

INTRODUCTION

Purpose

This report is intended to provide the Australian Capital Territory community with information on the state of the ACT's water resources for the year 1 July 2006 to 30 June 2007.

The report is divided into three sections. Section 1 examines the water resources in the ACT, including the amount of water and its use. Section 2 discusses water quality condition including the type of indicators used for assessing water quality and biological condition. Results for lakes and rivers are given in the context of water quality standards. Section 3 outlines research and community activities taking place throughout waterways in the ACT.

Scope

The report focuses on the waterways of the ACT with the exception of Lake Burley Griffin.

Lake Burley Griffin is a Commonwealth responsibility and the condition of the lake is presented in an annual report produced by the National Capital Authority. For information relating to Lake Burley Griffin, contact the National Capital Authority on 6271 2888.

Information relating to drinking water quality of the mains water supply is the responsibility of ACTEW and the Chief Health Officer, and is not included in this report. For information relating to mains water supply, contact ActewAGL on 13 14 93.

Land Use

Land use is an important consideration for water quality because different land uses have different impacts on water quality (because of rates of soil erosion and sediment transport) and hydrology (impervious surfaces in urban areas increase storm water runoff and may reduce groundwater recharge). There are four major land uses in the ACT (see Figure 1). In normal circumstances, **conservation land use** tends to have a minimal impact on water quality. However, as a result of the January 2003 bushfires, soil erosion and sediment movement continue to have the potential to impact on the water quality of waterways in conservation land use areas. **Plantation forestry** and **rural use** can have significant impacts on water bodies where these activities result in soil erosion or the release of agricultural chemicals and animal waste. **Urban use** has the greatest potential for impact on water quality per unit area. Materials entering urban waterways, which include fertilisers and other chemicals, organic matter, soil, oil, and sewage effluent, are likely to impact on the health of our waterways. During drought periods the impact of pollutants on waterways can be even greater as there will be less flow to dilute the pollutants. Run-off from sudden storms after long dry periods can deposit very high levels of soil, organic matter and rubbish in waterways. Riparian condition for urban waterways is usually severely modified to park-like conditions. This can reduce biodiversity markedly and unfavourably promote conditions suitable for aquatic weeds and nuisance algae.

Rivers in the ACT Region

The Murrumbidgee River is the major river flowing through the ACT; originating in the alpine area to the south of the ACT. However, the headwaters of the Murrumbidgee are diverted to the Tumut River from Tantangara Reservoir for irrigation and power generation purposes. Murrumbidgee River waters that do flow through the ACT get further regulated downstream of the ACT border at Burrinjuck Reservoir. All rivers and creeks in the ACT drain to the Murrumbidgee River (see Figure 1: Land Use and Main Rivers of the ACT). For example, the Molonglo and Queanbeyan Rivers, which originate to the southeast of the ACT, both drain through Lake Burley Griffin before becoming part of the Murrumbidgee River.

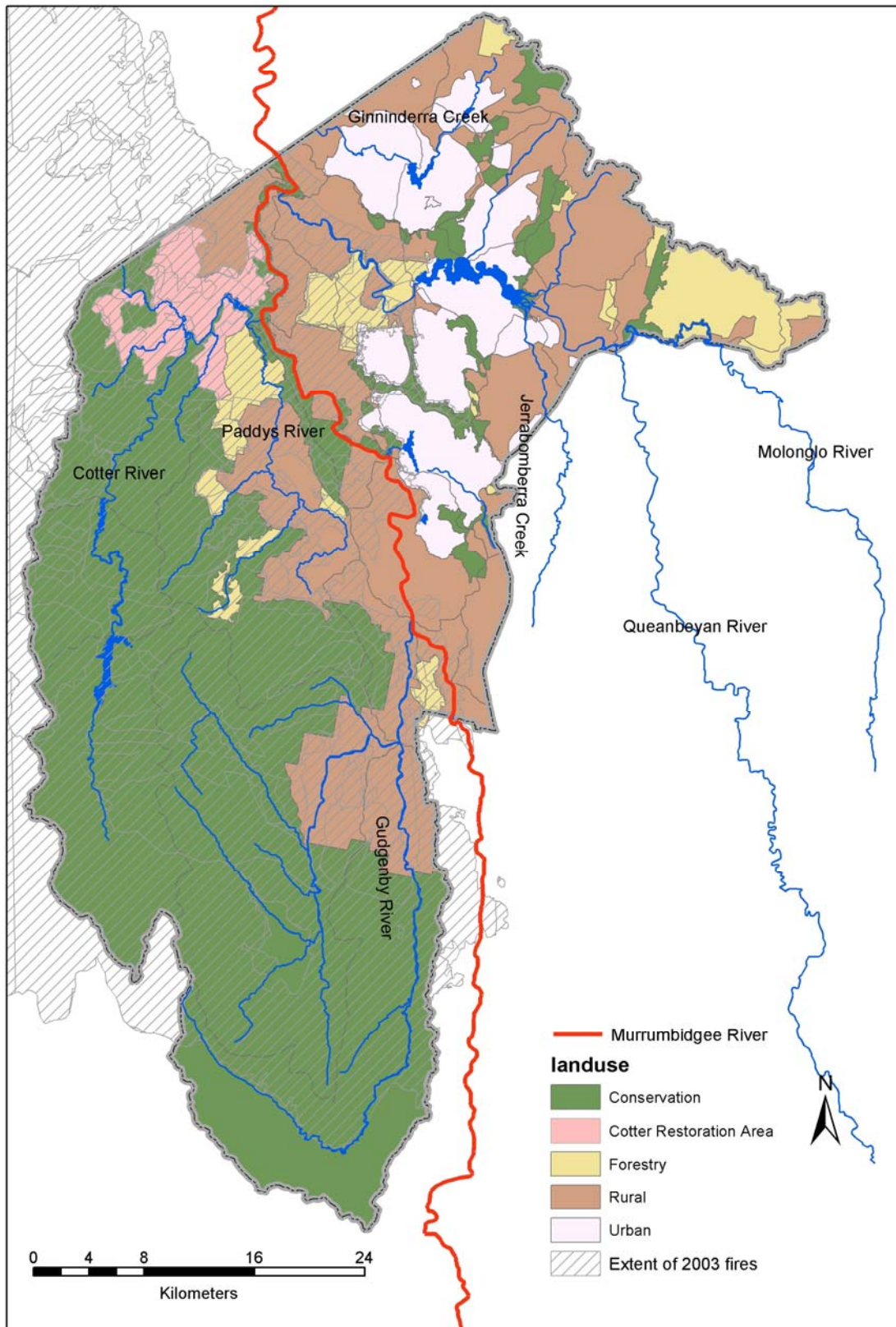


Figure 1: Land Use and Main Rivers of the ACT

Bushfires

The fires of January 2003 (see Figure 1) continue to be a major influencing factor on the condition of the ACT's waterways. The fires had a significant effect on a large proportion of the water catchments in the ACT, including the areas around our reservoirs. Monitoring and research into various ecosystem components highlighted in the Environment ACT Bushfire Recovery Plan [<http://www.environment.act.gov.au/Files/bushfire-recovery-plan.pdf>] such as riparian vegetation and sediment transport is continuing.

Protection of Water Resources

The ACT Government seeks to manage catchments and waterways so that sustainable and appropriate water conditions are attained. This includes an integrated catchment approach to planning, development controls, controls on water abstracted, the licensing of end of pipe discharges and regulation of non-point source discharges through the requirements of erosion and sediment control plans. There is an increasing emphasis on improved design and management of urban stormwater systems to reduce urban impacts on water quality. Urban stormwater infrastructure such as gross pollutant traps, water quality control ponds, wetlands and vegetated floodways are designed and managed to ensure that water quality is suitable for designated uses. *WaterWays: Water Sensitive Urban Design General Code* will help ensure that urban development is consistent with sound water resource management.

The Territory Plan Environmental and Use Values

Section C of the Territory Plan in 'Water Use and Catchment Policies', sets the permitted uses and protected environmental values for the waterways in the ACT. The plan identifies three types of catchments: drainage and open space, water supply and conservation. For streams, lakes and rivers within each of these catchment types, the Plan also identifies a set of values e.g. maintenance of ecosystems, recreation and water supply. This set includes a primary value and a range of other permitted uses, which are generally compatible with, but secondary to, the primary value. These permitted uses specified in the Territory Plan can then be used, with the water quality standards, to determine the water quality required for each water body.

Water Quality Standards

Water quality standards are listed in Schedule 4 of the *Environment Protection Regulations 1997*. These tables list the necessary water quality to support each of the water uses referred to in the Territory Plan. Table 1 provides examples of some of the water quality standards for certain water uses.

Table 1: Water Quality Standards (Ref: Environment Protection Regulations 1997)

Indicator	Water Use				
	Water based recreation—swimming (REC/1)	Water based recreation—boating (REC/2)	Water supply—stock (STOCK)	Water supply—irrigation (IRRIG)	Aquatic habitat—wetland (AQUA/1 to AQUA/6)
Total Phosphorus (mg/L)	< 0.1	< 0.1			< 0.1
Turbidity (NTU)	Not objectionable	Not objectionable			<10 – <30
Suspended Solids (mg/L)					<12.5 – <25
Chlorophyll 'a' (µg/L)	< 10	< 10	< 10		<2 – <10
Faecal coliforms (cfu/100mL)	≤ 150	≤ 1000	≤ 1000	≤ 1000	
Dissolved Oxygen (mg/L)					>4
Acidity (pH)	6.5–8.5	6.5–8.5	6.5–9.2	4.5–9.0	6–9
Total Dissolved Solids (mg/L)			< 3000	< 500	