



# ACT AQUATIC AND RIPARIAN CONSERVATION STRATEGY

**IN BRIEF**



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# Contents

VISION.....	1
PURPOSE.....	1
WHY WE SHOULD WE CONSERVE AQUATIC AND RIPARIAN ECOSYSTEMS.....	2
THE STRATEGY.....	4
INDIVIDUAL STRATEGIES.....	4
WHAT ARE AQUATIC AND RIPARIAN ECOSYSTEMS?.....	4
STRATEGY 1: PROTECT AQUATIC AND RIPARIAN AREAS AND SPECIES.....	5
STRATEGY 2: REDUCE THREATS TO NATIVE DIVERSITY.....	6
STRATEGY 3: MANAGE COMMUNITIES AND SPECIES FOR CONSERVATION.....	7
STRATEGY 4: MONITORING AND RESEARCH.....	8
STRATEGY 5: ENGAGE THE COMMUNITY.....	8
ACTION PLANS.....	9
NEXT STEPS.....	11
IMPLEMENTING THE STRATEGY AND ACTION PLANS.....	11
EVALUATION AND REVIEW.....	11



‘ Healthy waterways supporting diverse aquatic and riparian flora and fauna, and providing high quality ecosystem services.’



# VISION

‘ Healthy waterways supporting diverse aquatic and riparian flora and fauna, and providing high quality ecosystem services.’

Rivers and their riparian edges are critical to human health and wellbeing, the sustainability of our city and nature conservation. Rivers, lakes, wetlands and aquifers are critical habitat for many native plants and animals. They provide water for human consumption and are sought out as aesthetically beautiful places. Conservation, protection and rehabilitation of our waterways and riparian areas is essential for the survival of threatened species, maintenance of ecosystems and their services, and provision of recreational opportunities.

## PURPOSE

The ACT Aquatic and Riparian Conservation Strategy (the strategy) provides guidance on the conservation of aquatic and riparian areas and component species in the ACT, consistent with the ACT Nature Conservation Strategy 2013–23 ([www.environment.act.gov.au/cpr](http://www.environment.act.gov.au/cpr)).

Large areas of aquatic and riparian ecosystems in the ACT are protected within reserves. The emphasis of this strategy is on management and enhancement of these systems, particularly where threatened species occur. This includes managing threats; maintaining and improving ecological connectivity, ecosystem function and biodiversity; undertaking monitoring and research programs; and partnering with the community to support aquatic and riparian conservation. This management and enhancement aims to increase resilience of aquatic and riparian areas to damaging disturbance and climate change.



Murray Crayfish

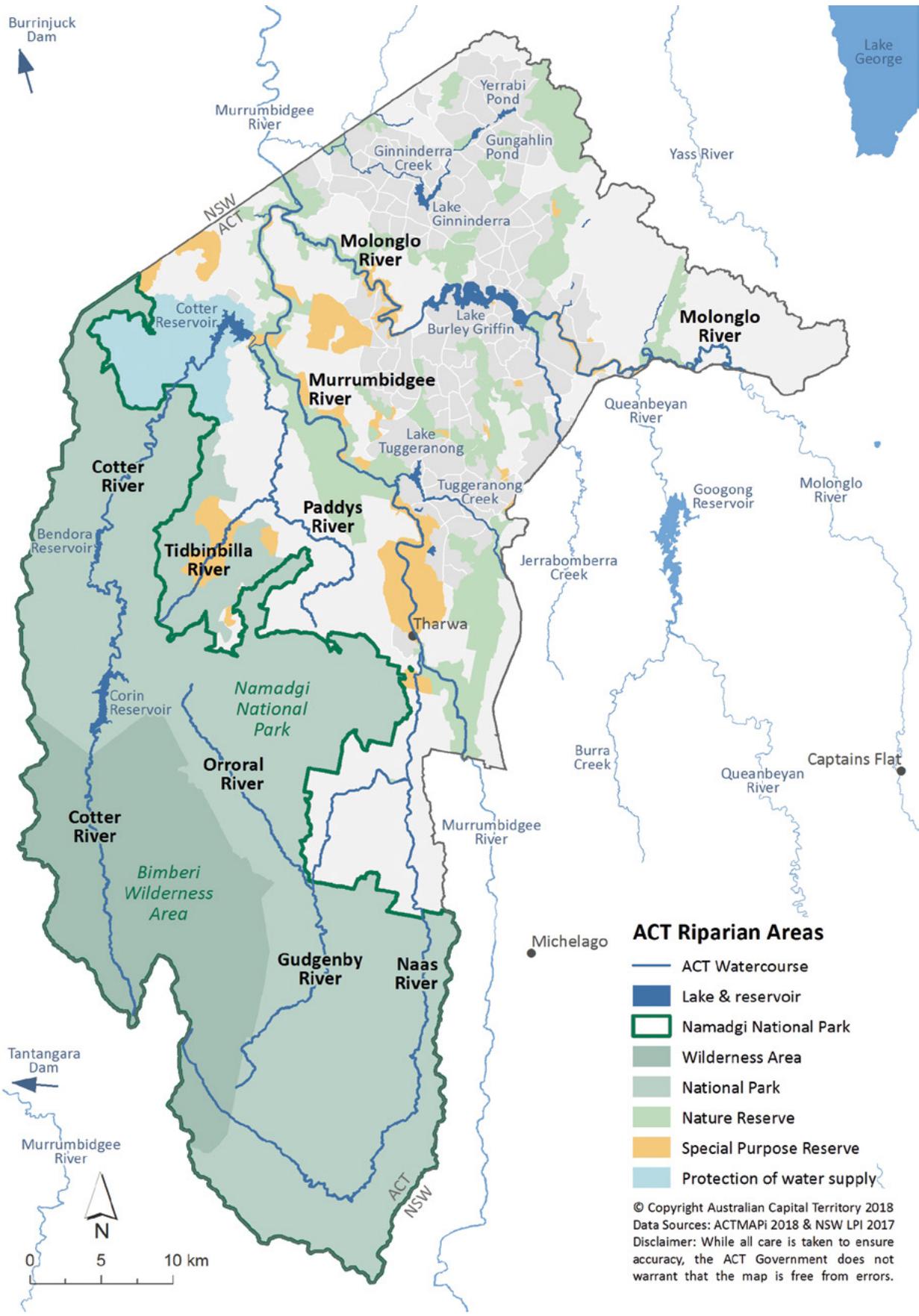
# WHY WE SHOULD CONSERVE AQUATIC AND RIPARIAN ECOSYSTEMS

Since European settlement our aquatic and riparian ecosystems have come under increasing pressure from agricultural modification, urbanisation, reduced water availability, poor water quality, fish over-harvesting, loss of habitat and connectivity, and a changing climate.

Aquatic and riparian ecosystems provide habitat for a diversity of plant and animal species. Many species are dependent on this environment, and these species have also declined along with their habitat. The aquatic and riparian ecosystems of the ACT provide critical habitat for seven species of threatened plants and animals declared as threatened in the ACT under the [Nature Conservation Act 2014](#).

ANIMALS	PLANTS
Macquarie Perch (Endangered)	Murrumbidgee Bossiaea (Endangered)
Murray Crayfish (Vulnerable)	Tuggeranong Lignum (Endangered)
Silver Perch (Endangered)	
Trout Cod (Endangered)	
Two-spined Blackfish (Vulnerable)	

**Map 1.** ACT streams considered in the Aquatic and Riparian Conservation Strategy. The streams considered in this strategy are named in black font.



# OBJECTIVES

The strategy provides the strategic context for the protection, management and rehabilitation of aquatic and riparian non-urban areas in the ACT. It outlines principles and guidelines on which to base conservation actions.

## THE STRATEGY

- > Provides a vision for the ACT Government, organisations and individuals involved in the conservation of aquatic and riparian areas.
- > Identifies threats to aquatic and riparian ecosystems and provides guidelines for their management.
- > Provides management principles and guidelines for the conservation and rehabilitation of aquatic and riparian areas.
- > Provides monitoring and research objectives for aquatic and riparian areas in the ACT.
- > Provides overarching goals and objectives for conservation of the aquatic and riparian areas and component species, and provides strategic context for action plans for threatened species.
- > Outlines strategies to increase and encourage engagement of the community in aquatic and riparian ecosystem activities and projects.
- > Sets the strategic context for action plans for threatened aquatic and riparian plants and animals.

## INDIVIDUAL STRATEGIES

The Aquatic and Riparian Conservation Strategy is based around five individual strategies:

1. Protect aquatic and riparian areas and species
2. Reduce threats to native diversity
3. Manage communities and species for conservation
4. Monitoring and research
5. Engage the community

## WHAT ARE AQUATIC AND RIPARIAN ECOSYSTEMS?

For the purposes of the strategy, an aquatic area is defined as a water course that is covered permanently or intermittently by water and includes the water in the channel, substrate, and plants and animals that are completely or substantially dependent on being covered by water. It also includes the habitat for these plants and animals.

The riparian zone is considered to be any land that adjoins, directly influences or is influenced by a body of water (Land and Water Resources Research and Development Corporation 1998. *Riparian zones: what are they?*, Riprap 11). Specifically the riparian zone is an area of terrestrial land that affects, and is affected by, flowing water of the adjacent waterbody. This land tends to consist of landforms that are caused by river processes and may contain vegetation communities that are characteristic of areas affected by the hydrology of an adjacent waterbody.

## STRATEGY 1: PROTECT AQUATIC AND RIPARIAN AREAS AND SPECIES

Consistent with the requirements for threatened species in the Nature Conservation Act, protection goals of the strategy are to protect and work to rehabilitate aquatic and riparian areas in the ACT that are in moderate or greater ecological condition and protect and manage viable wild populations of native aquatic and riparian flora and fauna species.

National park or other reserves contain 72.2% of ACT aquatic and riparian areas.

The long-term viability of aquatic and riparian ecosystems in the ACT will be maximised by:

- > maintaining protection of aquatic and riparian areas in public land reserves
- > protecting aquatic and riparian areas from further degradation or modification
- > actively managing aquatic and riparian areas to enhance condition
- > enhancing connectivity within and between aquatic and riparian areas and to surrounding native communities
- > protecting and managing aquatic and riparian species to prevent the impact of exploitation
- > supporting local, regional and national efforts towards conservation of aquatic and riparian species.



## STRATEGY 2: REDUCE THREATS TO NATIVE DIVERSITY

Prevent or manage the impacts of threatening processes in order to maintain or improve the ecological condition and biodiversity of aquatic and riparian areas, with particular attention to threatened species.

The management of aquatic and riparian areas tends to be structured around threat management. Aquatic and riparian areas are vulnerable to many threats because water resources are in great demand and subject to competing pressures from environmental needs and human activities such as irrigation, recreation, domestic and industrial extraction. The reduction in water availability is a key threat for aquatic and riparian areas in the ACT. Waterways are also threatened by a lack of connectivity, reduced water quality, pest species, adverse land management practices and other anthropogenic impacts. In addition, climate change is likely to exacerbate current and future threats. Managing threats is a key strategy for conserving and restoring aquatic and riparian areas in the ACT.

Guidelines are provided for threat management concerning: river regulation and water extraction, water pumping, water quality, in-stream sedimentation, riparian zone modification, genetic impoverishment, weeds, alien and pest animals, parasites and diseases, connected aquatic populations, inappropriate fish harvest, inappropriate fire regimes, climate change and land use.



Point Hut Crossing – a fish barrier

Carp, a pest fish, removed from Upper Stranger Pond



### STRATEGY 3: MANAGE COMMUNITIES AND SPECIES FOR CONSERVATION

Manage aquatic and riparian areas in the ACT across all tenures to maintain or improve ecological condition and biodiversity, with particular attention to habitat of threatened species.

Many aquatic and riparian ecosystems require active management to conserve communities and species. The strategy outlines a number of best practice management tools that can be used to maintain or rehabilitate ecological condition.

Achieving management outcomes is based on the identification of where management actions are required and which management tools will be most effective. It is important to understand the condition of the ecosystem, component or population in question so the correct management action can be used.

In general, where an aquatic or riparian ecosystem is not threatened, it is only minimally managed. Regulations and monitoring may be in place to conserve and check its current condition.

Principles discussed include best practice management, adaptive management, importance of condition assessment, strategic rehabilitation, importance of flow variation, connectivity, climate change adaptation principles/ actions, importance of appropriate legislation and enforcement, specific threatened species management such as translocation, importance of refuges, recreation management, fire management and jurisdictional collaboration.

## STRATEGY 4: MONITORING AND RESEARCH

The strategy discusses how effective conservation planning and adaptive management requires a sound knowledge base. Monitoring and research undertaken by the ACT Government and other research institutions has contributed to the body of knowledge on the ecology and management of aquatic and riparian areas. The dynamic nature of riparian and aquatic environments necessitates ongoing monitoring of these ecosystems to assess any changes in condition. Survey and research is required to fill knowledge gaps and inform to the management of aquatic and riparian ecosystems and the ecology of their constituent species.

## STRATEGY 5: ENGAGE THE COMMUNITY

There is a high level of community engagement with aquatic and riparian areas in the ACT. A recent survey of the region's residents found that 80% of participants reported spending time at ACT waterways, and 25% had recently engaged in fishing (Schirmer, J and Mylek, M 2016. *Water quality and the community: understanding the views, values and actions of residents of the ACT and surrounding region*. Institute for Applied Ecology, University of Canberra, ACT). This suggests there is considerable appreciation of the ACT's aquatic environments, whether for aesthetic, recreational or other reasons. However, there is evidence that many residents are unaware of the principles of aquatic and riparian conservation. The ongoing threats augmented by human behaviour indicate that the extent to which aquatic and riparian conservation is understood and exercised by residents varies.

Strengthening community engagement with waterways is central to promoting support and awareness of aquatic and riparian conservation and encouraging volunteer assistance to achieve conservation goals. This strategy outlines the different ways in which individuals and groups can receive, respond to and contribute to planning and management processes.





Trout Cod

Murrumbidgee Bossiaea

Murray Crayfish

## ACTION PLANS

The strategy provides the framework for seven action plans in the ACT:

- > Macquarie Perch (*Macquaria australasica*)
- > Murray Crayfish (*Euastacus armatus*)
- > Silver Perch (*Bidyanus bidyanus*)
- > Two-spined Blackfish (*Gadopsis bispinosus*)
- > Trout Cod (*Maccullochella macquariensis*)
- > Murrumbidgee Bossiaea (*Bossiaea grayi*)
- > Tuggeranong Lignum (*Muehlenbeckia tuggeranong*).

These action plans are included as Part B of the Aquatic and Riparian Strategy and Action Plans. The Conservator for Flora and Fauna prepares action plans under the [Nature Conservation Act 2014](#) with expert input from the ACT Scientific Committee. Action plans outline conservation and protection proposals for the threatened species (or community) with the aim of maintaining viable, wild populations of each species (or samples of a community) for the long term. Action plans associated with this strategy include those for each of the seven threatened species that are dependent on aquatic and riparian areas. Each action plan provides a detailed description of the species, its conservation status, ecology and key threats, and outlines the major conservation objectives (Table 1) and intended management actions.

Table 1. Summary of objectives from each of the action plans, grouped by the five core objectives of Protect, Manage, Increase, Knowledge and Awareness.

OBJECTIVE	ACTION PLAN
<b>PROTECT</b>	
Protect sites in the ACT where the species occurs	Two-spined Blackfish Macquarie Perch Murray Crayfish Trout Cod
Protect sites in the ACT where the species may re-establish	Silver Perch
Protect all ACT populations	Murrumbidgee Bossiaea Tuggeranong Lignum
<b>MANAGE</b>	
Conserve the species and its habitat through appropriate management	Two-spined Blackfish Macquarie Perch Murray Crayfish Trout Cod
Conserve and improve species potential re-establishment habitat through appropriate management	Silver Perch
Manage habitat to conserve the species	Murrumbidgee Bossiaea Tuggeranong Lignum
<b>INCREASE</b>	
Increase habitat area and connect populations	Two-spined Blackfish Macquarie Perch Murray Crayfish Trout Cod
Establish additional populations through translocation and improve genetic diversity of the Cotter River population	Macquarie Perch
Support the re-establishment of riverine populations in the ACT through stocking if it is decided at a regional level that this is feasible	Silver Perch
Maintain and enhance geographic area of the population	Murrumbidgee Bossiaea
Increase the number of populations	Tuggeranong Lignum
<b>KNOWLEDGE</b>	
Improve understanding of the species' ecology, habitat and threats	Two-spined Blackfish Macquarie Perch Murray Crayfish Silver Perch Trout Cod Murrumbidgee Bossiaea
<b>AWARENESS</b>	
Improve community awareness and support for the species and freshwater fish conservation	Two-spined Blackfish Macquarie Perch Murray Crayfish Silver Perch Trout Cod
Promote a greater awareness of, and strengthen stakeholder and community engagement in, the conservation needs of the species	Murrumbidgee Bossiaea Tuggeranong Lignum



## NEXT STEPS

### IMPLEMENTING THE STRATEGY AND ACTION PLANS

As a thematic document, i.e. not site-specific, this strategy deals with aquatic and riparian conservation across non-urban land tenures in the ACT. The goals of the strategy will be achieved through a variety of means relevant to the different tenures.

Primary responsibility for implementing and coordinating of this strategy on ACT public land lies with the ACT Government. Achievement of the strategy's goals will also require the participation of Icon Water (ACT water utility) and private land managers (rural lessees). Liaison and cooperation with NSW agencies, particularly the Office of Environment and Heritage, is an important element in implementing this strategy. Collaboration with universities and other research and management organisations will be required to facilitate and undertake aspects of monitoring, research and management outlined in the action plans.

Ongoing (and increasing) community support and participation in aquatic and riparian area conservation will be essential to achieving the goals of the strategy.

### EVALUATION AND REVIEW

The ACT Aquatic and Riparian Conservation Strategy and the action plans are envisaged to have a 10 year life-span, after which they will be reviewed. Progress reviews may also be undertaken during the life of the strategy and action plans. Progress reviews and the final (10 year) review are assessed by the ACT Scientific Committee, a statutory body established under the [ACT Nature Conservation Act 2014](#).

Review of progress of each of the seven action plans is the primary means for assessing progress towards achieving the goals of the ACT Aquatic and Riparian Conservation Strategy. The Scientific Committee's assessment is based on objectives and performance indicators in the action plans, and progress that can reasonably be expected within the review timeframe.

Action plans have been developed and implemented for all the threatened species that are found in the aquatic and riparian areas of the ACT. Since the previous aquatic and riparian strategy (2007) was written, reviews have been undertaken for all of the associated action plans and provided to the ACT Scientific Committee for assessment.

