



## Running Water and Biodiversity in Bedfordshire

### *Helping landowners conserve Bedfordshire's biodiversity*

This advice forms part of a series of notes for farmers and landowners that will increase the awareness of, and the opportunities for, biodiversity and wildlife on farmland. It forms part of the Bedfordshire and Luton Biodiversity Action Plan to increase awareness of, and involvement in, the conservation of our wealth of wildlife.

### What is running water?

Often rivers are the first thing that come to mind when considering running water, but rivers are only the final stage of a network of channels which includes small seepages/springs and drainage ditches. Ultimately all the springs, ditches and small streams on a holding drain into a main river. Every part of the system is equally important as management can have a direct bearing on water quality a considerable distance away.

### What gives a river its characteristics?

**i) Watercourse type:** there are three main types of watercourse categorised by flow pattern:

- Ephemeral, only flowing immediately after or during periods of rain;
- Intermittent, where the flow dries up completely during the normal dry season;
- Perennial, flowing continuously throughout the year.

**ii) Where the water comes from:** The main sources of river water are:

- Groundwater, (e.g. springs)
- Surface run off, (e.g. from waterlogged soil)
- Drainage channels, (e.g. ditches and smaller streams)

**iii) Geology and topography of the catchment:**

- The soil and rock type has a great influence on water chemistry; for e.g. the wildlife of a chalk stream is very different from a clayland river.
- Landform usually dictates the course of a river and the type of channel it forms. It also influences the flow rate, along with the depth and width.



A perennial river.

### Simple habitat creation and conservation

There are a number of simple things that can be done to increase the wildlife value of watercourses:



Fencing along a poached brook for water vole conservation

- Fence off a margin alongside a watercourse to exclude livestock; this is particularly beneficial to Water Voles (a nationally protected species) that may return rapidly to fenced off areas. ("Drinks" or access points for livestock should be provided.)
- Avoid spraying pesticides or applying fertilisers adjacent to watercourses
- Build an otter holt.
- Stop ploughing or cultivating right up to the field edge or bank top, instead allow tall herb vegetation to develop beside the watercourse, this provides excellent habitat for a wide variety of species and helps to buffer the water from agricultural operations that may otherwise damage it (including trapping silt from run off and catching spray drift).

- Do not pipe springs, drain their flush areas, dig ponds in or near them or interfere with them in any other way. Digging ponds in already wet areas tends to reduce their wildlife value rather than increasing it.

## Conserving biodiversity



Dense nettle growth indicating excess nutrients

Generally individual landowners have little control over the flow rates of rivers and whilst there will be many factors beyond the farm boundary contributing to water quality much can be done by the individual farmer to minimise the risk of direct and diffuse pollution from agricultural operations. There is considerable scope to manage the land adjoining watercourses to create complimentary habitats and buffer zones that will increase their wildlife value.

### **Avoiding direct pollution**

Although all forms of pollution are environmentally damaging, socially unacceptable and costly, direct pollution can almost always be avoided with careful planning, it should also be remembered that many incidents of pollution will be breaking the law and could result in heavy fines. The Codes of Good Agricultural Practice give clear guidance on minimising pollution risk and are a valuable resource for farm planning. Ensure that you have good contingency plans in the event of an incident.

### **Avoiding diffuse pollution**

Spray and fertiliser **drift** are examples of diffuse pollution where small amounts of contaminants enter a watercourse and, although often not of sufficient quantity to cause noticeable pollution at the time, they do slowly degrade the environmental interest of a watercourse. The cumulative effect down stream can be considerable.

- Avoid spraying agricultural chemicals within at least 2m (and preferably 6m) of any water course (including farm ditches).
- Avoid applying agricultural chemicals in windy conditions.
- Always ensure you follow the requirements of cross compliance and the chemical being used.

A less obvious but equally important example is the **leaching** of nutrients, particularly Phosphorus, when fertiliser application is in excess of crop requirements and applied at sub-optimal time for crop uptake. The addition of extra nutrients to water courses causes certain plants to grow at unusually high rates and can cause algal blooms.

- Test the soil to ensure fertiliser is actually needed.
- Avoid applying fertiliser at the wrong time of year or before forecast heavy rain.

Perhaps the most physically obvious example of pollution to a water course is soil **erosion** often occurring when permanent pasture is ploughed and cropped or when animals trample riverbanks or if light sandy soils (such as those on the Greensand Ridge) are ploughed without full regard for slope and runoff conditions. Heavy rain can lead to significant transfer of sediments from fields into rivers. Silt deposition can have a devastating effect on the wildlife of a river; it is also an incredible waste of a valuable resource.



Cattle causing erosion and silt entry to the River

### **Did you know?**

- That only about 30% of rainfall goes into rivers the other 70% goes to:
  - Underground aquifers and Porous rocks
  - The atmosphere by evaporation and plant transpiration
- Rivers only contain approximately 0.005% of all the freshwater on earth.
- The estimated total length of all the rivers in England and Wales is 150,000 km.
- The longest river in Great Britain is the Severn at 220 miles.
- The River Thames carries an estimated 300,000 tonnes of sediment each year.

For more information, advice or help with running water please do not hesitate to contact: **Amanda Proud**, Bedfordshire Otters and Rivers Project Officer. Tel: 01767 626453, email [amandap@bedsrcc.org.uk](mailto:amandap@bedsrcc.org.uk). For any other farming and wildlife queries please contact: **Matthew O'Brien**, County Countryside/ FWAG Officer. Tel: 01234 831052, email: [Matthew.obrien@bedscc.gov.uk](mailto:Matthew.obrien@bedscc.gov.uk).