

1 | Introduction

1.1

A New Focus for Nature Conservation in the ACT

In 2002 the ACT Government introduced a *New Focus for Nature Conservation in the ACT*, which includes a program to establish strategies for priority species and ecological communities. This is to ensure that resources are directed to achieving maximum effect in conservation activities. To implement this program, the government initiated a three-year review of existing Action Plans for threatened species and ecological communities.

The first review in 2002–03 resulted in Action Plan 27, *Woodlands for Wildlife: ACT Lowland Woodland Conservation Strategy* covering endangered Yellow Box–Red Gum Grassy Woodland, other lowland woodlands and the species dependent upon these woodlands (ACT Government 2004a). The second review covering endangered natural temperate grassland, other native grasslands, and plant and animal species dependent upon these was undertaken in 2003–04. The resulting strategy, Action Plan 28, *A Vision Splendid of the Grassy Plains Extended: ACT Lowland Native Grassland Conservation Strategy* (ACT Government 2005a) was released in July 2005.

This *Aquatic Species and Riparian Zone Conservation Strategy*, Action Plan 29, is the third and final strategy in this sequence. The three strategies are complementary and recognise that ecological communities are dynamic, in that they change over time, intergrade with each other, and share the more mobile of their constituent fauna.

1.2

Scope of the Aquatic Species and Riparian Zone Conservation Strategy

Reflecting government policy, the *Aquatic Species and Riparian Zone Conservation Strategy* takes an integrated territory-wide approach within a regional context, to the protection and management of the rivers and riparian areas in the ACT that support threatened species and ecological communities. The *Strategy* seeks to maintain and improve the natural integrity of the rivers and riparian zones. Key considerations include:

- the need for improvements in the knowledge of vegetation and habitat in riparian zones;
- recovery of riparian areas severely affected by the January 2003 bushfires;
- protection of the river corridors from the effects of existing and proposed urban development, possible expansion of recreational infrastructure, and other threats such as inappropriate grazing regimes;
- maintenance and improvement of linear and upslope connectivity;
- restoration of riparian habitat including control of weed species such as willows;
- maintenance and improvement of in-stream habitat (including streamflow) and where feasible, rehabilitation of native fish populations;
- maintenance of wildlife corridors;
- maintenance and protection of aquatic ecosystem processes and water quality.

Objectives and actions for the *Strategy* as a whole are contained in Chapter 6 (Table 6.1). Specific actions related to vegetation are in Chapter 2 (s. 2.4), to riparian fauna in Chapter 3 (s. 3.3), and to fish, crayfish and macroinvertebrates in Chapter 4 (s. 4.10 to s. 4.14).

Action Plan for Threatened Species: The *ACT Aquatic Species and Riparian Zone Conservation Strategy* supersedes six separate Action Plans previously published for four threatened fish species, one crustacean and one plant species—all declared threatened under the *Nature Conservation Act 1980* (ACT) (Table 1.1). The statutory requirement for the ACT Conservator of Flora and Fauna to prepare Action Plans for declared threatened species and ecological communities remains and this *Strategy* incorporates this requirement in an integrated way. While the legal authority of the *Strategy* is confined to the Australian Capital Territory, management considerations are addressed in a regional context. Should any other aquatic species, or species or ecological community associated with the riparian zone be declared threatened in the future, the *Strategy* will require amendment to incorporate the details and requirements for that species/community.

The *Strategy* also includes consideration of the Pink-tailed Worm Lizard (*Aprasia parapulchella*) and Murray Cod (*Maccullochella peelii peelii*), which are not declared threatened in the ACT. The Pink-tailed Worm Lizard has Special Protection Status in the ACT under the *Nature Conservation Act 1980*. It is declared threatened under Commonwealth, NSW and Victorian legislation (see s. 3.3.2; Appendix 1.2). Murray Cod is declared threatened under Commonwealth and Victorian legislation (see s. 4.3). Painted Honeyeater (*Grantiella picta*), an ACT threatened species recorded from the Murrumbidgee River is referred to only briefly in s. 3.3.2, as this species is included in the ACT

Lowland Woodland Conservation Strategy (ACT Government 2004a).

As well as listed threatened species, the *Strategy* is concerned generally with the conservation of aquatic fauna (e.g. Platypus *Ornithorhynchus anatinus*, Eastern Water Rat *Hydromys chrysogaster*, small spiny crayfish *Euastacus* spp., Mountain Galaxias *Galaxias olidus*, Eastern Snake-necked Turtle *Chelodina longicollis*). The *Strategy* is also concerned with the maintenance and improvement of aquatic habitat utilised by fish, invertebrates, mammals, birds, reptiles and frogs (see Lintermans and Osborne 2002).

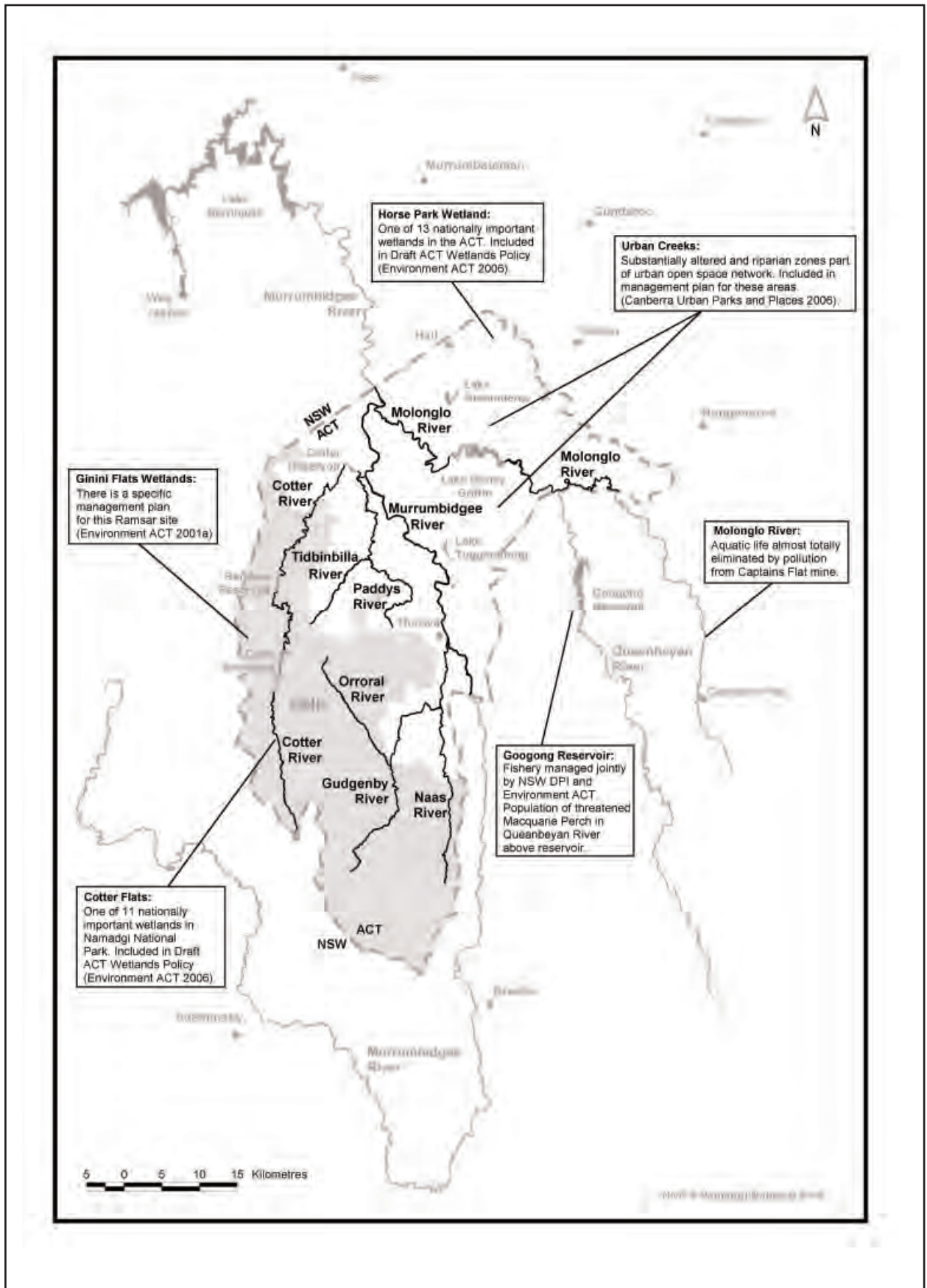
Primary Focus of the Strategy: In its role as an Action Plan for ACT threatened species, the primary focus of this *Strategy* is the rivers and larger tributary creeks and their riparian zones in the ACT, that support threatened flora and fauna species (Figure 1.1). These are the Murrumbidgee River; its major tributaries, the Molonglo and Cotter rivers; and smaller tributaries, the Paddys-Tidbinbilla rivers and Gudgenby-Naas-Orroral rivers (s. 2.1). Tributary streams of these rivers are included in the river sections outlined in following chapters (see Table 2.2) though they may not be specifically mentioned. These rivers and their riparian zones, except for Paddys River and most of the lower sections of the Naas and Gudgenby rivers, are categorised as Public Land under the *Land (Planning and Environment) Act 1991* (ACT) (see s. 1.5.2, Ch. 5). As shown in Table 5.1, a high level of statutory protection is afforded most of the river sections in the ACT e.g. almost all of the Orroral River and substantial upper sections of the Cotter, Naas and Gudgenby rivers are protected in Namadji National Park.

Table 1.1: ACT Declared Threatened Species Included in the Aquatic Species and Riparian Zone Conservation Strategy and Existing Action Plans for Those Species

Species/Ecological Community	Status	Action Plan No./ Date	Declaration Date ¹
Two-spined Blackfish (<i>Gadopsis bispinosus</i>)	Vulnerable	No. 11, 1999 (ACT Government 1999a)	27 December 1996
Trout Cod (<i>Maccullochella macquariensis</i>)	Endangered (Special Protection Status)	No. 12, 1999 (ACT Government 1999b)	27 December 1996
Macquarie Perch (<i>Macquaria australasica</i>)	Endangered (Special Protection Status)	No. 13, 1999 (ACT Government 1999c)	27 December 1996
Murray River Crayfish (<i>Euastacus armatus</i>)	Vulnerable	No. 14, 1999 (ACT Government 1999d)	27 December 1996
Silver Perch (<i>Bidyanus bidyanus</i>)	Endangered	No. 26, 2003 (ACT Government 2003)	4 September 2001
Tuggeranong Lignum (<i>Muehlenbeckia tuggeranong</i>)	Endangered (Special Protection Status)	No. 24, 1999 (ACT Government 1999e)	7 August 1998

1. Declaration in accordance with section 21 of the *Nature Conservation Act 1980* (ACT).

Figure 1.1: Sections of ACT Rivers Included in this Aquatic Species and Riparian Zone Conservation Strategy



River Sections in New South Wales: The *Strategy* does not include the Queanbeyan River (almost entirely in New South Wales), though reference is made to this river, including the section upstream of Googong Reservoir, with regard to threatened fish species. Similarly, the section of the Molonglo River from its headwaters near Captains Flat to the ACT border is not included. A brief summary of the impact on aquatic life in this river section of heavy metal pollution from Captains Flat is included in s. 2.1.2.

Urban Creeks: Tuggeranong, Weston, Yarralumla, Sullivans, Woolshed, Jerrabomberra and Ginninderra creeks are not included in the *Strategy*, but are referred to in relation to specific planning and management issues. Woolshed and Jerrabomberra creeks have substantial rural catchments, however, the other creeks are now mainly within or adjacent to the Canberra urban area. They have been substantially altered by past land uses and as part of the stormwater drainage and pollution control engineering for urban Canberra (see s. 2.1.2). Their riparian zones are part of the urban open space network and are now mostly included in management plans for those areas (Canberra Urban Parks and Places 2006).

ACT Wetlands: The *Strategy* does not include ACT wetlands as these are covered in a separate (draft) wetlands policy (Environment ACT 2006). ACT wetlands include naturally occurring freshwater swamps, marshes, peatlands and bogs as well as artificial lakes, dams and ponds. Of these wetlands, one is recognised as internationally important and has its own management plan (Ginini Flats Ramsar Wetland Site (343 ha) (Environment ACT 2001a). Thirteen wetlands (covering 1257 ha, including Ginini Flats) are listed as nationally important (Environment Australia 2001). Eleven of these wetlands are in Namadgi National Park, and one, Jerrabomberra Wetlands, has its own management plan. The remaining unreserved wetland (Horse Park) is on a small ACT rural lease and a management plan has been prepared for the wetland as part of a conservation management plan for the property (Eric Martin and Associates & Peter Dowling 2006).

Riparian Zone Vegetation Communities, Flora and Fauna: The *Strategy* includes consideration of riparian zone vegetation communities, flora and fauna. The riparian zone in the ACT provides important habitat for several threatened or uncommon terrestrial or amphibious species that are strongly associated with riparian habitats. Threatened fauna species have been noted above. Riparian vegetation has been significantly altered since European settlement, especially in the lower elevation river valleys of the Murrumbidgee and Molonglo rivers and their tributaries. Significant stands of River She-oak (*Casuarina cunninghamiana*) community occur along the Murrumbidgee and lower Cotter and Paddys

rivers. These were severely burnt in the January 2003 bushfires.

Strategy is Not a Management Plan: The *Strategy* differs from a management plan applied to a particular area or areas. Most of the rivers and riparian zones considered in this *Strategy* are Public Land in the *Territory Plan* for which it is a requirement under the *Land (Planning and Environment) Act 1991* that a management plan be prepared (s. 1.5.2). This process is not yet complete for the areas covered by the *Strategy* (Ch. 5, Ch. 6). A central purpose of the *Strategy* is to inform decision-making with regard to conservation of threatened species, land use planning, and the development and management of land in the ACT.

Specifically, the *Strategy*:

- identifies the vegetation communities, threatened and uncommon plant species in the riparian zones (recognizing also the lack of systematic vegetation survey in these areas), and changes to riparian zone vegetation since European settlement and ongoing threats;
- describes the riparian zone fauna, including threatened and uncommon species, the characteristics of aquatic and riparian habitat, and threats to riparian fauna;
- describes the fish and crayfish fauna of ACT rivers, including threatened and uncommon species, and discusses those factors considered to have contributed to the decline of native fish species in the Murray–Darling Basin, including the ACT, and continue to be ongoing threats;
- lists conservation goals, objectives and actions for aquatic species and flora and fauna of the riparian zone, including those species declared as threatened under the *Nature Conservation Act 1980* (ACT);
- outlines principles on which to base conservation actions;
- incorporates the Action Plans for listed species which are required by the *Nature Conservation Act 1980* (ACT);
- provides a basis for planning and land management decisions with regard to threatened aquatic species and the riparian zone;
- encourages community participation in the conservation of aquatic and riparian flora and fauna species and their habitat; and
- satisfies the requirement under section 23(2) of the *Nature Conservation Act 1980*, that an Action Plan includes proposals for the identification, protection and survival of a threatened species or ecological community, or, in the case of a threatening process, proposals to minimise its effect.

1.3

Definition of the Riparian Zone

There are many definitions of the riparian zone. *How* the zone is defined often relates to *why* it is being defined (Tubman and Price 1999). For administrative or legal purposes, it may be defined by a fixed width along designated rivers or streams, or by land subject to the 100 year Average Recurrence Interval (ARI) flood level, generally referred to as the floodplain. It may also be defined by land uses; however, these may pay little heed to natural processes in the zone. Both these approaches are of limited value for riparian zone management where a functional or ecosystem approach is more appropriate, and the width that is taken into consideration needs to be related to management objectives.

In essence, the riparian zone is where an aquatic ecosystem (creek, river, lake) adjoins a terrestrial ecosystem. Ecological communities (most obviously the vegetation) in the riparian zone are affected by the adjacent water body in the form of raised water tables, flooding and associated water velocity, and micro-climate. Riparian vegetation may be distinctly different in structure and/or floristics from vegetation further away from the water and at higher elevation, but this is not universally the case. Riparian zone vegetation influences the stream and in-stream ecology in a number of ways, including supply of nutrients (leaf fall), filtering of sediments, bank stability and in-stream habitat (tree roots, fallen logs, shading).

The following are some riparian zone definitions:

- (a) The riparian zone encompasses the stream channel between the low and high water marks and that portion of the terrestrial landscape from the high water mark toward the uplands where vegetation may be influenced by high water tables or flooding and by the ability of the soils to hold water (Naiman and Décamps 1997).
- (b) Riparian land is any land that adjoins, directly influences, or is influenced by a body of water. It includes:
 - land immediately alongside small creeks and rivers, including the riverbank;
 - gullies and dips which sometimes run with water;
 - areas surrounding lakes; and
 - wetlands on river floodplains which interact with the river in times of flood (Tubman and Price 1999).

- (c) Riparian ecosystems are those terrestrial but inundation-prone systems where plant growth is enhanced by its proximity to the adjacent running freshwaters of streams and rivers (Note: wetlands and lakes were excluded from the definition in the context of the report for which the definition was prepared) (Williams 1993).
- (d) The riparian zone is that region along lakeshores, streams and rivers where the existing or original emergent vegetation has distinctly different structure and/or floristics from that of adjacent terrestrial areas (*Think water, act water*, Vol 2, Appendix B (ACT Government 2004d)).
- (e) The riparian zone is the area along the bank of a river or stream; often has water-dependent vegetation (Young 2001, p. 292).

These definitions assist in understanding the location and characteristics of the riparian zone, and the difficulty in delineating it in a general definition compared with a specific location. In the latter case, particular topographic, hydrological and ecological attributes will often make the riparian–terrestrial transition apparent.

This *Strategy* adopts the well-established planning unit in the ACT of the ‘River Corridor’, developed as part of the National Capital Open Space System (NCOSS) by the former National Capital Development Commission (Anway et al. 1975; NCDC 1981, 1988a; see also *National Capital Plan*, s. 8.6 (NCA 2005); *Territory Plan*, Part B13 (ACTPLA 2005)). The river corridor concept provides the linking structure for a linear series of reserves and non-urban land uses, which for some river sections have been bound together in statutory management plans (Murrumbidgee River Corridor (Environment ACT 1998); Lower Molonglo River Corridor (Environment ACT 2001b)).

This *Strategy* accords with the ACT planning and management framework for river corridors in that it is *focused on the rivers and adjacent non-urban land that has close ecological, landscape and visual connections and interactions with the rivers*. There may be instances where these interactions go beyond the land use boundaries for river corridors defined in the Territory Plan. In the case of river sections contained within larger national parks or reserves (sections of the Cotter River, Gudgenby–Naas–Orroral rivers, Tidbinbilla River), the framework established for the Murrumbidgee and Molonglo rivers is not appropriate or necessary.

1.4

Role of the ACT Flora and Fauna Committee

The ACT Flora and Fauna Committee is established under amendments to the *Nature Conservation Act 1980* that were enacted in 1994. It is comprised of seven members with expertise in biodiversity or ecology. It advises the ACT Minister for the Environment in relation to nature conservation.

Since its establishment in 1995, the Flora and Fauna Committee has received and assessed nominations of species or ecological communities that may be threatened with extinction. The Committee is required to make assessments on nature conservation grounds only and is guided by specific criteria set out in its publication *Threatened Species and Communities in the ACT: Criteria for Assessment* (July 1995) (ACT Flora and Fauna Committee 1995). In making its assessment of the listed plant and animal species included in this *Strategy*, the Committee concluded that each nomination satisfied these criteria.

As a group of experts in biodiversity, the Committee is asked to draw on its knowledge and experience of the region's flora and fauna during preparation by Environment and Recreation of draft and final Action Plans and to advise the Conservator of Flora and Fauna on progress in implementing them. These reviews are published in the Committee's Annual Reports. The Committee is also asked for its views on topical nature conservation issues as they apply to the ACT and it regularly provides such advice to Environment and Recreation. Thus the Committee is a valuable source of technical expertise, independent of Environment ACT and the Conservator of Flora and Fauna.

ACTION PLAN REVIEWS

The Flora and Fauna Committee conducts annual reviews of progress in implementing Action Plans for threatened species and communities. In 2004 the review comprised an assessment of Action Plans for the threatened species associated with ACT rivers and riparian zones (Table 1.1). The Flora and Fauna Committee reported in December 2004 to the Conservator of Flora and Fauna that significant progress had been made in implementing the aquatic species action plans and in linking fish monitoring to management activities. Other matters noted by the Committee included the potential implications of future ACT water supply options for the conservation of threatened fish species, the need for community education regarding threatened aquatic species, and

the status of Trout Cod and Macquarie Perch. The Committee was of the view that riparian vegetation restoration is a key issue for the *Aquatic Species and Riparian Zone Conservation Strategy*. The Committee noted progress with the implementation of the Action Plan for Tuggeranong Lignum (ACT Government 1999e) and suggested that a higher priority be given to germination trials for the species.

The Committee agreed at its October 2004 meeting that it would be appropriate to include the Pink-tailed Worm Lizard in this *Strategy*, as this nationally vulnerable species is not included in the *ACT Lowland Woodland Conservation Strategy* or the *ACT Lowland Native Grassland Conservation Strategy* (ACT Government 2004a, 2005a).

1.5

Relevant Legislation

1.5.1 ACT Planning and Land Management

The *Australian Capital Territory (Planning and Land Management) Act 1988* provides for two categories of land in the ACT:

- National Land—used by or on behalf of the Commonwealth, and managed by the Commonwealth; and
- Territory Land—all the remaining land of the ACT. The ACT Government manages this land on behalf of the Commonwealth.

All of the land included in this *Strategy* is Territory Land.

The *National Capital Plan* (NCA 2005) contains general land use policies for the Territory as a whole and may specify areas of land that have the special characteristics of the National Capital as 'Designated Areas'. The *Plan* may include detailed conditions of planning, design and development in Designated Areas. The National Capital Authority has planning responsibility for these areas, which may be either National Land or Territory Land. The *Plan* also sets out principles and policies for particular land use categories in the Territory. Permitted land uses are also prescribed. Relevant to this *Strategy* are principles and policies related to the National Capital Open Space System (NCOSS) (Ch. 8), Rural Areas (Ch. 9) and Environment (Ch. 11). The *Plan* contains 'Special Requirements' for the Murrumbidgee and Molonglo River Corridors (Chs 8.6.4 and 9.4.2). More information on planning for NCOSS and the river corridors is contained in section 5.1.1. The *Aquatic Species and Riparian Zone Conservation Strategy* accords with

these principles, policies and special requirements.

Planning for areas that are not Designated Area is the responsibility of the ACT Planning and Land Authority and planning policies are set out in the *Territory Plan* (ACTPLA 2005).

The *Canberra Spatial Plan* (ACT Government 2004b) was released in March 2004 and provides a strategic direction for the development of Canberra over the next 30 years and beyond, but with the flexibility required to respond to change. It sets the framework for spatially based decision making in the future and outlines the actions needed to achieve the strategic direction for Canberra over the next 30 years. The *Spatial Plan* does not replace the *Territory Plan*, but will inform changes to both the *Territory Plan* and the *National Capital Plan*.

The *Spatial Plan* contains key principles to guide the future growth of Canberra. Protection of the natural environment is one of these key principles. The *Plan* states that the location of future residential development will ensure that areas identified as having significant biodiversity values, such as threatened species and ecological communities and habitat for threatened species, are protected from development.

TERRITORY PLAN POLICIES

The *Territory Plan* (ACTPLA 2005) contains detailed land use policies for the ACT. The following are particularly relevant to this *Strategy*:

- **Territory Plan Part B13: River Corridors Land Use Policies:** Conservation of natural and cultural resources is the primary goal in a system in which recreation is the key use. The policy sets out objectives and controls; the latter covering permitted land uses, land use restrictions, special conditions for environmental protection, recreation development, development conditions, public access and trails, and bushfire protection.
- **Territory Plan Appendix 1: Water Use and Catchment Policies:** Because of competing and often conflicting demands on water resources and past diminution of water quality, it is necessary to allocate waters of the ACT in terms of the permitted water uses and protected environmental values, and to identify the water quality and streamflow criteria related to the full protection of these uses and values. Three Water Use Catchments have been defined for the ACT.

More detail on these policies is contained in s. 5.1.1. These and other *Territory Plan* policies provide the statutory planning framework for the achievement of many of the objectives of this *Strategy* (Table 6.1).

1.5.2 Legislation Applying to the Conservation of Flora and Fauna, and to Fisheries Management in the ACT and Region

The following legislation applies to the conservation of flora and fauna, and to management of fisheries in the ACT and region.

ACT LEGISLATION

Nature Conservation Act 1980

The *Nature Conservation Act 1980* provides authority for the Conservator of Flora and Fauna to manage Public Land reserved for conservation of the natural environment. Activities that are inconsistent with management objectives for nature conservation are controlled. Special measures for conservation of a species or community of concern can be introduced in a reserved area, including restriction of access to important habitat. Provisions of the *Nature Conservation Act 1980* are applicable to National Land (s. 1.5.1).

Part 1 of the Act establishes the ACT Flora and Fauna Committee with responsibilities for assessing the conservation status of ACT flora and fauna and the ecological significance of potentially threatening processes. Where the Committee believes that a species or ecological community is threatened with extinction or a process is an ecological threat, it is required to advise the responsible minister, and recommend that a declaration be made accordingly.

Parts 4 and 5 of the Act provide for protection of native plants and animals. Section 21 of the Act authorises the declaration of (a) a vulnerable or endangered species, (b) an endangered ecological community, and (c) a threatening process, based upon the advice and recommendation to the responsible Minister by the ACT Flora and Fauna Committee.

Native plants and animals may also be declared as 'protected' (s. 17) or as having 'special protection status' (s. 16) in recognition of a particular conservation concern that warrants additional protection. Increased controls apply to declared species and licensing constraints are specified. Species declared as endangered under the Act, or threatened with extinction, must also be declared as having special protection status. This is the highest level of statutory protection that can be conferred on a species in the ACT.

Under s. 47 of the Act, the Conservator of Flora and Fauna may give directions to the occupier of land, for protection or conservation of native plants and animals. This provision is relevant to the management

of threats to a species or ecological community of concern that occurs on leased land.

Part 9 of the Act allows the Conservator to enter into a Management Agreement with an agency where its activities have potential to conflict with nature conservation objectives. This provision is relevant to management of conservation threats on unleased land and applies to utilities (e.g. gas, electricity), navigation and communication facilities, and land development.

Land (Planning and Environment) Act 1991

The *Land (Planning and Environment) Act 1991* is the primary authority in the ACT for land planning and administration and establishes *The Territory Plan*. One of the goals of the *Plan* is 'to promote ecologically sustainable development, protect biodiversity, and provide for high standards of environmental amenity, urban design and landscape' (ACTPLA 2005).

The *Plan* identifies nature reserves, national parks, wilderness areas and special purpose reserves within the Public Land estate. The Act requires that management plans be prepared for areas identified as Public Land under the *Territory Plan*. The Act also provides for environmental assessments and inquiries to be initiated in relation to land use and development proposals. This is included in the *Territory Plan* environmental planning policies.

It should be noted that Part IV (Environmental Assessments and Inquiries) and Part V (Land Administration) of the *Land (Planning and Environment) Act 1991* apply to all Territory Land. This includes Territory Land within Designated Areas under the *National Capital Plan* (see s. 1.5.1) that is subject to regulations under the Act. In circumstances where the regulations do not apply, collaborative solutions are sought between the Territory and the Commonwealth.

Pest Plants and Animals Act 2005

The main objects of the Act are to protect the ACT's land and aquatic resources from threats from pest plants and animals; to promote a strategic and sustainable approach to pest management; to identify pest plants and animals; and to manage pest plants and animals. The Act provides for the declaration of pest plants and animals and the preparation of management plans. It also prescribes offences in relation to propagation, supply and reckless disposal of pest plants, and supply, keeping and reckless disposal of pest animals.

Heritage Act 2004

The *Heritage Act 2004* establishes a system for the recognition, registration and conservation of natural and cultural heritage places and objects in the ACT, including Aboriginal places and objects. A list of these places and objects is maintained on a Heritage

Register. Places and objects are listed on the Register on the advice of the ACT Heritage Council and following assessment of their heritage significance using specified criteria. Under the Act, all ACT public authorities are required to identify and manage heritage places or objects for which they are responsible. The Heritage Council is empowered to require a public authority to prepare a conservation management plan for such a heritage place or object.

Fisheries Act 2000

The *Fisheries Act 2000* is the primary legislation for the regulation of fishing activities in the ACT. The Act provides the framework for sustaining and protecting native fish species and providing high quality fishing opportunities in the ACT. Under the Act, the public waters of the ACT are divided into three categories:

- (a) **Open Waters (open to fishing all year round):** Murrumbidgee River in the ACT downstream of the junction with the Gudgenby River; Molonglo River below Scrivener Dam; urban lakes.
- (b) **Closed Waters (fishing prohibited):** Tidbinbilla River within Tidbinbilla Nature Reserve; upstream section of the Orroral River, Cotter River catchment upstream of Bendora Dam wall, Cotter Reservoir and river up to the junction with Pierces Creek; Murrumbidgee River (Angle Crossing to Gudgenby River junction).
- (c) **Trout Waters:** These comprise all public waters in the ACT that are not designated open waters. Trout waters have a closed season from early June to early October.

The Fisheries Act prescribes bag limits and minimum lengths, a closed season for Murray Cod (September to November), restrictions on the number of lines used and types of fish and crayfish traps, restrictions on type of bait used, prohibition on fish translocations, and a requirement to return protected fish to the water unharmed.

There is no requirement for a fishing licence in the ACT, however fishing in Googong Reservoir is controlled by NSW Department of Primary Industries and a NSW recreational freshwater fishing licence is required to fish there.

Animal Welfare Act 1992

The primary purposes of this Act are to promote vertebrate animal welfare and control activities that impose suffering on animals. The Animal Welfare Advisory Committee is established to provide advice to the Minister about animal welfare matters.

Environment Protection Act 1997

The main purpose of the Environment Protection Act is to provide protection for the environment from

pollution and other forms of environmental harm. The Act sets water quality guidelines and establishes the Environment Protection Authority.

Water Resources Act 1998

The Water Resources Act provides for the management and use of the Territory's water resources in a way that sustains the physical, economic and social well being of the people of the Territory, while protecting the ecosystems that depend on those resources. The *Environmental Flow Guidelines* is a statutory instrument established under the Act (ACT Government 2006a). The guidelines specify the flows required to maintain aquatic ecosystems in the ACT and cover both surface and groundwater (see s. 4.12.2 and s. 5.6.10). The *Water Resources Management Plan* is a statutory instrument under the Water Resources Act that describes Territory water resources, proposed allocations, water allocations to various uses, and action to be taken to manage water resources.

NEW SOUTH WALES LEGISLATION

Fisheries Management Act 1994

The primary purpose of the *Fisheries Management Act 1994* is to conserve, develop and share the fisheries resources of New South Wales for the benefits of present and future generations (Fisheries NSW 1998). Objects of the Act include conservation of fish stocks and habitat, and threatened species, populations and ecological communities. The Act includes provisions covering identification, assessment and listing of endangered species, populations and ecological communities, vulnerable species and key threatening processes. The Act also provides for identification of critical habitat, mandatory impact assessment in the land use planning process and active management for habitat recovery.

Threatened Species Conservation Act 1995

The *Threatened Species Conservation Act 1995* provides for the protection of all threatened plants and animals native to New South Wales (with the exception of fish and marine plants which are covered by other laws). Under the Act, threatened species are classified as endangered or vulnerable. A recovery plan must be prepared for endangered species (other than those presumed extinct), endangered populations, endangered ecological communities and vulnerable species. For each key threatening process that is listed, the NSW Department of Environment and Conservation (Parks and Wildlife Division) is required to prepare a threat abatement plan.

VICTORIAN LEGISLATION

Flora and Fauna Guarantee Act 1988

The *Flora and Fauna Guarantee Act 1988* is the primary legislation for the protection of Victoria's biodiversity, native plants and animals and ecological communities on land and in water. Species and ecological communities can be listed as threatened under the Act, based on assessments by an independent Scientific Advisory Committee. Threatening processes may also be listed. The Act does not provide for categories of threat (e.g. endangered, vulnerable). The Victorian Department of Sustainability and Environment maintains an advisory list of species considered threatened, poorly known, near threatened or extinct in Victoria (VDSE 2006). Conservation status categories used in these lists (ranging from extinct to 'data deficient') are also applied to species or communities listed as threatened under the Act.

COMMONWEALTH LEGISLATION

Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the primary Commonwealth legislation for environment protection. Under the EPBC Act, an action will require approval from the (Commonwealth) Environment Minister if the action has, will have, or is likely to have a significant impact on a matter of national environmental significance and it is not subject to certain specified exceptions. Exceptions include actions taken in accordance with Commonwealth accredited management plans. The Act also promotes ecologically sustainable development through the conservation and ecologically sustainable use of natural resources, the conservation of biodiversity, and a cooperative approach to the protection and management of the environment involving governments, the community, landholders and indigenous peoples.

Matters of national environmental significance trigger the Commonwealth's environmental assessment and approval responsibilities. The matters are: World Heritage and National Heritage properties, Ramsar wetlands of international importance, nationally listed threatened species and ecological communities, migratory species protected under international agreements, Commonwealth marine environment and nuclear actions.

As well as in relation to a matter of national environmental significance, approval under the Act is required for actions that are likely to have a significant impact on: the environment of Commonwealth land

(even if taken outside Commonwealth land); and the environment anywhere in the world (if the action is undertaken by the Commonwealth).

Several of the plant and animal species included in this Strategy are listed as threatened under the EPBC Act (Trout Cod, Macquarie Perch, Murray Cod, Tuggeranong Lignum, Pink-tailed Worm Lizard). There is potential application of the EPBC Act in the ACT to nationally listed threatened species, National Land, and in relation to Commonwealth actions (see <<http://www.deh.gov.au/epbc/index.html>>).

The Commonwealth prepares Recovery Plans for species and ecological communities listed under the EPBC Act. In situations where such Recovery Plans coincide with ACT Action Plans or ACT management responsibilities, every effort is made to ensure coordination, consistency and cooperation between the Commonwealth and ACT governments and their agencies.

1.6

Implementation

The *Aquatic Species and Riparian Zone Conservation Strategy* is not a management plan prepared under the *Land (Planning and Environment) Act 1991*, nor does it propose that management plans be prepared for each area independent from existing management plans and management arrangements. The *Strategy* is a *thematic* document i.e. it deals with the conservation of aquatic and riparian species, ecological communities and habitats across all land tenures in the ACT. The goals of the *Strategy* will be achieved through a variety of means, relevant to the different tenures. The *Strategy* provides the strategic, ACT-wide and regional context for the consideration of aquatic and riparian species, ecological communities and habitats in planning studies for specific areas of the ACT.

Environment ACT has responsibility for coordinating implementation of this *Aquatic Species and Riparian Zone Conservation Strategy* in partnership with relevant public and private land managers and the wider community. Building upon the existing community interest will be an important part of achieving the goals of this *Strategy*. The rivers and riparian zones in the ACT are mainly on Public Land (Territory Land) reserved under the *Territory Plan*, with other areas on leased and unleased Territory Land. Achievement of the objectives of the *Strategy* will require the participation of the managers of these lands in undertaking the actions for the *Strategy* as a whole set out in Chapter 6 and more specific actions contained in Chapters 2–5.

Primary responsibility for conservation of aquatic and riparian species and ecological communities on reserved Public Land will rest with Environment and Recreation (Territory and Municipal Services), with the directions of the *Strategy* expressed through management plans. For example, the *Murrumbidgee River Corridor Management Plan* (Environment ACT 1998) includes a set of objectives related to the 'Management of Water and Channel Values' and 'Management of Terrestrial Natural Resource Values'. Memoranda of Understanding (especially with Commonwealth landholders), Land Management Agreements (with rural lessees), and directions by the Conservator of Flora and Fauna under s. 47 of the *Nature Conservation Act 1980* are also means by which the *Strategy* may be implemented. Cooperation with NSW agencies, especially the Department of Environment and Conservation (Parks and Wildlife Division) and the Department of Primary Industries (Fisheries) is an important element in implementing the *Strategy*, as part of a regional effort to conserve the biodiversity of the ACT and Southern Tablelands.

The role of the *Strategy* in land use planning and land management in relation to ACT legislation is shown in Figure 1.2.

1.7

Structure of the *Aquatic Species and Riparian Zone Conservation Strategy*

The *Strategy* is structured as follows:

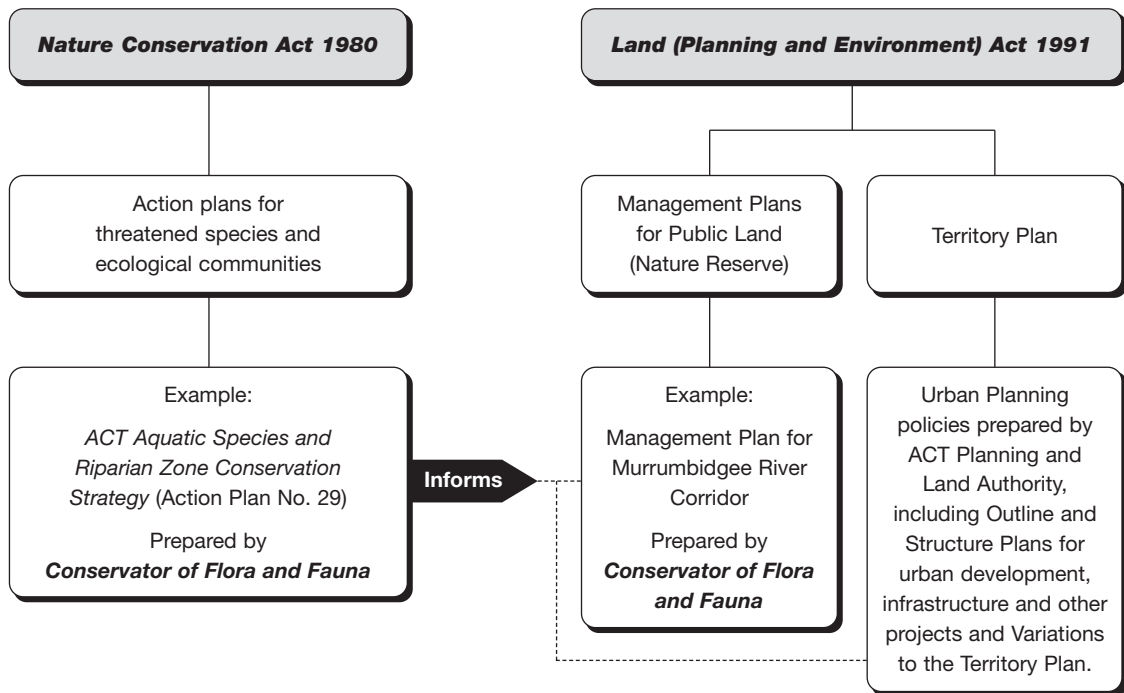
Chapter 1: The **Introduction** outlines the scope of the *Strategy*, the basis for declaring species threatened in the ACT and the role of the ACT Flora and Fauna Committee. It also includes a brief summary of the structure of ACT planning and land management, an outline of legislation applying to the conservation of flora and fauna in the ACT and region, and a section on implementation of the *Strategy*.

Chapter 2: ACT Rivers and Riparian Vegetation contains sections on ACT rivers, riparian zone vegetation, and threatened and uncommon riparian zone flora in the ACT. Changes to riparian zone vegetation since European settlement and ongoing threats are outlined as well as conservation objectives and actions. Table 2.2 contains a brief description of dominant native vegetation communities and vegetation condition for defined sections of the rivers.

Chapter 3: Riparian Fauna discusses riparian zone fauna, the importance of riparian habitat and threats to

Figure 1.2: The Role of the Aquatic Species and Riparian Zone Conservation Strategy in Land Use Planning and Land Management in the ACT

(A brief outline of the broader ACT planning framework including the role of the *National Capital Plan* is contained in s. 1.5.1.)



fauna. Conservation objectives and actions for threatened and uncommon fauna are outlined.

Chapter 4: Fish, Crayfish and Macroinvertebrates in ACT Rivers focuses in particular on the fish and crayfish species declared threatened under ACT legislation. A short section outlines the importance of macroinvertebrates to the health of aquatic ecosystems and their use as indicators for this purpose. Sections in the chapter discuss factors that have contributed to the decline of native fish and crayfish in the Murray–Darling Basin and the Upper Murrumbidgee River catchment. Conservation objectives and actions are outlined and discussed. Table 4.2 provides a brief description of stream morphology, fish and crayfish fauna including threatened species for defined sections of the rivers (corresponding to the vegetation descriptions in Table 2.2).

Chapter 5: Aquatic Species and the Riparian Zone: Planning and Management for Conservation briefly considers the status of planning, protection and management for ACT rivers and riparian zones.

Subsequent sections discuss conservation planning including principles, planning and conservation issues for each of the rivers, best practice and adaptive management, habitat rehabilitation, management issues in the ACT, and management agreements and networks. Table 5.1 outlines planning and conservation issues and priority actions for each of the defined river sections previously detailed in Table 2.2 and Table 4.2.

Chapter 6: The Aquatic Species and Riparian Zone Conservation Strategy brings the elements of the *Strategy* together, placing the *Strategy* into the ACT planning and land management context and considering policy guidelines for the conservation of aquatic species and the riparian zone. The chapter evaluates the state of protection for aquatic species and the riparian zone in the ACT, outlines actions taken to improve their conservation, future actions necessary, and determines priorities. In particular, in support of the *Strategy’s* goals, the chapter includes objectives, the actions necessary to achieve those objectives, and relevant performance criteria (Table 6.1).