

Gondwana Link groups have developed a plan for the section of Gondwana Link between the Fitzgerald River and Stirling Range National Parks, or what we call the Fitz-Stirling section. This identifies several targets for protection and restoration, each of which is described in a separate leaflet in this series. A short summary of the plan is also available.

These targets are not the only systems or species that are important in this landscape, but by concentrating on the chosen targets we believe we can most effectively improve the ecological health of the Fitz-Stirling area.

Our 6 targets are:

- creeks
- proteaceous rich communities
- tamar & black-gloved wallabies
- mallet and moort woodlands
- flat-topped yate woodlands
- freshwater systems



A Fitz-Stirling creek with healthy riparian vegetation. Photo: C.Gryniewicz

### THE CREEKS OF THE FITZ-STIRLING AREA

These creeks generally start on land overlying the ancient granites and gneisses of the Yilgarn craton, and flow south west or south east across marine sandstones into the Pallinup, Bremer or Gairdner Rivers. Corackerup, Monjebup and Peniup are the main creeks feeding into the Pallinup River. These creeks generally flow after significant rains but for most of the year occur as a series of pools amongst granite sheets and boulders interspersed with flat-topped yate (*Eucalyptus occidentalis*) woodlands and sedge filled channels (*Baumea*, *Gahnia*, *Juncus* and *Schoenus* spp). Some components of the more northerly wheatbelt vegetation, such as York gum (*Eucalyptus loxophleba*) and swamp sheoak (*Casuarina obesa*), occur along the creek lines resulting in very diverse and complex vegetation mosaics.

Where the creeks flow through healthy bushland, they are generally in good condition with mostly intact riparian zones (i.e the areas bordering the creeks including their foreshore and floodplain) and pools that support wildlife ranging from microscopic protozoa and water fleas to larger fish, crustaceans, aquatic invertebrates, water birds, bush birds, frogs, long-necked turtles and water rats. Some of the invertebrates, such as the larvae of stoneflies, caddis flies and mayflies, can be used as indicators of a healthy creek or pool.



Macro-invertebrates that are commonly found in the saline river pools of inland rivers and creeks. Photos: Geraldine Janicke CENRM(UWA)



Common Jollytail, *Galaxias masulatus* found in Fitz-Stirling creeks. Photo: Geraldine Janicke CENRM(UWA)

The creeks that flow through cleared land, especially where the riparian zone has been disturbed, are mostly in poor condition. In the most severely degraded areas the creeks are barren ditches where all the pools have been filled with sand. Floods through these areas can carry soil, salt, nutrients and chemicals downstream unimpeded, often into bushland areas.

All the Fitz-Stirling creeks are saline to some degree and, for at least part of the year, have probably always been so, although there is evidence to suggest that since widespread clearing occurred in their catchments, salinity levels are now higher for a longer period of the year.

## WHY ARE CREEKS A CONSERVATION TARGET?

The creek systems include habitat for species and communities of both plants and animals that are found nowhere else in the landscape. They also function as refugia (temporary safe havens) for many species during summer and dry seasons. Without the pools many species would no longer survive.

The riparian vegetation plays an important role in providing shade and shelter for the aquatic animals, creates habitat pathways for animal movement, provides sediment and nutrient 'traps', and reduces erosion by slowing water flow and anchoring the soils on steep creek banks.

## THREATS



Degraded creek where riparian vegetation has largely disappeared, yates are dying and sand from upstream erosion has filled the pools. Photo: P Deegan.

Major threats to creeks are:

- silt and sand, salt, nutrients and chemicals, mainly from agricultural land
- degradation or clearing of riparian vegetation
- grazing by stock
- changes in hydrology through catchment clearing, including the effects of rising salinity in ground water

The permanent pools in particular are highly vulnerable to sedimentation and changes in water quality.

## WHAT NEEDS TO BE DONE

The most effective way to protect the creeks is to protect and restore the riparian zones so that they are sufficiently wide to buffer the creek. Minimising sediment or nutrient exports from productive areas into creek lines is also very effective. Strategic planting of sedges or vegetation thickets can capture and reduce soil and fertiliser exports (for further information see Living with the Land. Guidelines for the Fitz-Stirling, on the Gondwana Link website).

## WHAT IS HAPPENING THROUGH GONDWANA



Creek assessment work involves riparian vegetation assessment as well as pool water sampling and fauna surveys. Photo: A Keesing.

The creeks and the catchments in the Fitz-Stirling area are being assessed to determine their condition and the nature of the stresses on them. The condition of the riparian vegetation, the presence of disturbances such as erosion or major weed infestations, and the water quality of some of the permanent pools are being recorded and mapped and is available on Gondwana Link's website or by contacting us. We are also recording sightings of some of the larger fauna, especially long-necked turtles and water rats, as these are good indicators of healthy systems.

On the properties owned by Greening Australia and Bush Heritage Australia we are revegetating previously cleared areas to minimise further runoff into the creeks. We have also assisted a number of landowners to plan, fence and revegetate areas of their properties and expect to extend this program in the future.

**Gondwana Link** is one of the most ambitious ecological programs in Australia. A wide range of groups are collaborating to protect, manage and restore bushland in a 1000 kilometre-long pathway, from the wet forests of Australia's south west corner to the woodlands and mallee bordering the Nullarbor plain.

**Fitz-Stirling** section of Gondwana Link sits between the Stirling Range and Fitzgerald River National Parks.

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