PRACTICALITIES

RIFFLES AS PART OF RIVER HABITAT

by
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THINKING of creating a creekline corridor? Then why not create the best possible habitat for the animals that need water as part of their life cycle, the birds, fish, gilgies and smaller creatures that are the basis of their food chain?

The creekline corridor is a good start. Fencing prevents livestock from damaging banks and polluting the river with urine and manure. Revegetation along stream banks will help stabilise the bank and if ground covers, rushes and sedges are used, will improve water quality by filtering out sediment, organic matter and nutrients that may run off surrounding farmland. Leaf litter from trees and shrubs planted close to the river channel provide a "slow release" food source for aquatic animals, and the shade they produce will reduce the amount of sunlight available for algal growth.

If your river bed is falling on a slope of at least a 2% (40 cm in 100 metres) you could also consider building a riffle system. Riffles are rock or woody debris bars across creeks and rivers that act as mini weir, and hence create a greater array of habitats. Some creatures, such as gilgies, live in the pools and actively seek their food, other filter feeders such as blackfly larvae live in the riffles and wait for their food to be carried to them by the flowing water. Surveyed rock or woody riffles are built with a 1:20 slope allowing fish of all sizes to move upstream into the pools ahead.

Riffles also help in stabilising creeks which are down-cutting their beds. A stream can get out of balance due to catchment and channel clearing, which produce greater run-off and faster flows, and these can lead to major problems of flooding, down-cutting and bank erosion.

A rock riffle can take some of the erosive energy out of the stream by slowing the flow of water. Surveyed to the level of regularly occurring winter flows and having a V-shaped channel, they reduce upstream slope by impounding the water upstream over several tens or hundreds of metres, reducing the erosive force and taking the fast flowing away from the banks and directing it towards the middle of the channel. Energy is also taken out of the river as it tumbles over the rocks and debris of the gently sloping downstream face of the riffle.

Riffles can be relatively cheap to build, especially where field stone and woody debris are plentiful, and offer many ecological advantages. Apart from increasing the range of habitats available to support a wide variety of native animals, they also act to oxygenate the water. By bubbling and boiling the water, riffles become the "lungs" of our rivers, providing much needed oxygen for the microbial breakdown of organic matter and the recycling of nutrients. These processes reduce the likelihood of noxious algae blooms and increase the health of our rivers.

A rock riffle as built on Spencers Brook.

If you can see a need for a riffle as part of your creekline regeneration, then contact me on 08 9881 1444.

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