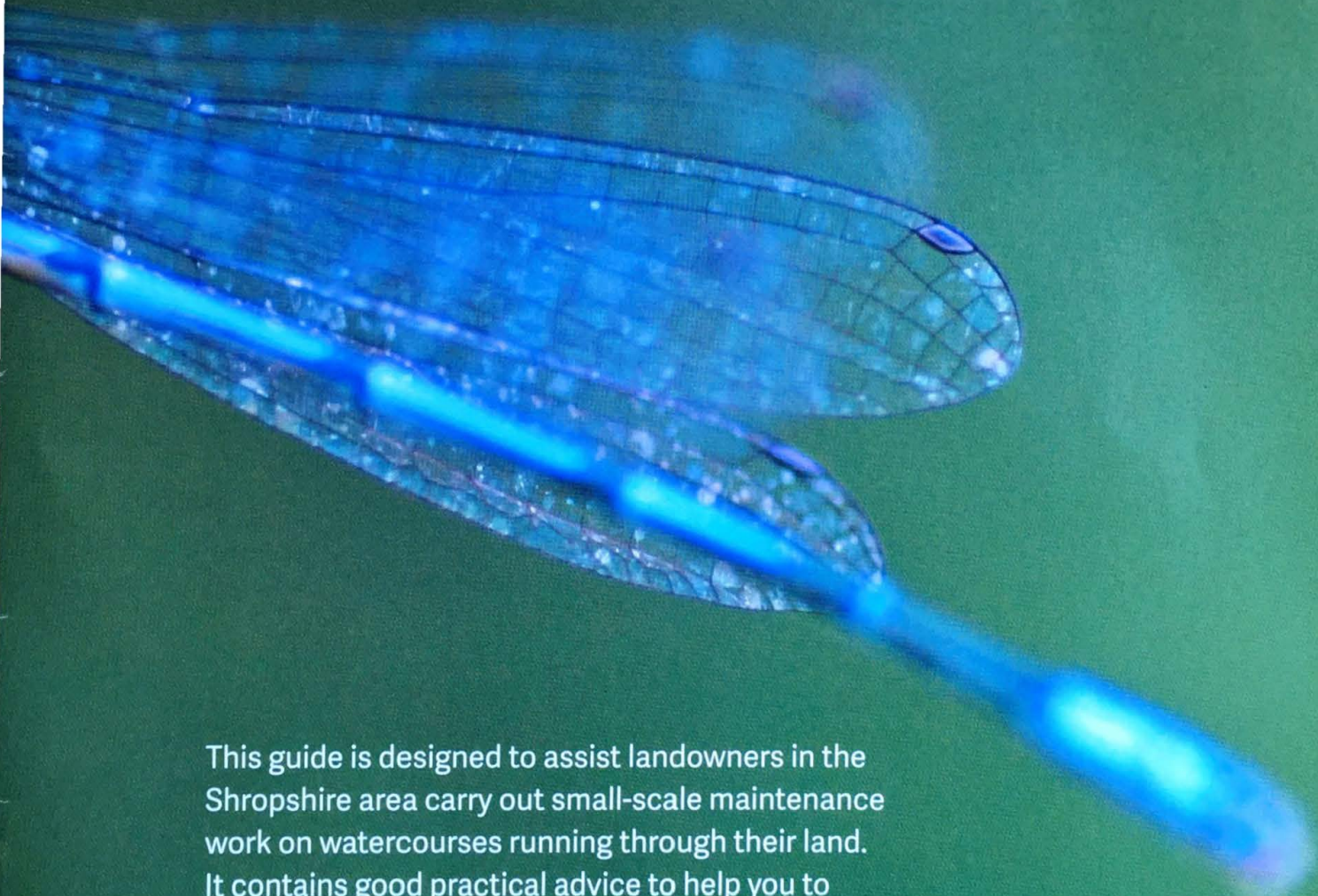


Watercourse Maintenance for Landowners Good Practice Guide





Shropshire has over 3840 miles of rivers, stream and waterways. With sensitive management this arterial network provides all our drinking water needs, water for food and industrial production, maintains drainage for crops and flood management, supports a rich variety of wildlife and provides pleasure for the people of Shropshire.



This guide is designed to assist landowners in the Shropshire area carry out small-scale maintenance work on watercourses running through their land. It contains good practical advice to help you to carry out the work so that it is sensitive to wildlife and the environment. Rivers work hard providing us with water and drainage. A carefully managed and protected watercourse can provide so much more.

Before you start work,ask yourself these questions:

What is the problem that needs managing?

Work should only be carried out if there is a significant risk to people, flooding, or if it is part of a river restoration plan or a routine maintenance programme for drainage.

Will the work proposed disturb any protected species, such as White-clawed crayfish, Freshwater mussels, Water voles, Great crested newts etc.?

Most works can be delivered without negative impacts on Protected species by considering timing, method and consultation. Information on the location of protected species can be found by contacting local wildlife groups (www.wildlifetrusts.org/your-local-trust), or consulting the information held at the Local Records Centre (www.alerc.org.uk/find-an-lerc-map.html). If any protected species are present then appropriate mitigation measures will need to be taken to ensure that any protected species will not be affected.

Will the work be taking place within, or near, a designated nature conservation site, or scheduled ancient monument site?

Shropshire Council hold records on all Scheduled Ancient Monuments and Natural England produce maps on their MAGIC system that will help. If a designated site is present then appropriate consent

must be obtained from the local Authority or Natural England.

Does the watercourse, or adjacent land, contain any invasive non-native species?

If yes, plan for their disposal so that they will not spread to adjacent land, or into the wild. Advice is available from the Environment Agency.

Will the work be taking place during bird breeding season (March – end of July)?

If unavoidable make sure that no nests will be disturbed, or try to reschedule the work. Late Summer is the traditional season for river work, avoiding bird nesting and before salmonid spawning.

Will the work affect any trees subject to Tree Preservation Orders?

If yes, contact the local planning authority.

Will the work affect the flow, or depth, of the watercourse?

If yes, and if this is likely to cause problems upstream or downstream of the works, the Environment Agency or Shropshire Council or Telford and Wrekin Flood and Water Management Teams should be consulted for advice.

Is a water level management plan in place for the location of the works? If yes, these should be consulted before proceeding with any work.



A large wading bird, possibly a heron, is the central focus of the image. It is standing in shallow water, with its long legs and large, pointed beak clearly visible. The bird's feathers are a mix of grey, white, and brown. Its reflection is visible in the calm water below it. The background is a soft, out-of-focus landscape with green grass and a hint of a sunset or sunrise sky.

Consent

The river systems of the UK are protected by law from operations or activities that may cause damage or harm to water quality, quantity and flow. Checking in advance of any works will ensure your plans are legal and compliant. If any consent is required, or you need further advice, who to contact depends on whether the proposed works will take place on a 'Main River' or an 'Ordinary Watercourse'. If you need consent or advice regarding a 'Main River' contact the Environment Agency, if you need consent or advice for work on an 'Ordinary Watercourse' contact the internal drainage board (if there is one) or the local council.

You should ensure that any channel maintenance work you want to carry out is legal. If any works are carried out without the necessary consent, this could result in enforcement action being taken.

The following activities can be carried out without permission:

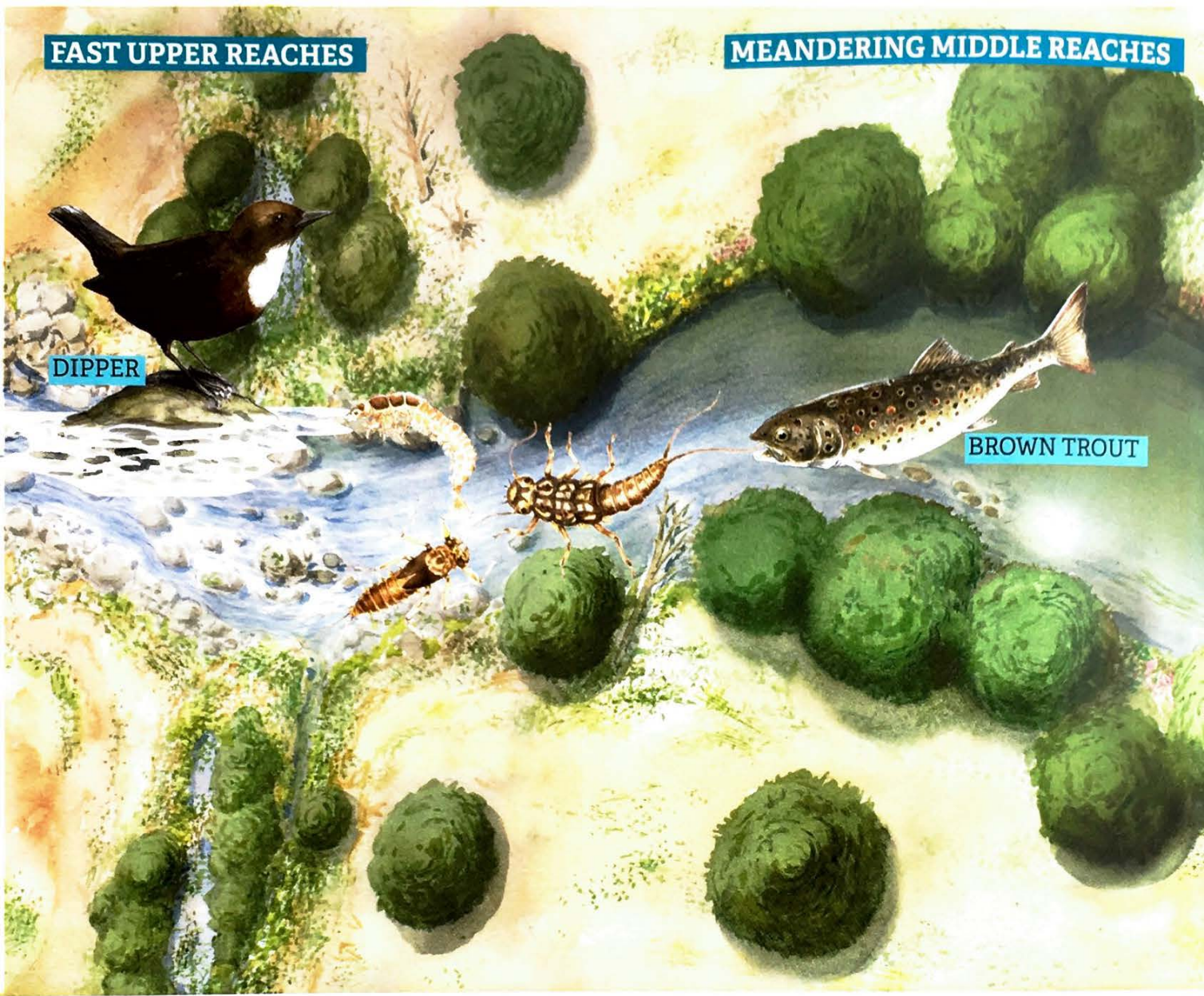
- Removal of rubbish and debris.
- Small-scale tree works. Trees and vegetation can be cut back. Fallen trees may be removed.
- Grass and vegetation can be trimmed on the banks and in the channel, as long as the cut vegetation is removed from the channel completely.

Permission may be required to:

- Remove gravel, silt and sand from the channel.
- Change the profile of the banks of the watercourse.
- Alter the depth or width of the channel.
- Spread any material either on, or adjacent to, the banks of a watercourse.
- Undertake any maintenance work to structures under, over or in a 'Main River' or flood defence.
- Begin works in a flood plain.
- Construct an outfall, culvert, dam, weir, pipe crossing or bridge.
- Apply bank protection to the watercourse to prevent or repair erosion.
- Divert or impound the flow of water.

FAST UPPER REACHES

MEANDERING MIDDLE REACHES



1. Fast and loud, the upper reaches and headwater areas of a river are key to protecting water quality, they provide the best opportunities to slow flows to protect downstream properties and crops. Leaving fallen trees in place is a better option here, and for taking a relaxed approach to maintenance.

2. Riffle and pools systems in more natural channels provide important habitat, oxygenate to help reduce over-enrichment and where missing are a significant positive part of any restoration scheme

3. Trees along the river corridor provide shade to reduce water temperature, consolidate river banks and support a range of river corridor wildlife. Rotational coppicing and pollarding are traditional management techniques.



KINGFISHER



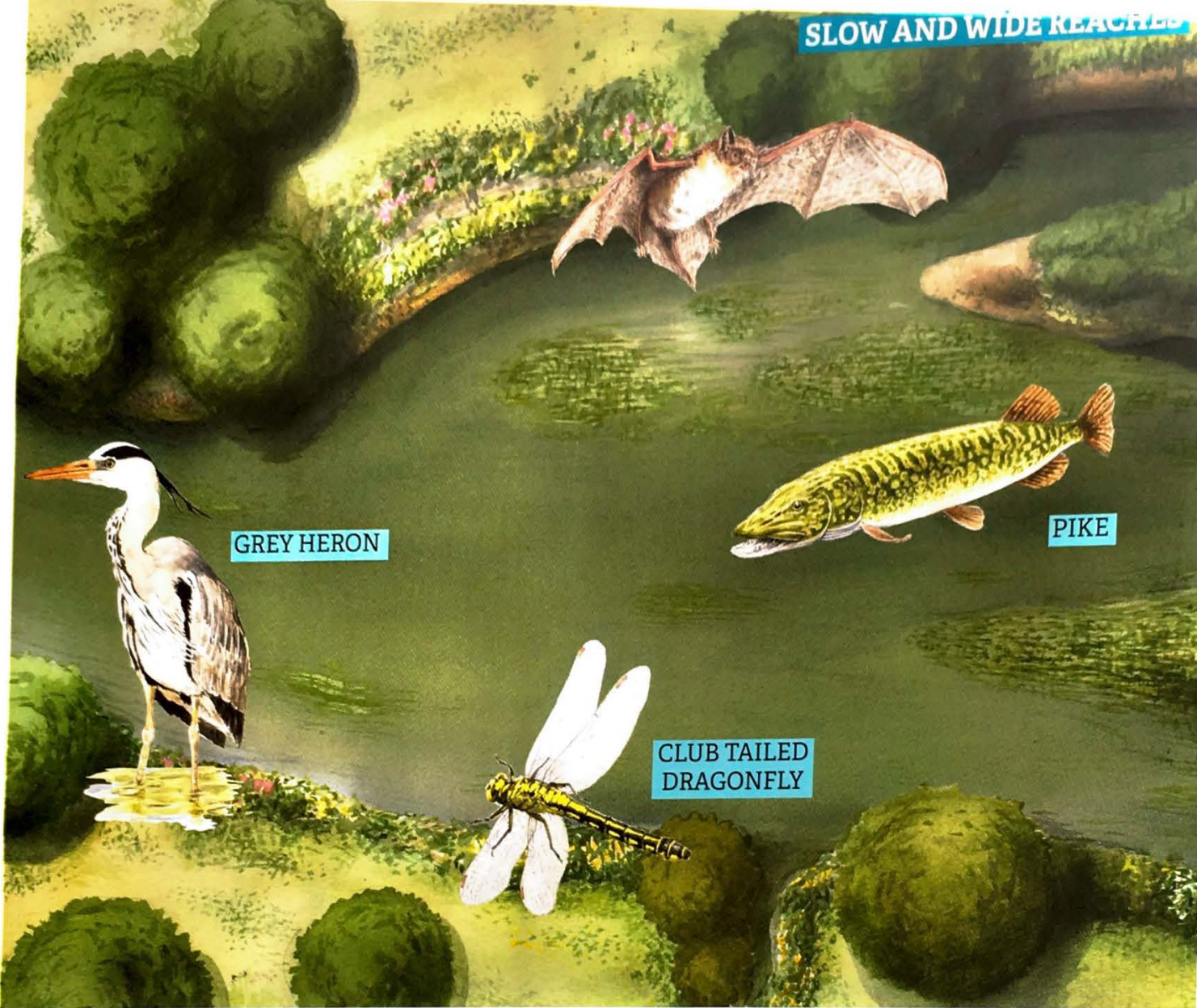
SANDPIPER



STONEFLY



SALMON



GREY HERON

PIKE

CLUB TAILED
DRAGONFLY

4. In the middle reaches river pace slows and the channel begins to meander. Making space for natural movement reduces the need to replace hanging fence-lines, tree planting can help to consolidate banks and retaining vegetated margins keeps soft banks in place.

5. River move sediment and material from top to bottom, this natural process can be overwhelmed by additional material. Managing the land adjacent to river will help reduce sedimentation and reduce the need for de-silting operations. Cover crops, buffer strips, highway design and water friendly development can all help.

6. Aquatic floating plants shelter fish, trout like to lurk under Water crowfoot fronds, gentle rotational cutting in late summer can preserve water conveyance but also sustain river wildlife and fisheries.

SANDMARTINS

WATER VOLE



CADDISFLY



MAYFLY

TREE MANAGEMENT

It is important to assess the trees on your land regularly and to take care of any issues as they arise. Selective removal of branches may reduce the risk of the tree falling into the channel and blocking flood flows.

Tips:

- Retain existing trees wherever possible – trees shade out aquatic weed growth and cool waters which reduces nutrient problems.
- If possible, manage trees using coppicing and pollarding techniques to prevent their complete removal.
- Timing is critical – emergency work is done when needed but routine maintenance is done in the winter.
- Where possible, leave bank side tree roots and stumps untouched as they improve bank stability and help to reduce erosion.
- Leave standing and fallen deadwood in place, if it is not posing a risk, as it is excellent nesting habitat for Kingfishers, Coots, Swans and Moorhens.



- Overhanging branches are great for wildlife, so should only be removed if they are causing a flood risk.
- Cut timber can be left in piles away from the watercourse as they provide good wildlife habitat.
- Large woody debris should be left in the watercourse, if it does not pose a serious flood risk, as it provides a brilliant source of food and shelter for many aquatic animals.
- No work should be carried out on trees which contain bat roosts. If any bat roosts are found a licence must be obtained from Natural England before the works commence.

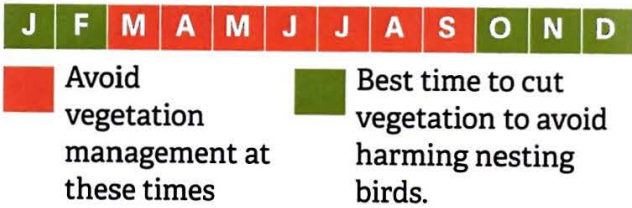
MANAGING VEGETATION

The aim of managing aquatic vegetation in a water course is to maintain good conveyance of water. The ideal is to sustain open water down the centre of the channel, keeping fringing marginal vegetation intact. These plants are part of the river system that cleans water, shelters fish and its food supply and consolidates riverbanks.

Undertaking vegetation management work along a watercourse should be considered very carefully as it provides a habitat for many insects, birds, fish and amphibians.

Tips:

- Timing is key, too soon and it will grow again, ideally late summer before salmonid spawning.
- Dispose of cut vegetation away from watercourses or wetlands. If no invasive species are present, cuttings can be left to compost but please do this at least 10m away from any watercourse.
- Examine the bankside at least every 30 minutes so that any accidentally removed animals can be replaced in the channel immediately.
- Grass and vegetation should be kept a minimum of 75mm (3 inches) long when cut.
- If possible, maintain vegetation along the toe of



the river bank to promote bank stability and reduce erosion.

- Partial cutting (i.e. not clearing vegetation from the whole channel width) is recommended as it has a number of benefits:
 - The operation may be completed more quickly and cheaply, with less material to cut, remove and dispose of.
 - More habitat and cover is retained, bringing environmental benefits.
 - A variety of species at different life stages will be maintained.
- If possible, leave bank side vegetation uncut on one bank and ideally leave sections of both banks untouched.
- Avoid disturbance to the channel bed when carrying out vegetation cutting.
- Avoid hot weather when cutting vegetation as this reduces the risks of damaging the environment.
- If working with machinery ensure that it does not release petrol, oil, or diesel fuel into the watercourse. Only use machinery that is lubricated using bio oil.

DESILTING

Desilting is a precision management technique and has to be conducted with care and detailed advance planning. Removal of silt can bring benefits but can also cause unintended consequences elsewhere on a river system.

Desilting involves removing fine sediment and silt from a river channel. This is different to dredging, which aims to deepen and widen river channels. Dredging is not permitted on a 'Main River' without prior consent from the Environment Agency.

Tips:

- Place any fine sediment removed from the channel at enough of a distance from the bank so that it will not be washed back into the watercourse following heavy rain.
- Examine the spoil heap regularly, if you find any live animals then return them to the channel immediately.
- If lots of animals need removing, stop the work immediately. The Environment Agency can then provide advice on how to complete the work safely.

J	F	M	A	M	J	J	A	S	O	N	D
Avoid desilting at these times							Best time to desilt, avoiding coarse and salmonid fish spawning season.				

- Desilt in an upstream direction to prevent fine sediment from causing problems downstream.
- Always use appropriate machinery for the task. Digger buckets should be suitable for desilting works and be the right size for the channel.
- Leave silt next to the watercourse for at least a day before transportation off-site to allow any removed animals to return to the channel.
- Machinery should not be driven in the channel.
- Gravel is important for fish development so should be left in the channel. Removal requires consent from the Environment Agency.
- Keep livestock away from the spoil heap as removed fine sediment may contain poisonous plants.
- Avoid desilting during hot weather. This is a time when a lack of dissolved oxygen makes watercourses susceptible to other problems.

Biosecurity

Non-native invasive species, many of which are associated with rivers, cause £millions damage every year. Management operations can be combined with control programmes and designed to ensure biosecurity measures help with combating the harm non-native species do to our rivers.

To prevent the spread of non-native invasive species follow the Environment Agency's 'Check, Clean, Dry' Policy:

- **CHECK** – All clothing and equipment should be thoroughly inspected and any visual debris (mud, plant or animal matter) should be removed and left where it was found. Particular attention should be paid to the seams and seals of boots and waders. Any pockets of pooled water should be emptied.
- **CLEAN** – Equipment should be hosed down or pressure-washed on site. If facilities are not available equipment should be carefully contained, e.g. in plastic bags, until they can be found. Washings should be left at where the equipment was used, or contained and not allowed to enter any other watercourse or drainage system (i.e. do not put them down the drain or sink).
- Where possible clean equipment should be dipped in disinfectant solution to kill diseases, but note this is unlikely to kill non-native species.
- **DRY** – Thoroughly drying is the best method for disinfecting clothing and equipment. Boots and nets should be hung-up to dry. Equipment should be thoroughly dry or washed before it is used elsewhere.



A well managed river

Marginal plants such as Common reeds and Reedmace reduce bank erosion and provide shelter for invertebrates and fish fry. Aquatic plants oxygenate and help break down nutrient overloading.

From near extinction the European otter is back on Shropshire rivers, it is not all good news as our native Water vole once a familiar sight on the river is in severe decline, sensitive watercourse management can help reverse this dire situation.



Migratory species like Lamprey and Brown trout seek out spawning habitat, muddy patches for the lamprey and clean gravels for the trout.

Shell bound animals of all sizes and varieties live in Shropshire rivers, from tiny pea mussels to giant Swan mussels to the rare and endangered Freshwater pearl mussel. Good water quality is key to their survival.

Rivers are fantastic places to see the best of our UK's birds, the Kingfisher, Yellow wagtails and the incredible scuba diving Dipper!





Useful Links

ENVIRONMENT AGENCY

www.gov.uk/government/organisations/environment-agency
Hafren House, Welshpool Rd, Shelton, Bicton Heath,
Shrewsbury, SY3 8BB
0370 850 6506

SHROPSHIRE COUNCIL

www.shropshire.gov.uk/drainage-and-flooding/flood@shropshire.gov.uk
Shirehall, Abbey Foregate, Shrewsbury, SY2 6ND

NATURAL ENGLAND – MAGIC MAPPING

www.natureonthemap.naturalengland.org.uk/

TELFORD & WREKIN COUNCIL

contact@telford.gov.uk
www.telford.gov.uk/info/20423/land_stability_flooding_and_drainage/247/flooding_and_drainage

SHROPSHIRE ECOLOGICAL DATA NETWORK

www.shropshire.gov.uk/natural-shropshire/ecological-data-network-sedn

NATURAL SHROPSHIRE

ecology@shropshire.gov.uk
01743 252562 • 01743 252505
Shirehall, Abbey Foregate, Shrewsbury, SY2 6ND

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