

Protecting marginal habitat

Issues

Overgrazing of riparian fields by agricultural stock can lead to the loss of valuable marginal vegetation, and physical erosion of riverbanks. The combined impact of these processes is to remove fringing cover important for, in particular, juvenile fish, whilst exposing the banks to an increased risk of damaging erosion.

In some cases, bank erosion is so bad, that large blocks of soil fall into the channel, with an instantaneous loss of land that can amount to several metres. Large volumes of fine sediment can also be mobilised and washed into the channel. This sediment can become trapped within spawning gravel, reducing the overall hatch rate of deposited salmonid eggs, and reducing overall recruitment. Large-scale loss of marginal vegetation through over grazing can also have a significant and damaging impact on other groups of animals.

Water vole flourish in areas of emergent plant growth, with many invertebrate species also utilising this habitat, particularly during the winter period.

However, it must always be borne in mind that erosion is a natural process. Some erosion is essential; the river is a conveyor belt of coarse and fine sediments that are largely derived from its banks. This material is deposited preferentially within the channel, forming beds of coarse substrate (gravel spawning riffles) and areas of finer material (silt beds in marginal areas, colonised by emergent vegetation). Specialist macroinvertebrate and macrophytes species rely on newly disturbed and eroded ground in order to flourish. Care should therefore be taken not to remove all areas of eroded bank from a reach of river.

Potential restoration options

A reduction in the extent of excessive erosion is therefore of fundamental importance to chalkstream systems. The cheapest and aesthetically most desirable mechanism to achieve a reduction in erosion is to reduce the number of grazing animals to an acceptable level. This may be possible by utilising some of the options available under the various agri-environment schemes (see **Influencing Land Management**).

However, in many cases the financial realities of modern farming will not allow a reduction in stocking density. In these instances, the only realistic option is to erect a stock proof fence along the affected length of river. Ideally, the fence should create an ungrazed buffer strip of at least 10m in width. This provides a 'sacrificial strip' of land between the river and the fence that may be partially eroded prior to the development of coarse, well-rooted grass species with a strong binding effect on banks. It also provides a high

degree of attenuation of overland flood flows, and associated fine sediment, particularly if combined with a programme of tree planting within the fenced area. Narrower strips are still useful, albeit

WELL VEGETATED MARGINS PROVIDE IMPORTANT COVER FOR TROUT: TUSSOCK SEDGE ALONGSIDE A CHALK STREAM.





WELL FENCED MARGINS WITH LUSH, MIXED VEGETATION.

with a reduced effectiveness for sediment capture. Fencing also provides total protection against over-grazing if stock density increases in riverside meadows.

The cheapest method of fencing comprise posts with 3-strands of barbed wire. Cost for installation should be in the region of £4/m (2008 prices). The relatively low costs per linear metre makes the fencing perhaps the most cost effective enhancement technique available.

It is important that sufficient, easily surmounted stiles are provided for angler access, with a standard agricultural gate into each section of fencing important for machinery access for future maintenance; fencing off a buffer strip will promote the growth of riparian vegetation, and create a maintenance liability over time, particularly with respect to invasive species.

The requirements of the agricultural stock must be considered. Once excluded from the river, they



BANK EROSION EXACERBATED BY GRAZING PRESSURE.

will require a source of drinking water, either by the provision of purpose built drinking areas, main supplied troughs, or for beef cattle, the use of pasture pumps. Where stock requires access across rivers, simple water gates can be constructed using swinging timber slats or sections of alkathene water pipe. These will prevent animals moving upstream or downstream along the bed of the river.



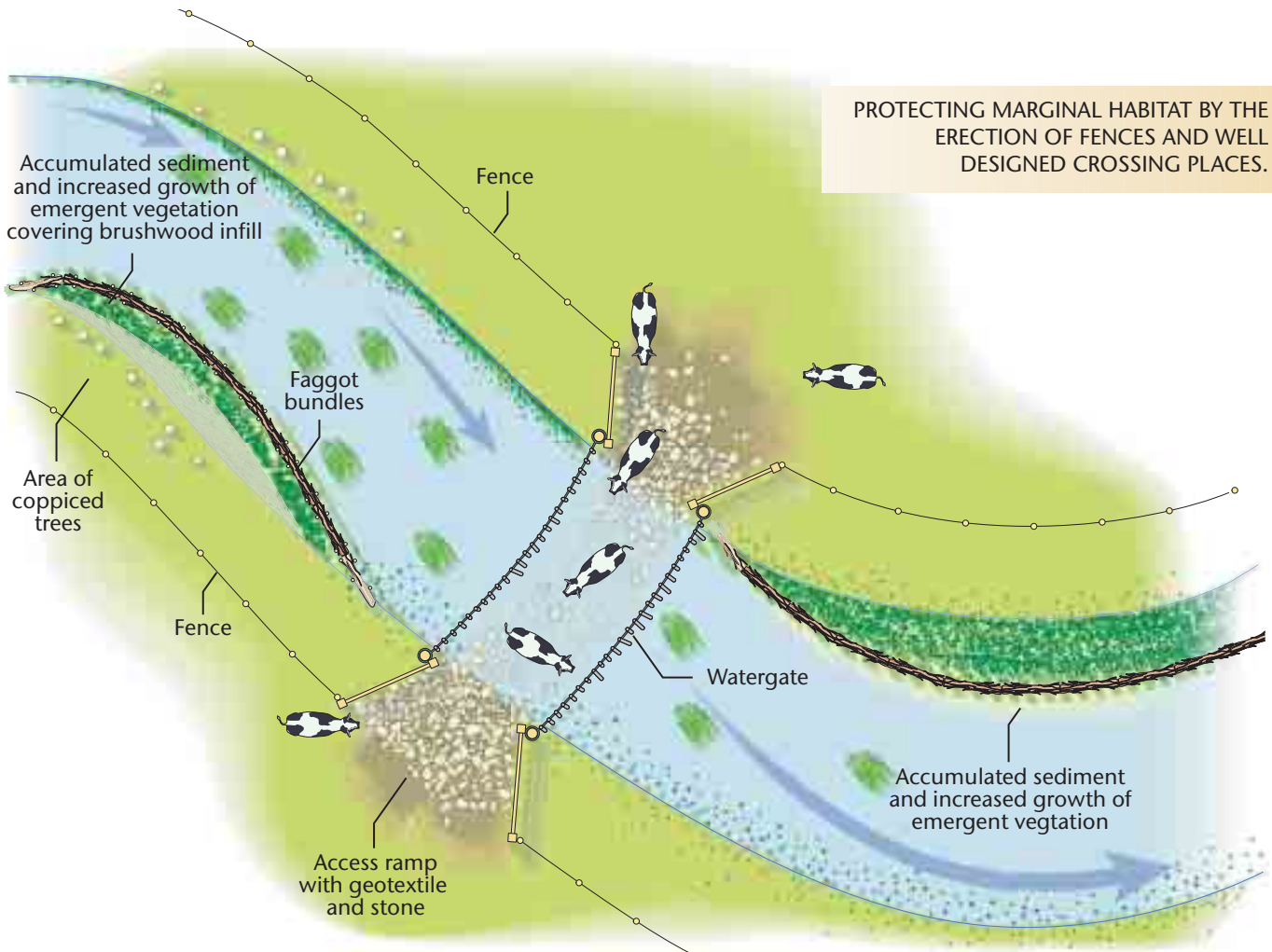
PASTURE PUMP.



DRINKING AREA FENCED TO PREVENT STOCK ACCESSING THE RIVER.

Summary

Technique	Advantages	Disadvantages
Reduction in stocking density.	No requirement for fencing, saving costs and potential landscape issues. Potentially very flexible, allowing some light erosion to take place without extensive damage to banks.	Financially disadvantageous to farming interests. May require a degree of financial compensation, directly or via agri-environment initiatives. Can be difficult to keep tight control on stock numbers, which may result in temporary overgrazing.
Fencing	Utilises live willow in order to create strong, living bank protection. Relatively cheap for the improvements obtained. Very effective, with total exclusion of stock possible. Provision of stone/gravel bedded cattle crossing/drinking place can provide trout spawning riffles.	Can be landscape/aesthetic objections to fencing in sensitive areas. Can be negated by gates being left open and stock admitted to fenced areas. May require provision of alternative water supply for stock (cattle drink or pasture pump). Can create a maintenance issue, particularly with invasive species.



PROTECTING MARGINAL HABITAT BY THE ERECTION OF FENCES AND WELL DESIGNED CROSSING PLACES.