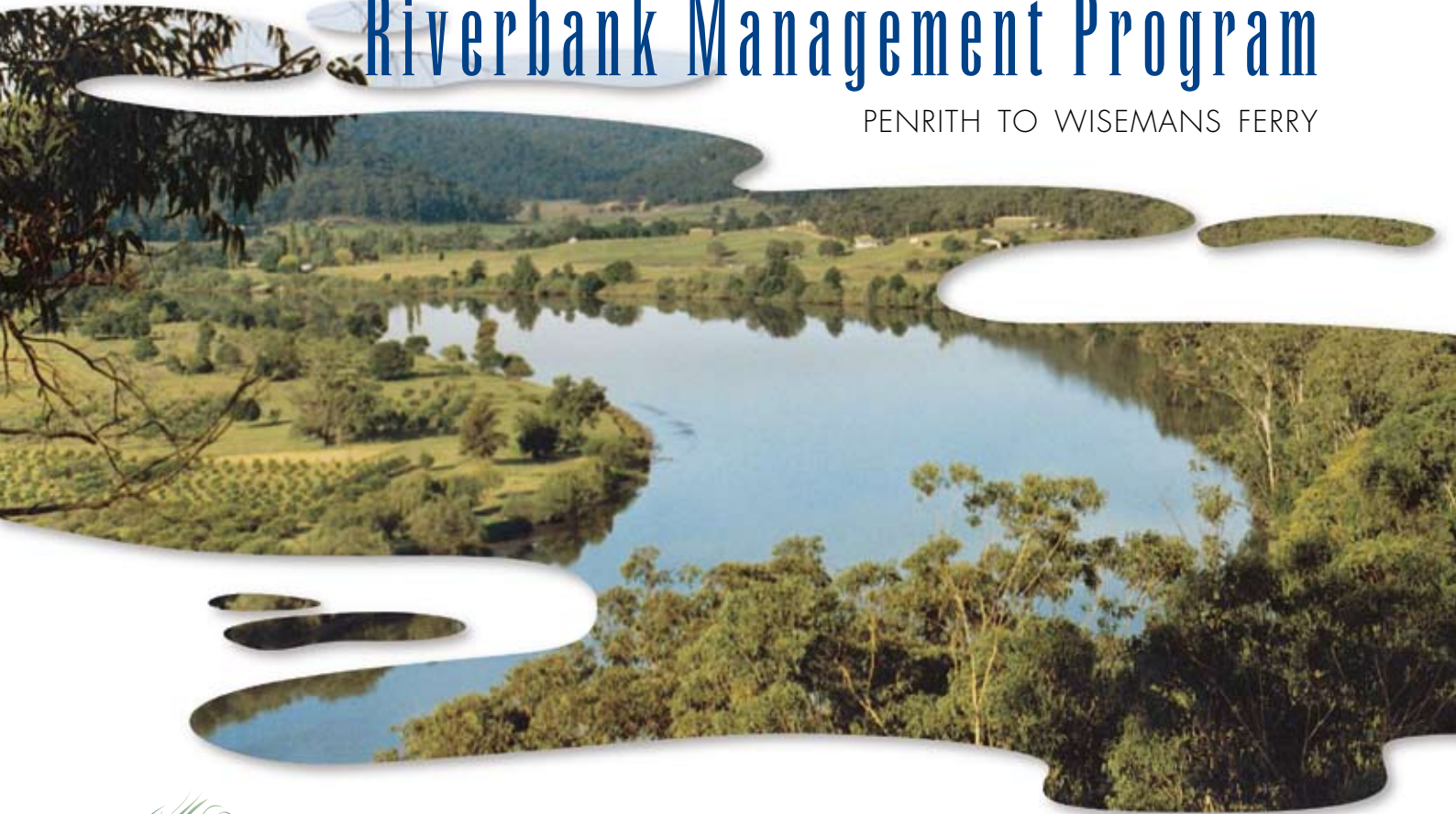


Riverbank Management Program

PENRITH TO WISEMANS FERRY



The role of riverbank vegetation

Information Sheet No. 1

This Information Sheet is one of a series of publications contained in the Riverbank Management Program Information Package.

For copies phone 02 4577 4243.

Why is riverbank vegetation important?

The riverbank provides a link and a 'buffer' between the river's aquatic environments and the floodplain and drier lands of the catchment's slopes, ridges and plateaus. The benefits of having well-developed native plant cover on the riverbanks are wide-ranging and extend far beyond the obvious role that plants play in the stabilisation of the banks. Plants provide shade and shelter for houses and stock, and the general aesthetic appearance associated with trees, shrubs and ground covers can add considerable economic value to individual properties. The protection of water quality and aquatic habitats also depends largely on the condition of riverbank vegetation.



Native vegetation on the base, slope and top of this riverbank provides wide ranging benefits.

Plants help stabilise the riverbank

Vegetation plays an extremely important role in reducing erosion and increasing the stability of the banks. Trees, shrubs and ground covers protect the soil from rain and reduce the rate of run-off. The root systems bind the soil and help stabilise the bank. The eroding power of water flow in a river channel is reduced by vegetation growing on the face of the bank and at the base ('toe'). Beds of reeds can reduce the impact of tidal flows and waves on the toe.



Reeds and trees reduce the susceptibility of this sandy bank to erosion.

Plants trap sediments and remove nutrients from run-off water

Vegetation on the banks acts as a 'buffer' between the river and the rest of the catchment. When it rains, run-off across disturbed or exposed soils or steep slopes picks up sediment, which then enters the river. If these eroded sediments enter the river system in large amounts they degrade the aquatic plant and animal habitats by filling in the deeper holes and channels and smothering the riverbed.

Dense vegetation on the banks can trap sediment particles and reduce the amount that enters the river.

Plants also absorb nutrients such as nitrogen and phosphorus from run-off and hence reduce the amount entering the river system. This can help to prevent algal blooms in the river. Where fertilisers are used on lawns, pastures and crops the nutrient content of run-off is high. In such areas it is essential to have dense plant cover to help to stop these nutrients reaching the water.



Riverbank vegetation provides habitat

Riverbank vegetation includes different plant communities that are important in their own right and contribute to the maintenance of biodiversity. They provide habitats, sources of food, sheltering opportunities and breeding sites for many different terrestrial animals. They represent an important refuge for native animals from drought, fire, feral pests and the encroachment of developed areas. Importantly vegetation on the riverbank may act as a wildlife corridor linking remnant patches and larger areas of native bushland.

Plants along the riverbank contribute food and energy to the river's natural systems. Insects inhabiting the trees and shrubs overhanging the water provide food for fish, and fallen leaves, trees and other woody debris are particularly important as habitat and food for aquatic insects. These insects in turn form the basis of the diet for many Australian fish. Overhanging

Dense native vegetation increases the stability of the riverbank, acts as a buffer zone between the river and the catchment and provides habitat for a variety of terrestrial and aquatic animals.

vegetation shades the water surface, reducing water temperatures on hot summer days and providing cool areas for aquatic organisms. The reeds that grow at the toe of the riverbank also provide important habitat and food for a variety of aquatic organisms. In-stream logs (snags) provide a range of habitats and sites where fish can shelter from predators or high flows. Some aquatic organisms lay eggs on snags.

How much riverbank vegetation do we have left on the Hawkesbury-Nepean?

The answer to this question is... very little. Almost 80% of the length of riverbank between Penrith Weir and Wisemans Ferry has either no trees or less than 25% tree cover. Many areas have been completely cleared, others may have a few remaining large trees with only grass below, and in others again weeds dominate.

Prior to European settlement the Hawkesbury-Nepean riverbanks were important areas for the local

Aboriginal tribes; they harvested the native plants, hunted animals from the banks and floodplains, and fished the rivers and streams. Aborigines undoubtedly altered the structure and composition of the plant communities that existed by their use of fire and harvesting practices but they did not clear the vegetation from the banks. Since European settlement of the riverbanks in 1794 the vegetation has been subjected to widespread and intensive pressure. Removal of riverbank vegetation has traditionally been associated with the need to clear for agriculture, to provide recreational space, or to provide river access points. As a result, a large amount of the original vegetation has disappeared or suffered severe damage.

What can we do to improve the situation?

Protecting any remaining native riverbank vegetation, fencing off riverbanks to allow natural regeneration to occur, and replanting of bare riverbanks including the toe (down to low water mark) will assist

in reducing riverbank erosion and the loss of valuable riverside land.

How much riverbank vegetation do we need for it to be effective in stabilising the bank, protecting water quality and providing a habitat corridor? The general rule of thumb is 'the wider the better'. A corridor of 20 metres will help stabilise the bank and begin to assist in the filtering of sediment and nutrients from stormwater run-off. For high quality habitat value a corridor must be at least 80-100m in width and should link with other patches or larger areas of bush.

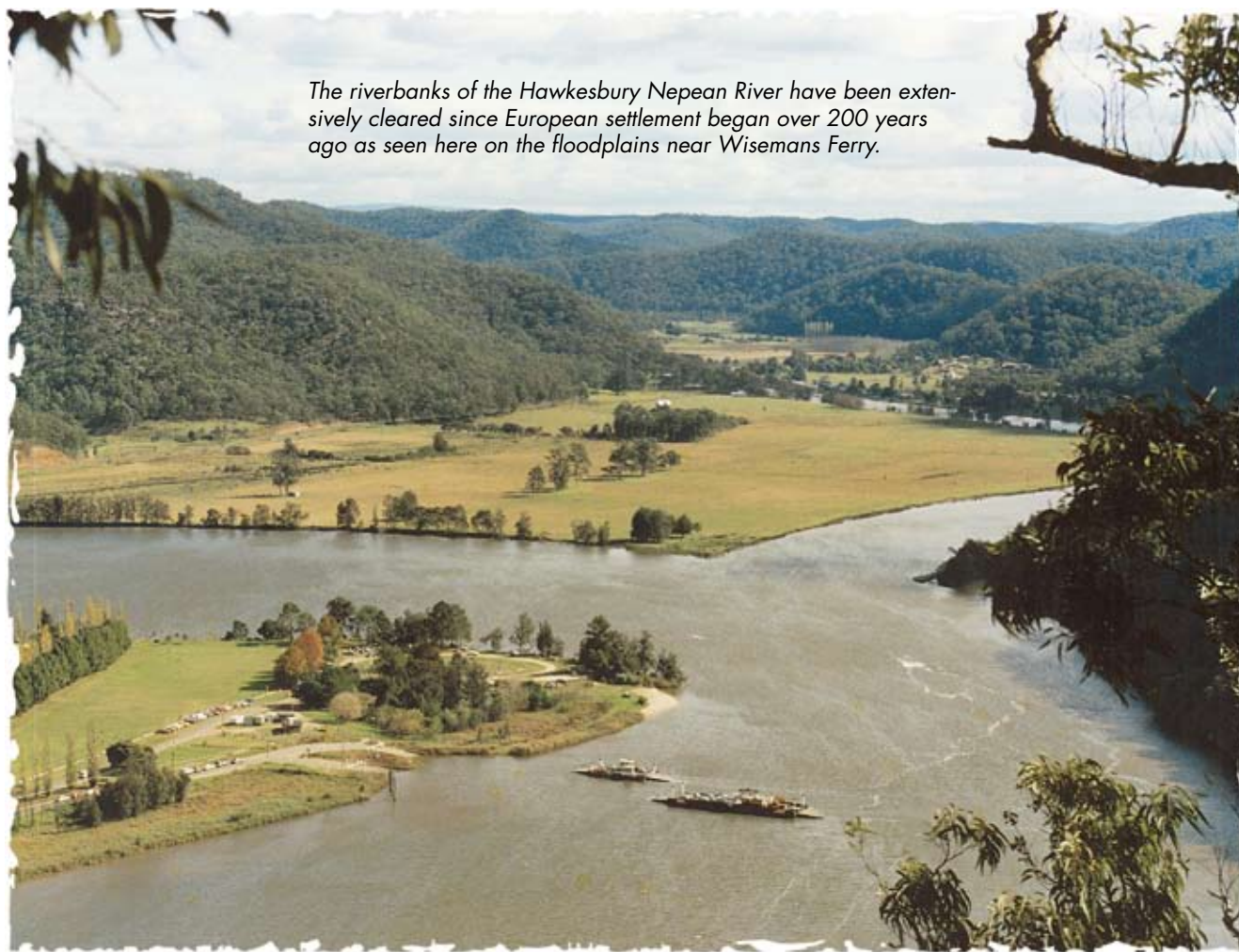
The 'quality' of the vegetation is also important. A mixture of native trees, shrubs and groundcovers is required to provide the greatest value as this will mimic, at least to some extent, the composition of a natural plant community.

More information about improving your riverbank vegetation and what to plant where is given in other information sheets. These provide practical guidance for particular locations and sites along the River between Wisemans Ferry and Penrith Weir.



Tree stumps, reed beds and overhanging trees provide important habitat.

The riverbanks of the Hawkesbury Nepean River have been extensively cleared since European settlement began over 200 years ago as seen here on the floodplains near Wisemans Ferry.



What is the Riverbank Management Program?

The Riverbank Management Program aims to assist landholders to better understand current riverbank problems and how to address them. This Information Sheet is one of a series contained in the Riverbank Management Program Information Package that provides information and practical guidance on better riverbank management. The Program also includes the development of local demonstration sites showing different riverbank management techniques. Reducing the rate of

erosion and improving the native vegetation cover and habitat value of riverbanks will lead to improvements in water quality and recreational amenity and increased attractiveness and scenic quality of riverside areas.

The Program is a partnership between the Hawkesbury Nepean Catchment Management Trust, the Department of Land and Water Conservation and the community, assisted by a Natural Heritage Trust grant.

For more information contact:
Hawkesbury-Nepean Catchment Management Trust on 02 4577 4243 or

Catchment Manager, Department of Land and Water Conservation on
02 4722 1101

Copyright Hawkesbury Nepean Catchment Management Trust and Department of Land and Water Conservation
Published 1999

