to achieve good overall status, in part, owing to elevated phosphorus (P) concentrations. Phosphorus is often the growth limiting nutrient in freshwater systems such that biologically available forms of P are naturally in short supply and quickly become exhausted by biological uptake.

Freshwater systems are sensitive to changes in the natural balance of available P, which is commonly affected by human inputs, particularly those derived from agricultural practice and sewage treatment works (STWs). In addition, the Taw catchment receives industrial effluent from a dairy processing plant. Diffuse input of P via runoff from agricultural land and direct point source inputs from effluent discharges can potentially increase the bioavailable pool of P (eutrophication), leading to excessive algal growth and associated ecological impacts. In turn, impact upon ecosystem function disrupts the flow of services and benefits to society (such as those associated with recreation and health) and can lead to increased cost of water treatment.

The Water Framework Directive (WFD) (2000/60/EC) has set stringent Environmental Quality Standards (EQS) for 'reactive phosphorus' in surface waters aimed at reducing nutrient enrichment and associated impacts upon biota. Consequently these standards are driving efforts to reduce P inputs to surface waters through appropriate management of agricultural practice and point sources. It, therefore, follows that there will be an overall reduction of P inputs to surface waters. However, because P is strongly associated with sediments, many

watercourses may have an historic 'sink' of P in sediment storage zones, which could provide an additional source of bioavailable P if the sediment is re-mobilised and the particle-bound P is released into solution. P cycling in freshwater systems is, therefore, complex and successful management requires a sound understanding of the catchment system on a site-specific basis.

### Targeting Phosphorus Sources

The assessment of phosphorus inputs involves, not only the measurement of excess nutrient concentrations, but also the identification of P delivery pathways to the river and the factors which are likely to influence P mobility and availability to biota. This enables mitigation measures to be targeted to prevent P delivery at source and indicates the potential for system recovery.

As part of the Taw River Improvement Project (TRIP), a parallel project to SCRIP, Westcountry Rivers Trust commissioned a scientific panel to undertake rigorous assessment of P dynamics within the Taw catchment with the following principal aims:

1. To assess physicochemical and biological status in relation to nutrient inputs
2. To determine the key sources of phosphorus delivery to the catchment
3. To identify factors which control P cycling and bioavailability
4. To identify areas for mitigation targeting

The field research was carried out by members of WRT, Plymouth University Catchment & River Science Group and Rothamsted Research.



*Excess algal growth where phosphorous concentrations have been elevated by agricultural and domestic waste inputs*



## Management: Phosphorus

### *Reducing diffuse water pollution from agriculture (DWPA)*

Phosphorus concentrations in surface waters can often become elevated above natural background levels owing to inputs from agricultural and domestic waste sources. Diffuse water pollution from agriculture (DWPA) can be responsible for significant P inputs to watercourses and managing such inputs is complex given the difficulty of identifying key source areas.

Diffuse water pollution is likely to be wet-weather driven and inputs of P are often associated with soil loss from agricultural hillslopes under eroding conditions. Agricultural soils can be rich in P owing to the application of fertilisers and manures to improve fertility and consequently soil erosion can result in the loss of particle-bound P to surface waters.

In addition, inputs from slurry stores and farm yards and direct defecation by cattle can also contribute to elevated P concentrations in watercourses. It is, therefore, important for farmers to carry out best practice to minimise soil and nutrient loss, which not only reduces environmental impacts, but also provides financial savings for the farm. With careful planning and changes to land management, this can be achieved to good effect.

### *Farm Advice*

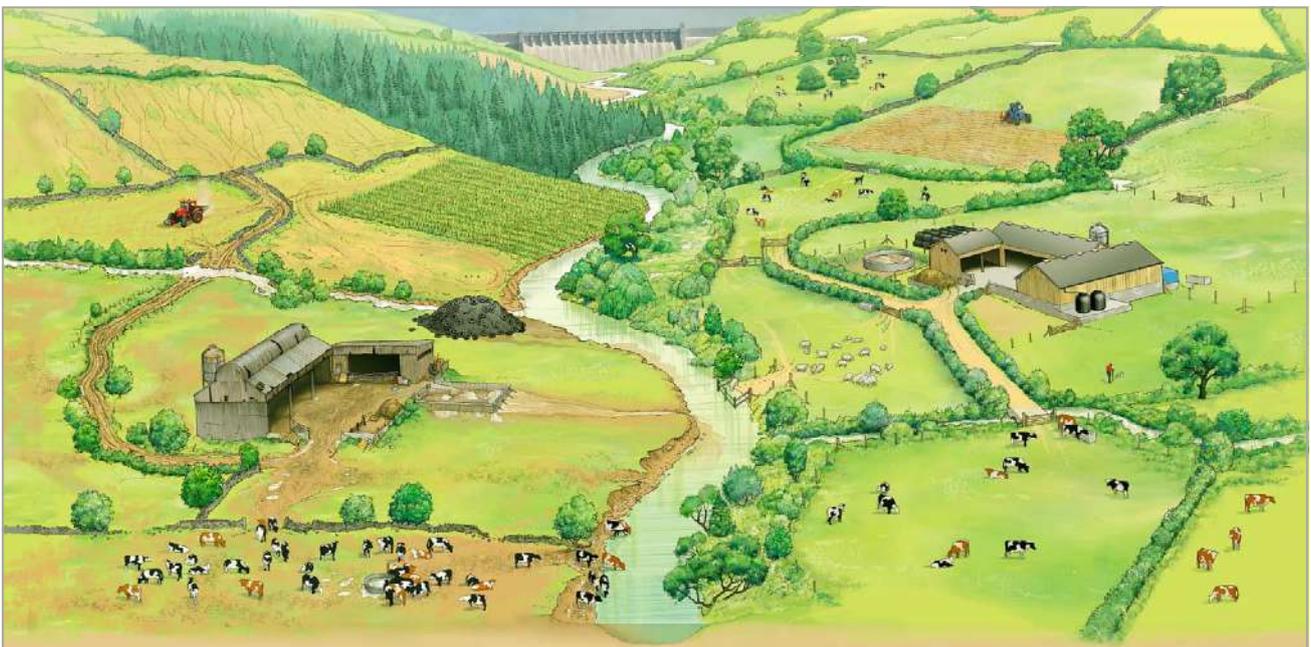
All waterbodies failing (or indicated to be failing though investigations) to reach good status for Phosphorous and Fish were targeted for farm visits and advice. These

integrated land advice packages were delivered by an experienced farm advisor which covered many aspects of a farmers practice. The advisor identified where the adoption of good practice or best practice may minimise the risk that an activity will have a negative impact on the environment, and where it may enhance the provision of a particular ecosystem service and improve WFD

In addition to broad advice on good practice, the advisors also produced a targeted and tailored programme which, through the provision of free soil tests, included specific advice on pesticide, nutrient and soil management on the farm to mitigate any potential environmental impacts (see output map on page 48 for distribution of works).

A proportion of the SCRIP budget was allocated for a farm capital grants scheme. Funds were available to contribute towards 60% of the total cost of advised farm improvements. Works covered by the grant scheme would generally include:

- Riparian fencing and preparatory tree work
- Introducing riparian buffer zones
- Alternative or improved livestock drinking points
- Soil tests
- Culverts
- Farm track improvements (not gravelled)
- Gate relocations





## Farm Advice & Delivery: Investigations & Monitoring

Waterbodies failing to reach good ecological status for Phosphorous and Phytobenthos were monitored, and rivers that lacked biological data were investigated with diatom surveys. SCRIP conducted a biannual diatom sampling programme on the Mevagissey, Portmellon, Polmear, Chapel point, Polgooth, Gorran Haven and Fowey tidal waterbodies. The surveys were carried out in Spring and Autumn (2013 & 2014).

The samples were analysed and reported by APEM and UCL/ENSIS. The diatom results played a vital role informing and targeting farm advice.

## Farm Advice & Delivery: Grant Assisted Works

Total farming delivery outputs for SCRIP are set out below. In addition to the below tabled outputs, over 100 soil tests were conducted, 64 of which were on the Par. Once the results had been received specific nutrient budgeting advice was provided, this not only raised awareness on nutrient issues but also provided an opportunity for the farmer to save money on unnecessary fertiliser applications.

The below table shows which waterbodies received grant assisted farm improvement works under SCRIP.

### FARM WORK OUTPUTS

Waterbody	Waterbody Name	Number of Farms	Fencing (m)	*Coppicing (m)	Drinking Points	Water Pipe (m)	Pappa Pump	Water Pump
GB108048002310	Par River (Upper)	1	1440		2			
GB108048002310	Par River (Upper)	1	710		1			
GB108048002310	Par River (Upper)	1	1260		3			
GB108048002310	Par River (Upper)	1	400					
GB108048002300	Bokiddick Stream	1	925		2			
GB108048002280	St.Austell	1	1800		1			
GB108048002280	St.Austell	1	650		1	20		
GB108048002480	Portmellon Stream	1	1360	450	3	50		
GB108048002480	Portmellon Stream	1	400	750				
GB108048002200	St. Austell (Chapel Point)	1	600		1		1	
GB108048002220	Mevagissey Stream	1	410		3	510		1
GB108048002220	Mevagissey Stream	1	150		1			
GB108048001370	Fowey (Tidal)	1	620		2			
GB108048001370	Fowey (Tidal)	1	300		1			
GB108048001370	Fowey (Tidal)	1	315					
GB108048001300	Fowey Tidal	1	120		1			
<b>Total Outputs WRT</b>		<b>16</b>	<b>11460</b>	<b>1200</b>	<b>22</b>	<b>580</b>	<b>1</b>	<b>1</b>

*\*Note: Coppicing conducted as a preparatory measure before the fencing is installed. However, coppicing will always be conducted in way which will provide multiple benefits to the river ecosystem, including fish habitat improvements.*



## Grant Assisted Works for Phosphorus: Before & After



Before: Poached field and small stream (River Par)



After: Fencing and large buffer strip which encourages re-vegetation (River Par)



Before: Eroded and undercut banksides (River Par)



After: Fenced banksides and evidence of maturing bankside vegetation (River Par)



Before: Eroded field (Par Tributary)



After: Fenced banksides (Par Tributary)



## Grant Assisted Works for Phosphorus: Before & After



*Before: Poached field and small stream  
(Menabilly)*



*After: Fenced watercourse and alternative drinking point provided  
(Menabilly)*



*Before: Heavily poached and incised  
banksides Mevagissey)*



*After: Newly fenced watercourse (Mevagissey)*



*Before: Bare open banksides (Treskillig)*



*After: Fenced and re-vegetated banksides offering  
bank stabilisation and improved habitat diversity  
(Treskillig)*



PARTNERSHIP & STAKEHOLDER  
ENGAGEMENT



## Partnership & Stakeholder Engagement

The SCRIP developed an integrated stakeholder-driven assessment of the catchment prior to, and through out the project. This provided a comprehensive understanding of the challenges the catchment faces and, helped develop a strategic, targeted, balanced and therefore cost-effective catchment management intervention plan.

The SCRIP management plan was achieved through engaging with catchment stakeholders by building diverse, and empowered catchment partnerships comprised of environmental practitioners, businesses and community groups.

Once brought together, the partnership developed a shared understanding of the issues in their catchment, which aided in building a consensus about what actions needed to be delivered to achieve this shared vision for their catchment in the future.

### Project Partners

The following table lists the SCRIP partners and their representatives.

Organisation	Representative
Westcountry Rivers Trust	Giles Rickard and Matt Healey
Environment Agency	Tom Fletcher, Julian Payne, Rob Wood
Cornwall Council	Natasha Collings, David Watkins, Stephen Blatchford, Martin Eddy, Ann Reynolds, Martin Clemo
IMERYS	Stewart Vale, Bob Alyward
Catchment Sensitive Farming (CSF)	Rebecca Hughes
Natural England	David Hazlehurst
South West Water	Lewis Jones
Forestry Commission	Garin Linnington
Cheryl Marriot	Cornwall Wildlife Trust
Jim Briggs	Heligan Gardens

### Meetings

Over the three year project the SCRIP developed a strong partnership that helped steer the project forward in a positive and effective direction. Every six months the SCRIP held a Partnership Advisory Group Meeting (PAG) where each project officer would present a project progress update. This offered an opportunity for all the project partners to ask questions, provide feedback and agree any changes to the original bid.

Date of SCRIP PAG Meetings	Venue
30th October 2012	Wheal Martyn Museum
21st March 2013	Wheal Martyn Museum
18th September 2013	Eden Project
21st March 2014	Wheal Martyn Museum
3rd November 2014	Wheal Martyn Museum
13th March 2015	Wheal Martyn Museum

In order to ensure the partnership were regularly updated a project newsletter was sent every few months, these provided brief concise updates on project progress and what was planned for the following months ahead. Alongside the regular PAGs, other specific meetings were held which followed on from specific PAG agenda items or meetings to discuss particular project works. All of which have been documented and archived.

### Volunteering & Stakeholder Involvement

During SCRIP some of the habitat walkover surveys were conducted by volunteers, where some members of the local community were given training by the SCRIP catchment officer. This provided both awareness on assessing riparian habitat, and involved members of the community in active catchment management.

Some stakeholders were involved in the physical delivery of the project. For example, Catchment Sensitive Farming (CSF) and SCRIP joint funded the delivery of improvement works on the Chapel Point Stream. Pulling together skills and resources meant that works were delivered efficiently and effectively.

Another example of positive stakeholder engagement involved working with Cornwall Council. Similarly to all the CRF projects SCRIP was successful in highlighting the importance of watercourse management. In this case SCRIP was able to provide details on how watercourses can be managed to benefit fisheries and wildlife, this information was then successfully added to Cornwall Council's policy document on the 'Condition Standards for Watercourse Inspections'.



## Community Engagement

In order to inform and involve the wider community about the importance of catchment management and the role of the SCRIP, awareness was raised through some of the following ways:

- **St Austell re-meander walk:** On the 21st August 2013 SCRIP held an event for local South West Water the EA, local interest groups and Cornwall Council to walk along a section of the St Austell River. This stretch was highlighted as a potential site which could potentially be re-meandered to provide additional wetland habitat and flood retention.
- **School Visit:** On the 12th September 2014 SCRIP officers visited a school on Bodmin Moor to educate children on the water cycle, catchment management and wildlife, such as invertebrate identification.
- **Interpretation Boards:** 3 x interpretation boards containing catchment wide information on the St Austell River have been installed along a riparian public footpath. The information provides an opportunity for people walking along the river to learn about the local wildlife, environmental pressures and ways you can help the river.

### Educational school visits



An example of one of the interpretation boards installed on the St Austell River



WRT Pinpoint Farm Advisory Training 2013



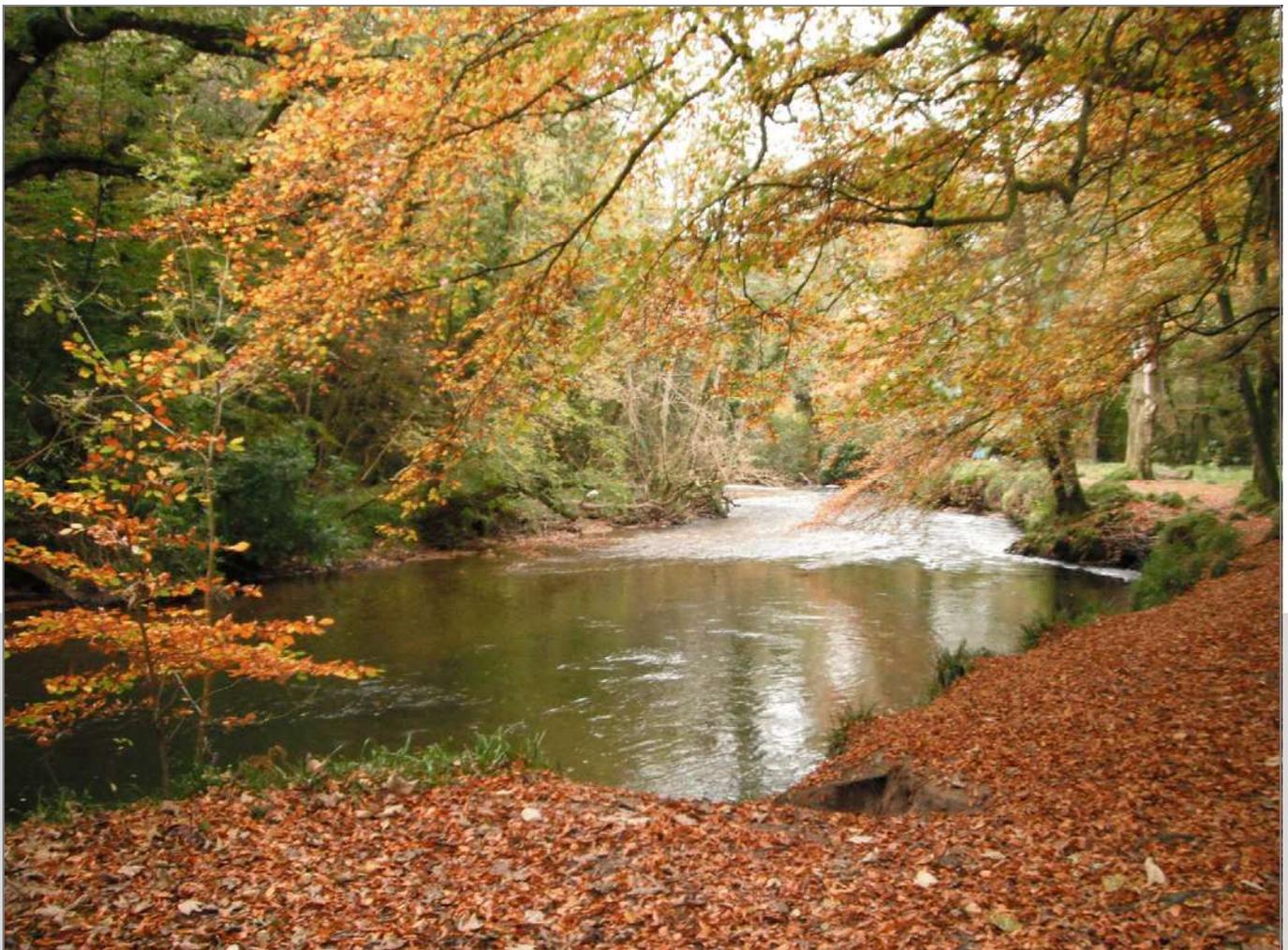


## Project Summary

Overall the SCRIP has been extremely successful in its delivery. All works within each failing WFD waterbody have been informed through sounds science and investigation prior and post delivery. This not only ensures that a more accurate ecological condition of each water body is identified, but it ensures that all works delivered are both efficient and effective.

Although it is evident that the three year SCRIP project has been successful in its delivery, three years is a relatively short period to expect significant improvements of water quality. However, we can safely be reassured that works such as barrier easements will improve the rivers connectivity for migrating fish species, and farm works such as fencing will most definitely prevent damage caused by livestock entering the river, and reduces pressure such as bankside erosion. Although these delivery outputs have a small positive impact individually, the cumulative impact though out the catchment will be significant.

The project has provided a strong baseline to continue working from. We have conducted many investigations and works, all of which have provided valuable information on the current condition of the river, and pinpointed the locations of some specific pressures that still need to be targeted within South Cornwall's catchment. It is therefore crucial that this work is continued into the future, not only to ensure that the funds provided under the CRF have been spent efficiently, but also because SCRIP has provided a management foundation, which if built upon will ultimately provide a sustainable future for the catchment.





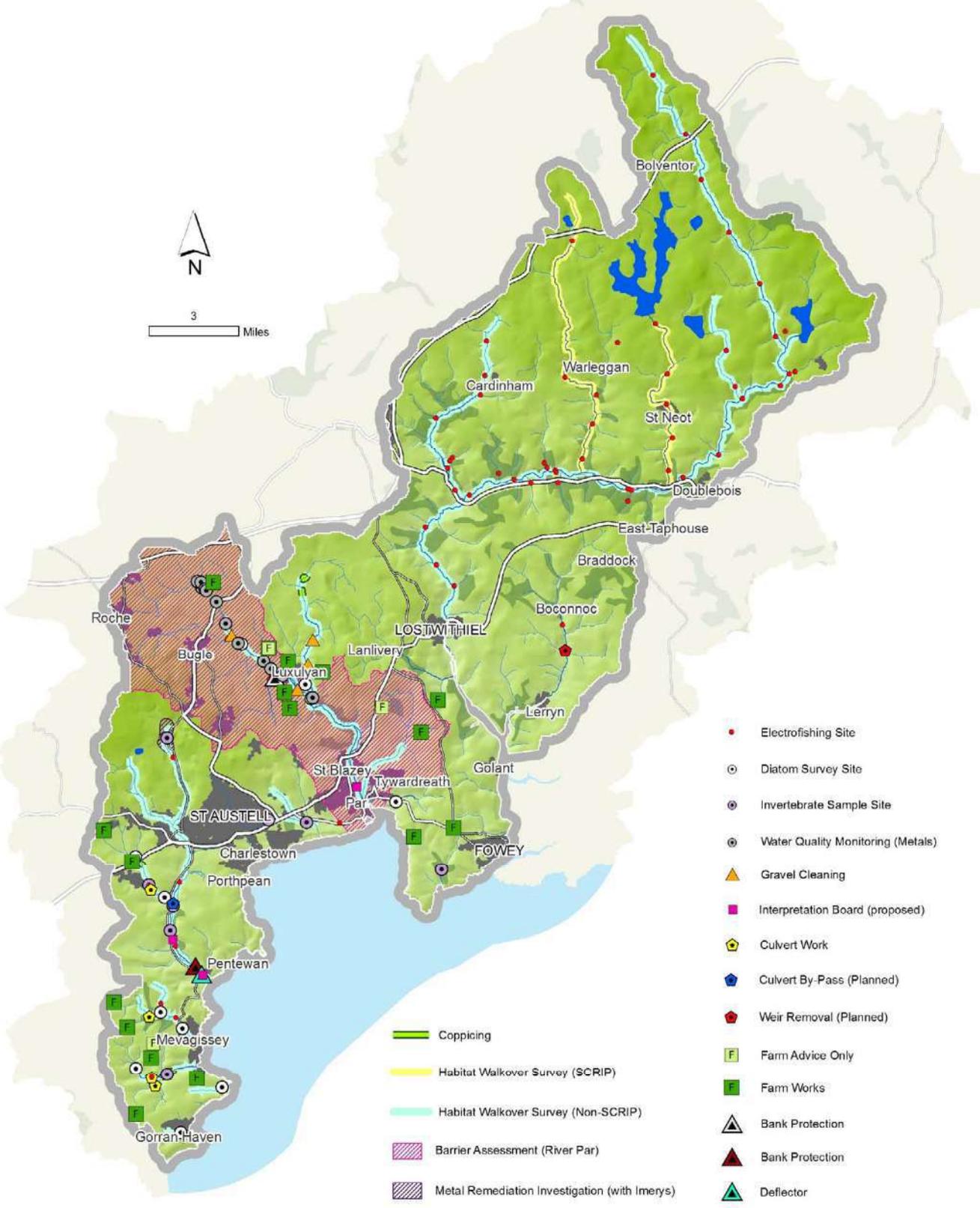
## Summary of SCRIP Project Achievements

In the original project application a number of targets were proposed. The table is a summary of these targets giving an indication of whether each outcome was achieved within the SCRIP Project (Green = complete, yellow = partly complete, red = not complete). These outputs are also summarised on the map over the page:-

Project Targets	Target Reached?	Comments
Creation of in-river features	Green	A wooden deflector and in-stream boulders to improve flow heterogeneity and habitat diversity have been installed.
3 x culvert mitigation	Green	5 culverts have either been successfully removed or improved on different waterbodies within the SCRIP catchment (1 x portmellon, 2x Mevagissey, 2 x Polgooth). However, the large 34 m culvert on the Polgooth could not be mitigated under SCRIP, this was due to last minute land ownership issues and is now a priority for future works.
Fish translocation	Green	A translocation of bullheads above an obstruction on the Warleggan waterbody was originally proposed. After consultation with the EA it was decided that this was not a suitable option due to concerns of causing a potential genetic bottleneck, however, some bullheads were introduced above the Warleggan and so the action was completed.
Electrofishing	Green	Surveys complete
Obstacle/barrier assessment	Green	Barrier assessments completed during habitat walkover surveys. This information played a vital role when targeting works under SCRIP.
Coppicing	Green	1.775km of fisheries management coppicing complete and 1.2 km of fencing preparatory coppicing complete.
12.5km of fencing	Yellow	11.46km of fencing complete (90%). After reviewing walkovers not all fencing as envisaged in the project application was necessary. Therefore these resources were reallocated to tackle the removal of the Lerryn weir
3 x Interpretation boards	Green	Design and build complete, installation also now complete.
18 x Alternative drinkers	Green	22 alternative drinking points have been installed
Diatom Monitoring	Green	Diatom programme complete. However, further surveys would be advised.
Work with Imerys	Yellow	The proposed mitigation methods for reducing sediment inputs are being considered by IMERYS and WRT will assist in further works if they are deemed feasible.
100 x Soil tests	Green	Over 100 soil tests conducted.



## Project Delivery Summary Map





## Future Works

Future works on the South Cornwall catchment which have been planned by WRT following the completion of SCRIP.

### Monitoring

- An annual semi-quantitative catchment wide electro-fishing programme is hoping to be continued. However, this is dependent on funding.
- WRT will pursue funding to continue an annual diatom programme.
- The SCRIP's monitoring and investigation programme has already contributed some valuable data. This contribution not only adds data to an already detailed archive, but it has also provided data on some waterbodies which are completely data deficient. WRT will endeavour to continue as much monitoring as possible into the future beyond CRF.

### Physical Works

- WRT have engaged with Imerys with regards to improving water quality and conducted a number of site visits and made recommendations for specific works such as increasing the number of catch pits at the head of the St Austell River, and creating a wetland to improve impacts from Iron Ochre and heavy metal contamination.
- WRT will continue to seek funding to complete the mitigation works on the 34m Polgooth culvert. All planning consents have been obtained.
- Through the cooperation of existing catchment partners, such as the local fisheries associations, it is hoped that future Catchment Fisheries Plans will be developed improved fisheries management on South Cornwall's rivers.
- The five year Upstream Thinking 2 Project on the Fowey catchment starts in April 2015. This will deliver extensive work to target water quality issues within the catchment and build upon the work already delivered under the SCRIP.
- The metal monitoring results on the par indicate that there would be significant scope for metal remediation in the Upper Par catchment. Therefore funding to pursue this will be made a priority.



The South Cornwall River Improvement Project (SCRIP) is a Catchment Restoration Funded Project, which was administered by the Environment Agency. The project was written and delivered by the Westcountry Rivers Trust, and steered by its catchment partnership.

The project was delivered over three years (2012-2015), with the primary aim of delivering targeted action to make significant steps towards achieving Water Framework Directive (WFD) waterbody objectives set out in the 2009 River Basin management Plans.

This report documents the works delivered under the SCRIP and describes how these works were targeted to ensure that efficient on the ground management was delivered effectively throughout the catchment.

Although the SCRIP has completed its final year, the work that has been delivered and the valuable information and data that has been collected will provide a solid foundation to build upon in the future. This not only provides wider benefits to the society and the environment, but also provides a valuable tool to aid in building a sustainable future for the catchment as whole.

### ***Westcountry Rivers Trust***

Rain Charm House, Kyl Cober Parc, Stoke Climsland, Callington, Cornwall PL17 8PH  
tel: 01579 372140; email: [info@wrt.org.uk](mailto:info@wrt.org.uk); web: [www.wrt.org.uk](http://www.wrt.org.uk)

*This document may be reproduced with prior permission of the Westcountry Rivers Trust.  
The copyright of all material remains with the originators unless otherwise stated.*