



## **Biodiversity Action Plan (BAP) for rivers & streams**

A report prepared for:  
**The Caravan Club**

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## **1 Rivers & streams**

British rivers and streams contain considerable habitat and species biodiversity, and also provide a vital link between a variety of other habitats. Their linear form creates an important wildlife corridor for many species. In a highly developed landscape, they frequently offer members of the public a rare opportunity to connect with nature.

Millions of people regularly use rivers and streams for various forms of recreation. However the large human population places huge pressure on rivers and streams. These pressures arise from a range of factors including agriculture, pollution, water supply, transport, flood prevention, and the development of adjoining land.

### **1.1 Introduction**

#### **1.1.1 Description**

Streams and rivers encompass a wide range of habitats, from headwaters to the lower reaches of rivers. Different sections may contain different habitat types such as riffles, glides, pools, gravel or sand bars, eddies and backwaters. Bank-side habitats are also considered under the 'rivers and streams' grouping, and provide opportunities for many specialist plant and animal species.



Plate 1. Pool on the river Otter, Devon.  
Source: Ben Garnett

Stream-beds typically include large rocks, boulders and areas of bedrock. As rocks get weathered during their downstream movement, cobbles, pebbles, and gravel are reduced to sand, and silt, in the lower reaches of rivers and estuaries. Stream- and riverbeds can have different geologies, such as limestone, chalk and granite. These various physical factors have a major effect on the ecology of rivers and streams, with many plant and animal species specialising in certain sections and habitats along the length of these watercourses.



Plate 2. Borrowdale, Cumbria.  
Source: Philip Corney

National BAP species associated with river and stream habitats include; the fish twaite shad *Alosa fallax*, and allis shad *Alosa alosa*; two mammals, namely otter *Lutra lutra*, and water vole *Arvicola terrestris*; three birds, being, reed bunting *Emberiza schoeniclus*, aquatic warbler *Acrocephalus paludicola* and marsh warbler *Acrocephalus palustris*; great crested newt *Triturus cristatus*; and the invertebrate species southern damselfly *Coenagrion mercuriale*, white-clawed crayfish *Austropotamobius pallipes*, netted carpet moth *Eustroma reticulata*, eyed longhorn beetle *Obera oculata*; 10-spotted pot beetle *Cryptocephalus decemmaculatus*, *Melanapion minimum* (a weevil), *Orchestes testaceus* (a weevil), *Lipsothrix nervosa* (a crane fly), *Lipsothrix errans* (a crane fly), black-spotted yellow splinter crane fly *Lipsothrix nigrigigma*; *Parasyrphus nigratarsis* (a hoverfly); and the plant species grass-wrack pondweed *Potamogeton compressus*, triangular club-rush *Schoenoplectus triqueter* greater water parsnip *Sium latifolium* and Killarney fern *Trichomanes speciosum*.

### **1.1.2 Relevant ecology/management requirements**

Rivers and streams in their natural state contain huge biodiversity in habitats, species and gene-pools with many populations being isolated in different water systems. In general, stream habitats are more open, and rocky, with clear, fast water and little plant life. Invertebrates such as caddisflies, mayflies and stoneflies are common. Brown trout *Salmo trutta fario* are usually present, and grayling *Thymallus thymallus* and salmon may also be found. Downstream, rivers become broader and wider, with deeper and increasingly turbid (or cloudy) water. Rivers typically have rich aquatic plant-life and can feature coarse fish species such as dace *Leuciscus leuciscus*, chub *Leuciscus cephalus*, roach *Rutilus rutilus*, pike *Esox lucius*, and bream *Abramis brama*.

## **1.2 Current status**

In general the water quality of English and Welsh rivers and streams has improved over recent decades. In 2005 the Environment Agency reported that 72.1% of rivers in England and Wales were of 'good quality', compared to 61.7% in 1990. Nutrient levels have dropped significantly; rivers with high concentrations of phosphate have dropped from 64% in 1990 to 51% in 2005, whilst the percentage of rivers with high nitrate levels has also dropped slightly over the same period, from 30% to 28%.

However, there are other concerns about the health of our rivers and streams, such as recent drops in summer water levels, due to water abstraction and climate change (see section 1.3).

### **1.2.1 Legal protection**

Many rivers and streams are protected as Special Areas of Conservation (SAC's) under the EC Habitats Directive. England in particular holds one of the foremost chalk river resources of Europe, and many of these are designated as Sites of Special Scientific Interest (SSSIs), including the Avon, Frome, Hull Headwaters, Itchen, Kennet, Lambourn, Upper Nar and Test.

The Environment Agency, water companies, internal drainage boards and local authorities all have statutory obligations to conserve river and stream habitats. Relevant legislation includes the Water Resources Act 1991 and the Land Drainage Act 1991.

## **1.3 Current factors causing loss or decline**

Although the quality of UK river and stream habitats has improved markedly in recent years, they remain vulnerable to a wide range of impacts:

- **Pollution** has historically been the most important threat to rivers and streams, although most forms of pollution have thankfully declined over recent decades. Rivers and streams have wide catchment areas and are therefore extremely vulnerable to pollutants entering the water system at any point.

There are a huge number of potential pollutants, which can come from many different sources. Nitrates and phosphates from agricultural fertilizers and organic wastes such as slurry, and sewage (from agriculture and water companies) can cause eutrophication (i.e. becoming rich in nutrients and minerals and therefore having an excessive growth of algae and thus a diminished oxygen content, to the detriment of other organisms), while numerous metals (from mining and industry), pesticides (especially sheep dip), car oils, and hydrocarbons, can also be toxic to many species. Many aquatic plant and animal species cannot tolerate the excessively low pH created by heavy falls of acid rain. Urban areas, construction and demolition activities, overgrazing of banks by livestock and deforestation can release excess soil particles into rivers and streams. This is also a form of pollution; the increased turbidity kills aquatic plants, clogs the gills of fish and permanently alters habitats, through increased siltation.

- **Overgrazing of banks** by livestock degrades marginal vegetation, creating shallower, wider watercourses and impacting upon those aquatic species which prefer deeper pools. Many invertebrates rely on bank-side vegetation at some stage in their lifecycle, and so the loss of such vegetation affects many other species higher up the food chain (including fish, amphibians, and birds)

Overgrazing also prevents the growth of tree saplings. Bank-side trees are very important to rivers and streams, preventing excessive erosion and shaping many of the water currents. Without tree roots to deflect flows, rivers and streams tend to become shallow and faster flowing, and aquatic habitat diversity can decline as a result.

- **Gravel extraction** has a major impact on aquatic communities, removing many aquatic plants and therefore many other species higher up the food chain. Gravel areas are also crucial spawning sites for many fish species (such as Atlantic salmon, lampreys, grayling and brown trout), and their eggs are extremely vulnerable to disturbance.

- **Watercourse alterations.** The flow and water level of streams and rivers have frequently been manipulated by humans for purposes such as transport, the dispersal of waste, and flood prevention. Modifications such as course diversions, dams, the merging of watercourses, canalisations, flood prevention measures, and bank-side development have done considerable ecological damage to many river and stream sections.
- **Artificial river obstructions.** Modifications to river and stream habitats extend to obstructions in many sections, which prevent migratory fish from reaching their spawning sites upstream. For this reason, freshwater migratory fish species are under threat, including Atlantic salmon *Salmo salar*, Twaite and Allis shad, and river and sea lampreys (*Lampetra fluviatilis* and *Petromyzon marinus*). In addition, many populations of sea-trout (the migratory form of the brown trout) are also under threat.
- **Water abstraction and drainage.** Water companies and agriculture remove huge quantities of water from rivers and streams, either directly or indirectly, by tapping groundwater. The resulting problem of low water levels can be exacerbated by hot summers, and has a devastating cumulative impact on stream and river wildlife. This has been a particular problem in recent years, and further drops in summer water levels caused by climate change are a major concern.
- **Climate change** may also alter the composition of plant and animal communities in rivers and streams, due to higher temperatures and greater seasonal variation in water levels.
- **Over-fishing.** Although anglers can have a positive impact on rivers and streams, being responsible for many conservation and management schemes, both private individuals and commercial fishermen and poachers have also been responsible for declines in some species – notably the Atlantic salmon.
- **Invasions of non-native species** have affected many streams and rivers. Exotic plants such as Indian, or Himalayan balsam *Impatiens glandulifera*, giant hogweed *Heracleum mantegazzianum* and Japanese knotweed *Fallopia japonica* can spread quickly on bank-sides, out-competing and then replacing native plants. Native invertebrates can also suffer, as they have not evolved to feed on non-native plants, or the other species associated with them.

Invasions of non-native animal species have also occurred, notably of American mink *Mustela vison* and signal crayfish *Pacifastacus leniusculus*. The American mink has been one of the major factors in the decline of the native water vole and some species of ground nesting bird. Signal crayfish have out-competed and replaced our native white-clawed crayfish in many streams and rivers. They also do considerable damage to banks by burrowing underneath and undermining them. Non-native escapees from fish farms can also disrupt fish communities, spreading disease to which native species may not be immune.

#### **1.4 Current action**

The Environment Agency is the statutory agency responsible for river and stream water quality.

The EU Nitrate Directive (91/676/EEC) has important implications for the sensitive management of rivers and streams, and came into force in Nitrate Vulnerable Zones (NVZs) in 1996. Land managers in NVZs are required to comply with mandatory Action Programme measures designed to protect both ground-waters and surface waters against pollution caused by nitrates.

Research by English Nature (see Section 1.8.2) has suggested that stress pheromones extracted from crayfish could be highly effective in preventing the upstream migration of signal crayfish, while sex pheromones could increase the effectiveness of traps. Further field trials are currently underway to determine the feasibility of pheromones as a control measure.

Many angling groups are involved in the conservation of river and stream habitats. The Anglers Conservation Alliance also campaigns against pollution, water abstraction and drainage, watercourse modifications and other damage to river and stream habitats. They regularly identify and support the prosecution of polluters.

A number of voluntary angling groups are monitoring invertebrate populations around water bodies, following concerns that declining invertebrates are negatively affecting fish populations. Most of these groups are coordinated by the Riverfly Partnership, which also involves other interested parties, such as conservationists, entomologists and watercourse managers.

Funding for creating and maintaining bank-side habitat can be secured from the Environmental Stewardship Scheme.

### 1.5 Action plan objectives and targets

The table below outlines SMART targets for rivers and streams. These are developed in greater detail in the sections which follow.

**Table 1.** Caravan Club objectives and targets for rivers and streams, with timetable of works.

Objectives	Targets	Timetable	Lead*
<b>A. Policy</b>			
Maintain and where possible increase the extent and distribution of dense, undisturbed bank-side vegetation across the site network.	Record a 25% increase in dense, undisturbed bank-side vegetation.	2010	CC Sites team
<b>B. Site safeguard and management</b>			
Eliminate the use of pesticides and fertilisers at CC sites.	Eliminate pesticide and fertilizer use.	2008-2010	Site wardens
Determine the presence or absence of National BAP species in river and stream habitats.	Conduct surveys throughout the site network.	From 2008 onwards	CC Sites team
Identify and eradicate any invasive non-native plant species (e.g. poplars, Indian balsam, giant hogweed and Japanese knotweed) in river and stream habitats.	Remove all invasive, non-native plant species from river and stream habitats.	From 2009 onwards	CC Sites team, Site wardens
Identify and control American mink and signal crayfish populations.	Suppress the abundance of American mink (where they threaten water vole populations or bird reserves) and signal crayfish, relative to initial population sizes.	From 2009 onwards	Site wardens
Maintain water tables and seasonal fluctuation of water levels in rivers and streams.	Avoid flood prevention measures, drainage and water abstraction (including groundwater) in, and around, river and stream habitats.	From 2008 onwards	CC Sites team, Site wardens
Improve the management of existing rivers and streams.	Implementation of suitable and structured management, as advised by CC Sites team.	From 2008 onwards	Site Wardens
Increase the amount and variety of dead wood forms present on banks.	Increase the amount of dead, rotting wood onsite by at least 25%.	2010	Site wardens
<b>C. Advisory</b>			
Improve the condition of existing rivers and streams.	Prepare management guidance & advise Site Wardens on appropriate management of rivers and streams.	From 2008 onwards	CC Sites team
<b>D. Research &amp; monitoring</b>			

<b>Objectives</b>	<b>Targets</b>	<b>Timetable</b>	<b>Lead*</b>
Prevent the return of invasive weed species such as Indian balsam, giant hogweed and Japanese knotweed.	Prevent the return of invasive species at all sites where they have previously been removed.	From 2009 onwards	Site wardens
Suppress any populations of American mink and signal crayfish	Record the abundance of American mink and signal crayfish, to assess the success of control measures.	From 2009 onwards	Site wardens
Monitor water tables and plant species present, with a view towards maintaining river and stream habitats.	Monitor water tables and plant species present.	From 2008 onwards	CC Sites team
Maintain, and where possible extend, the distribution of National BAP species associated with rivers and streams.	Record extensions to the distribution of at least three National BAP species at Caravan Club sites.	2015	CC Sites team

\* Lead does not imply that the cited body will conduct the work listed. Instead it means that this body will oversee and direct the achievement of the relevant objectives and targets. For instance: (i) identifying, or delegating the identification of, regions or sites where work should be focussed; (ii) giving, or seeking from a third party, advice on the use of volunteer work parties; (iii) employing external bodies/groups to assess, analyse and provide expert advice, in key areas.

## **1.6 Proposed actions**

### **1.6.1 Policy**

All Caravan Club sites with river or stream habitat must be safeguarded through regular monitoring. Wherever possible, accompanying bank-side vegetation should be managed to promote biodiversity and connectivity (see Section 1.6.3). New wet woodland should also be created in available areas, where conditions are suitable. The Caravan Club should write or commission habitat management plans to safeguard the future of rivers and streams on and near Caravan Club sites.

### **1.6.2 Site safeguard and management**

The following measures should ensure that key sites are safeguarded:

- Promote favourable management on all key sites where river or stream habitat occurs (see section 1.6.3);
- Avoid the use of pesticides, fertilizers and other pollutants on Caravan Club sites.
- Compensate for any local losses of bank-side vegetation, e.g. which may occur through the development of a new site complex;

- Flood protection measures should be avoided wherever possible, to allow seasonal variations in water levels and a greater range of aquatic habitats to be maintained.
- Where funding is required for the management of rivers and streams, an application should be made for a Environmental Stewardship grant;
- Any new bank-side habitat creation or replanting must use local plants, following the Flora Locale Code of Practice. This will maintain the genetic integrity of local plant populations and prevent the spread of *Phytophthora* root disease between alder *Alnus glutinosa* trees.

**Due thought and consideration should be given to the management of these features wherever they occur, across the site series. A table, detailing those 23 Caravan Club sites where rivers and streams are known to be present, is given in Annex 1. This can be found at the end of the document.**

### **1.6.3 Habitat management and protection**

Rivers and streams on Caravan Club sites will be managed and protected through the following measures:

- Where invasive species such as Indian balsam, giant hogweed and Japanese knotweed are present, they should be removed every 2-4 weeks until the area is entirely clear. This should be done by cutting stems with a scythe, and also pulling out roots and crowns below ground level. Japanese knotweed must be disposed of by burning or burying to a depth of at least 10 m. Protective clothing should be worn when handling giant hogweed, to avoid skin irritation, blistering and long-term skin pigmentation. Flail mowing or strimming is unsuitable for Japanese knotweed as it will spread stem fragments, leading to an increase of the species, and would be dangerous for giant hogweed, due to the poisonous, photo-toxic sap;
- Sediment input to the river/streams from soil erosion should be limited wherever possible – this may be facilitated by checking for soil erosion on site, and possibly filtering sediment-laden feeder streams/runoff from roads, etc.
- American mink are now well established in the UK, so widespread control will not be realistic. However, on sites with water vole or bird reserves, localized mink control must be practiced. Larsen traps should be positioned on bank-sides and baited with rabbit, liver, pigeon, or oily fish such as kippers or pilchards. By law, traps must be checked daily for reasons of animal welfare, and to allow non-target species to be returned unharmed. Action taken to control mink may be met with alarm by some Caravan Club visitors. It therefore needs to be accompanied by explanatory information – why its being done and how it is humane, etc.;

- Total eradication of any signal crayfish present is also unrealistic. However, river and stream biodiversity will greatly benefit from management which prevents their spread and suppresses their numbers. Weirs and possibly pheromones can be used to contain populations. Crayfish traps are effective, but should not be the only control measure as their repeated use will require considerable time and effort in the long-term. A more viable option is to promote populations of their predators – such as otters, eels, grayling, chub, pike and perch. Scottish Natural Heritage and English Nature have produced reports on signal crayfish control, focussing on general methods, and the possible use of pheromones, respectively (see 1.8.2);
- Water levels must be maintained by limiting any water abstraction or drainage onsite, particularly during summer;
- If there is seasonal flooding on site, this regime should be maintained. Many plant and animal species benefit from fluctuations in water levels;
- Bank-side vegetation should be allowed to grow and develop lush, dense, plant architecture. Any gaps in good bank habitat should be kept to a minimum, as this habitat provides important wildlife corridors for many species. Where necessary, bank-sides should be fenced off to prevent overgrazing by livestock;
- Where manmade obstructions block the upstream movement of migratory fish species, fish passes should be built;
- Dead wood must be left on bank-sides, and complemented with any cut wood from felling operations (which requires a licence from the FC). Management will ensure that a variety of dead wood forms are present for invertebrate species, including submerged logs (for the larvae of caddis fly species) semi-submerged logs (for hoverflies and the endangered crane fly *Lipsothrix nigristigma*), sapwood (fly species), and logs and trunks on damp soil – either free-standing or lying (for black fringed moss-snipefly *Ptiolina obscura* and the BAP crane fly *Lipsothrix nervosa*, amongst others);
- Coppicing and pollarding of bank-side trees will allow more light to reach rivers and streams, promoting aquatic biodiversity. However, this management is not appropriate for some invertebrate species of wet woodland (see wet woodland Caravan Club BAP). In some situations careful consideration may be required as to the relative merits of river/stream and wet woodland conservation;
- Where acid rain is affecting rivers or streams, liming of the surrounding slopes should be considered, to neutralise excess acidity;
- On sites where access to rivers or streams is possible, a Management Plan may be required in order to balance recreational use and conservation.

#### **1.6.4 Advisory**

The following organisations can provide advice on surveying, managing and conserving river and stream habitats:

- Environment Agency;

- Scottish Environmental Protection Agency;
- Countryside Council for Wales;
- Natural England;
- Scottish Natural Heritage.

### **1.6.5 Future Research and Monitoring**

Water tables and the plant species composition of bank-sides should be monitored on an ongoing basis, to secure the future of these habitats through appropriate management.

Information gathered from surveying and monitoring should be passed on to Local Biological Records Centres (details given below in Section 1.8.2), in order that it can be incorporated in a national database, and contribute to the maintenance of an up-to-date picture of the status of these habitats.

### **1.6.6 Communications and Publicity**

Publicity should be directed towards a range of public interest groups, including walkers and users of rivers and streams (e.g. anglers, canoeists, rowers, etc.). The conservation of invertebrates and fish will greatly benefit the numerous anglers who visit Caravan Club sites. Publicity should be targeted towards this recreational group.

## **1.7 Links with other action plans**

### **1.7.1 National BAP**

River and stream conservation is linked to the following UK BAPs:

#### Habitats:

Chalk rivers: [www.ukbap.org.uk/UKPlans.aspx?ID=25](http://www.ukbap.org.uk/UKPlans.aspx?ID=25)

Rivers and streams: [www.ukbap.org.uk/UKPlans.aspx?ID=59](http://www.ukbap.org.uk/UKPlans.aspx?ID=59)

Wet woodland: [www.ukbap.org.uk/UKPlans.aspx?ID=4](http://www.ukbap.org.uk/UKPlans.aspx?ID=4)

Coastal and floodplain grazing marsh: [www.ukbap.org.uk/UKPlans.aspx?ID=9](http://www.ukbap.org.uk/UKPlans.aspx?ID=9)

Eutrophic standing waters: [www.ukbap.org.uk/UKPlans.aspx?ID=23](http://www.ukbap.org.uk/UKPlans.aspx?ID=23)

Lowland raised bog: [www.ukbap.org.uk/UKPlans.aspx?ID=20](http://www.ukbap.org.uk/UKPlans.aspx?ID=20)

#### Species:

Twaite shad *Alosa fallax*: [www.ukbap.org.uk/UKPlans.aspx?ID=85](http://www.ukbap.org.uk/UKPlans.aspx?ID=85)

Allis shad *Alosa alosa*: [www.ukbap.org.uk/UKPlans.aspx?ID=84](http://www.ukbap.org.uk/UKPlans.aspx?ID=84)

Otter *Lutra lutra*: [www.ukbap.org.uk/UKPlans.aspx?ID=428](http://www.ukbap.org.uk/UKPlans.aspx?ID=428)

Water vole *Arvicola terrestris*: [www.ukbap.org.uk/UKPlans.aspx?ID=115](http://www.ukbap.org.uk/UKPlans.aspx?ID=115)

Reed bunting *Emberiza schoeniclus*: [www.ukbap.org.uk/UKPlans.aspx?ID=279](http://www.ukbap.org.uk/UKPlans.aspx?ID=279)

Aquatic warbler *Acrocephalus paludicola*: [www.ukbap.org.uk/UKPlans.aspx?ID=76](http://www.ukbap.org.uk/UKPlans.aspx?ID=76)

Marsh warbler *Acrocephalus palustris*: [www.ukbap.org.uk/UKPlans.aspx?ID=77](http://www.ukbap.org.uk/UKPlans.aspx?ID=77)

Southern damselfly *Coenagrion mercuriale*:

[www.ukbap.org.uk/UKPlans.aspx?ID=231](http://www.ukbap.org.uk/UKPlans.aspx?ID=231)

White-clawed crayfish *Austropotamobius pallipes*:

[www.ukbap.org.uk/UKPlans.aspx?ID=124](http://www.ukbap.org.uk/UKPlans.aspx?ID=124)

Netted carpet moth: [www.ukbap.org.uk/UKPlans.aspx?ID=301](http://www.ukbap.org.uk/UKPlans.aspx?ID=301)

Eyed longhorn beetle: [www.ukbap.org.uk/UKPlans.aspx?ID=479](http://www.ukbap.org.uk/UKPlans.aspx?ID=479)

10 spotted pot beetle: [www.ukbap.org.uk/UKPlans.aspx?ID=247](http://www.ukbap.org.uk/UKPlans.aspx?ID=247)

a weevil *Melanapion minimum*: [www.ukbap.org.uk/UKPlans.aspx?ID=443](http://www.ukbap.org.uk/UKPlans.aspx?ID=443)

a cranefly *Lipsothrix nervosa*: [www.ukbap.org.uk/UKPlans.aspx?ID=418](http://www.ukbap.org.uk/UKPlans.aspx?ID=418)

a cranefly *Lipsothrix errans*: [www.ukbap.org.uk/UKPlans.aspx?ID=417](http://www.ukbap.org.uk/UKPlans.aspx?ID=417)

Black-spotted yellow splinter cranefly: [www.ukbap.org.uk/UKPlans.aspx?ID=419](http://www.ukbap.org.uk/UKPlans.aspx?ID=419)),

Grass-wrack pondweed *Potamogeton compressus*:

[www.ukbap.org.uk/UKPlans.aspx?ID=529](http://www.ukbap.org.uk/UKPlans.aspx?ID=529)

Triangular club-rush *Schoenoplectus triquetus*:

[www.ukbap.org.uk/UKPlans.aspx?ID=563](http://www.ukbap.org.uk/UKPlans.aspx?ID=563)

Greater water parsnip *Sium latifolium*: [www.ukbap.org.uk/UKPlans.aspx?ID=577](http://www.ukbap.org.uk/UKPlans.aspx?ID=577)

Killarney fern *Trichomanes speciosum*: [www.ukbap.org.uk/UKPlans.aspx?ID=615](http://www.ukbap.org.uk/UKPlans.aspx?ID=615)

### **1.7.2 Local BAP**

Local BAPs covering rivers and streams include:

Birmingham and the Black Country:

[www.wildlifetrust.org.uk/urbanwt/ecorecord/bap/html/rivers.htm](http://www.wildlifetrust.org.uk/urbanwt/ecorecord/bap/html/rivers.htm)

Peak District:

[www.peakdistrict.gov.uk/bap6\\_3\\_rch.pdf](http://www.peakdistrict.gov.uk/bap6_3_rch.pdf)

Wiltshire:

[www.swbiodiversity.org.uk/Habitats/Rivers/Rivers\\_Wiltshire.htm](http://www.swbiodiversity.org.uk/Habitats/Rivers/Rivers_Wiltshire.htm)

Devon:

[www.swbiodiversity.org.uk/Habitats/Rivers/Rivers\\_Devon.htm](http://www.swbiodiversity.org.uk/Habitats/Rivers/Rivers_Devon.htm)

### **1.7.3 Caravan Club BAP**

Other BAPs in this document of relevance to the conservation of rivers and streams are:

- Wet woodland;
- Ditches & banks;
- Veteran trees;
- Grouped plan for Swallows / Swifts / Martins;
- Great crested newt.

## 1.8 Implementation

### 1.8.1 Personnel

Initially, the Caravan Club Sites team will 'lead' on BAP implementation for rivers and streams. However, it is recommended that a Caravan BAP officer should be appointed, to take forward the action and monitoring outlined in this document.

Much of the practical management of rivers and streams at individual sites will be carried out by Site Wardens. However, some work required to make dangerous trees safe, to pollard bank-side trees, to control invasive species, or any engineering work will necessarily involve specialist skills and equipment. Professional advice should be sought in these cases.

### 1.8.2 Related links

The Environment Agency is responsible for maintaining or improving the water quality of rivers and streams in England and Wales. [www.environment-agency.gov.uk](http://www.environment-agency.gov.uk)

The Scottish Environmental Protection Agency is Scotland's environmental regulator, responsible for controlling pollution and protecting and improving Scotland's environment. <http://www.sepa.org.uk/>

Natural England. Natural England is the successor agency to English Nature, the Countryside Agency and the Rural Development Service. Natural England works to conserve and enhance biodiversity, landscapes and wildlife in rural, urban, coastal and marine areas. English Nature have produced a report on the possible control of signal crayfish using pheromones.

<http://www.naturalengland.org.uk/>  
[www.english-nature.org.uk/pubs/publication/PDF/578.pdf](http://www.english-nature.org.uk/pubs/publication/PDF/578.pdf)

Countryside Council for Wales. The Countryside Council for Wales is the Government's statutory adviser on sustaining natural beauty and wildlife in Wales. <http://www.ccw.gov.uk/>

Scottish Natural Heritage. The Scottish Natural Heritage is the Government's statutory adviser on sustaining natural beauty and wildlife in Scotland. They have produced a report on the control of signal crayfish.

<http://www.snh.org.uk/default.asp>  
[www.snh.org.uk/pdfs/publications/commissioned\\_reports/no.%20020.pdf](http://www.snh.org.uk/pdfs/publications/commissioned_reports/no.%20020.pdf)

Local Biological Records Centres. The following LBRC (or LRC) contacts list contains the details of all LRCs across the UK. <http://www.nbn-nfbr.org.uk/nfbr.php>

Defra - Environmental Stewardship Scheme. Environmental Stewardship is a new agri-environment scheme which provides funding to land managers in England who deliver effective environmental management on their land.

The scheme is intended to build on the recognised success of the Environmental Sensitive Areas scheme and the Countryside Stewardship Scheme. Its primary objectives are to:

- Conserve wildlife (biodiversity);
- Maintain and enhance landscape quality and character;
- Protect the historic environment and natural resources;
- Promote public access and understanding of the countryside;
- Natural resource protection.

[www.defra.gov.uk/erdp/schemes/es/default.htm](http://www.defra.gov.uk/erdp/schemes/es/default.htm)

The Westcountry Rivers Trust is an environmental charity established in 1995 to secure the preservation, protection, development and improvement of the rivers, streams, watercourses and water impoundments in the west country and to advance the education of the public in the management of water. [www.wrt.org.uk](http://www.wrt.org.uk)

Many angling associations - from national organisations to local clubs - are working to conserve and manage river and stream habitats, primarily for fish, but also for other species. Listed below are a few organisations involved in conservation work:

The Anglers Conservation Association campaigns to protect fish populations from pollution, water abstraction, watercourse alterations and other damage to river and stream habitats. They are currently supporting prosecution of polluters in about 60 legal cases. [www.a-c-a.org](http://www.a-c-a.org)

The Wye & Usk Foundation is a registered charity concerned with restoring the ecology, environment and fisheries of the rivers Wye and Usk. It has run a number of schemes, including the pHish project (correcting the effects of acid rain) and Up! (improving river and stream habitat management and removing obstructions for migratory fish). With the support of the Tubney Charitable Trust, it is also managing stream habitats for the white-clawed crayfish.

[www.wyeuskfoundation.org](http://www.wyeuskfoundation.org)

The Riverfly Partnership. The Riverfly Partnership brings together anglers, conservationists, entomologists, scientists, water course managers and relevant authorities to increase our knowledge, expertise and understanding of river fly populations. As well as increasing the availability of this information, the Partnership will address any declines in river fly populations, including declines in overall abundance and threats to individual species.

[www.freshwaterlife.org/servlet/CDSServlet?status=ND0yMjIwMiY2PWVuJiMzPSomMzc9a29z](http://www.freshwaterlife.org/servlet/CDSServlet?status=ND0yMjIwMiY2PWVuJiMzPSomMzc9a29z)

Annex 1. Sites at which rivers and streams are present, as recorded during the Questionnaire survey.

No.	Region	Site
1	Cotswolds	Blackmore
2	Cumbria	Dockray Meadow
3		Low Manesty
4		Troutbeck Head
5	Devon and Cornwall	Stover
6		Trewethett Farm
7	North East England	Kielder Water
8		Nunnykirk
9		River Breamish
10	Peak District	Losehill
11	South East England	Fairlight Wood
12	Southern England	Exmoor House
13		Longleat
14	Yorkshire	Brown Moor
15		Lower Clough Foot
16		The Howard Rosedale Abbey
17	Scotland	Bunree
18		Clachan
19		Garlieston
20		Maragowan
21		Morvich
22	Wales	Gowerton
23		Pandy