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Key threatening processes in NSW

Degradation of native riparian vegetation along NSW water courses

INTRODUCTION

In November 2001, the degradation of native riparian vegetation along NSW water courses was listed as a key threatening process (KTP) under the *Fisheries Management Act 1994*.

A threatening process is defined under the Act as 'a process that threatens, or that may threaten, the survival or evolutionary development of a species, population or ecological community of fish or marine vegetation'.

Threatening processes that adversely affect threatened species, populations or ecological communities, or possibly cause others that are not currently threatened to become threatened, may be eligible for listing as a KTP.

Anyone can nominate the listing of a KTP. Nominations are assessed by the Fisheries Scientific Committee (FSC), an independent body of scientists, which is responsible for determining whether any threatening processes should be listed as a KTP.

The complete list of key threatening processes is contained in Schedule 6 of the *Fisheries Management Act 1994*.

WHAT IS 'RIPARIAN VEGETATION'?

Riparian vegetation is vegetation on land that adjoins, directly influences or is influenced by, a body of water.

Riparian habitats include land immediately alongside creeks and rivers (including the bank); gullies and dips that sometimes run with surface water; areas around lakes; and wetlands on river floodplains that interact with the river in times of flood.

Estuarine and marine waters are excluded from the definition for this KTP.

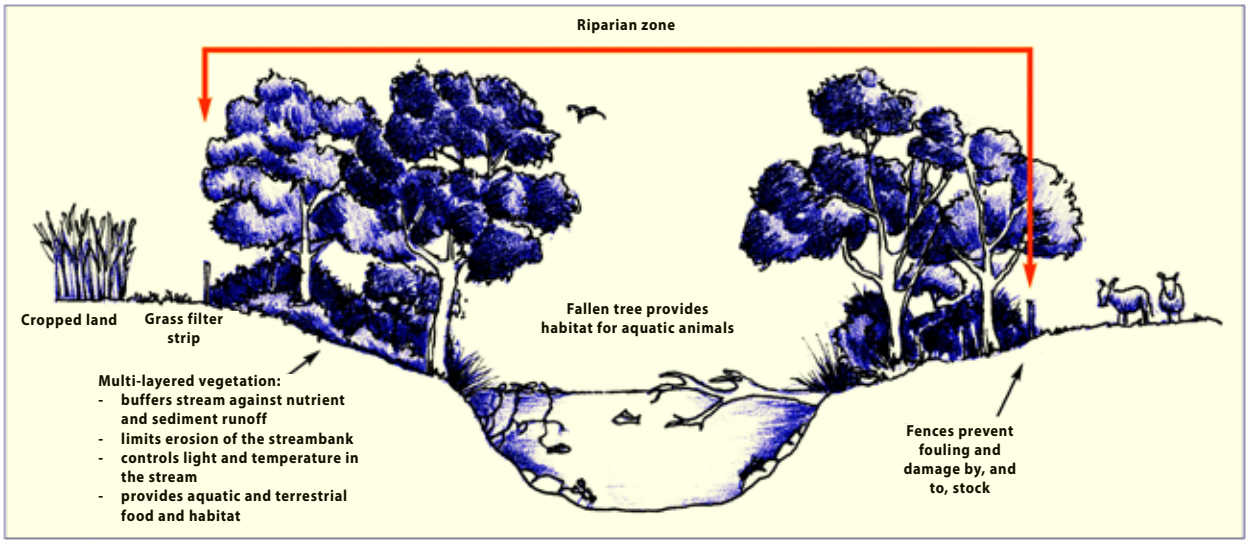
WHY IS RIPARIAN VEGETATION IMPORTANT TO AQUATIC ECOSYSTEMS AND NATIVE FISH?

Riparian vegetation forms an important part of a healthy functioning ecosystem and has numerous important ecological benefits. Riparian vegetation:

- Provides a source of organic matter such as leaves, twigs and branches which form an important energy source in most stream ecosystems;
- Provides a supply of large woody debris for aquatic ecosystems which are important habitat and spawning sites for many native fish species;
- May act to lower the water table and help reduce the flow of salt into streams (particularly deep-rooted vegetation);
- Provides shade and shelter, buffers temperature and creates habitat for fish;
- Stabilises river beds and banks, binds soil and protects against erosion and slumping; and
- Acts as a filter for sediments, phosphorous and organic nitrogen; improving the quality of water entering watercourses. This is especially important along smaller streams that feed into main channels.

Studies show that species diversity and abundance of fish are greater in areas with good riparian vegetation.

An example of good riparian vegetation cover.
Photo: NSW DPI.



Positive effects of good riparian vegetation.
Illustration by Carolyn Brooks. Reproduced from Price, P. and Lovett, S. (2002) www.rivers.gov.au.

HOW IS RIPARIAN VEGETATION DEGRADED?

Riparian vegetation is degraded by the complete removal or modification of native plants.

At a local scale riparian vegetation is frequently degraded by clearing or by activities such as gravel extraction, cropping, livestock grazing and trampling.

On a catchment scale, changes in flow regimes often affect riparian vegetation either directly by drowning, or indirectly through erosion and bank slumping, floodplain alienation, and altered flooding regimes.

A major cause of degradation is the introduction of, or invasion by, non-native species. In some areas the only vegetation present along streams may be exotic species such as willows. These are a poor substitute for native plant species because:

- Introduced vegetation reduces the diversity of native invertebrate communities;
- Native fish and other organisms are adapted to the continuous leaf fall provided by native plants;
- Many introduced trees drop all their leaves in autumn altering the timing and quality of organic debris;
- Willows also affect channel structure. They have a tendency to grow into a stream. Their tight root systems form obstructions and cause water to be diverted around them into the banks causing erosion.

WHAT THREATENED FISH ARE AFFECTED BY THIS KTP?

Riparian vegetation degradation along NSW watercourses has been listed as a KTP because of its negative impacts on many threatened species, populations and ecological communities including:

- The endangered ecological community of the lower Murray River catchment;
- The endangered ecological community of the lowland catchment of the Darling River;
- Oxleyan pygmy perch (endangered);
- Eastern freshwater cod (endangered);
- Trout cod (endangered);
- Murray hardyhead (endangered);
- Macquarie perch (vulnerable);
- Silver perch (vulnerable);
- Southern pygmy perch (vulnerable);
- Purple-spotted gudgeon (endangered population);
- Olive perchlet (endangered population),
- River snail (endangered);
- Adams emerald dragonfly (vulnerable); and
- Buchanan's fairy shrimp (vulnerable).

WHAT HAPPENS AFTER A KEY THREATENING PROCESS IS LISTED?

The listing of this KTP does not automatically change existing laws regulating the management of riparian vegetation in NSW.

However, once a KTP is listed, the NSW Department of Primary Industries may prepare a 'threat abatement plan' to identify actions required to manage the KTP so as to abate, ameliorate or eliminate its adverse effects on threatened biodiversity. Threat abatement plans identify responsible persons or public authorities for each action, and set out a timetable for implementation. Public authorities are required to report their progress in implementing relevant actions in their annual reports to Parliament. This may result in some changes to riparian vegetation management in the future.

When preparing threat abatement plans, the Department of Primary Industries must consider ways to minimise any social and economic consequences that may result from the listing, as well as options for community involvement. Draft threat abatement plans are publicly exhibited for a minimum of 4 weeks, during which time any interested party may comment.

Listing as a KTP establishes formal assessment requirements in development control processes established by the *Environmental Planning and Assessment Act 1979*.

HOW ARE THREAT ABATEMENT PLANS IMPLEMENTED?

The successful implementation of threat abatement plans is dependent on the assistance and cooperation of public authorities, local councils and the community.

When preparing threat abatement plans the Department of Primary Industries consults with relevant authorities and seeks their cooperation in implementing the measures included in the plan.

Threat abatement plans inform and influence other planning processes and must be considered by public authorities when making decisions. For example, local councils and other public authorities must consider threat abatement plans when assessing proposed developments or activities.

Public authorities should take any action available to them to implement measures in the plan for which they are responsible, and should not make decisions that are inconsistent with the provisions of the plan. However, there are no penalties for individuals or organisations for not complying with the plan.

Badly eroded bend due in part to lack of riparian vegetation. *Photo: Sharon Molloy.*

REDUCING THE IMPACTS OF THIS KTP

The following are some general guidelines for the management of riparian areas to minimise the impacts of degradation on native aquatic species and ecosystems:

- Riparian areas should be managed to maintain the health of existing native vegetation, encourage recruitment of juvenile trees and shrubs, and incorporate weed control.
- Areas where little or no vegetation remains should be rehabilitated by replanting or natural regeneration.
- Controlling stock access is probably the most important key to riparian vegetation management in rural areas. This may involve limiting access to certain areas or providing alternative watering points.
- Exotic vegetation should be replaced by native vegetation.

The amount of riparian vegetation that should be maintained depends on the particular location. Each location should be individually assessed. Management strategies should be designed to enhance habitat quality and availability for fish and should be supported by landholders.

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This publication is based on information contained in the Fisheries Scientific Committee Recommendation for listing the '*Degradation of native riparian vegetation along NSW water courses*' (Ref. No. FR19) as a key threatening process.

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