

Environmental Good Practice Guide:

Guidance to help you maintain your watercourse

21st October 2013

We are the Environment Agency. We protect and improve the environment and make it a better place for people and wildlife.

We operate at the place where environmental change has its greatest impact on people's lives. We reduce the risks to people and properties from flooding; make sure there is enough water for people and wildlife; protect and improve air, land and water quality and apply the environmental standards within which industry can operate.

Acting to reduce climate change and helping people and wildlife adapt to its consequences are at the heart of all that we do.

We cannot do this alone. We work closely with a wide range of partners including government, business, local authorities, other agencies, civil society groups and the communities we serve.

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1. Introduction

This document will help you undertake watercourse maintenance in an environmentally sensitive way and accompanies the [Regulatory Position Statement](#) on de-silting main river watercourses.

You must follow this good practice guidance if you are using the regulatory position statement (RPS) to undertake de-silting work on main river watercourses in pilot locations. If your work doesn't meet the requirements of the RPS please contact your pilot lead for more information.

Pilot locations and contacts

<i>Pilot Location</i>	<i>Pilot Lead</i>	<i>Telephone Number</i>	<i>Email Address</i>	<i>Postal Address</i>
Alt Crossens	Nikki Beale	01772714001	nicola.beale@environment-agency.gov.uk	Lutra House, Dodd Way, Walton Summit, Preston, Lancashire, PR5 8BX
River Duckow	Jo Whitlow	01925542312	joanne.whitlow@environment-agency.gov.uk	Richard Fairclough House, Knutsford Road, Latchford, Warrington, Cheshire, WA4 1HT
River Idle	Morgan Wray	01158462601	morgan.wray@environment-agency.gov.uk	Trentside Office, Scarrington Road, West Bridgford, Nottingham, NG2 5FA
Bottesford Beck	Morgan Wray	01158462601	morgan.wray@environment-agency.gov.uk	Trentside Office, Scarrington Road, West Bridgford, Nottingham, NG2 5FA
River Brue	Vicky Durston	01278484829	victoria.durston@environment-agency.gov.uk	Rivers House, East Quay, Bridgwater, Somerset, TA6 4YS
Upper Thames	Pete Collins	01491828407	peter.collins@environment-agency.gov.uk	Osney Yard, Bridge Street, Osney, Oxford, OX2 0AZ
Winestead Drain	Joe Noake	01904822604	joe.noake@environment-agency.gov.uk	Coverdale House, Aviator Court, Amy Johnson Way, Clifton Moor, York, YO30 4GZ

The simple measures in this guidance, such as working from one bank and not driving in the channel, will help you maintain your watercourses in a way that protects the environment and will not increase the risks of flooding.

To help you work within the law and reduce harm to the environment:

- Legal minimum recommendations are expressed as "you must" or "you must not"
- Good practice recommendations are expressed as "you should" or "you should not"

However, this guidance does not contain a complete explanation of environmental law. We have included a list of the legislation that you should be aware of in appendix 1 of this guidance.

2. Reduce the need to maintain watercourses

If you keep your river flowing freely and protect the banks and vegetation well, you can reduce the need to carry out maintenance work such as de-silting.



You should remove any man-made rubbish and debris that has accumulated in the channel, for example shopping trolleys, tyres, litter and household rubbish.



You should leave a margin, or buffer strip, of long grass and taller plants between the edge of your crop and the top of the watercourse bank. This buffer strip will slow, trap and filter fine sediment and pollutants (see figure 1).



Figure 1: Buffer strip



You should provide water troughs to prevent livestock drinking from watercourses.



You should make sure natural overland drainage routes, for example, valleys and depressions, are vegetated to slow down run-off.



You should consider removing redundant structures such as culverts, weirs and sluices. This may speed up the flow and may reduce your maintenance costs. You need to talk to us before you do this as you may need a consent or licence.













You should not leave the soil in fields compacted which can lead to run-off and erosion.



You should not let livestock get into the channel and trample banks.

3. Before you start maintenance work

To help you comply with the RPS there are some checks you must do.

-  You must notify your pilot lead in writing (by email or letter) of your intention to carry out de-silting.
-  You must check the maps of your pilot location to find out if your works are within or near a designated nature conservation site or a scheduled ancient monument site. If they are you will need to apply for flood defence consent where your regional byelaws require this.
-  You must ensure your work will not impact upon protected species, including water voles, white-clawed crayfish, mussels and great crested newts. See appendix 2 for a list of the protected species you are most likely to find in or near your watercourse. You can also check with your Local Records Centre or other local wildlife groups about which protected species may be present along your watercourse. Contact details for Local Records Centres can be found on the [National Federation for Biological Recording](#) web page. You may have to pay for this information.
-  You must check the map provided to know which types of fish are present in your watercourse. If your watercourse is not marked on the map, contact your pilot lead for advice or refer to appendix 3 for a guide to common fish species if you want to check yourself. You need to time your works according to which fish you have present.
-  You must not cause invasive non-native species to spread into the wild or to neighbouring land. Check if your watercourse, or the surrounding land, has any invasive non-native species present. If there are you need to plan how you will manage them and dispose of any waste containing them. See appendix 2 for a list of the invasive non-native species you are most likely to find in or near a watercourse.
-  You must check with your local planning authority to ensure there are no Tree Preservation Orders (TPOs) on the trees you are planning to carry out works on. See appendix 1 for more information on TPOs.
-  You must follow the rules about working in a watercourse less than 1 metre wide that has water voles present. Please refer to appendix 4 to find out what you should do.
-  You should check the work complies with any farm grant or subsidy agreements you may have.
-  You should consider how your work will change the flow and water level of the watercourse. Works at one point of a watercourse can affect flows both upstream and downstream. Whilst increasing channel capacity and improving flow can lead to land upstream draining faster it can cause flooding downstream. Increased flows can also lead to bank erosion and more silt entering the watercourse. Please contact us if you are not sure what impacts your work will have.
-  You must not disturb nesting birds or prevent them from returning to their nests. If you need to carry out works within the bird breeding season, which is generally from the beginning of March to the end of July, you must check that there are no nests which are going to be disturbed. If you find a nest, you must delay works until the eggs have hatched and the chicks have left the nest.

4. De-silting your watercourse

De-silting is when you remove fine silt and sediment that has collected in a river or channel. It is different to dredging, which is when you deepen and widen channels. Dredging on main river requires Environment Agency consent. Figure 2 illustrates the difference between de-silting and dredging.

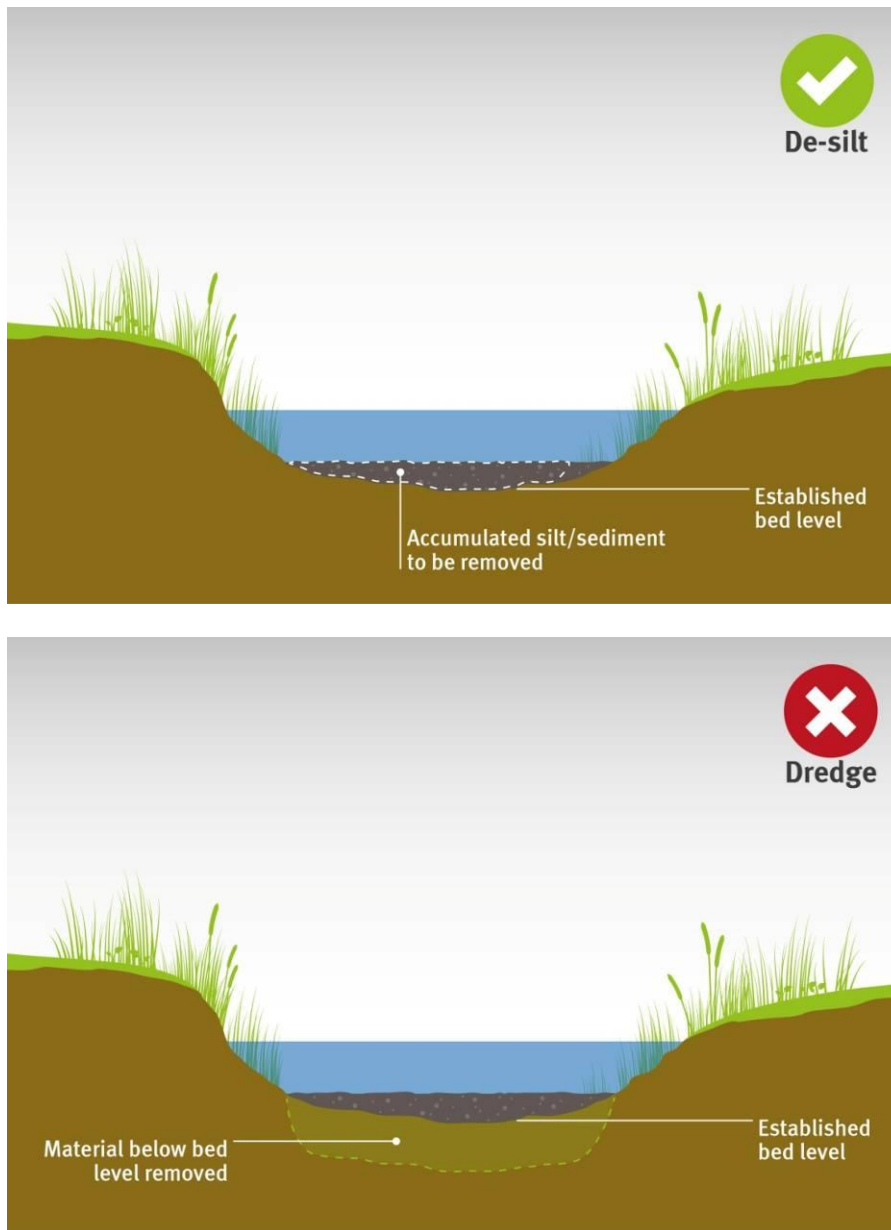






Figure 2: Difference between a de-silt and a dredge

-  You must spread the removed silt thinly, away from the bank and the immediate bank top area, but not on the slope of the bank. It is preferable to do it within a single movement of the machine's reach, but not obstructing any public right of way.
-  You must walk along the spoil heap regularly and return any animals, such as fish and mussels that you have removed during de-silting to the watercourse immediately. We recommend every 30 minutes.
-  You should work in an upstream direction and from one bank of the watercourse only, unless it is unsafe for the driver of the machine. Working in an upstream direction reduces the risk of silt being washed downstream and causing pollution.
-  You should plan where to put the silt you remove before you start work to make sure that it won't cause an environmental issue and that it won't wash or fall into the channel again.



You must leave a fringe of undisturbed vegetation at the edge of the water and at the very foot of the bank along at least one side of the watercourse (see figure 3).

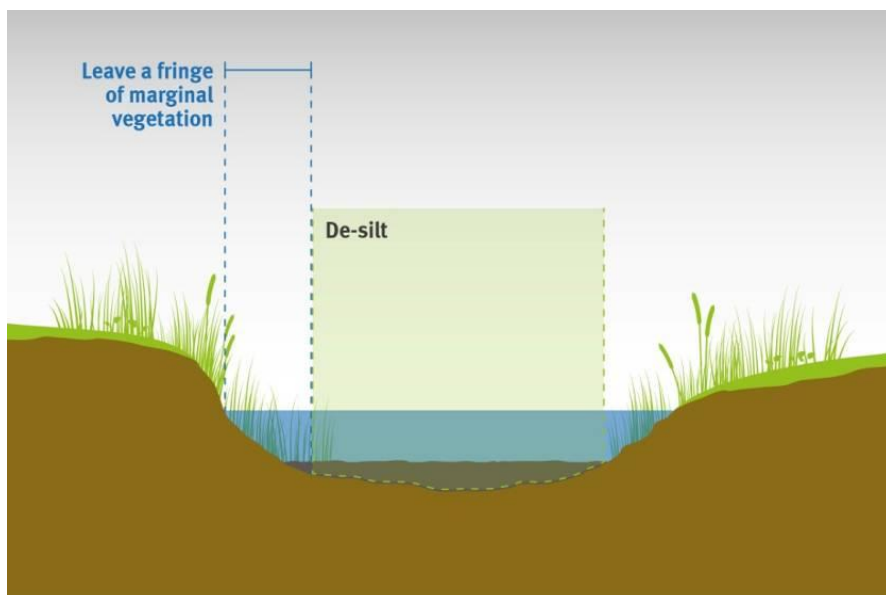


Figure 3: Leave a fringe of undisturbed vegetation at the edge of the water



You should use an appropriately-sized machine for the width of the channel with a digger bucket which is suitable for silt removal work (see figure 4). If you use a large digger bucket in a small channel you could damage the banks. Some species, such as water voles, could have their burrows crushed if you use heavy machinery along the bank top.



Figure 4: Use an appropriate sized machine and bucket



You should leave any silt next to the watercourse for a day or so before you spread it to allow smaller animals to make their way back into the watercourse.



You should avoid spreading silt in field hollows or wet areas, as these may be valuable habitat for plants and animals.



You should keep a record of the work you've done and the environmental checks you have made.



You must not drive a machine in the channel.



You must not carry on working if you are removing lots of fish or mussels from the channel. Contact us for advice about how you can continue work.



You must not remove gravel from the watercourse as it is important for fish spawning. Gravel removal usually requires flood defence consent check your byelaws to confirm this. Figure 5 shows a discrete gravel bed.



Figure 5: You must not remove gravel unless you have flood defence consent



You should not allow cattle to feed near removed silt that could contain poisonous plants, such as the tubers of hemlock water dropwort.



You should not carry out de-silting work in particularly hot weather, as it can reduce oxygen levels in the water causing fish and other animals to die.



You should not leave watercourse banks bare or exposed, as they will be more prone to erosion. See an example of bad practice in figure 6.



Figure 6: You should not leave banks bare or exposed after de-silting

5. Manage vegetation by your watercourse

You must take care when you plan and carry out work because trees and plants can provide important habitats for insects, birds, amphibians and fish.

Sensitive tree work, such as pollarding, can help trees, particularly willows, to live for longer. It can also create valuable riverside habitat, and prevent trees shedding large branches which may block culverts or bridges in a flood.

- ✓ You must deposit cut plants well away from the top of the bank and the channel to stop them from either rotting in the channel and reducing water quality or blocking entrances to animal burrows.
- ✓ You must walk along the bank side regularly and return any animals, such as fish or mussels that you have removed to the watercourse immediately. We recommend every 30 minutes.
- ✓ You should check what aquatic plants you have in your watercourse. You will need to manage your works differently depending on the plants you have. Some plants are protected species whilst others may be invasive non-native species. Appendix 2 lists the main invasive non-native species found in or near a watercourse. For help in identifying species download our [managing invasive non-native plants](#) leaflet (PDF, 580kb).
- ✓ You should leave dead tree branches and roots in the channel where possible - only remove them if the dead wood occupies more than half the channel width or depth, or where they are likely to move and cause a blockage downstream. Branches and roots can provide particularly good habitat for fish and invertebrates. If you do remove branches and leaves, place them in field margins for amphibians and reptiles to use for shelter.
- ✓ You should leave the grass or vegetation at least 75 millimetres long (3 inches).
- ✓ You should leave at least 1 metre of vegetation above the summer waterline uncut.
- ✓ You should leave bank side tree trunks and roots as they stabilise the banks and reduce erosion, preventing the channel from silting up. They also provide excellent habitat for a range of animals, particularly otters.
- ✓ You should leave bank side vegetation uncut on one bank and where possible leave pockets on both banks untouched (see figure 7).

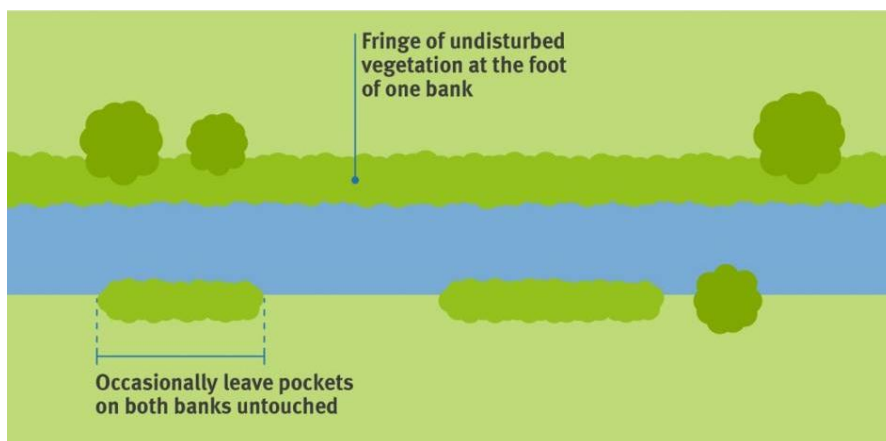


Figure 7: Leave pockets of vegetation untouched on both bank sides

- ✓ You should keep some marginal vegetation on both sides of the channel (see figure 8). As a minimum, marginal vegetation on one side of the channel should be left uncut.

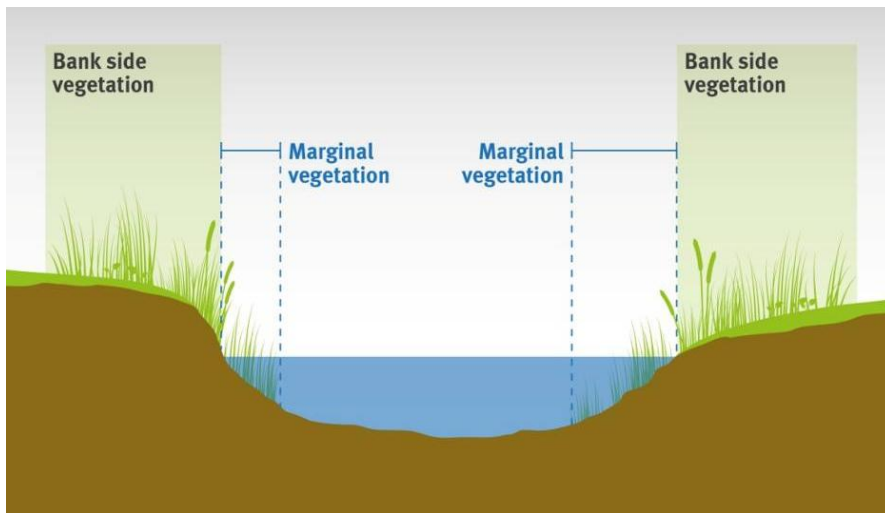





Figure 8: Location of marginal vegetation

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You must not carry out any work in trees that bats roost in. This applies at all times of the year. If you find any bat roosts you will need to contact Natural England to get a wildlife licence before you can start work. For more information if you are planning to undertake work that may affect bats visit [Natural England's webpage](#).
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You should not remove bank side tree trunks and roots as they stabilise the banks and reduce erosion, preventing the channel from silting up.
- 

You should not remove submerged and low-hanging branches unless they are causing a significant blockage. Look at where debris has collected in low branches (the 'wreck' line) to see which branches are causing an obstruction. It is better to trim back a section of the branch to improve flows during floods, rather than removing the whole branch (see figure 9).

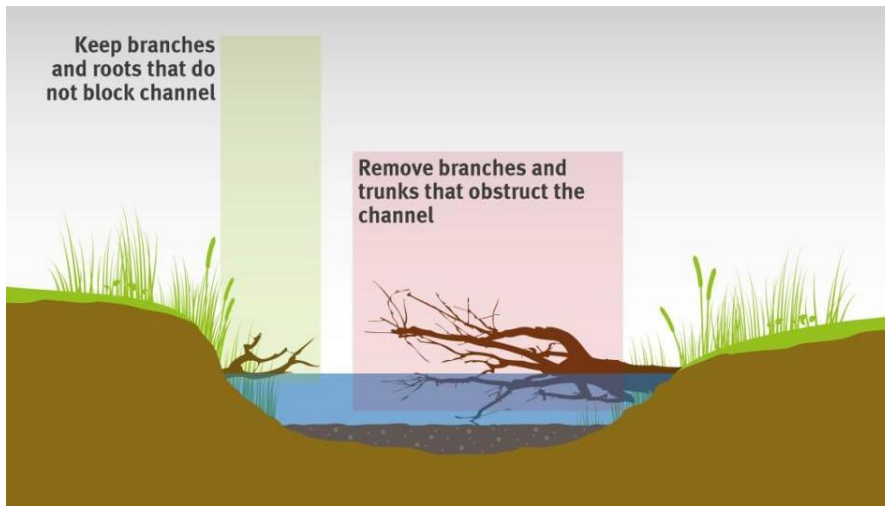





Figure 9: Only remove branches that are causing an obstruction

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You should not disturb the channel bed when you cut vegetation.
- 

You should not leave clippings in the channel or allow large amounts of plant fragments to float downstream. If you leave them in the water they will decay, which may reduce oxygen for fish and invertebrates.
- 

You should not cut weeds in very hot weather and/or during low river flows, the risk of causing environmental damage, such as a fish kill, is much higher. If possible, leave cutting until the autumn months.

6. Preventing pollution and the spread of invasive non-native species

It is against the law to pollute a watercourse or spread invasive non-native species.



You should make sure you dispose of silt [correctly](#) and have silt control measures in place.



You should stop work immediately if silt is being washed downstream and contact your pilot lead.



You should have a plan to manage and prevent the spread of any invasive non-native species that may be present within your working area. Take care when working near species such as giant hogweed, as they can cause skin rashes.



You should dispose of invasive non-native plants appropriately. Contact the Environment Agency for advice on disposal because there are Regulations which cover the composting, burning and burial of plant materials on-site and transfer and disposal of material to permitted landfill sites. For more information on disposing of non-native plants download our [managing invasive non-native plants](#) leaflet.



You should follow the Great Britain Non-native Species Secretariat biosecurity guidance:

- Check your equipment and clothing for live organisms and plant fragments, particularly in areas that are damp or hard to inspect.
- Clean and wash all equipment, footwear and clothing thoroughly. If you do come across any plants or animals, leave them at the watercourse where you found them and report them to the Environment Agency.
- Dry all your equipment and clothing - some species can live for many days in moist conditions. Make sure you don't transfer water elsewhere.

Read more about the check, clean, dry procedures at the [Great Britain Non-native Species Secretariat](#) website.



You must not let diesel fuel, petrol or oil from machinery enter the watercourse or groundwater.



You must not allow invasive non-native plant fragments to spread or float downstream during your works. Use a net downstream from where you are working to catch the fragments and dispose of them appropriately.



You should not wash machinery and wheels within 8 metres of a main river, as the washwater could pollute the river.

Appendix 1 Summary of environmental legislation

The UK Government is committed to improving the quality of our natural environment across England and moving to a net gain in the value of nature. By 2020 the aim is to have stopped the decline of our native wildlife and be on the way to restoring natural processes so we have cleaner water to drink and better managed soils. To help work towards achieving these aims the Government has put in place laws and best practice guidance to protect the environment.

The key pieces of legislation and guidance you need to be aware of when considering watercourse maintenance are summarised below.

Protected sites and species

The UK has a network of legally protected sites to ensure the best examples of habitats at international, national and local scales are taken into account when decisions are made about how to manage land and water.

This legislation also provides protection to key species that are declining; many of these are supported by the habitats we have chosen to protect. The onus lies on you as a landowner or operator to check whether these sites or species are present and to consider whether what you are proposing to do may have an adverse effect. You will need to plan your work carefully to ensure that you do not damage sites and species of importance or you could be liable to prosecution.

Internationally protected sites and species

Important high-quality conservation sites that will make a significant contribution to conserving habitats and species that are of international importance and need action across many countries to ensure their survival internationally are protected under two European Directives:

- 2009/147/EC on the conservation of wild birds (this is the codified version of Directive 79/409/EEC as amended)
- 92/43/EEC on the conservation of natural habitats and of wild flora and fauna.

Wetlands of international importance are designated under the Ramsar Convention and are known as Ramsar Sites. In the UK, government policy states that Ramsar sites should be treated in the same way as European protected sites.

Conservation of Habitats and Species Regulations 2010

These Regulations translate the above European Directives into UK Law.

European protected sites (Natura 2000 sites) include Special Protection Areas (SPAs) designated for birds and Special Areas of Conservation (SACs) designated for habitats and species. Where these sites are on the coast or further out to sea they are known as Marine SACs or Marine SPAs.

We need to be certain that any action or activity that could affect Natura 2000 sites will not cause them to decline. This is why when undertaking works that may have an effect on these sites and species you need to apply to us for flood defence consent.

To find out more about European protected sites visit [Natural England's webpage](#) on conservation designations.

European Protected Species (EPS) are rare or declining species of importance that need action across Europe to conserve them. You must make sure that your works will not affect these species. The list in Appendix 2 is not the full list but summarises those you are most likely to come across during watercourse maintenance.

Nationally protected sites and species

Sites and species that are important in the UK are protected under several Acts of Parliament, as explained below.

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

This Act protects sites and species that are important in the UK and identifies non-native species that need special measures to control their spread.

It allows for the designation of a network of Sites of Special Scientific Interest (SSSIs), a selection of the best habitats at a UK level. We need to be sure that any actions or activities do not damage SSSIs. This is why when undertaking works within or near a SSSI, you need to apply to us for flood defence consent. To find out more visit [Natural England's webpage on SSSIs](#).

The Act also lists species that require protection, often known as Nationally Protected Species. There are differing levels of protection under this Act ranging from full protection of animals and their habitats (for example otters and water voles) to more limited protection to prevent collection and sale. You need to take the presence of these species into account when planning activities that might affect them, and take steps to avoid any damage. See the [Natural England website](#) for advice on what to do if you have or think you may have protected species on your land.

Appendix 2 contains a list of the species most likely to be affected by watercourse maintenance works.

Invasive non-native species, such as Japanese knotweed and floating pennywort are also listed under this Act. It is an offence to release or allow these species to spread into the wild because of the difficulty and costs of eradicating them and their impacts on the environment and on people. A list of the invasive non-native species most likely to be found during watercourse maintenance is given in Appendix 2. Alternatively download the [GB Non-Native Species Secretariat identification guide to 10 invasive species](#).

All nesting birds are also protected by the Wildlife and Countryside Act. You must not kill wild birds or damage, destroy or disturb their nests when they are in use, or you could be liable to prosecution.

Salmon and Freshwater Fisheries Act 1975

Section 2(4) of the Act makes it an offence to wilfully disturb any bed, bank or shallow where fish (salmon, trout, coarse fish, smelt or lamprey) might spawn, or to disturb any spawning fish or fish spawn.

Protection of Badgers Act 1992

It is illegal to kill, injure or take badgers, or to interfere with a badger sett. In some cases you may be able to get a protected species licence to carry out activities that may affect badgers or their setts. For more information and advice if you are planning to undertake work that may affect badgers visit [Natural England's webpage](#).

Tree Preservation Orders

A Tree Preservation Order (TPO) is a legally enforceable order made by the local planning authority to protect trees and woodland that are important for amenity value. TPOs are applied under The Town and Country Planning Act 1990 and the Town and Country (Tree Preservation) (England) Regulations 2012.

A TPO makes it an offence to cut down, uproot, prune, lop or damage the tree without first obtaining the council's consent. If you want to cut down or carry out work to a tree protected by a TPO, you must apply to the local planning authority for permission.

National Parks and Access to the Countryside Act 1949

This Act established the system of National Parks, and provides for the designation of Local Nature Reserves (LNR). These sites are usually managed by local councils, often in partnership with other bodies, to maintain and enhance their special wildlife and geology, and to provide access to nature for local people.

If you are carrying out work within a LNR or within a distance that may affect a LNR (e.g. 200m or less) you need to apply for Flood Defence Consent. For more information on LNR, including their location, visit [Natural England's webpage](#).

Biodiversity 2020

This is also known as the England Biodiversity Strategy. It describes our priority habitats and species, and identifies the actions and targets needed to meet government commitments to improving biodiversity.

You can help to achieve these targets by managing your land in a sustainable and sensitive way, avoiding harm and taking positive actions to conserve and enhance them. For more information, visit [Natural England's webpage on Biodiversity 2020](#).

Local wildlife and conservation sites

These are referred to by a variety of names in different counties, the most common being Local Wildlife Sites, County Wildlife Sites and Sites of Nature Conservation Importance. These are selected by the Local Authority with the support of local groups and specialists and can be important for nature conservation, geology or geomorphology. Local Sites form a crucial part of our network of protected sites, providing stepping stones or links that enable species to move within the landscape.

When undertaking works within or near a Local Site you should ensure that your works do not damage or destroy the habitats or species it supports. Advice can often be obtained from your Local Authority Ecologist, Local Biological Record Centre or County Wildlife Trust.

Habitats and species of principal importance in England

Section 41 of the Natural Environment and Rural Communities Act 2006 requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The [list of habitats and species is on Natural England's website](#).

The Ancient Monuments and Archaeological Areas Act 1979

This Act provides protection for sites of archaeological and historical importance, known as scheduled monuments. It is an offence to damage one of these sites. If you are undertaking works that could affect a scheduled monument you need to check with English Heritage if you need consent. To find the location of scheduled monuments visit [English Heritage's National Heritage List for England webpage](#).

The Water Framework Directive (WFD) 2000

This European Directive aims to protect and improve the water environment. It sets targets for achieving these improvements and does not allow the ecological quality of any water body to deteriorate unless strict exemption criteria can be met. The target to protect water bodies by preventing any deterioration applies now. The target to improve water bodies has to be achieved by 2015, but in certain cases this has been extended to 2021 or 2027.

The management of watercourses is very important in achieving the Directive's targets. The habitats found in rivers and wetlands support a wide range of plants and animals that are used to measure the quality of the water environment and to judge whether the UK is meeting its WFD targets.

Water management activities that are undertaken in a sensitive manner can contribute towards meeting WFD targets. If works are undertaken in a manner that causes a decline in ecological quality, this will cause a failure and breach the legal requirement. It could lead to enforcement action being taken against the person who did the work.

Any work undertaken must minimise the impacts to the river, and the species and habitats within it, to avoid causing damage and the risk of enforcement action. For more information visit the [Environment Agency webpage on WFD](#).

Appendix 2: List of protected species and invasive non-native species

European protected species you are most likely to find in or near watercourses

Animals

Bats (all species)
Common dormouse
Freshwater pearl mussel
Great crested newt
Little ramshorn whirlpool snail
Otter
Southern damselfly
White-clawed crayfish

Fish

Atlantic salmon
Barbel
Brook lamprey
Bullhead
Grayling
River lamprey
Sea lamprey
Spined loach

Plants

Floating water plantain

Nationally protected species you are most likely to find in or near watercourses

Animals

Bats (all species)
Dormouse
Fen raft spider
Freshwater pearl mussel
Grass snake
Great crested newt
Lesser silver water beetle
Medicinal leech
Norfolk dragonfly
Otter
Southern damselfly
Water vole
White-clawed crayfish

Fish

Allis shad
Twaite shad

Plants

Creeping marshwort
Floating water plantain
Greater water parsnip
Marsh saxifrage
Ribbon leaved water-plantain
Triangular club-rush
Tufted saxifrage
Water germander

Invasive non-native species you are most likely to find in or near watercourses

Animals

Chinese mitten crab
Killer shrimp
Noble crayfish
Signal crayfish
Turkish crayfish
Zebra mussel

Fish

Top mouth gudgeon

Plants

Australian swamp stonecrop
Curly waterweed
Floating pennywort
Giant hogweed
Giant salvinia
Himalayan balsam
Japanese knotweed
Parrot's-feather
Water fern
Water hyacinth
Water lettuce

Appendix 3: Fish guide

Salmonids

Salmon (adult) – Salmonid



Length: Can reach 120cm
Location: Fast-flowing, well-oxygenated rivers

Brown Trout – Salmonid



Length: Varies greatly depending upon environment, rarely exceeds 40cm in the natural environment
Location: Commonly in streams, rivers and lakes

Grayling



Length: Rarely exceed 40cm
Location: Rivers, streams
Preferred habitat: Fast flow over gravel, oxygen-rich clear water

Eel & Lamprey

Eel



Length: Rarely exceed 100cm
Location: Rivers, streams, canals, lakes, ponds, drains and ditches
Preferred habitat: Slow-flowing, deep water, sand, silt and weed

Brook Lamprey



Length: Rarely exceed 18cm pre-spawning
Location: Rivers, streams
Preferred habitat: Small channel, medium-flow, gravel, sand, silt substrate

Coarse fish

Ruffe



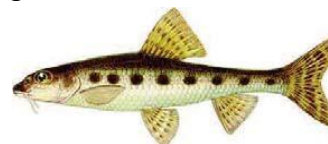
Length: Rarely exceed 16cm
Location: Lowland rivers
Preferred habitat: Enriched, slow flowing water, surface layers

Silver Bream



Length: Can reach 30cm
Location: Slow-flowing rivers and shallow, warm lakes

Gudgeon



Length: Rarely exceed 15cm
Location: Mainly rivers, sometimes canals, drains and lakes
Preferred habitat: Clear flowing water, sand or gravel substrate

Chub



Length: Rarely exceed 60cm
Location: Medium- to fast-flowing rivers, occasionally stillwaters
Preferred habitat: Fast water, weed cover, coarse gravel

Pike



Length: Rarely exceed 130cm
Location: Rivers, lakes, canals and ponds. Adaptable
Preferred habitat: Juveniles: shallow, weed. Adults: open water

Perch



Length: Rarely exceed 40cm
Location: Rivers, canals, drains and lakes
Preferred habitat: Dense weed

Coarse fish continued

Roach



Length: Rarely exceed 40cm
Location: Lowland rivers, lakes, ponds, canals
Preferred habitat: Slow water, variable depth and dense weed, very adaptable

Rudd



Length: Rarely exceed 34cm
Location: Lakes, reservoirs, ponds, canals and lowland rivers
Preferred habitat: Shallow still water, reeds, sand or silt substrate

Barbel



Length: Attain 100cm, very few over 130cm
Location: Rivers, occasionally stocked in stillwaters
Preferred habitat: Fast water, gravel, weed, 15–22°C

Stone Loach



Length: Rarely exceeding 110cm
Location: Lowland rivers, drains and large still waters, mostly Anglian and Midlands
Preferred habitat: Shallow enriched, slow flowing, turbid water

Three Spined Stickleback



Length: Rarely exceed 8cm
Location: Canals, ponds and rivers
Preferred habitat: Shallow, dense weed, sand, silt substrate

Bleak



Length: Rarely exceed 16cm
Location: Lowland rivers
Sensitivity: Quite tolerant found in a range of water environments

Minnow



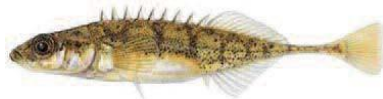
Length: Rarely exceed 10cm
Location: Rivers, streams, occasionally lakes and canals
Preferred habitat: Shallow, oxygen-rich, clear water, sand, gravel

Dace



Length: Rarely exceed 26cm
Location: Rivers
Preferred habitat: Fast flowing water, sand or gravel substrate

Ten Spined Stickleback



Length: Rarely exceed 7cm
Location: Lowland rivers and estuaries
Preferred habitat: Slow-flowing, nutrient rich water, weed,

Bream



Length: Rarely exceed 80cm
Location: Lowland rivers or still waters
Preferred habitat: Enriched slack water, mud or silt

Bullhead

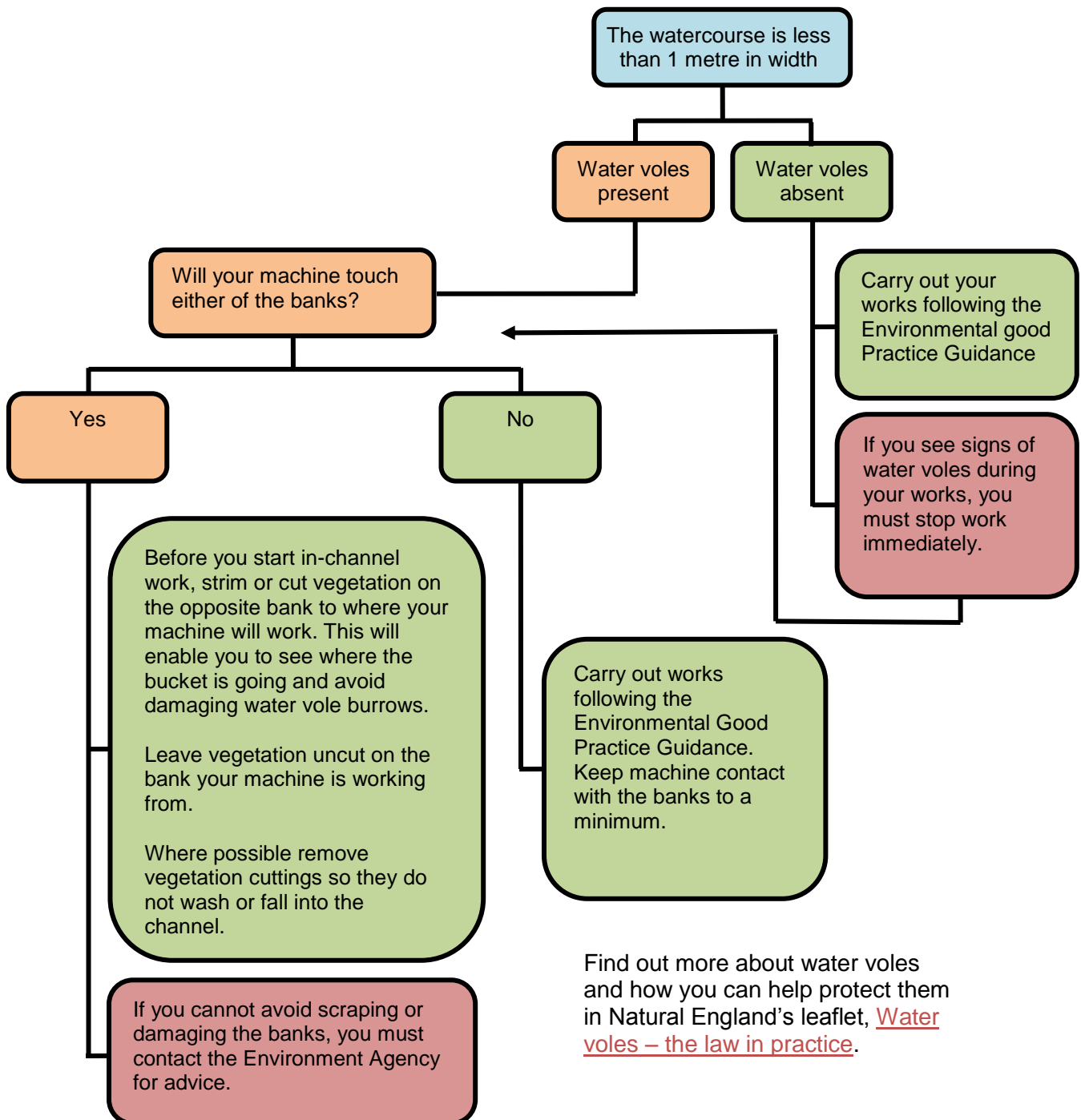


Length: Rarely exceed 10cm **Location:** Rivers, streams
Preferred habitat: Coarse gravel, wood, oxygen-rich water
 Photo © davekilbeyphotography.co.uk

Appendix 4: Working in a watercourse with water voles present

This flowchart explains what you need to do if water voles are present when working in channels less than 1 metre wide. For channels greater than 1 metre wide, there are no specific measures you need to take other than following the guidance in this document.

If you follow this flowchart, you will significantly reduce the risk of your works damaging water voles or their habitat. Water voles and their habitats are protected under the Wildlife and Countryside Act 1981 (as amended).



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