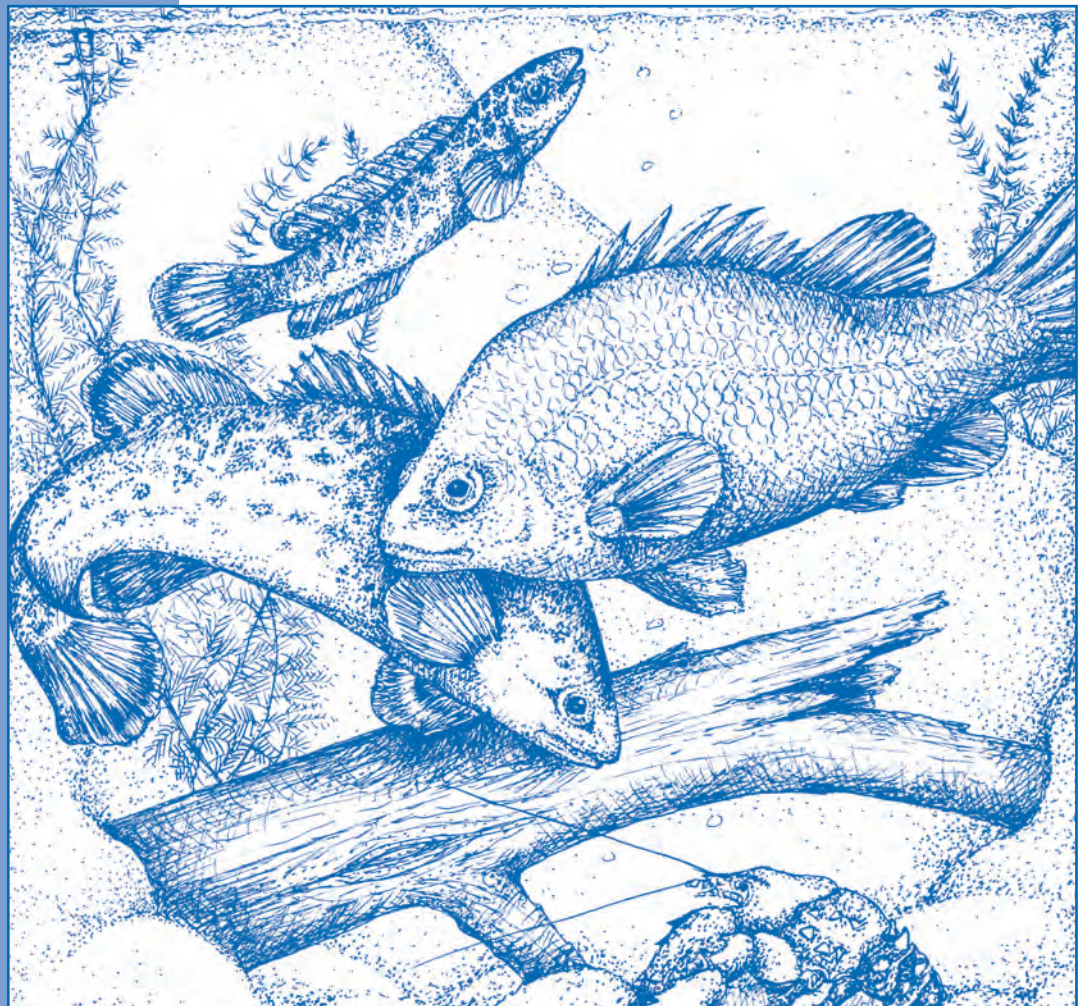


R

ibbons of Life

ACT Aquatic Species and Riparian Zone Conservation Strategy



ISBN: 0 9775019 4 9

© Australian Capital Territory, Canberra 2007

This work is copyright. Apart from any use as permitted under the *Copyright Act 1968*, no part may be reproduced without the written permission of the Department of Territory and Municipal Services, GPO Box 158, Canberra ACT 2602.

Published by the Department of Territory and Municipal Services.
For further information call Canberra Connect on 13 22 81 or visit www.tams.act.gov.au

Vision

The Murrumbidgee and Molonglo rivers in the ACT and their major tributaries make an outstanding contribution to the conservation of aquatic and riparian ecosystems of the upper Murrumbidgee River catchment.

Rivers, streams and their associated riparian zones are special and distinctive parts of the landscape. They are areas where the assemblages of flora and fauna are often quite different to those in the surrounding country. They often also contain particular types of habitat, for example, river gorge sections with rocky cliffs that provide nesting sites for raptors and refuges for plants, and dynamic streambed and river terrace environments that are reworked by seasonal and episodic flooding. Riparian zones provide linear connectivity, demonstrated by their use in annual bird migrations. These paralleled the upstream spawning migrations of fish in the rivers, before dams and weirs blocked their passage. In the Southern Tablelands the river valleys are sheltered environments. The Murrumbidgee River, for example, tracks the deep incision of the Murrumbidgee Geological Fault hundreds of metres below the mountain ranges to the west and is a refuge from the open treeless grasslands and grassy woodlands to the east, an exposed environment in winter.

The central focus of this *Strategy* is on biodiversity and habitat conservation for the rivers and riparian zones, with some consideration of water resource management and recreation (especially recreational fishing) because of their importance in relation to habitat and threatened species conservation. Other natural and cultural values of river sections and adjacent riparian zones include Aboriginal and European cultural heritage, other forms of recreation, aesthetic amenity, educational and special scientific features (e.g. geological sites).

The *Strategy* is an Action Plan for species that occur in ACT rivers and riparian zones and are declared threatened under the *Nature Conservation Act 1980 (ACT)*.

Acknowledgements

The *Strategy* was prepared for the Conservator of Flora and Fauna by the Environment and Recreation, Department of Territory and Municipal Services (formerly Environment ACT. The team comprised: Mark Lintermans, Murray Evans, Sarah Sharp, Mark Dunford (mapping), David Shorthouse and Marjo Rauhala.

Kevin Frawley prepared drafts of the report and managed its compilation.

Progress in preparing the *Strategy* was reported to the ACT Flora and Fauna Committee, and individual members provided expert comment and advice.

The cover illustration was prepared by Lesley Wallington.

THIS DOCUMENT SHOULD BE CITED AS:

ACT Government 2007 *Ribbons of Life: ACT Aquatic Species and Riparian Zone Conservation Strategy*.
Action Plan No. 29 (Department of Territory and Municipal Services, Canberra).

FURTHER INFORMATION

Further information on this Action Plan or on threatened species and ecological communities can be obtained from:

The Department of Territory and Municipal Services
(Environment and Recreation)
Phone: (02) 6207 2126
Fax: (02) 6207 2122

Contents

1. Introduction	1
1.1 A New Focus for Nature Conservation in the ACT	1
1.2 Scope of the <i>Aquatic Species and Riparian Zone Conservation Strategy</i>	1
1.3 Definition of the Riparian Zone	4
1.4 Role of the ACT Flora and Fauna Committee	5
1.5 Relevant Legislation	6
1.5.1 ACT Planning and Land Management	6
1.5.2 Legislation Applying to the Conservation of Flora and Fauna, and to Fisheries Management in the ACT and Region	7
1.6 Implementation	10
1.7 Structure of the <i>Aquatic Species and Riparian Zone Conservation Strategy</i>	11
2. ACT Rivers and Riparian Vegetation	13
2.1 ACT Rivers	14
2.1.1 Murrumbidgee River	14
2.1.2 Molonglo River	16
2.1.3 Cotter River	18
2.2 Vegetation in the Riparian Zone	19
2.2.1 ACT Riparian Vegetation Communities	19
2.2.2 Descriptions of Riparian Vegetation Communities in the ACT	22
2.3 Vegetation Change and Condition	26
2.3.1 Changes to Riparian Zone Vegetation since European Settlement and Ongoing Threats	26
2.3.2 Condition of Riparian Zone Vegetation in the ACT	34
2.4 Riparian Zone Flora	40
2.4.1 Threatened Flora Species: Threats, Conservation Objectives and Actions	40
2.4.2 Conservation of Uncommon Plant Species in the ACT	42
3. Riparian Fauna	47
3.1 Riparian Zone Fauna and Habitat	47
3.1.1 Aquatic and Riparian Habitats	47
3.1.2 Fauna as part of the Riparian Zone	48
3.1.3 Threats to Riparian Zone Fauna	48
3.2 Riparian Zone Fauna in the ACT	50
3.2.1 Birds	50
3.2.2 Mammals	51
3.2.3 Reptiles	52
3.2.4 Amphibians	53
3.2.5 Invertebrates	53
3.3 Threatened and Uncommon Riparian Zone Fauna Species in the ACT	53
3.3.1 Conservation of Riparian Zone Fauna in the ACT	54
3.3.2 Conservation Actions: Threatened Riparian Zone Fauna Species in the ACT	55
3.3.3 Conservation Actions: Uncommon Riparian Zone Fauna Species in the ACT	59

Contents

4. Fish, Crayfish and Macroinvertebrates in ACT Rivers	61
4.1 Aquatic Habitats	61
4.2 Aquatic Fauna: Fish, Crayfish and Macroinvertebrates	62
4.2.1 Fish	62
4.2.2 Crayfish	62
4.2.3 Aquatic macroinvertebrates	62
4.3 Threatened Fish and Crayfish in the ACT	64
4.4 Habitat Destruction or Modification	72
4.4.1 Habitat Degradation	72
4.4.2 Barriers to Fish Passage	73
4.4.3 Reduction in Floodplain Habitat	74
4.4.4 Alterations to Flow Regimes by Dams and Weirs	74
4.4.5 Thermal Pollution	75
4.4.6 Reduction in Water Quality	75
4.5 Over-exploitation	76
4.6 Alien Species	77
4.6.1 Competition for Food and Habitat	79
4.6.2 Predation	80
4.6.3 Introduction and Spread of Diseases and Parasites	81
4.7 Translocation and Stocking (Native Fish)	82
4.8 Localised Threats	82
4.8.1 Impacts of the 2003 bushfires in the ACT	82
4.8.2 Impacts of Native Predators	83
4.9 Summary: Threats to Threatened Fish and Crayfish Species	83
4.10 Threatened Fish and Crayfish: Conservation Goals, Objectives and Actions	83
4.11 Conservation Actions: Information	85
4.11.1 Survey	85
4.11.2 Monitoring	87
4.11.3 Research	90
4.12 Conservation Actions: Protection and Management	94
4.12.1 Legislative Protection	94
4.12.2 Environmental Flows	94
4.12.3 Habitat Rehabilitation	96
4.12.4 Potential Impacts of Future Water Supply Options	97
4.12.5 Protection of the Cotter River Catchment from Invasion by Alien Fish Species	97
4.12.6 Monitoring and Control of Alien Fish Species	98
4.12.7 Policy of Not Stocking Fish in Natural Streams in the ACT for Recreational Purposes	98
4.12.8 Stocking and Translocation of Fish in Natural streams in the ACT for Conservation Purposes	99
4.12.9 Remediation of Barriers to Fish Passage	101
4.12.10 Control of Trade in Freshwater Crayfish	102
4.13 Conservation Actions: Education	102
4.14 Conservation Actions: Regional and National Cooperation	103

Contents

5. ACT Rivers and Riparian Zones: Planning and Management for Conservation	105
5.1 Planning, Protection and Management of Rivers and Riparian Zones in the ACT	105
5.1.1 Planning	105
5.1.2 Statutory Protection	106
5.1.3 Management	106
5.2 River and Riparian Zone Conservation Areas	111
5.3 Conservation Planning for Rivers and Riparian Zones	112
5.3.1 Conservation Planning Principles	113
5.3.2 Information: Survey, Monitoring and Research	114
5.3.3 Protection	115
5.3.4 Management	115
5.4 Planning and Conservation Issues for Rivers and Riparian Zones in the ACT	115
5.5 Management of Rivers and Riparian Zones for Conservation	127
5.5.1 Best Practice Management and Adaptive Management	127
5.5.2 Conservation of Aquatic and Riparian Habitat	127
5.6 Management Issues	129
5.6.1 Management Plans	129
5.6.2 Management Responsibility	130
5.6.3 Vegetation and Fauna Surveys	130
5.6.4 Stock Grazing: Protecting Riparian Zones	130
5.6.5 Management of Public Access	131
5.6.6 Weeds	131
5.6.7 Habitat Removal: Rocks, Firewood	133
5.6.8 Fishing: Law Enforcement	134
5.6.9 Fire	134
5.6.10 Environmental Flows	134
5.6.11 Erosion and Sedimentation	135
5.6.12 Extractive Industries	135
5.6.13 Water Quality Management	136
5.7 Management Agreements and Networks	136
5.7.1 ACT Land Keepers Program	136
5.7.2 Land Management Agreements	137
6. The Aquatic Species and Riparian Zone Conservation Strategy	139
6.1 Roles of the Strategy	139
6.2 Vision, Goals, Objectives and Actions for the Aquatic Species and Riparian Zone Conservation Strategy	140
6.3 Policy Guidelines for River and Riparian Zone Conservation in the ACT	149
6.4 The State of Protection and Conservation Management of Rivers and Riparian Zones in the ACT	150
6.5 Priority Actions to Improve Conservation Management of Rivers and Riparian Zones in the ACT	150
6.5.1 Priority Actions	150
6.5.2 Priority River Sections	151
6.5.3 Implementation	152

Contents

LIST OF FIGURES

1.1	Sections of ACT Rivers included in this <i>Aquatic Species and Riparian Zone Conservation Strategy</i>	3
1.2	The Role of the <i>Aquatic Species and Riparian Zone Conservation Strategy</i> in Land Use Planning and Land Management in the ACT	10
2.1	Generalised Categories of Riverine Landforms along the Murrumbidgee River in the ACT (from NCDC 1988a)	15
2.2	Vegetation Communities in the Gudgenby, Naas and Orroral River Catchments, ACT	27
2.3	Vegetation Communities in the Cotter, Paddys and Tidbinbilla River Catchments, ACT	28
2.4	Vegetation Communities along the Murrumbidgee and Lower Molonglo Rivers, ACT	29
2.5	Locations of Uncommon Flora Species in ACT Riparian Zones	43
3.1	Records of the Pink-tailed Worm Lizard (<i>Aprasia parapulchella</i>) in the ACT and at Googong Foreshores	57
4.1	Distribution of Threatened Fish and Crayfish Species in ACT and Region Rivers	63
5.1	<i>Territory Plan</i> Land Use Policies and Areas of Public Land in the Murrumbidgee River Corridor	107
5.2	<i>Territory Plan</i> Land Use Policies and Areas of Public Land in the Gudgenby, Naas and Orroral River Catchments	108
5.3	<i>Territory Plan</i> Land Use Policies and Areas of Public Land in the Cotter, Paddys and Tidbinbilla River Catchments	109
5.4	<i>Territory Plan</i> Land Use Policies and Areas of Public Land in the Molonglo River Corridor	110

LIST OF TABLES

1.1	ACT Declared Threatened Species Included in the <i>Aquatic Species and Riparian Zone Conservation Strategy</i> and Existing Action Plans for Those Species	2
2.1	Vegetation Communities Occurring in ACT Riparian Zones	21
2.2	Riparian Zones by River Sections: Brief Description of Dominant Native Vegetation Communities and Vegetation Condition	35
2.3	Conservation Status Nationally of Uncommon Plant Species of ACT Riparian Zones	44
3.1	Conservation Status Nationally of Threatened Animal Species Occurring in ACT Riparian Zones	55
4.1	Conservation Status Nationally of Threatened Fish and Crayfish Species Occurring in ACT Rivers	65
4.2	River Sections: Brief Description of Stream Morphology, Fish and Crayfish Species	66
4.3	Alien Fish Species (excluding natives) in the Murray–Darling Basin and the Upper Murrumbidgee Catchment	78

Contents

4.4	Length (km) of Stream within the Burnt Area in Three Fire Severity Categories following the 2003 Bushfires in the ACT	83
4.5	Summary: Ranking of Importance of Particular Threats to Threatened Fish and Crayfish Species in the Murray–Darling Basin and the Upper Murrumbidgee Catchment	84
4.6	Fish surveys conducted in the Upper Murrumbidgee Catchment 1986 to 1999	85
4.7	Survey: Progress with Actions in Previous Action Plans and New and Continuing Actions for this <i>Strategy</i>	86
4.8	Monitoring: Progress with Actions in Previous Action Plans and New and Continuing Actions for this <i>Strategy</i>	87
4.9	Research: Progress with Actions in Previous Action Plans and New and Continuing Actions for this <i>Strategy</i>	91
5.1	River Sections and Riparian Zones: Planning and Conservation Issues and Actions	116
5.2	Assessment of River Condition in the ACT under the National Land and Water Resources Audit	128
6.1	Vision, Goals, Objectives, Actions and Performance Criteria for the <i>Aquatic Species and Riparian Zone Conservation Strategy</i>	141

APPENDICES

Appendix 1	Threatened Riparian Zone Species in the ACT	153
Appendix 2	Threatened Fish and Crayfish Species in the ACT	157
Appendix 3	Potential Issues for Threatened Fish Related to the Construction of a New, Enlarged Cotter Dam	172

REFERENCES	175
-------------------------	-----

GLOSSARY	190
-----------------------	-----