



Biodiversity Action Plan (BAP) for ditches & banks

A report prepared for:
The Caravan Club

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1 Ditches & banks

At first glance, ditches and banks are not the most glamorous of habitats, and this has led even conservationists to undervalue them in the past. However, closer inspection of these habitats can reveal a wide range of interesting, rare and beautiful plant and animal species, such as southern marsh orchid, water vole, white-clawed crayfish, bumblebees, damselflies, amphibians and rich birdlife.

1.1 Introduction

1.1.1 Description

Ditches and banks can take a variety of forms. Ditches may be dry, seasonally wet, or permanently wet. They include irrigation ditches and areas of agricultural set aside land. Important bank habitats include hedge-banks, which are particularly important in the south west of England, roadside verges, railway embankments, agricultural set-aside field margins, and 'beetle banks' within arable fields.

As 'linear' habitats, ditches and banks also have a very important role to play in connecting larger areas of 'semi-natural' habitats, such as meadows and woodlands. They can provide a very valuable refuge for many species, in areas which might otherwise be entirely unfavourable. Plates 1 – 4 illustrate some of the diversity of habitats covered by the umbrella term 'Ditches and banks'.



Plate 1. Wet ditch habitat.
Source: Game Conservancy Trust©.



Plate 2. A 'beetle bank' neighbouring an arable field.
Source: Game Conservancy Trust©.



Plate 3: Herb-rich roadside bank, topped with scrub and trees.
Source Derek Ratcliffe, Natural England.



Plate 4: Mallow and poppies growing on bank.
Source: Derek Ratcliffe, Natural England.

1.1.2 Relevant ecology/management requirements

Banks

Banks often occur in secluded areas, resulting in the development of rich grass and wildflower communities. Many are also linked to hedgerows (see relevant accompanying cBAP document). The often rich vegetation of these habitats can support diverse invertebrate communities, including many species of butterfly, bumblebee, beetle, and spider. Indeed, many farmers deliberately create ‘beetle banks’ within arable fields, as refuges for Carabid beetles (e.g. *Agonum dorsale* and *Pterostichus* species), money spiders, and wolf spiders, which are valuable biological control agents of aphids and other crop pests. Many beetles, spiders and other invertebrates over-winter under the tussocky grasses which are often a prominent feature of these habitats.

The rich plant and invertebrate communities in turn provide food for many bird, small mammal, amphibian, and reptile species. Small rodent species also burrow under tussocks, and abandoned vole and mouse holes can provide nest sites for bumblebee colonies. Harvest mice may also nest in longer grasses. Banks can also provide important nesting areas for endangered bird species, such as grey partridge *Perdix perdix*, reed bunting *Emberiza schoeniclus* and cirl bunting *Emberiza cirlus*. However some ground-nesting species such as skylark *Alauda arvensis* prefer to nest on open-field banks, fearing the proximity of hedgerows or other vertical structures which may harbour predators.

Given their importance, banks need to be considered as significant elements of relevant grassland/scrub/hedgerow habitats, and for their bare ground value for invertebrates.

Ditches

The ditches which are often found below banks can also provide an important habitat for many aquatic plants, invertebrates and amphibians. They are often associated with wetlands and water bodies. They are especially important as they are becoming less frequent in the countryside of the UK; hence those remaining are of even greater value. Wet ditches in coastal areas can have brackish water, and support many additional invertebrate, including some rare mollusc species. Wet ditches with densely vegetated banks are an important habitat for the water vole *Arvicola terrestris*, a protected mammal species, and those with areas of open, shallow, water can provide foraging habitat for some wading birds (e.g. jack snipe *Lymnocyptes minimus* and lapwing *Vanellus vanellus*). The shallow waters often lack significant fish populations, thus providing ideal spawning areas for many amphibians, and egg-deposition sites for invertebrates such as dragonflies and damselflies.

Wet ditches are an important habitat for many UK BAP species, including the song thrush *Turdus philomelos*, white-clawed crayfish *Austropotamobius pallipes*, great crested newt *Triturus cristatus*, freshwater snail *Anisus vorticulus*, shining ram's horn snail *Segmentina nitida*, southern damselfly *Coenagrion mercuriale*, great tassel stonewort *Tolypella prolifera* and three-lobed water-crowfoot *Ranunculus tripartitus*.

Ditches need rotational management to prevent siltation and choking with vegetation. They may also require some form of water level management.

1.2 Current status

Ditches and banks are widespread throughout the UK, but have declined in area and ecological quality, due to increasing development pressure and agricultural intensification. Wet ditches in particular are declining. This is because they generally occur in low lying floodplain/coastal plain areas with deep fertile soils, therefore they are often filled in to create bigger fields, and this agricultural intensification can increase the risk of eutrophication from runoff / high levels of fertiliser application.

1.2.1 Legal protection

Many ditches and banks are afforded some protection through the limited legal protection afforded to field boundaries. Under the Food and Environment Protection Act 1985 it is illegal to spray hedge bases with pesticides without approval by Defra. Further legal protection is currently being considered for field margin habitats, including ditches and banks.

1.3 Current factors causing loss or decline

- Many banks and ditches have been removed, due to agricultural intensification, or development pressure;
- Excessive water abstraction and drainage has resulted in many wet ditches drying up;
- Ditches and banks have often been overlooked by conservationists in the past, in favour of more eye-catching habitats. However ditches and banks are now increasingly appreciated for their potentially rich biodiversity;
- Increased use of fertilizers, pesticides and herbicides has caused a lot of ecological damage to ditches and banks through run-off and wide spraying. Pesticides kill many, if not all invertebrates, and in the past have also killed other animals, such as kestrels, through the bioaccumulation of non-biodegradable poisons in the food chain. Herbicides and fertilizers reduce floral diversity (particularly of wildflowers), while fertilizers cause nutrient enrichment in wet ditches, which can lead to damaging algal blooms;
- Pesticides, especially sheep dips, have in the past been dumped in ditches;
- Overgrazing has significantly reduced biodiversity on many banks;
- Invasive non-native aquatic plants such as floating pennywort *Hydrocotyle ranunculoides*, Australian swamp stonecrop *Crassula helmsii*, Parrot's feather *Myriophyllum aquaticum* and water fern *Azolla filiculoides* can overrun ditches, and invasive non-native terrestrial plants such as Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera* can take over banks. Invasive species reduce the ecological value of ditches and banks by out-competing native plants, while providing little or no food for native fauna.

1.4 Current action

Many beetle banks have been created by farmers in recent years, principally to provide refuges for Carabid beetles, money spiders, and wolf spiders - biological control agents of aphids and other crop pests.

The Entry Level Stewardship scheme of the European Union's Common Agricultural Policy (implemented in the UK through Defra) provides subsidies to UK farmers who create and maintain ditch and beetle bank habitats for wildlife.

The EU Nitrate Directive (91/676/EEC) has important implications for the sensitive management of ditches, 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 nitrate.

1.5 Action plan objectives and targets

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

Table 1. Caravan Club objectives and targets for ditches and banks.

Objectives	Targets	Timetable	Lead
A. Policy			
Maintain the current extent and distribution of ditches and banks. Where habitat must be lost, recreate ditches and banks in other suitable areas	No overall loss of ditch and bank area.	From 2008	CC Sites team
B. Site safeguard and management			
Eliminate the use of fertilizers, herbicides and pesticides throughout the site network.	Eliminate fertilizer, herbicide and pesticide use.	2008-2010	Site wardens
Improve the condition of ditch and bank habitat on Caravan Club sites.	Implementation of a management plan to safeguard ditch and bank habitats.	From 2008 onwards	CC Sites team, Site Wardens
Eradicate invasive plant species from ditch and bank habitat, and through monitoring prevent their return.	Eradicate at least 75% of invasive weeds found on ditch and bank habitat	2010	CC Sites team, Site Wardens
C. Advisory			
Improve the condition of ditch and bank habitat.	Prepare a management plan to enable site wardens to effectively manage a variety of ditch and bank habitats.	2007-2009	CC Sites team
D. Research & monitoring			
Complete survey and assessment of all sites for ditches and banks.	Survey all potential sites for ditches and banks within 5 years.	2008-2013	CC Sites team
Survey all ditch and bank habitat for invasive plant species.	Establish where invasive plants occur on ditch and bank habitat	From 2008	CC Sites team
Continue to monitor bank and ditch habitats where invasive plants have been eradicated, to prevent their return.	Set up an annual monitoring scheme for invasive plant species at all sites containing ditch and bank habitat.	From 2008	CC Sites team

1.6 Proposed actions

1.6.1 Policy

Surveys should be conducted to establish where ditches and banks are currently located in Caravan Club sites.

Where possible, ditch and bank areas in Caravan Club sites should be increased to at least 5 m wide (not expanding the ditch or bank itself, but expanding associated habitat area). This will increase the species richness of both flora and fauna, and prevent excessive run-off of any fertilizers, herbicides and pesticides into ditches (and connected waterways).

There should be no future net loss of ditch and bank habitat. Wherever possible, current ditch and bank habitats should be maintained, and if necessary restored to better condition; any unavoidable loss should be compensated for by recreating similar habitat in suitable areas.

The Caravan Club should commit to supporting a diversity of ditch and bank habitats. Some ditch and bank areas should be located near hedgerows, woods and in field margins, others in more open terrain. Some bank areas should be allowed to develop tall, dense vegetation, while a few areas near ditches should be disturbed and more open (see 1.6.3 for details). Wet ditches across the site network should encompass as wide a range of water salinities as possible. A diversity of ditch types (dry, seasonally wet, or permanently wet) should also be encouraged. Although not all ditch and bank types will be available at each site, a diversity of ditch and bank habitats will allow floristic and faunal biodiversity to develop and thrive.

Managing/altering ditches may need to involve the Inland Drainage Board, and/or Environment Agency (EA). The EA would be happy to provide conservation-orientated advice where applicable.

Ditch and bank habitats will often be located around the periphery or may actually form the boundary of Caravan Club sites. Therefore collaboration with neighbours is very important. Where ditches do form the boundary, the Caravan Club will almost certainly own up to the central point of the ditch, unless other arrangements have been agreed.

1.6.2 Site safeguard and management

The Caravan Club should adopt a policy of avoiding water drainage or abstraction, near wet ditches.

Site Wardens should routinely inspect ditches and banks for invasive plant species, and take appropriate action to eradicate them wherever found (see 1.6.3).

Site Wardens should aim to achieve as great a variety of ditch and bank habitats as possible, by using the management practices discussed in 1.6.3.

Due thought and consideration should be given to the management of these features wherever they occur, across the site series. A table, detailing those 34 Caravan Club sites where ditches and banks are known to be present, is given in Annex 1. This can be found at the end of the document.

1.6.3 Species management and protection

The following management practices will promote biodiversity in ditches and banks:

Banks

- Bank vegetation should be cut in rotation (by hand if possible) at 3-5 year intervals, and only in late summer. This will allow a rich plant community to develop, including long grasses and wildflowers;
- If cuttings cannot be removed from site, they should all be left in one small area, to prevent nutrient enrichment reducing floral diversity over the majority of the area;
- If necessary, limited cattle grazing could be allowed in some bank areas above ditches. This will create areas of disturbed ground, less dense vegetation and small muddy pools near ditches - microhabitats which some invertebrates (such as the southern damselfly) require;

Ditches

- Rotational vegetation cutting; Environmental Options for River Maintenance Works, published by the Environment Agency, provide detailed guidance on best practice;
- Wading birds can also be encouraged to forage in wet ditches by maintaining some open areas with shallow water;
- The maintenance of gently sloping banks will allow a greater diversity of plants and invertebrates to develop, and reduce run-off of any fertilizers, pesticides and herbicides into associated ditches;
- Permanently wet ditches will usually support greater biodiversity than those with an ephemeral water supply;
- Wet ditches should not be dredged, except where it is necessary to maintain water levels. The substrate contains many small invertebrates which are critical in supporting food chains in this habitat. The left-over of any dredging activity should be left near to the ditch for invertebrates to escape as it dries;
- There should be no burning in the immediate vicinity of wet ditches, as this can adversely affect their aquatic and marginal vegetation;
- Maintaining varied water depths with a preponderance of shallow water areas will promote greater biodiversity. Shallow water is particularly good for many aquatic invertebrates and amphibians, due to the lack or low abundance of fish;
- The maintenance of open, shallow areas of water may encourage wading birds to forage in ditches;

- Sheep treated with sheep dip insecticides should not be allowed to graze in the vicinity of ditches; even small amounts of these insecticides can have a devastating impact on ditch invertebrates;
- Where space and water transport efficiency is not an issue, the creation of meandering drains in ditches will allow a greater abundance and diversity of marginal vegetation to develop;
- Any newly dug ditches should not be connected to other water bodies for up to 5 years, until nutrient levels in the disturbed soil have dropped sufficiently, to prevent widespread nutrient enrichment;
- Any invasive plant species located in ditches and banks should be removed at 2-4 weekly intervals until none remain. Statutory guidelines state that Japanese knotweed must be disposed of by burning or burying to a depth of at least 10 m. Flail mowing or strimming is unsuitable for Japanese knotweed, as it will spread stem fragments. The area should then be closely monitored to guard against the return of invasive plants.

1.6.4 Advisory

Simple management guidance for sites containing ditches and banks should be prepared for the Caravan Club, tailored to the needs of Site Wardens, and individual sites. A qualified ecologist should be retained for this purpose.

For ditches, the Environment Agency should be the key contact, and source of conservation best practice guidance and advice.

The statutory conservation agencies (Natural England, the Countryside Council for Wales, and the Scottish Natural Heritage), and the regional Wildlife Trusts would each be happy to provide advice and recommendations on the management of ditches and banks for nature conservation. Each of these organisations have locally based officers who may be prepared to visit a site, and offer practical information on a site-by site basis. Buglife, the RSPB and the Game Conservancy Trust may also be willing to provide management advice.

1.6.5 Future Research and Monitoring

All Caravan Club sites should initially be surveyed to establish where ditches and banks currently exist.

Wardens should routinely inspect all ditches and banks for invasive plant species. Once invasive plants have been eradicated from an area, close monitoring and appropriate action should continue to prevent their return.

1.6.6 Communications and Publicity

Ditches and banks have often been undervalued in the past. Although at first glance they are not the most inspiring of habitats, they can in fact support a wide range of flora and fauna, including many rare and interesting species. Greater public appreciation for this habitat could be achieved by promoting the diversity of species present, and focussing on endangered and popular ones such as water vole ('Ratty' from Wind in the Willows), lapwing, song thrush, bumblebees, southern damselfly, great crested newt, and white-clawed crayfish. Some of these species are covered in other Caravan Club BAPs (see 1.7.3)

1.7 Links with other action plans

1.7.1 National BAP

Ditches which contain water for the majority of the year are included in the UK BAP for standing open waters and canals:

www.ukbap.org.uk/UKPlans.aspx?ID=58

Dry ditches and banks are included in the UK BAP for boundary and linear features:

www.ukbap.org.uk/UKPlans.aspx?ID=48

1.7.2 Local BAP

Ditches and banks are not often dealt with alone, but in combination with other habitats. For instance they are mentioned in the following local BAP:

Birmingham and Black Country BAP:

www.wildlifetrust.org.uk/urbanwt/ecorecord/bap/html/fields.html

1.7.3 Caravan Club BAP

The following habitat and species BAPs are linked to the conservation of ditches banks:

- Scrub;
- Grouped plan for grasslands;
- Species rich hedges;
- Rivers & streams;
- Kestrel;
- Song thrush;
- Great crested newt;
- Large garden and brown-banded carder bumble-bees;
- Southern marsh orchid.

1.8 Implementation

1.8.1 Personnel

Initially, the Caravan Club Sites team will 'lead' on ditch and bank BAP implementation. 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 ditches and banks at individual sites will be carried out by Site Wardens. Indeed one of the most useful actions is likely to be the cessation of mowing or cutting of these habitats. However, some work required to remove non-native invasive species such as Japanese knotweed or Himalayan balsam will necessarily involve specialist skills and equipment. Professional advice should be sought in these cases.

1.8.2 Related links

Environment Agency (EA). The EA is the leading public body for protecting and improving the water-based environment in England and Wales.

<http://www.environment-agency.gov.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. <http://www.naturalengland.org.uk/>

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.

<http://www.snh.org.uk/default.asp>

Buglife. Buglife, the Invertebrate Conservation Trust, is the first organisation in Europe committed to the conservation of all invertebrates. Their aim is to prevent invertebrate extinctions and maintain sustainable populations of invertebrates in the UK.

http://www.buglife.org.uk/html/about_us.htm

Royal Society for the Protection of Birds (RSPB). The RSPB website provides advice on managing ditches and banks for foraging and nesting birds www.rspb.org.uk/

The British Dragonfly Society (BDS). The BDS website provides further information and advice on many dragonfly and damselfly species found in wet ditches, including the scarce emerald and southern damselflies. www.dragonflysoc.org.uk/

The Game Conservancy Trust (GCT). The GCT promotes the conservation and study of game species. Their website provides management advice for ditch and beetle bank habitats. www.gct.org.uk/

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

No.	Region	Site
1	Cotswolds	Broadway
2	Cumbria	Dockray Meadow
3	Cumbria	Low Manesty
4	Cumbria	Troutbeck Head
5	Devon and Cornwall	Broad Park
6	Devon and Cornwall	Hillhead
7	East Anglia	The Covert
8	North East England	Nunnykirk
9	Peak District	Blackwall Plantation
10	South East England	Abbey Wood
11	South East England	Amberley Fields
12	South East England	Black Horse Farm
13	South East England	Breakspear Way
14	South East England	Crystal Palace
15	South East England	Daleacres
16	Southern England	Cadeside
17	Southern England	Exmoor House
18	Southern England	Haycraft
19	Southern England	Hunter's Moon
20	Southern England	Longleat
21	Southern England	Minehead
22	The East Midlands	Hawthorn Farm
23	The North West	Chester Fair Oaks
24	West Midlands	Blackshaw Moor
25	Yorkshire	Lower Clough Foot
26	Yorkshire	The Howard Rosedale Abbey
27	Scotland	Bunree
28	Scotland	Clachan
29	Scotland	Maragowan
30	Wales	Freshwater East
31	Wales	Gowerton
32	Wales	Lleithyr Meadow
33	Wales	Pandy
34	Wales	Tredeggar House Country Park