



**Centre for
Ecology & Hydrology**

NATURAL ENVIRONMENT RESEARCH COUNCIL

Centre for Aquatic Plant Management

Information Sheet 2: Reeds, Rushes, Grasses and Sedges

Rushes, reeds and sedges (*Phragmites*, *Typha*, *Glyceria*, *Carex*, *Phalaris*, *Juncus* and *Scirpus*) are perennial plants which grow in or near static or flowing water and on marshy ground. When growing in water, they are usually found in less than 1 m depth. Most species have rhizomes from which aerial shoots emerge in the spring, growing to a height of 3m (depending on the species) and dying back in the autumn. Although some species reproduce by seed, the main method of spread is by vegetative growth from rhizomes. Once plants are established in shallow water, they trap silt around the roots and shoots, impeding or diverting water flow, and allowing further spread of the plants into water previously too deep to sustain them.

MECHANICAL CONTROL

Reeds can be cut by hand, using a scythe, or by machine, using weed cutting buckets or boats. The choice of technique depends on the area involved and on factors such as water depth, ease of access and availability of suitable equipment. Cutting only removes the emergent shoots and does not affect the buried rhizomes from which new shoots will emerge. If cutting is carried out early in the season in May or June, a second cut may be necessary before the end of the season. Also May to early July is the period when birds are nesting and cutting should not take place before mid July unless absolutely necessary. Delaying the cut until later in July and August reduces the time for shoots to regrow before the end of the growing season. After cutting, weed must be removed from the water and deposited well back from the bank where it cannot fall or be washed by floods into the water. It may be necessary to remove the weed and dispose of it elsewhere. Some emergent weeds, particularly *Phragmites australis* (the Common Reed), do not decompose in the autumn and, in some situations, it may be necessary to cut and remove the dead shoots in autumn to clean the channel and prevent impedance of winter flows.



Typha latifolia L.; *T. angustifolia* L.

Dredging often removes the rhizomes as well as the emergent shoots and so produces longer control, but is generally too expensive to be used purely as a method of weed control. When it is anticipated that a water body infested with rushes, reeds and sedges will require dredging, it may be beneficial to spray the emergent weeds with glyphosate at least three weeks before dredging to kill the rhizomes and prevent their spread from dumped spoil into adjacent agricultural land.

CHEMICAL CONTROL

Rushes, reeds and sedges are all susceptible to the herbicide glyphosate, which is sold under a number of product names, all of which are approved for use in or near water. This herbicide is applied as a spray directly onto exposed foliage, usually in mid to late summer, and is then translocated to the rhizomes. Thus, it kills the whole plant and control can last for several

seasons (normally 3). Only those plants which are treated with the spray are controlled so that localised

control of selected areas or individual weed beds can be achieved. Plants which are to be controlled with glyphosate should have well-developed, undamaged foliage exposed above the water surface at the time of spraying. Plants which have been damaged by cutting or grazing, or which have been bent over or broken by flooding or other forms of mechanical damage are less likely to be controlled.

Glyphosate is a relatively slow acting herbicide and plants which are sprayed late in the season appear to die back naturally in the autumn at the same time as unsprayed plants. However, treated plants do not regrow in the following spring.

Although glyphosate is normally applied in mid to late summer, there is evidence that effective control of some species can be achieved by spraying as early as May or June. Early season control has the advantages that the risk of summer flooding and other problems caused by the weeds during the growing season are reduced. Also, the weeds die back and decompose more rapidly if sprayed when still young and tender. If the plants are sprayed early in the season, there is also less likelihood of the plants being damaged before the spray is applied. *Typha* is not susceptible to early season control and should be sprayed in August or September.

In slow flowing rivers overgrown across the whole width of the river, a clear channel can be created by spraying a swath through the middle to restore adequate flow. This is a good method of restoring flows to rivers which have been artificially widened (and so become shallower). Clearance of a 2 metre wide channel will allow preferential flow and create a deeper channel which will prevent recolonisation by emergent plants but allow recolonisation by submerged aquatic plants. This is a form of bioengineering. Clearance of straight channels should be avoided and a meandering channel is preferred in most cases. The river can then be allowed to maintain a clear central channel and a wide marginal fringe, due to increased channel scouring in the centre and increased sediment deposition at the margins.

BIOLOGICAL CONTROL

Cattle and, to a lesser extent, sheep graze on some types of rushes and reeds. Livestock are used for biological control particularly on large embankments where they provide a cost-effective form of management of grasses and other terrestrial plants as well as bankside rushes and reeds. However, livestock cause damage to banks and require fencing and regular husbandry and these disadvantages can outweigh the benefit of the weed control.

ENVIRONMENTAL CONTROL

Because most emergent weeds are limited to water less than about 1 m deep, it is sometimes possible to control them either by raising the water level or by dredging. When dredging becomes necessary in areas where emergent weeds cause problems, the creation of a steep bank descending immediately into water of more than 1 m deep will limit the growth of these plants to a narrow fringe along the bank.

A narrow fringe of marginal vegetation is desirable because it acts to stabilise the toe of the bank from wave damage and often traps silt and other runoff from adjacent land. They are often used as the final stage in buffer strips.

BEST OPTION

In most instances, the use of glyphosate will provide the most cost-effective control with no environmental damage. The effects are longer-lasting than cutting and the herbicide can be applied easily in most situations where access to machinery may be limited. Control can be localised by careful direction of the spray so that predetermined areas of emergent weed can be preserved.