8.2 STREAM BANK ZONE MANAGEMENT

What is the stream bank zone ?

The streambank zone refers to the area adjacent to waterways including the vegetation on both the banks and verges. The verge is the area of land up to 30 metres from the waterway channel.

Why is it important ?

In a natural stream environment, the bank and surrounding vegetation act as a buffer between the watercourse and surrounding land uses. This buffer can assist in:

- *Stabilising and maintaining stream bank*
- *Preventing excessive erosion*
- *Providing canopy shade*
- *Protecting riparian condition*
- *Filtering and trapping soil particles*
- *Extracting nutrients from the water.*

What causes stream bank degradation ?

The primary causes of stream bank degradation in the Yass catchment are: *lack of vegetation, stream bank erosion, willows and other weeds.*

Increased water flow, combined with a reduction in ground cover and soil disturbance, causes stream bank erosion. It is usually caused by the direct action of stream flow and can be exacerbated by erodible soil types. Other contributors to stream bank erosion include; damage by stock, flooding, carp, or channel blockages (by sand, gravel, vegetation etc).

The removal and degradation of stream bank vegetation in the Yass area has contributed to increased erosion, changed nutrient levels, water quality decline, and loss of aquatic habitat.

The decline of stream bank vegetation condition in the Yass area has allowed willow populations to spread. There is now a growing concern about willows, their impact on watercourses and their role in the landscape. Willows can have an increasingly large impact on a river system causing:

- *Flooding*
- *Erosion*
- *Water quality decline*
- *Disruption to water flow*
- *Changes to stream nutrients, aquatic habitat and food resources*
- *Potential threat to structures such as bridges and roads.*

More than 100 species or varieties of willows have been introduced to Australia, of which four major species are found in the Yass catchment (Cremer, 1995).

The four major species are:

- Crack Willow *(Salix fragilis)*
- Black Willow *(Salix nigra)*
- Golden Upright Willow *(Salix alba* var. *vitellina)*
- Weeping Willow *(Salix babylonica)*

What is the impact in the Burrinjuck area ?

Native stream bank vegetation in the upper Murrumbidgee area is declining. The major threats to stream bank vegetation are rabbits, poor grazing management, weeds, willows and clearing.

The Burrinjuck sub-catchment consists of 61 major tributaries flowing into the Murrumbidgee River. The Stressed Rivers Assessment Report conducted by DLWC ranks the area of the Murrumbidgee River and minor

tributaries between Numeralla and Burrinjuck as experiencing high environmental stress and high water extraction.

This area of the Murrumbidgee was rated as having poor connectivity and integrity, very poor bank stability and density, a shortfall of trees and significant dams and development. (see Appendix section 7.3, tables 15 and 16)

There is 99.3 kms of stream bank erosion in the Burrinjuck sub-catchment. Of which:
- 76.7kms (77%) <1.5 metres in depth
- 16.9kms (17%) is 1.5-3.0 metres in depth
- 4.0kms (4%) is 3.0-6.0 metres in depth
- 1.7kms (2%) is > 6.0 metres in depth.

Stream bank condition based on erosion depth and extent has been assessed as poor in Woolgarlo Creek (upper), Oaky Creek (upper), Little Swamp Creek (mid), Tea Drinking Creek (mid-upper), Spring Creek (mid) and MacPhersons Creek (upper). 'Poor' meaning little effective vegetation (predominantly exotic), on unstable or dispersive soils, mostly undercut toe, with recent bank movement or erosion. See the Appendix, table 16, for other assessments.

Priority

The Burrinjuck sub-catchment landcare groups lists stream bank zone management as a high priority issue.

The groups stated willow management should focus on controlling their spread and to control willows in areas of greatest impact on stream health and stability.

Local Actions to Date

1999/2000

- Taylors & Allianoyomyiga Creeks Remnant Vegetation Protection & Enhancement Project
- Riparian Zone Revegetation Project-Moura Creek Stage 2
- Stream Bank Restoration Demonstration Sites
- Narrangullen Creek Stream Bank Revegetation & Erosion Control Project

1998/1999

- Jerrawa Creek Rivercare
- Sutton Yass River Management Plan & Works
- Cooma Cottage Riverbank Rehabilitation
- Yass River Fencing & Revegetation
- Jeir Creek Fencing, Revegetation & River Management
- Riparian Zone Revegetation Moura Creek
- Dicks Creek Stream Bank Revegetation

1997/1998

- Jerrawa Creek Rivercare
- Yass Urban Willow Removal & Revegetation

1996/1997

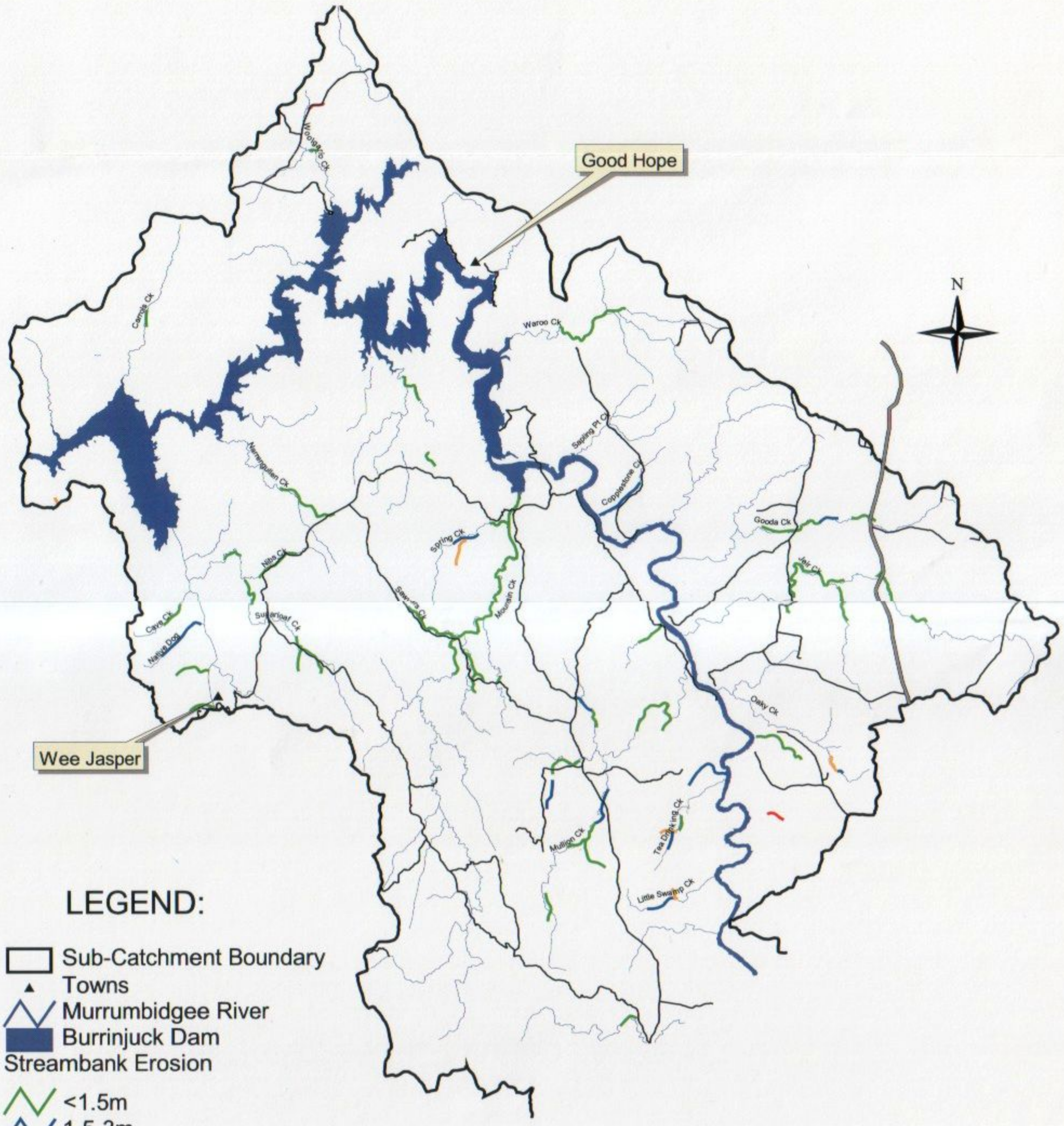
- Jerrawa Creek & Lachlan River Tributaries Riverine Corridor Stabilisation and Enhancement Project.
- Goodhope/Boambolo catchment management plan

See also in the Appendix:
Section 7.3 *Stream Bank Zone*
Table 13 Dominant native riparian vegetation for the Yass Area
Table 14 Current stress classifications
Table 16 Riparian Vegetation and stream bank condition: Burrinjuck sub-catchment.

BURRINJUCK SUB-CATCHMENT

Map 18: Stream Bank Erosion

Yass Area Network of Landcare Groups
Working together



SOURCE: DLWC, 1999 & NRPA, 2000

2. STREAM BANK ZONE ACTION PLAN

WHAT WILL WE DO ?	WHY ARE WE DOING IT ?
Manage creek and river corridors.	To prevent loss of productive farmland, minimise sediment & chemical content and to maintain water quality.

HOW DOES IT CONTRIBUTE TO MURRUMBIDGEE CATCHMENT BLUEPRINT TARGETS ?

Water Quality √	Biodiversity √	Community Building √

HOW WILL WE DO IT ?

(codes in brackets indicate Matching Blueprint Actions)

Identify the problem

SZ1. Use the Riparian Catchment Assessment Sheets to identify and target high priority areas.

SZ2. Seek expert advice on the severity of the problem and possible local causes.

Implement management practices

SZ3. Manage stock access to protect areas of identified stream bank erosion, eg large mobs grazing for short periods to maximise ground cover. (WMA4, BMA2)

SZ4. Change practices to include buffer zones near stream banks.

SZ5. Encourage zoning of appropriate stream bank areas for public use, access and environmental benefit. (BMA2)

SZ6. Use 'environmentally-friendly' chemicals near waterways, and ensure other chemicals do not enter the stream bank zone.

On-ground works

SZ7. Where appropriate to individual farm plans, fence areas as necessary with the cooperation of land holders.

SZ8. Remove weeds such as Crack willows or Black willows. (WMA5)

SZ9. Improve stream bank vegetation cover and biodiversity. (BMA10)

SZ10. Undertake structural earthworks on severely eroding banks. (WMA6)

SZ11. Control Carp populations through participation in regional actions. (WMA15)

Promote and educate

SZ12. Develop information kit/guidelines for landholders. (CBMA11)

SZ13. Develop demonstration and sponsor projects. (CBMA11)

SZ14. Encourage voluntary agreements such as land retirement, management agreements and covenants for stream bank areas.

Monitor

SZ15. Establish regular assessment and mapping of stream bank conditions (building on existing GIS data).

SZ16. Monitor change and the impacts of management practices. (CBMA11)

SZ17. Monitor downstream sediment loads to test impact of actions taken.

BEST MANAGEMENT PRACTICES

STREAM BANK ZONE

What is the stream bank zone ?

The stream bank zone is the area adjoining a waterway including the vegetation on both the banks up to 40 metres from the waterway channel.

Why do we need to manage it ?

- to maintain good water quality
- to prevent erosion
- to maintain aquatic habitat
- to provide a wildlife corridor

What can I do ?

There are a number of things you can do to improve the sustainability and health of the stream bank. As a first step, the stream bank zone should be managed to allow controlled access of stock and to assist regeneration and weed control.

- willow control
- weed control
- revegetation, and
- structural works.

Facts sheets on each of these activities is attached.

Some general principles :

- don't build structures on, or close to a stream bank,
- leave a buffer zone
- don't remove trees, shrubs or grasses from the
- stream bank (unless noxious weeds)
- only allow stock watering points on gently sloping banks, and ensure erosion control measures are in place, eg paved ramp etc.
- don't allow excessive build-up of debris in the stream which can divert the stream flow
- access ramps to the stream should only be built on the inside of bends
- never excavate a stream without getting advice and permission !

!!! **Remember**: any works undertaken on a stream, creek or river may require a permit or permission from one or more agencies - ask for advice !!!

Who can help ?
Department of Land & Water Conservation, Yass Phone (02) 6226 1433

For fact sheet information on the stream bank zone – refer to the stream bank zone section under the Yass Valley Sub-catchment in this plan

TOPICS INCLUDE:

- Willow control
- Stream bank revegetation
- Managing stock access to the stream bank zone
- How to assess the condition of vegetation
- Useful species for revegetation of riparian areas
- Structural works in the stream bank zone
- Further references