Legislative Assembly for the ACT

STANDING COMMITTEE ON PLANNING AND ENVIRONMENT

Wildlife Corridors and DV231 – East Gungahlin Suburbs of Kenny and Throsby and Goorooyarroo Nature Reserve

NOVEMBER 2005

Report 17

Committee membership

Chair	Mick Gentleman MLA
Deputy Chair	Zed Seselja MLA
	Mary Porter AM MLA

Secretary:	Hanna Jaireth
Assistant Secretary	Nicolette Pidcock (law student intern)
Administration:	Linzi Lamont
Research assistance:	Catherine O'Connor, ACT Government and Assembly Library
	Ann Welburn, Department of Justice and Community Safety

Resolution of appointment

On 7 December 2004 the ACT Legislative Assembly agreed to establish general purpose standing committees as follows:

> (1) The following general purpose standing committees be established and each committee to inquire into and report on matters referred to it by the Assembly or matters that are considered by the committee to be of concern to the community: …
>
> > (e) a Standing Committee on Planning and Environment to examine matters related to planning, public works and land management, conservation and heritage, transport services, and environment and ecological sustainability.
> > …

The Assembly also agreed that if the Assembly is not sitting when the Standing Committee on Planning and Environment has completed consideration of a report on draft plan variations or draft plans of management referred to the Committee by the Minister under the *Land (Planning and Environment) Act 1991*, the Committee may send its report to the Speaker, or, in the absence of the Speaker to the Deputy Speaker, who is authorised to give directions for its printing, publication and circulation.[1]

Terms of reference

Section 25 of the Land (Planning and Environment) Act 1991 (ACT) states:

> The Minister shall, within 28 days of receiving a draft plan variation under section 24, refer—
>
> (a) the draft plan variation; and
>
> (b) the documents referred to in section 24 (1) that relate to the draft plan variation;
>
> to an appropriate committee of the Legislative Assembly together with a request that the committee report on the draft plan to the Legislative Assembly.

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[1] Legislative Assembly of the ACT, *Minutes of Proceedings*, No. 2–7 December 2004, pp.12–16.

Preface

Both Federal and ACT law and policy governs planning in the ACT. The *Australian Capital Territory (Planning and Land Management) Act 1988* (Cwlth)[2] establishes the National Capital Authority, which prepares and administers the National Capital Plan. The Act also enables the Legislative Assembly to establish a statutory planning authority – now the ACT Planning and Land Authority – to develop and implement the Territory Plan. The *Land (Planning and Environment) Act 1991* (ACT)[3] (the Act) requires the Territory Plan to set out the planning principles and policies for giving effect to its object,[4] which is:

> to ensure, in a manner not inconsistent with the national capital plan, that the planning and development of the ACT provides the people of the ACT with an ecologically sustainable, healthy, attractive, safe and efficient environment in which to live, work and have their recreation.[5]

The Plan includes both a written statement and a map. The written statement contains general planning principles (Part A), specific land use policies (Part B), overlay provisions (Part C) and definitions of terms (Part D). The Territory Plan map shows which land use policies and overlays in the written statement apply to particular sections of land in the Territory. The Territory Plan is developed and implemented taking account of other strategic ACT Government policy documents such as *The Canberra Plan* and *People Place Prosperity: A Policy for Sustainability in the ACT*.[6]

Recognising that land use policies may change over time, the Act provides for variations to the Territory Plan. The ACT Planning and Land Authority prepares these for stakeholder comment. There can be a number of versions of a draft variation depending on the consultation program.

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2 Accessible at <http://scale.law.gov.au/html/pasteact/0/160/top.htm>.

3 Accessible at <http://www.legislation.act.gov.au/a/1991-100/current/pdf/1991-100.pdf>.

4 Land (Planning and Environment) Act 1991, sub-section 7(2)).

5 Land (Planning and Environment) Act 1991, sub-section 7(1).

6 Accessible at <http://www.cmd.act.gov.au/canberraplan/> and <http://www.sustainability.act.gov.au/policy.html>

The Minister is required by the Act to refer each draft variation, within 28 days of receiving it, to an appropriate committee of the Assembly – currently the Standing Committee on Planning and Environment – for consideration and report.[7] The Minister is required to have regard to the Committee's recommendations before approving the proposed variation and tabling it in the Assembly (see below), or returning it to the ACT Planning and Land Authority with written directions for further action.[8]

The Territory, the Executive, a Minister or a Territory authority must not do or approve anything that is inconsistent with the Territory Plan, or the proposed draft variation, in relation to land that is subject to a draft variation, once the draft variation has been notified for public consultation under the Legislation Act and until it commences operation, is disallowed by the Legislative Assembly, or is withdrawn.[9]

Following the Committee's tabling of its report in the Legislative Assembly, the Minister must take the findings of the committee into account before making his decision in relation to the draft plan variation.[10] If the Minister approves it, he will table the proposed variation and associated documents in the Legislative Assembly.[11] Unless wholly or partially disallowed by the Assembly within five sitting days, the variation will commence on the date nominated by the Minister.

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[7] Land (Planning and Environment) Act 1991, section 25.

[8] Land (Planning and Environment) Act 1991, paragraphs 26(1)(a) and (b), sub-section 26(2).

9 Land (Planning and Environment) Act 1991, section 9.

[10] Land (Planning and Environment) Act 1991, sub-section 26(2).

[11] Land (Planning and Environment) Act 1991, section 29.

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Committee recommendations

RECOMMENDATION 1

1.109 The Committee recommends that the proposed variation to the Territory Plan (DV231) proceed, subject to the relevant recommendations below.

RECOMMENDATION 2

1.110 The Committee recommends that the ACT Planning and Land Authority review the boundaries of the suburb of Throsby and re-draw them back towards Horse Park Drive so as to reduce the impact of residential development on Goorooyarroo and Mulligans Flat Nature Reserves.

RECOMMENDATION 3

1.111 The Committee recommends that earlier programming of the new suburbs in Molonglo should be encouraged.

RECOMMENDATION 4

1.112 The Committee recommends that the ACT Government explore the opportunity of maintaining the 25ha of Yellow Box-Red Gum and Red Stringybark woodland adjacent to Goorooyarroo Nature Reserve with a view to the provision of assistance to conservation groups to manage this area.

RECOMMENDATION 5

1.113 The Committee recommends that for all future draft variations that concern the expansion of residential areas, or impact on Canberra Nature Park, maps and data that demonstrate how the proposed variation will contribute to ecological connectivity and regional targets for protection of species should be included in the public documentation produced by the ACT Planning and Land Authority.

RECOMMENDATION 6

1.114 The Committee recommends that cat containment be mandatory in the proposed new suburbs of Kenny and Throsby.

RECOMMENDATION 7

1.115 The Committee recommends that the current array of policy documents on environmental management, including biodiversity conservation, be reviewed, integrated and streamlined, and better integrated with environment protection and planning legislation.

RECOMMENDATION 8

1.116 The Committee recommends that the ACT Government introduce a reporting system, such as State of the Parks report, which identifies programs to monitor management effectiveness and progress towards achieving protected area objectives.

RECOMMENDATION 9

1.117 The Committee expects that the proposed Regional Management Framework will provide for biodiversity conservation and recognise wildlife corridors. The Committee recommends that as a flow-on reform, the advisory, program delivery and consultative committees involved in NRM on a local and regional scale be reviewed and better integrated.

RECOMMENDATION 10

1.118 The Committee recommends that remnant vegetation with high conservation value on rural leases be better managed as wildlife corridors under land management agreements with these to be the basis for increased funding applications under the Natural Heritage Trust and National Action Plan for Salinity and Water Quality.

RECOMMENDATION 11

1.119 The Committee recommends that the Chief Minister request the Shaping Our Territory Working Group to assess the feasibility of incorporating key elements of the Southern Tablelands Ecosystem Park proposal in the Canberra International Aboretum and Gardens.

Introduction

1.1 This report examines wildlife corridors and urban vegetation in the ACT, and draws on Recommended Final Variation to the Territory Plan No 231 (DV231)[12] to provide a case-study demonstrating how wildlife corridors are currently recognised in NSW and ACT planning law and policy.

1.2 'Wildlife corridors', for the purposes of this report, are habitat or vegetation corridors that have a similar vegetation structure, which form two or more patches of connecting vegetation, amidst differing vegetation or cleared landscape. They need not be linear.[13] Riparian corridors run with rivers, streams or wetlands. In the ACT there are approximately 30 to 34 types of vegetation communities, which may be within, or brought within, wildlife corridors.[14]

1.3 Wildlife corridors can enhance the aesthetic value of landscapes, but they also contribute to the conservation of biodiversity by enabling species to move across the landscape to feed, breed, disperse, and colonise preferred habitat. Movement may be seasonal, and can also assist species to adapt to climate change. Wildlife corridors can also provide buffers against disturbance (human or natural) and enable populations of species to maintain their natural patterns of distribution and abundance.[15] Wildlife corridors are particularly effective if they are short, and linked to large core areas of relatively undisturbed natural vegetation. Where landscapes are highly fragmented, corridors can help reduce possible extinctions caused by 'islanded' areas having denser populations than they can support. As explained below,

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[12] Figures 1 and 2 in Appendices 1 and 2 show the current and proposed land use policies in DV231.

[13] B.M.J. Hussey, R.J. Hobbs, D.A. Saunders, *Guidelines for Bush Corridors*, CSIRO Division of Wildlife and Ecology, WA Department of Conservation and Land Management, WA Main Roads Department and WA Roadside Conservation Committee, 1989, p.5. See also M. Fallding, *Planning Framework for Natural Ecosystems—NSW Southern Tablelands and ACT*, NSW National Parks and Wildlife Service, Hurstville NSW, 2002, p.68.

[14] The ACT Government's survey of vegetation communities in the ACT is expected to be finalized in about March 2006.

[15] Fallding., *Planning Framework for Natural Ecosystems—NSW Southern Tablelands and ACT,* pp. 18, 73; G. Worboys, M. Lockwood and T. De Lacy, *Protected Area Management, Principles and Practice*, Oxford University Press, Melbourne, 2001, p.339; S. McIntyre, J.G. McIvor and K.M. Heard (eds), *Managing and Conserving Grassy Woodlands*, CSIRO Publishing, 2004, pp.20–21.

wildlife corridors can occur, or be created, at regional (or cross border), territory and local scales.

1.4 Many ACT Government policies recognise the link between ACT wildlife and nature conservation through the use of corridors. An indicative list is at Appendix 5. There are 3 scales to be considered in this context: regional, territory-wide, and local, as discussed in turn below.

1.5 Planning for wildlife corridors in the ACT is consistent with international trends, where wildlife corridors are of increasing policy interest. Many transboundary and large-scale corridors are located in Eurasia and Meso-America.[16] In Australia wildlife corridors are increasingly understood as an important component of integrated catchment management. Corridors are promoted in the Wilderness Society's Wild Country initiative,[17] many Federally-funded Natural Heritage Trust projects,[18] the Australian Alps, southwest Western Australia, the North Queensland wet tropics, and elsewhere.[19]

1.6 The Convention on Biological Diversity promotes wildlife corridors. It takes an ecosystem approach to biodiversity conservation. This means that land, water and living resources should be managed in an integrated way, recognising the importance of sustainability and equity. This approach applies science to resource management, focussing on levels of biological organisation, including the essential structure, processes, functions and interactions among organisms (including humans) and their environment.[20]

1.7 At the seventh Conference of the Parties in February 2004, the 188 Parties to the Convention adopted a program of work on protected areas. This

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[16] D. Vreugdenhil, J. Terborgh, A. M. Cleef, M. Sinitsyn, G.C. Boere, V.L. Archaga, H. HT. Prins, *Comprehensive Protected Areas System Composition and Monitoring*, The World Conservation Union, 2003, p.62.

[17] The Wilderness Society, http://www.wilderness.org.au/campaigns/wildcountry/ accessed 19 September 2005

[18] For example wildlife corridors may be created through Fencing Management Agreements with the Natural Heritage Trust, which occurs through grants from Envirofund and covers areas where conservation covenants are currently not in place.

[19] Worboys et al, *Protected Area Management*, p.240.

[20] Decision VII/II: COP 7 – Seventh Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity Kuala Lumpur, Malaysia (9 – 20 February 2004), UN Doc. UNEP/CBD/COP/7/21, accessible at <http://www.biodiv.org/decisions/_ftn70>

acknowledges the importance of ecological networks, ecological corridors and buffer zones to protected area management, and includes as a target that by 2015 all protected areas will be integrated into the wider land and seascape, by applying the ecosystem approach and taking into account ecological connectivity and, where appropriate, ecological networks and the needs of migratory species. Convention Parties have agreed that degraded habitats and ecosystems are to be rehabilitated and restored to assist with the creation of networks, corridors and/or buffer zones. [21]

1.8 Article 8 of the Convention establishes global priorities and policies for the *in-situ* conservation of biodiversity and obliges Parties, amongst other measures, to '(e) Promote environmentally sound and sustainable development in areas adjacent to protected areas with a view to furthering protection of these areas'.[22]

1.9 Whilst the ACT Government cannot ratify international instruments directly, it is a signatory to the National Biodiversity Conservation Strategy and associated policy commitments[23] and takes account of, and governs the ACT, consistent with implementing domestic policies, where agreed.

Regional scale wildlife corridors

1.10 Regional connectivity in the ACT concerns the Australian Alps and the South Eastern Highlands Bioregions (using the Interim Bioregionalisation of Australia v.5.1) but regional boundaries tend to be as varied as the political and administrative organisations and agencies having a 'regional' jurisdiction.

1.11 Catchment Management Authorities, regional plans, and sub-catchment strategies are important aspects of cross border planning processes and natural resource management planning in the ACT and its region. Both the Natural Heritage Trust and the National Action Plan for Salinity and Water Quality

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[21] Decision VII/28: COP 7 – Seventh Ordinary Meeting of the Conference of the Parties to the Convention on Biological Diversity Kuala Lumpur, Malaysia (9 – 20 February 2004), accessible at <http://www.biodiv.org/decisions/_ftn70>

[22] Convention on Biological Diversity Convention Text, accessed 17 November 2005 at http://www.biodiv.org/convention/articles.asp.

[23] Department of Environment, Sports and Territories, *National Strategy for the Conservation of Australia's Biological Diversity*, Commonwealth of Australia, 1996; *National Objectives and Targets for Biodiversity Conservation 2001–2005,* Environment Australia, June 2001.

fund planning for development that is ecologically sustainable and for setting regional targets based on the status of native vegetation. These initiatives recognise the need to reduce landscape fragmentation, create corridors and habitats to enhance ecological connectivity, and improve the resilience and ecological services provided by protected areas in the region or adjacent regions.[24]

1.12 The National Action Plan for Salinity and Water Quality and the Natural Heritage Trust are cooperatively implemented by State and Territory Governments, and are driven by community developed regional plans. The ACT has signed an agreement for the Natural Heritage Trust and as of 2001 was a signatory to the Intergovernmental Agreement for the National Action Plan for Salinity and Water Quality, but has yet to sign a bilateral agreement with the Commonwealth in this area.[25] This is expected to be done in 2005–06.[26]

1.13 The Bilateral Agreement for the Natural Heritage Trust provides that parties acknowledge the need for consistency[27] for cross border arrangements and, in relation to the Territory, that the ACT 'have the necessary skills and capacity to facilitate the development of, and manage the implementation of, a natural resource management plan and have the ability to work effectively in the delivery of cross-border plans, where relevant.[28] The Natural Heritage Trust recognises the need for conservation of biodiversity through management plans, including the Murrumbidgee River Corridor Management Plan. This Corridor is located along the last 12 kilometres of the Molonglo River and contains important ecological values.[29] The Corridor Plan is a Reserve Management Plan and provides for conservation in the area.

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[24] H. Jaireth, 'Natural Resource Management: Innovations and Community Conserved Areas in Australia', in Jaireth, H. and Smyth, D. (eds) *Innovative Governance: Indigenous Peoples, Local Communities and Protected Area* (2003) Ane Books, New Delhi, pp.125 – 143, at pp.130–131.

[25] *Natural Resource Management Plan*, http://www.nrm.gov.au/index.html accessed 28 August 2005.

[26] ACT Government, *Chief Minister's Department Annual Report 2004–05*, Vol. 1, Canberra 2005, p.61.

[27] *Natural Heritage Trust Agreement*, Bilateral Agreement between the Commonwealth and the ACT, (March 2003) cl.36.

[28] Sub-cl. 40(g) and (h).

[29] *Murrumbidgee River Corridor Management Plan*, http://incp.environment.act.gov.au/plans accessed 29 August 2005. There is also a Lower Molonglo River Corridor Management Plan.

1.14 Catchment Management Authorities are provided for in NSW legislation.[30] A catchment activity is defined as 'relating to natural resource management in an area (including the planting of trees, the removal of weeds or obstructions, the carrying out of works and education or training).'[31] Thirteen Catchment Management Authorities have been established throughout NSW, including the Murrumbidgee, which surrounds the ACT. Catchment Management Authorities function to fund or carry out catchment activities as provided for in the Catchment Management Authorities Act or other legislation.[32] For example, Catchment Management Authorities are required to develop catchment action plans and to give effect to approved plans through annual implementation plans, to provide financial assistance to fund these plans and to assist landholders to further the objectives of catchment action plans (including providing information about native vegetation management).[33]

1.15 Catchment Management Authorities are also required to prepare a draft catchment action plan[34] including expected timeframes and results to be achieved through implementing the plan, funding priorities for the plan and any other matter the Minister chooses to include in the plan.[35] This is open to public consultation[36] and must also consider any applicable environmental planning instruments, natural resource management plans and state-wide plans and targets.[37] The plan must be referred to the Minister and Natural Resources Commission to determine whether any changes are necessary prior to implementation.[38] Catchment Management Authorities are illustrative of an integrated approach to regional management of biodiversity.

1.16 The ACT is part of the Murrumbidgee River Catchment. The Murrumbidgee

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[30] *Catchment Management Authorities Act 2003* (NSW), accessed November 2005 at <http://www.legislation.nsw.gov.au/maintop/scanact/inforce/NONE/0>.

[31] *Catchment Management Authorities Act 2003* (NSW) section 4

[32] *Catchment Management Authorities Act 2003* (NSW) section 14

[33] *Catchment Management Authorities Act 2003* (NSW) section 15

[34] *Catchment Management Authorities Act 2003* (NSW) section 19

[35] *Catchment Management Authorities Act 2003* (NSW) sub-section 20(1)

[36] *Catchment Management Authorities Act 2003* (NSW) section 21, details to be provided for in regulations

[37] *Catchment Management Authorities Act 2003* (NSW) sub-section 20(2)

[38] *Catchment Management Authorities Act 2003* (NSW) sections 22, 23, 26 to be periodically reviewed

Catchment Management Authority, in cooperation with the Murrumbidgee Catchment Management Board (the Board), oversees the implementation of the NSW *Murrumbidgee Blueprint*. The Board reviewed the ACT's original *Draft ACT Component* for the Catchment Plan, before it became the *ACT Natural Resource Management Plan* (discussed below).[39] The latter document is one of the vehicles for drawing down Australian Government funding under the Natural Heritage Trust.

1.17 The value of a regional planning approach is also acknowledged in the *ACT Nature Conservation Strategy.*[40] That strategy states that conservation in the ACT will in many cases be dependent upon complementary action in NSW,[41] particularly in the context of habitat linkages as part of a regional conservation network. These linkages (wildlife corridors) are recognised as having the potential to make a major contribution to regional conservation strategies by ameliorating the detrimental effects that habitat fragmentation and isolation have on wildlife populations.[42]

1.18 Regional connectivity is also recognised in the report of the 1999 Natural Heritage Trust-funded project 'Corridors for Habitat and Biodiversity Conservation in the ACT with Links to the Region' and the 2002 *Planning Framework for Natural Ecosystems—NSW Southern Tablelands and ACT.*

1.19 The ACT *Natural Resource Management Plan* addresses regional issues through its targets for the NSW *Murrumbidgee Blueprint*. The Blueprint encompasses the ACT and requires cooperation between the ACT Natural Resource Management Board and the NSW Murrumbidgee Catchment Management Authority.

1.20 The target for biodiversity conservation in the Plan (as the ACT component of the Blueprint) is that a minimum of 30% of the area of each of the remaining native vegetation communities and habitats be conserved by 2012 (if possible). The Plan also includes a range of management actions relevant to the

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[39] *ACT Natural Resource Management Plan*, p.7.

[40] Under review in 2005.

[41] Environment ACT, *ACT Nature Conservation Strategy* (1997) Australian Capital Territory Government, 1997, section 2.1, accessed November 2005 at < http://www.environment.act.gov.au/bushparksandreserves/natconstrategy.html>

[42] Environment ACT, *ACT Nature Conservation Strategy*, section 2.1.

management of wildlife corridors. These include the protection, restoration and linking of areas of remnant vegetation to provide adequate habitat for threatened species and other wildlife; management of vegetation to maintain or improve biodiversity values; Land Management Agreements to specifically address conservation and rehabilitation of native riparian vegetation; and support for community networks to establish and manage interconnected native vegetation communities throughout the ACT and region.

1.21 Under the Plan, by 2006 targets for urban biodiversity and integrated urban ecological function targets are to be developed and progressively implemented.[43]

1.22 In relation to biodiversity conservation and cross-border management, the *Canberra Spatial Plan* also recognises the need for a regional approach to these issues and a renewed framework, because the *ACT and Sub-Region Planning Strategy* (1998) is now dated.[44] In January 2004 the ACT Government agreed to the development of a Regional Management Framework which aims to advance cross border issues with ACT and NSW, and to establish policies and legislation for cross border service delivery. In early November 2005 a regional settlement strategy was close to finalisation.

1.23 The Minister for Planning, Mr Simon Corbell MLA, advised the Planning and Environment Committee on 10 November 2005 that the ACT Planning and Land Authority had been working with the New South Wales Department of Planning to develop a regional settlement strategy based on the strategic principles contained in the *Canberra Spatial Plan* and his Statement of Planning Intent. The development of this strategy has involved ongoing discussions with Queanbeyan City Council about development in the Queanbeyan Local Government area and the need to protect the functioning of the Canberra International Airport.

1.24 The ACT Government is in the final stages negotiations with the New South Wales Government on a regional management framework. This will include a 'sustainable settlement' sequence, to guide which areas are to be developed,

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[43] Murrumbidgee Catchment Management Board, *Murrumbidgee Catchment Blueprint*, NSW Department of Land and Water Conservation, 2003, pp.40, 41, 43.

[44] *Canberra Spatial Plan,* pp.4, 30.

and in what order of priority. It also involves negotiations about how water should be supplied to areas outside of the ACT.[45]

1.25 The ACT is also working with NSW in relation to connectivity between the new reserve near Mikes Hill, east of the ACT prison site, and the Queanbeyan Nature Reserve at Letchworth. The ACT is a party to the Memorandum of Understanding on Cooperative Management of the Alps Parks and participates actively in the Alps Cooperative Management Program. [46]

Territory scale wildlife corridors

1.26 Territory-wide corridors relate to major rivers and large blocks of vegetation. These are recognised in the *Canberra Spatial Plan* (refer map at Appendix 9),[47] *Woodlands for Wildlife: The Lowland Woodland Conservation Strategy* (Action Plan 27)[48] and *A Vision Splendid of the Grassy Plains Extended: ACT Lowland Native Grassland Conservation Strategy* (Action Plan 28). These Action Plans identify the potential use of corridors in fauna and flora conservation and identify priority tasks, including providing for improved habitat connectivity for wildlife movement from Hall–Kinleyside–Mulligans Flat–Gooroo–Majura Valley–Jerrabombera Valley.[49]

1.27 Biodiversity conservation is encompassed in the Territory Plan goal of providing the people of the Territory with an ecologically sustainable, healthy, attractive, safe and efficient environment.[50] The ACT Government's Statement of Planning Intent refers to sustainable development in the context of the *People Place Prosperity: A Policy For Sustainability in the ACT*.[51]

1.28 The Territory Plan is linked to the National Capital Plan, managed by the

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[45] ACT Legislative Assembly, Standing Committee on Planning and Environment, Reference: Annual and Financial Reports 2004–2005, Transcript of Evidence, Thursday 10 November 2005, pp.50, 53, 55.

[46] Submission No. 6. See also Submission No 9

[47] *Canberra Spatial Plan*, p.17.

[48] Environment ACT, *Woodlands for Wildlife: The Lowland Woodland Conservation Strategy*, Department of Urban Services Canberra, 2004, pp.38, 80.

[49] Environment ACT, *Woodlands for Wildlife: The Lowland Woodland Conservation Strategy*, p.100 and Figure 6.1.

[50] Land (*Planning and Environment) Act 1991* (ACT), sub-section 7(1).

[51] The Statement of Planning Intent is accessible at < http://www.actpla.act.gov.au/aboutus/statements/intent.htm>. People Place Prosperity is accessible at <http://www.sustainability.act.gov.au/policy/ppp.html>.

National Capital Authority (NCA),[52] which also protects land uses for biodiversity conservation and wildlife corridors in the ACT.[53]

1.29 At the Territory-scale, structure plans and concept planning processes involve detailed biodiversity assessments.[54] These respond in part to recommendations made in the 2003 State of the Environment Report by the Commissioner for the Environment, which recommended that biodiversity conservation be integral to ACT Government land-use planning, post-fire recovery programs, and fire prevention programs.

1.30 Structural and concept planning stages include an assessment of environmental values based on Action Plans established under the Nature Conservation Act, advice from Environment ACT, and further detailed assessments. Together these influence land use plans that are intended to incorporate and protect environmental values, including biodiversity conservation and connectivity. Environmental assessments typically include flora and fauna assessment, Aboriginal and European heritage assessment, tree surveys and assessment, geotechnical assessment and bushfire risk assessment.[55]

1.31 The *ACT Natural Resource Management Plan* provides various strategies for the protection and management of the ACT environment, including the creation of wildlife corridors.[56] As noted above, this Plan is the implementing mechanism for the Australian and ACT Government's Bilateral Agreement for the Natural Heritage Trust.[57] Its targets and actions include that by the end of 2005 the ACT will have developed biodiversity targets within the bioregional context provided by the *Planning Framework for Natural Ecosystems—NSW Southern*

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[52] *Australian Capital Territory (Planning and Land Management) Act 1988* (Cth).

[53] The NCP also protects hills, ridges and buffers, rural land, urban open space, broadacre land, river corridors, plantation forestry, mountains and bushlands, and nature reserves.

[54] ACT Government, *ACT Planning and Land Authority Annual Report 2004–05*, Canberra, 2005, pp.63–65.

[55] Submission No. 9

[56] *ACT Natural Resource Management Plan 2004–2014 – Summary*, http://www.nrm.gov.au/index.html accessed August 2005.

[57] 'Bilateral Agreement between the Commonwealth of Australia and the Australian Capital Territory to deliver the Natural Heritage Trust', 27 March 2003, accessed at <http://www.nht.gov.au/bilaterals/act/index.html> 10 November 2005.

Tablelands and ACT, and will protect, restore and link areas of remnant vegetation to provide adequate habitat for threatened species and other wildlife. Another is to implement Action Plans for threatened species and communities with a particular focus on *Action Plan 27 – Woodlands for Wildlife: ACT Lowland Woodland Conservation Strategy*.[58] It also recognises the need to develop legislation providing for integrated Action Plans for Natural Temperate Grasslands and Riparian and Wetland Communities and associated threatened species.[59]

1.32 Environment ACT had earlier released an Integrated Catchment Management (ICM) Framework for the ACT in 2000. This framework, and the NRM Plan 2004–2014, led to the establishment of a range of sub-catchment community organisations – the Southern ACT Catchment Group (SACTCG), the Ginninderra Catchment Group and the Molonglo Catchment Group. These organisations are involved in prioritising the implementation of agreed sub-catchment plans, coordinating cooperative projects between sub-catchment areas, and are the key groups involved in procuring and distributing funds for natural resource related activities, coordinating community monitoring efforts, reporting, community education and awareness raising.[60] Their work is complemented by that of the Upper Murrumbidgee Catchment Coordinating Committee, Upper Murrumbidgee Landcare Committee, and Murrumbidgee Catchment Management Authority, amongst others.

Local scale wildlife corridors

1.33 Local scale connectivity concerns individual trees or small areas of vegetation and can be created across various land uses. Local scale connectivity is intended to reduce the environmental pressures emanating from urban development.[61] This is addressed through governmental processes associated with planning (such as Management Plans for public lands, Master Plans and

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[58] *ACT Natural Resource Management Plan*, p.16.

[59] *ACT Natural Resource Management Plan*, p.17.

[60] Environment ACT, 'Sub-catchment planning in the ACT', <http://www.environment.act.gov.au/yourenvironmenthwp/subcatchplan.html>, accessed 8 November 2005.

[61] ACT Department of Urban Services, *Design Standards for Urban Infrastructure* 14 Urban Open Space, Australian Capital Territory Government, 2004, p.4.

Neighbourhood Plans), development application assessments, and lease management. [62]

1.34 Local scale corridors are also recognised in Design Standard 14 – Urban Open Space in *Design Standards for Urban Infrastructure*, [63] which superseded the 1992 ACT Landscape Guidelines.[64] These draw on recommendations made in the Canberra Urban Parks and Places-commissioned report *Wildlife Corridors and Landscape Restoration: Principles and Strategies for Urban Nature Conservation* (1998).[65] An extract of the design guideline relevant to wildlife corridors is at Appendix 10.

1.35 In relation to the protection of urban forest and significant trees in the urban fabric, the *Tree Protection Act 2005* (ACT) applies.[66] The Department of Urban Services also has a tree replacement program, which is guided by the 2004–2005 Asset Management Plan for Urban Trees. The Department removed approximately 4000 of the 7000 trees that died during the drought in 2004–05.[67] Canberra Urban Parks surveyed approximately 2800 ageing trees in 2004–05. By June 2005, more than 1600 trees and 5000 other plants had been planted under this program. The Department has also commissioned a study, through the ANU, on the Asset Management Plan, which aims to assist in the quantification of funding needed for improved management of Canberra's urban forest. This evaluation will examine amenity, community benefit and environmental evaluation. These initiatives appear to be consistent with some of the recommendations made in the report on *Wildlife Corridors and Landscape Restoration* (noted above).[68]

1.36 It should also be noted that a seed bank of native seeds has been established to

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[62] Submission No. 6. See also Submission No 10 for a similar view.

[63] accessible at <http://www.parksandplaces.act.gov.au/public/designstandards.html>.

[64] Department of Urban Services, *Landscape Design and Construction Guidelines for Canberra and the ACT*, 1992.

[65] Enviro Links Design Pty Ltd, Geoff Butler and Assoc. and Anne-Marie Wilson, *Wildlife Corridors and Landscape Restoration: Principles and Strategies for Urban Nature* Conservation, Canberra, 1998. The design standards are accessible at <http://www.parksandplaces.act.gov.au/public/urbanopenspace.pdf>.

[66] This Act is awaiting commencement. Sections 1 & 2 commenced 29 September 2005. Default commencement under the Legislation Act (section 79) is 29 March 2006.

[67] ACT Government, *Urban Services Annual Report 2004–2005*, vol 1, Canberra, 2005, p.106.

[68] ACT Government, *Urban Services Annual Report 2004–2005*, vol 1, Canberra, 2005, p.17.

support revegetation initiatives.[69] The Native Seed Bank Project provides seeds for native species in degraded parkland. That project also includes 'DIY Landcare' and 'Go Wild in Your Backyard' which encourages Canberrans to plant local native plants in their backyard.[70]

1.37 The ACT Government also supports a network of community groups engaged in natural resource management (mainly remediation work, surveys and monitoring).[71] There are 14 Parkcare groups, 10 of which operate in the Canberra nature park reserves, such as Aranda bushland, Cooleman Ridge, Farrer Ridge, Red Hill, Mount Majura and Mount Taylor. The other groups include the Friends of Tidbinbilla, Friends of Googong, Gudgenby Bush Regeneration Group and Park Carers of the Southern Murrumbidgee. The Parkcare program has matured in recent years, with many groups now working relatively independently of ranger assistance for their day-to-day operations.[72]

DV231 and the Yellow Box/Red Gum woodland corridor

1.38 DV231 concerns an area of the ACT that has an internationally significant vegetation community of Yellow Box (*Eucalyptus melliodora*)/ Red Gum (*Eucalyptus blakleyi*) woodland.[73] More than 90% of this type of woodland has been cleared from its former range, which was from Melbourne to south Queensland. The ACT hosts a significant proportion of the remaining woodland.[74]

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[69] Submission No. 6

[70] ACT Government, *Urban Services Annual Report 2004–2005*, vol 1, Canberra, 2005, pp.13, 14, 107.

[71] Submission No. 6

[72] Dr Maxine Cooper, evidence given to the Legislative Assembly for the Australian Capital Territory, Standing Committee on Planning and Environment, *Reference: Annual and Financial Reports 2004-2005, Proof Transcript of Evidence, Monday, 7 November 2005*.

[73] 'Nomination Form for listing, changing the status or delisting an ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)– Yellow Box/ Red Gum Grassy Woodland', http://www.deh.gov.au/biodiversity/threatened/nominations/pubs/yellowbox-redgum.pdf, accessed 10 November 2005.

[74] 'Nomination Form for listing, changing the status or delisting an ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)– Yellow Box/ Red Gum Grassy Woodland', http://www.deh.gov.au/biodiversity/threatened/nominations/pubs/yellowbox-redgum.pdf, accessed 10 November 2005, p.13. See also Lindenmayer et.al., *Woodlands: A Disappearing Landscape*, CSIRO Publishing, Collingwood, 2005.

1.39 According to the ACT Commissioner for the Environment's *State of the Environment Report 2003* there were 10 870 hectares of Yellow Box–Red Gum Grassy Woodland in the ACT during the reporting period 2000–2003, of which 2 345 hectares were in protected areas. The Commissioner commended the development of the ACT Lowland Woodland Conservation Strategy and the inclusion of 1 065 hectares of high quality Yellow Box–Red Gum Grassy Woodland and other woodlands in reserves in East O'Malley, Jerrabomberra Valley and Gungahlin, but also cautioned against the sacrifice of environmental responsibilities to short term revenue from property development.[75]

1.40 Yellow Box/Red Gum woodlands are linked in a corridor from Gungahlin, down the Majura Valley, and in Woden and the most southern sections of the ACT. This is represented in Figure 2.3 in *Action Plan No 27 – Woodlands for Wildlife ACT Lowland Woodland Conservation Strategy* (refer Appendix 8).

1.41 The threatened status of Yellow Box/Red Gum woodlands is well recognised in legislation. Under the *Nature Conservation Act 1980* (ACT) they are an endangered ecological community.[76] The *Threatened Species Conservation Act 1980* (NSW) lists similar woodland as the endangered ecological community of White Box/Yellow Box/Blakeley's Red Gum.[77] Yellow Box/Red Gum grassy woodlands have also been nominated as a nationally endangered ecological community under the *Environment Protection Biodiversity Conservation Act 1999* (Cwlth).[78] Some species endemic to this habitat, such as the Ruffous Bettong (*Aepyprymnus rufescens)*, Bridled Nailtail Wallaby (*Onychogalea fraenata)* and White-footed Rabbit Rat (*Conilurus albipes)* are thought to have become extinct

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[75] 'Conserving Biodiversity' in Commissioner for the Environment, *ACT State of the Environment Report*, Australian Capital Territory Government, 2003, accessible at http://www.environmentcommissioner.act.gov.au/conservingbiodiversity03.html#grassy_woodlands_-_going_going...?, (accessed 2 November 2005).

[76] Schedule 3, *Nature Conservation (Species and Ecological Communities) Declaration 2005 (No 1)* DI2005—39.

[77] Listed under Part 3, Schedule 1, *Threatened Species Conservation Act 1995* (NSW).

[78] The Commonwealth Minister for the Environment and Heritage was expected to make a decision in response to the nomination in late 2005. See generally - 'Nomination Form– Yellow Box/ Red Gum Grassy Woodland', http://www.deh.gov.au/biodiversity/threatened/nominations/pubs/yellowbox-redgum.pdf, accessed 10 November 2005.

in these types of woodlands as early as the 1860s.[79]

1.42 Yellow Box/Red Gum woodlands in good condition tend to have a species-rich understorey of native tussock, grasses, herbs and shrubs. The nomination form for the national listing of this endangered ecological community under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) lists the characteristic species found in these woodlands as –

Overstorey

Angophera floribunda, Callitris endlicheri, Callitris glaucophylla, Eucalyptus albens, Eucalyptus biturbinata, Eucalyptus blakleyi, Eucalyptus bridgesiana, Eucalyptus caliginosa, Eucalyptus goniocalyx, Eucalyptus melliodora, Eucalyptus microcarpa, Eucalyptus moluccana, Eucalyptus nortonii, Eucalyptus polyanthemos, Eucalyptus rubida

Mid-storey and shrub layer

Acacia armata, Acacia dealbata, Acacia deani, Acacia implexa, Allocasuarina verticillata, Brachychiton populneum, Brachyloma daphnoides, Bursaria spinosa, Cassininia quinquefaria, Exocarpos cupressiformis, Hibbertia obtusifolia, Jacksonia scoparia, Lissanthe strigosa, Melichris urceolatus, Notolea microcarpa, Swainsona galegifolia

Understorey

Aristida behriana, Aristida ramosa, Asperula conferta, Austrodanthonia species, Austrostipa aristiglumis, Austrostipa nodosa, Austrostipa scabra, Bothriochloa macra, Bracteantha viscosa, Bulbine bulbosa, Carex inversa, Chloris truncata, Chrysocephalum apiculatum, Cymbopogon refractus, Desmodium varans, Dianella longifolia, Dicanthium sericeum, Dichelachne micrantha, Dichondra repens, Echinopogon caespitosus, Elymus scaber, Eulalia fulva, Geranium solanderi, Glycine clandestina, Gonocarpus elatus, Lomandra filiformis, Microlaena stipoides, Poa sieberiana, Sorghum leiocladum, Stackhousia monogyna, Themeda australis, Vittadinia cuneata, Wahlenbergia communis.[80]

1.43 Mammals commonly found in Yellow Box/Red Gum woodlands include the Eastern Grey Kangaroo (*Macropus giganteus)*, the Swamp Wallaby (*Wallabia bicolor)*, Brush-tailed Possum (*Trichosurus vulpecula)*, Sugar Glider (*Petaurus breviceps)*, Yellow-bellied Sheathtail-bat (*Taphozous flaviventris)*, Gould's

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[79] 'Nomination Form– Yellow Box/ Red Gum Grassy Woodland', http://www.deh.gov.au/biodiversity/threatened/nominations/pubs/yellowbox-redgum.pdf, accessed 10 November 2005, p.16.

[80] 'Nomination Form– Yellow Box/ Red Gum Grassy Woodland', http://www.deh.gov.au/biodiversity/threatened/nominations/pubs/yellowbox-redgum.pdf, last accessed 10 November 2005, p.4.

Wattled Bat (*Chalinolobus gouldii),* White-striped Mastiff-bat (*Tadarida australis)* and the Echidna *(Tachyglossus aculeata)*.

1.44 Birds commonly found in such woodlands include the Crimson Rosella *(Platycercus elegans),* Grey Fantail (*Rhipidura fulignosa)*, Noisy Miner *(Manorina melanocephala),* Crested Pigeon (*Ocyphaps lophotes),* Galah *(Cacatua roseicapilla),* Australian Magpie *(Gymnorhina tibicen)* and Yellow-rumped Thornbill (*Acanthiza chrysorrhoa).*

1.45 Common snakes include Eastern Brown Snake (*Pseudonaja textilis),* and Red-bellied Black Snake (*Pseudechis porphyriaceus).*

1.46 Common lizards include the Bearded Dragon (*Pogona barbata),* Olive Legless Lizard (*Delma inornata),* Grass Skink (*Lampropholis delicata),* Eastern Blue-tongued Lizard (*Tiliqua scinoides)* and the Blotched Blue-tongued Lizard (*Tiliqua nigrolutea).*

1.47 Eight frog species were recorded in Mulligans Flat Nature Reserve in October 2005 – the Spotted Burrowing Frog (*Neobatrachus sudelli*, which is heard rarely in the ACT and usually only in years of good rainfall), the Plains Froglet (*Crinia parinsignifera)*, the Common Eastern Froglet (*Crinia signifera***)**, the Spotted Grass Frog (*Limnodynastes tasmaniensis***)**, the Pobblebonk Frog (*Limnodynastes dumerili***)**, the Smooth Toadlet (*Uperoleia laevigata)***,** Peron's Tree Frog (*Litoria peroni*) and the Whistling Tree Frog (*Litoria verreauxi***)**. [81] Frogs are regarded as valuable 'bioindicators' of environmental quality.

1.48 Many species in Yellow Box/ Red Gum woodlands in the ACT are threatened and declining, including Button Wrinkelwort (*Rutidosis leptorhynchoides)*, Small Purple Pea (*Swainsona recta),* Tarengo Leek Orchid (*Prasophyllum petilum),* Golden Sun Moth (*Synemon plana),* Perunga Grasshopper (*Perunga ochracea),* Striped Legless Lizard (*Delma impar),* Brown Treecreeper (*Climacteris picumnus),* Hooded Robin (*Melanodryas cucullata),* Painted Honeyeater (*Grantiella picta),* Regent Honeyeater (*Xanthomyza phrygia),* Superb Parrot (*Polytelis swainsonii),* and the Swift Parrot (*Lathamus discolor)*.

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[81] Minister for Environment, Jon Stanhope MLA, 'Recent rains leave ACT reserves jumping with frogs', *Media release 465/05*, 16 November 2005.

1.49 As discussed further below, there are numerous public policy and ethical considerations for conserving such threatened ecosystems. Many of these are re-iterated in the Paris Declaration on Biodiversity issued by leading scientists in January 2005.[82] In the local context, for example, it is important to conserve woodlands so that their diverse inhabitants survive, and also to improve ecosystem function, and to increase the productivity of rural leases in the ACT and adjacent NSW. Woodlands provide aesthetic, spiritual, cultural, and recreational values and ecosystem services such as plant and animal production, pollination, pest control, maintenance of water quality and soil fertility, carbon sequestration, and nutrient cycling. Also importantly, with the loss of extensive tracts of woodland, Australia's natural heritage, having evolved over billions of years, is substantially diminished.[83]

1.50 There is also a growing recognition that it is a better investment to maintain natural systems than is to allow them inadvertently to be damaged and, subsequently, to inherit a costly repair bill.[84]

1.51 The economic values of protected areas can be identified as direct use values, indirect use values, option values and non-use values. These include the:

- values derived directly from use for activities such as recreation, tourism, gene pool services, education and research;
- indirect values of ecosystem functioning such as watershed protection, carbon sequestration, provision of breeding habitat, and habitat for predators and pollinators;
- option values such as the future value of information derived from the protected area, such as possibly useful genetic resources; and
- non-use values such as the value attributed to the simple *existence* of a landscape feature and the bequest value related to others' use.[85]

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[82] Reproduced at *Appendix 4*, accessed September 2005 from <http://www.recherche.gouv.fr/biodiv2005paris/en/Paris%20declaration.pdf>.

[83] D. Lindenmayer, M. Crane, D. Mitchell, E. Beaton, *Woodlands: A Disappearing Landscape*, CSIRO Publishing, Collingwood, 2005, pp.12, 13.

[84] Morton S., Bourne G., Crisofani P., Cullen P., Possingham H., and Young M. 2002. *Sustaining our Natural Systems and Biodiversity, an independent report to the Prime Minister's Science, Engineering and Innovation Council*, CSIRO and Environment Australia, Canberra, accessible at < http://www.dest.gov.au/NR/rdonlyres/EE0F827A-94BB-4E0C-80F5-A058293F190C/2014/Sustaining_our_Natural_Systems_and_Biodiversity_Wo.pdf>, p.2.

[85] Task Force on Economic Benefits of Protected Areas of the World Commission on Protected Areas (WCPA) of IUCN, in collaboration with the Economics Service Unit of IUCN, *Economic Values of*

Proposed new suburbs in DV 231

1.52 DV231 applies to land on the Territory Plan map within the suburbs identified as Kenny, Throsby and Harrison, and to the non-urban area of Gooroo. It applies a Defined Land Overlay to these urban areas, and specifies the principles and policies that apply. Proposed changes to the Territory Plan map are represented in the map in Appendix 2.

1.53 DV231 clarifies a range of boundaries. It recommends changes to the boundaries of the urban area in Gungahlin's eastern suburbs, and defines the boundary of the Goorooyarroo Nature Reserve. The proposed reserve includes approximately 300ha of hills, ridges and buffer land that was formerly subject to residential land use policy. A Public Land 'Pc' (nature reserve) Overlay identifies the boundary of the reserve, and adjacent Hills Ridges and Buffer Areas and Residential areas.

1.54 DV231 also amends the boundary of Mulligans Flat Nature Reserve to recognise the urban edge of the suburb of Throsby. It confirms the alignment of Wells Station Drive. It adjusts the boundaries of the Hill Ridges and Buffer Areas and Residential policies between Kenny and the Federal Highway, and the boundaries of the Broadacre, Residential and Hills Ridges and Buffer Areas policies on the south-west corner of East Gungahlin. A Broadacre Land Use Policy is applied to an area of approximately 23ha northeast of Horse Park Drive in Kenny, adjacent to a Hills Ridges and Buffer area, to provide about 34ha as habitat for the striped legless lizard (*Delmar Impar*). DV231 also makes a minor extension to the boundary of the Mitchell industrial area as reflected in Figure 3 Part B Industrial Land Use policies.

1.55 Environment ACT and the Centre for Resource and Environmental Studies at the ANU have partnered in a joint 5-year research program called 'Innovative Enhancement and Management of Threatened Temperate Woodlands for Improved Biodiversity Conservation'. ACT Government funding will be

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Protected Areas: Guidelines for Protected Area Managers. IUCN, Gland, Switzerland, 1998, p.12. See also Morton et al. *Sustaining our Natural Systems and Biodiversity, an independent report to the Prime Minister's Science, Engineering and Innovation Council*, accessible at < http://www.dest.gov.au/NR/rdonlyres/EE0F827A-94BB-4E0C-80F5-A058293F190C/2014/Sustaining_our_Natural_Systems_and_Biodiversity_Wo.pdf>.

$50 000 per year and the Australian Research Council will provide $807 000 over 5 years. The project is intended to improve understanding of woodland biota management, particularly for rural south-eastern Australia. It aims to identify how expenditure on woodland management and enhancement can be more cost-effective and ecologically effective, particularly on private lands, and will develop strategies for woodland management.[86] One of the submissions to be inquiry argued there should be a moratorium on development in the Throsby neck area at least until this research is completed.[87]

1.56 DV231 outlines the planning principles applicable to East Gungahlin. It also provides for infrastructure. It responds to the Stormwater Masterplan for Sullivans Creek by proposing a stormwater management pond (water feature policy) for Kenny. It locates the Commercial C Group Centre Site in Kenny, and proposes that the government high school in Harrison will serve East Gungahlin. DV231 proposes that the government primary school site is located in a central area in Kenny, and that it have an adjacent playing field. A Residential B8 Overlay is proposed for the land adjacent to the Kenny primary school and a Residential B9 Overlay is identified adjacent to the Kenny Group Centre and primary school and at the intersection of Horse Park Drive and Wells Station Drive.

Legal constraints on policy making

1.57 The preface to this report provides a summary overview of the legislative framework applicable to planning in the ACT but it is important to emphasise some of the fundamental legal principles that guide policy development in the ACT. Whilst the *Heritage ACT 2004* (ACT) is relevant to corridors with natural heritage values, the Heritage Act is not discussed here.

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[86] Submission No. 6

[87] Submission No. 11

1.58 The object of the *Planning and Land Act 2002* (ACT) is to provide a planning and land system that contributes to the orderly and sustainable development of the ACT that is:

(a) consistent with the social, environmental and economic aspirations of the people of the ACT; and

(b) in accordance with sound financial principles.

1.59 The ACT Planning and Land Authority is required by the ACT to exercise its functions—

(a) in a way that has regard to sustainable development; and

(b) taking into consideration the statement of planning intent.

1.60 Sustainable development is defined in the ACT as meaning the effective integration of social, economic and environmental considerations in decision-making processes. Under the Act this is to be achieved by implementing the following principles:

(a) the precautionary principle;

(b) the inter-generational equity principle;

(c) conservation of biological diversity and ecological integrity; and

(d) appropriate valuation and pricing of environmental resources.[88]

Precautionary principle

1.61 The precautionary principle has been incorporated in various international environmental law agreements, declarations and domestic laws.[89] It recognises that lack of certainty regarding the threat of environmental harm should not be used as an excuse for not taking action to avert that threat. The most often cited Australian judicial exposition of this principle is that of Stein J in the NSW Land and Environment Court decision in *Leatch v National Parks and Wildlife Service* (1993) 81 LGERA 270. Stein J said:

> In my opinion, the precautionary principle is a statement of

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[88] See generally ss.3, 9(3), 74.

[89] including Principle 15 of the Rio Declaration (1992) and the preamble to the Convention on Biological Diversity (1992).

> commonsense ..... It is directed towards the prevention of serious or irreversible harm to the environment in situations of scientific uncertainty. Its premise is that where uncertainty or ignorance exists concerning the nature or scope of environmental harm (whether this follows from policies, decisions or activities), decision makers should be cautious.

1.62 The ACT Administrative Appeals Tribunal has commented in one decision that a cautious approach is consistent with the object and purpose of the Nature Conservation Act, but this was not one of the reasons for decision not to permit horses to access the Aranda Bushland.[90] The precautionary principle was applied in another Administrative Appeals Tribunal decision but that decision was overturned on appeal.[91]

Inter-generational equity principle

1.63 The inter-generational equity principle means that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.

1.64 This is an important principle which must be taken into account in the development of land use policies impacting on Goorooyarroo and Mulligans Flat Nature Reserves. This principle helps to ensure that the economic interests of the present generation do not outweigh the rights and interests of future generations to have biodiversity conserved in an effective way. The interests of future generations are a legitimate limit or constraint on the rights of the current generation. Under this principle, maximising the economic utility of land and biological resources should not be given priority over the need to conserve biodiversity for future generations. Since the protection of biodiversity is a necessary precondition for the survival of future generations, the present generation has a moral and legal obligation to ensure that sufficient biodiversity will be conserved to ensure that.[92]

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[90] *Christine Grishin and Conservator of Flora and Fauna* [1998] ACTAAT 250

[91] *Rashleigh and Environment Protection Authority* [2004] ACTAAT 31 overturned in *Rashleigh and Environment Protection Authority* [2005] ACTSC 18

[92] P.M. Wood, *Biodiversity and Democracy: Rethinking Society and Nature* (2000) UBC Press, Vancouver.

Background to DV231

1.65 The former National Capital Development Commission undertook initial and more detailed planning for Gungahlin in the 1970s and 1980s. In 1988 the National Capital Development Commission released a Policy Plan and Environmental Impact Statement for the area. The proposed urban area of Gungahlin (including the suburbs of Amaroo, Casey, Harrison, Ngunnawal and Nicholls and the Gold Creek Tourist Area) was included in the Territory Plan as gazetted in 1993.

1.66 Canberra Urban Parks and Places manages urban open space and is supported by a Landcare and Community Liaison Officer. Canberra Urban Parks and Places commissioned a CSIRO study on grassland management[93] and earlier commissioned a study of lands and lakes areas. Canberra Urban Parks and Places and the Canberra Ornithologists Group collaborated to publish Birds in Canberra Gardens in 2000, and its extensive surveying of birds in the region is ongoing.[94]

1.67 The quality of the woodlands in the Gooroo area north of Horse Park Drive were assessed as part of the ACT-wide assessment of the extent and quality of native vegetation in the ACT during 1997–2003. Conservation options were developed based for areas having 'above average ratings'. [This has generated some criticism in submissions on DV231 as noted below]. Subsequent surveys were conducted in December 2001 and the conservation area was refined in 2003 in the Lowland Woodland Conservation Strategy, extending to about 700ha for the Goorooyarroo Nature Reserve. In July 2005 the ACT Government was negotiating with the Australian Government Department of Finance and Administration to secure a further 25ha of Yellow Box-Red Gum and Red Stringybark woodland adjacent to Goorooyarroo Nature Reserve.[95]

1.68 The proposed boundaries of Goorooyarroo Nature Reserve were established 'following numerous meetings and a number of on-site discussions between

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[93] K.C. Hodgkinson, 'Review of Management Options for Urban Grasslands in Canberra, CSIRO Sustainable Ecosystems', Final Draft Report Prepared for Canberra Urban Parks and Places, Department of Urban Services, ACT, May 2005.

[94] Submission No. 6

[95] Submission No. 9

representatives of the ACT Planning and Land Authority and relevant areas of ACT, particularly the Wildlife Research and Monitoring Unit and the Parks and Conservation Service.[96]

1.69 The Territory Plan was amended with an expansion of the Mulligans Flat reserve,[97] alteration of the Gungahlin Town Centre and Central Area to reduce impacts on the habitat of the striped legless lizard (*Delmar impar*)[98] and the variation for North Gungahlin.[99]

1.70 The proposed variation was developed in consultation with specialist consultants including ecologists, fire experts and heritage experts, and the Conservation Council of Canberra and South-east Region.[100]

1.71 An independent Bushfire Risk Assessment was completed for the proposed suburbs of Throsby and Kenny in September 2004. This recommended that houses in the northern part of Throsby and on the western edge of Kenny above Horse Park Drive be built to meet Level 1 of the Australian Standard AS3959.[101]

1.72 The planning principles and policies underpinning the proposed variation are reproduced at Appendix 6.

1.73 The proponent (the ACT Planning and Land Authority) completed its mandatory Preliminary Assessment for East Gungahlin suburbs of Kenny and Throsby and Goorooyarroo Nature Reserve in July 2004. This was released for public comment.[102]

1.74 The technical evaluation of that assessment concluded that no further environmental impact assessment was required in relation to the project.[103] However, the Authority did recommend that:

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[96] Submission No 9

[97] Variation No. 15, 1994.

[98] Variation No. 15, 1995

[99] Variation No. 130

[100] Submission No. 9

[101] Submission No 9

[102] Under *Land (Planning and Environment) Act 1991* (ACT) sections 114, 117 and Schedule II.I, Appendix II of the Territory Plan.

[103] Minister for Planning, Preliminary Assessment Evaluation for East Gungahlin Suburbs of Kenny and Throsby and Goorooyarroo Nature Reserve, October 2004, p.18.

- management practices be implemented within the reserve to improve its ecological condition and habitat value for threatened and declining woodland birds;
- that the final DV231 contain principles and policies providing for further studies to be undertaken at appropriate planning stages for proposed development areas adjacent to Goorooyarroo Nature Reserve to ensure that land uses do not affect the ecological values of the reserve in peripheral areas; and
- the ACT Planning and Land Authority, in consultation with the Heritage Unit, identify timeframes and responsibilities for investigating and assessing heritage places needing, in particular, conservation planning or salvage.[104]

Consultation comments – ACT Planning and Land Authority

1.75 In accordance with the *Land (Planning and Environment) Act 1991* (ACT), the ACT Planning and Land Authority sought and considered the views of the National Capital Authority, the ACT Heritage Council and the Conservator of Flora and Fauna.

- On 30 August 2004 the National Capital Authority advised that the proposed variation was not inconsistent with the provisions of the National Capital Plan.
- The ACT Heritage Council advised on 1 April 2005 that it supported the general planning policies and principles in the proposed variation.
- The Conservator of Flora and Fauna, Dr Maxine Cooper, advised that the proposed variation addressed one of the key priority actions identified in Action Plan 27 because Goorooyarroo Nature Reserve protects a large area of Yellow Box-Red Gum Grassy Woodland. Dr Cooper also responded that proposals in the variation to salvage Striped Legless Lizards (*Delmar Impar*) would only be considered for licensing after

[104] Minister for Planning, Preliminary Assessment Evaluation for East Gungahlin Suburbs of Kenny and Throsby and Goorooyarroo Nature Reserve, October 2004, p.19.

thorough investigation and consultation with the National Recovery Team for the Striped Legless Lizard.[105]

1.76 The ACT Planning and Land Authority released DV231 for public comment on 23 July 2004 until 3 September 2004. The main points made in the four written submissions to the Authority, and the Authority's response, are summarised in Table 1.

Table 1: Summary of issues and ACT Planning and Land Authority responses[106]

Stakeholder comment	Response by the ACT Planning and Land Authority
Significant woodland elements will be destroyed by the proposed urban development	Goorooyarroo Nature Reserve contains Yellow box-Red Gum woodlands of significance. Some fragmented lowland woodland vegetation outside the reserve is substantially and severely modified. The Conservator of Flora and Fauna may recommend retention of some trees as part of the urban fabric following assessment. A tree survey and assessment is part of the Concept Planning stage.
The Preliminary Assessment has taken a broad-brush approach to assessing biodiversity impacts. A more comprehensive analysis is needed, including bird surveys.	The Preliminary Assessment is based on information in the Lowland Woodland Conservation Strategy and draft Native Woodland Conservation Strategy. Goorooyarroo Nature Reserve creates ecological connectivity with Mulligans Flat Nature Reserve and Mt Majura Nature Reserve. When the Territory Plan is varied approx. 300ha of land subject to Residential Land Use policy will become nature reserve.

[105] ACT Planning and Land Authority, Report on Consultation with Public and Government Agencies, Draft Variation to the Territory Plan No. 231, Annexure 2 to Recommended Final Variation, April 2005.

[106] ACT Planning and Land Authority, Report on Consultation with Public and Government Agencies, Draft Variation to the Territory Plan No. 231, Annexure 2 to Recommended Final Variation, April 2005.

Data on bird species in the Preliminary Assessment is incomplete and outdated.	Environment ACT provided the bird data based on data provided by the Canberra Ornithologists Group in April 2004.
The reserve may not remain a sustainable habitat for woodland birds. No housing should be built east of Horse Park Drive; the neck of Throsby between the two reserves should not be developed; the area on the east of Horse Park Drive opposite the commercial group centre should not be developed as it part of a known Brown Treecreeper habitat.	A 25ha containing high quality Yellow Box-Red Gum Grassy Woodland with a largely intact understorey adjacent to the north-eastern boundary of Goorooyarroo Nature Reserve in NSW may be purchased. This would improve ecological connectivity between Goorooyarroo Nature Reserve and Mulligans Flat Nature Reserve.
Areas adjacent to reserves should be cat free zones.	Cat containment provisions similar to those applicable to Forde and Bonner will be applied to the residential areas of Throsby east of Horse Park Drive.
The boundary of Goorooyarroo Nature Reserve is unnecessarily long, creating increased edge effects and the need for more fire abatement measures.	The Preliminary Assessment proposes that a buffer area be created within the residential area for conservation protection and fire management purposes. Details of these management requirements will be resolved as part of the detailed planning process including the creation of access points (e.g. pocket parks) and signage explaining the values of the reserve areas.
Bushfire abatement and burning zones should be outside the reserve as a cleared zone will destroy habitat.	There is already a 9-metre management zone within the western boundary of Mulligans Flat. The Preliminary Assessment included an initial bushfire assessment. Development can occur in this area provided risk reduction measures are undertaken. Management requirements will be refined during the Concept Planning and detailed planning stages.
There should be a 1km buffer between threatened remnant woodland and housing with limited access to reserves and ecologically sensitive areas.	A 1km buffer is not supported. The Preliminary Assessment proposes a buffer area with several elements including edge roads, appropriate fencing and a fuel free zone. These will be refined during the

	Concept Planning and detailed planning stages. Environment ACT will manage this area to improve its ecological condition.
Issues such as scarcity of riparian habitat, hilly terrain, large area to edge ratio, Throsby bottleneck, key habitat areas and regeneration need to be addressed.	The 750ha reserve will provide connectivity between Mulligans Flat and Mt Majura Nature Reserves. Within the reserve there are opportunities to enhance riparian habitat, regeneration and key habitat areas as part of the management plan for the reserve. Ecological research will be undertaken to support management directed at improving the ecological condition of the reserve. Exceptional and significant trees will be retained in Kenny and Throsby and sustainable urban stormwater practices will reduce edge effects.
Provision should be made for a stock underpass in the vicinity of Well Station Drive to enable grazing to continue and to provide for equestrian activities and future pedestrian and bicycle access.	This issue is being investigated as part of the detailed design of Well Station Drive.

Committee consultations

1.77 On 4 May 2005, pursuant to the *Land (Planning and Environment) Act 1991* (ACT), Mr Simon Corbell MLA, Minister for Planning, referred DV231 to this committee for inquiry and report. On 10 May 2005 the Committee resolved to invite submissions to an inquiry into wildlife corridors and the assessment of biodiversity issues in ACT planning, using DV231 as a case-study. Members agreed to the extended closing date of 29 June 2005 to enable stakeholders sufficient time to prepare considered submissions. The key issues raised in submissions are noted here.

1.78 Several submissions commended the declaration of the Goorooyarroo and Mulligans Flat nature reserves and policy initiatives such as the proposed Regional Management Framework on cross border developments, and the

Planning Framework for Natural Ecosystems of the ACT and NSW Southern Tablelands Planning (2002).[107]

1.79 Several other submissions expressed concern about the proposed development of land adjacent to Goorooyarroo and Mulligans Flat nature reserves and the impact of that on the reserves:

- Professor David Lindenmayer of the Centre for Resource & Environmental Studies at the ANU expressed concern about the narrow neck between the Goorooyarroo and Mulligans Flat reserves. He wrote that for many species (although certainly not all) the link between the two reserves would be too narrow to ensure that the two areas can actually function as a single large and significantly more viable reserve. He fears that the viability of the two reserves will be further compromised if urban encroachment is very close.[108]
- Professor Lindenmayer was also concerned that urban encroachment could compromise the research being undertaken in the reserve. That research receives considerable funding from the ACT Government and the Australian Research Council (exceeding $1million).[109]
- The NSW Department of Environment and Conservation submitted that there should be minimal, if any, development, land use change or site disturbance on land of known conservation importance. Any land subdivision or development should proceed with extreme care and require detailed scientific assessment.[110]
- A couple of submissions noted that lower quality vegetation near Goorooyarroo and Mulligans Flat can be restored to connect with the higher quality areas.[111] This is said to be important because East Gungahlin in the Canberra–Queanbeyan Landscape Unit contains a large proportion of the total regional occurrence of areas of known and predicted conservation importance.
- The NSW Department of Environment and Conservation noted in its submission, drawing on Fallding (2002), that about 10% of the proposed urban expansion is on land designated as level Planning Setting A (i.e. areas of known conservation importance) and roughly 40% is on land designated as Planning Setting B (i.e. areas of predicted conservation importance). It also noted the recognised conflict between urban expansion needs and nature

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[107] Submissions No. 6, 15, 17

[108] Submission No. 19

[109] Submission No. 19

[110] Submission No. 13. See also Submission No. 14

[111] Submissions No. 14, 15

conservation priorities, degradation of natural values adjoining urban areas and environmental weed invasion.[112]

- The ACT Commissioner for the Environment raised concerns about the lack of policy on the 'next generation' of native vegetation in urban areas and the lack of policy to specify the 'desired extent of urban vegetation and habitat.[113]

1.80 Other submissions were equally forceful in relation to potential harm urban encroachment may cause to Goorooyarroo and Mulligans Flat Nature Reserves:

- Buffer areas need to be sufficiently wide to achieve their conservation and management objectives.[114]
- There should be no housing development east of Horse Park Drive because this will seriously compromise the adjacent reserves of Mulligans Flat and Goorooyarroo, and is not justified in terms of housing demand, especially given the proposed development of the Molonglo area. The 'neck' area of Throsby should be used for buffer/broadacre purposes, enabling dispersal of some woodland birds to continue[115] and to protect nearby suburbs from fire threats.[116] This is known habitat for the Brown Treecreeper.[117]
- Fences for Goorooyarroo and Mulligans Flat nature reserve should be improved to exclude feral animals and measures need to be introduced to protect the reserve from wood collectors and trail and bike riding.[118]
- DV231 provides a large boundary to area ratio creating harmful 'edge' effects like weed invasion, rubbish dumping, pet predation, control burning, wood collection etc.[119] Edge roads are not necessarily a sufficient buffer as more than half the birds and animals taken into RSPCA care are injured by cars.[120]
- The development proposed in DV231 will result in significant degradation of arguably the most significant box-gum woodland remnant remaining in

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[112] Submission No. 13

[113] Commissioner for the Environment, *Annual Report 2004-05,* Australian Capital Territory Government, 2005, p.43.

[114] Submissions No. 15, 16

[115] Submissions No. 2, 5, 11, 16

[116] Submissions No. 11, 15

[117] Submission No 11

[118] Submission No. 15, 19

[119] Submission No. 5

[120] Submission No. 16

Australia. Planning based on resource condition is short-sighted as habitat can be restored and landscape context is more important.[121]

- All new developments should be set back far enough so that bushfire safety requirements are met on the development land rather than neighbouring land[122] or protected areas especially.[123]
- This site may provide an opportunity to establish the Southern Tablelands Ecosystems Park (STEP),[124] which is an evolving project aiming to establish 'a regional botanic garden that demonstrates the link between plants, fauna, other organisms and the ecosystems of the Southern Tablelands…. [and] to promote knowledge of the elements of our region's ecoystems', amongst other aims.[125]

1.81 Other submissions made more general points about the need for better impact assessments:

- DV231 is based on an inadequate impact assessment because key habitat features, areas utilised by threatened species, and the most recent survey data were not properly taken into account.[126] A precautionary approach is needed.[127]
- Impact assessment, including the principles of avoidance of harm except where no other prudent alternatives exist, is needed for all activities that clear or disturb native vegetation, including infrastructure developments in protected areas. The principle of 'net vegetation gain',[128] should be incorporated in the *Land (Planning and Environment) Act 1991.*[129] An independent assessor is needed to assess any development proposal involving

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[121] Submission No. 5. Submission No 8 also expressed concern about new urban developments on the fringes of protected areas leading to degradation of those areas.

[122] Submission No. 5

[123] Submissions No. 10, 11, 15. See also Submission No. 14.

[124] Submission No 11

[125] *STEP News,* No. 2, December 2003, supplementary information to Submission No. 14. The project is looking for a permanent site, with the possibilities under consideration including Amaroo, Birigai, Molonglo Valley, the Canberra International Aboretum and Gardens, Gooroo, and Tidbinbilla.

[126] Submissions No. 5, 11

[127] Submission No. 5

[128] As proposed in the *Nature Conservation (Native Vegetation Protection) Amendment Bill 2004 (ACT)* supported by the ACT Democrats and the ACT Greens, but opposed by ACT Labor because it was administratively cumbersome, too narrow and not thought through: Submission No. 5. The Environment Defender's Office (ACT) argued similarly for a prohibition on clearing native vegetation and the principle of 'no net loss' in a July 2005 submission to the Planning System Reform Project given, a copy of which was sent to the Committee.

[129] Submission No. 5

habitat loss to maximise the retention of natural areas, reserves and urban open space.[130]

- Flora and fauna corridors should be integral to urban planning.[131]
- Comprehensive vegetation inventories are needed that include reliable estimates of the age structure of the vegetation obtained through dendrochronological analysis. This is important for assessing wildlife habitat resources.[132]
- Current legislation needs to be reviewed to ensure it aligns to protect vegetation and endangered species.[133]
- All infrastructure managers, contractors and service personnel should be governed by environmental impact guidelines on care of vegetation and for machinery use.[134] Appropriate tracks should be created in the reserves with deterrents for off-track activities.[135] The bush should not be seen as 'a convenient dumping-place, a source of firewood, kindling, rocks for landscaping, reptiles for 'pets'', [136] nor used for recreation by motorbikes and vehicles.[137]
- Development pressure should not be placed on land outside identified urban growth areas because of environmental protection measures inside growth areas.[138] Protected areas should remain so in perpetuity under legislative protection and be managed primarily for conservation.[139] Urban development and biodiversity conservation are incompatible.[140] A consolidated model of urban development with infill along key public transport routes would be far more sustainable than greenfields development.[141]

1.82 Several submissions noted the need for policy development in relation to riparian communities –

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[130] Submission No. 7
[131] Submissions No. 7, 10
[132] Submission No. 1
[133] Submission No. 14
[134] Submission No. 7
[135] Submission No. 10
[136] Submission No. 7
[137] Submission No. 8
[138] Submission No. 4
[139] Submissions No. 10
[140] Submission No. 8
[141] Submission No. 14

- Information about riparian communities in the ACT is poor relative to the good information about grassy woodland and temperate grassland vegetation.[142] More riparian areas and drainage lines should be included in protected areas in East Gungahlin as they provide significant habitat and wildlife corridors.[143] Impacts on riparian areas should be minimised through the introduction of Water Sensitive Urban Sensitive Design Principles.[144] While woodland, grassland and riparian areas have been well addressed in policy development, remnant areas such as rocky outcrops and remnant grasslands along creeklines remain unmapped. These are important refuges for herpetofauna (frogs and reptiles) and can be aesthetically pleasing so should have appropriate conservation management.[145]
- Migratory birds use wetlands, and these need to be recognised in wildlife corridor planning.[146]

1.83 Several submissions raised issues concerned with tree protection and management:

- More flat land should be included in protected areas in East Gungahlin as lowland trees tend to be larger, contain more hollows and provide richer nectar and insect resources for birds.[147]
- A policy or plan is needed for the 'urban forest' of the future, i.e. a tree planting strategy for new suburbs and open space areas to ensure faunal habitat is available and to recognise secondary corridors through open space areas.[148] Endemic trees are particularly important 'stepping-stones' for birds in urban areas.[149] Another submission noted that the ACT Chapter of the Australian Institute of Architects had submitted its commissioned report to Canberra Urban Parks and Places on wildlife corridors and landscape restoration in 1998. The report is regarded as current. It suggests that the Canberra Landscape Guidelines should be enforceable and that the ACT

[142] Submission No. 18. Submission No 6 also noted significant improvements in natural resource information for the ACT in the last 10 years.

[143] Submission No. 5

[144] Submission No. 15

[145] Submission No. 14

[146] Submission No. 3

[147] Submission No. 5

[148] Submission No. 18

[149] Submissions No. 11, 15

Government needs to make a solid commitment to a comprehensive tree replacement program in ACT urban areas.[150]

- One submission noted that Environment ACT should consider the habitat value of trees when processing applications for removal, noting that the removal of one particular tree containing a magpie nest had altered the avifauna balance in the suburb, enabling Currawongs to move in and decimate fairy wrens and silver eyes.[151]

1.84 Several submissions argued there was a need for sustainable development/nature conservation policies to be better administered:

- The lowland woodland and grassland conservation strategies need to be integrated into one strategy and there should be much more integration of ACT Government policies and programs.[152]
- The ACT Government's action plans and strategic plans need appropriate levels of funding to ensure the plans are implemented,[153] and biodiversity protected.[154] Culling of excessive kangaroos may be necessary.[155]
- The Territory Plan should include a Green Plan (having the same status as the Spatial Plan, Social Plan and Economic White Paper), that provides general planning principles for sustainable development.[156] The Conservation Council recommended that a new land use policy be developed for areas of high conservation/connectivity/corridor value, which should restrict activities on the land detrimental to that value.[157] Other submissions said that a holistic approach or a 'biodiversity overlay' is needed to ensure that biodiversity protection is integrated into land use planning rather than the current system which deals with individual parcels of land.[158]
- The ACT Government should introduce programs to raise awareness and educate the public about the values of open space areas in Canberra, [159] including information about sympathetic gardening techniques, suitable

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[150] Submission No 12
[151] Submission No 12
[152] Submission No. 18
[153] Submission No. 7
[154] Submission No. 8
[155] Submission No. 8
[156] Submissions No. 18
[157] Submission No. 15
[158] Submissions No. 11, 14
[159] Submissions No. 7, 8, 11

native garden plants, potential weeds and the possible effects of domestic pets on native flora and fauna.[160]

- The value of natural ecosystems should be better quantified so that the primary indicator is not the opportunity costs of foregone development. [161] Yellow Box-Red Gum woodlands have national significance.[162]
- Pets that endanger native fauna should be effectively controlled under legislation.[163] Under the *Domestic Animals Act 2000* (ACT) the Minister can declare an area where cats have to be confined to premises during stated times (s.81). This could be extended to Throsby. Compulsory micro-chipping is required for cats in cat containment areas under proposed 2005 amendments to the Act.[164] The ACT Planning and Land Authority supports the implementation of cat containment policies, as do other stakeholders, and will investigate cat containment in Throsby (adjacent to Mulligans Flat Reverse) and areas north of Horse Park Drive.[165] Various stakeholders welcome this approach and seek cat containment in any new suburbs adjacent to reserves or grassland areas.[166]
- Another submission said that park rangers need more powers to deal with transgressors. [167]

Committee comments

1.85 The Committee commends the ACT Government for its policy commitments to regional, territory and local scale wildlife corridors and integrated catchment management. It suggests, however, that given the proliferation of plans, strategies, policies and organisations that there is a need for rationalisation and a better integration of law and policy in this area.

1.86 The Committee notes that in addition to the numerous submissions that expressed concern about the potential impact of the suburb of Throsby on

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[160] Submission No. 15
[161] Submission No. 18
[162] Submission No. 5
[163] Submissions No. 10, 11, 15, 16
[164] Submission No. 6
[165] Submissions No. 9, 10, 11
[166] Submissions No. 15, 16
[167] Submission No. 10

Goorooyarroo Nature Reserve, the ACT Planning and Land Authority's technical evaluation of the Preliminary Assessment recommended that the DV231 contain principles and policy 'which provide for further studies to be undertaken at the appropriate planning states for the proposed development areas adjacent to the Goorooyarroo Nature Reserve to ensure that the ecological values in peripheral areas of the reserve are not affected by proposed nearby land uses'.[168]

1.87 DV231 also recognises that there is an opportunity to undertake ecological studies to develop knowledge about woodland management practices to improve the ecological condition of the nature reserves is to be pursued.[169] This improved knowledge base is to assist in the detailed planning of the urban edge and ensure that the impact of residential and other developments on the adjacent nature reserve are minimized.

1.88 In the Committee's view, the precautionary principle, a commitment to best practice biodiversity conservation, and to inter-generational equity must apply to prevent the suburb of Throsby impacting adversely on Goorooyarroo and Mulligans Flat Nature Reserves. The boundary of the suburb of Throsby should be amended to remove the neck area. If future studies demonstrate that residential development is not impacting adversely on Goorooyarroo and Mulligans Flat Nature Reserves, consideration could then be given to extending the suburb of Throsby.

1.89 The Committee notes that with the proposed release of land in the Molonglo Valley for urban development, and the general downturn in housing demand, there is no compelling economic justification for unnecessarily threatening the endangered Yellow Box / Red Gum ecological community.

1.90 The Committee is concerned that the proposed suburb of Throsby will impact adversely on the biodiversity values of Goorooyarroo and Mulligans Flat Nature Reserve. Having such a close suburban area will increase the risk of weed and pest animal impacts in Goorooyarroo and Mulligans Flat. The NSW

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[168] Minister for Planning, Preliminary Assessment Evaluation for East Gungahlin Suburbs of Kenny and Throsby and Goorooyarroo Nature Reserve, October 2004, p.19

[169] ACT Planning and Land Authority, *Recommended Final Variation to the Territory Plan No. 231*, April 2005, p.15.

State of the Parks Report 2004 noted that 19% of parks in NSW are threatened in a major way by inappropriate adjacent land uses (such as industrial use, some forms of agriculture and residential development).[170] Isolating parks through land clearing and urban development threatens about 25% of parks in NSW. [171]

1.91 The Committee's view is that the environmental, economic and social benefits of extending the boundaries of Goorooyarroo Nature Reserve outweigh the costs of not developing the suburb as proposed currently in DV231. There are enormous benefits for the science, education and the community sectors in protected area protection, and these should not be sacrificed for short-term economic gain. There is also potential for significant eco-tourism revenue to be generated by visitors to these and other parts of Canberra Nature Park.

1.92 The Committee recommends that the ACT Planning and Land Authority review the boundaries of the suburb of Throsby and re-draw them back towards Horse Park Drive.

1.93 The Committee recognises that predation by roaming domestic pets is a serious threat to native biodiversity in the ACT.[172] Cat containment is well justified on available research.

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[170] NSW Department of Environment and Conservation (NSW), *State of the Parks Report 2004*, Sydney 2005, p.52.

[171] NSW Department of Environment and Conservation (NSW), *State of the Parks Report 2004*, Sydney 2005, p.52.

[172] The Conservation Council for the South-east Region and Canberra provided the following research citations in support of their request for further cat control measures in East Gungahlin– D.G. Barratt, *Predation by House Cats, Felis catus (L.), in Canberra, Australia. I. Prey Composition and Preference*, Applied Ecology Research Group, University of Canberra, Australia, 1997; R. Stewart, *Envirocat: A New Approach to Caring for Your Cat & Protecting Wildlife*, Hyland Publishing House, Melbourne, 1997; ACT Government, *Code of Practice for the Welfare of Cats in the ACT*, 1996; R. Holmes, & G. Fink, *Pets in Urban Areas: A Guide to Integrating Domestic Pets into New Residential Development*; ACT Government, *Action Plan No. 27: Draft ACT Lowland Woodland Conservation Strategy* 2003; D. Lindenmayer, 'The Natural and Cultural Significance of Mulligans Flat, Gungahlin, ACT: A Nature Reserve Proposal', Conservation Council of the South-east Region and Canberra, May 1992; R. Cunningham, 'A Statistical assessment of the status and trends of woodland birds in the ACT; Database of Canberra Ornithologists Group', 2002; Dickman, Overview of the impacts of feral cats on Australian native fauna, Australian Nature Conservation Agency (now Environment Australia). Commonwealth Government printer, Canberra, 1996; 'Cat Working Party Report', Department of Environment and Planning, Adelaide, 1992; P. McRae, and G.C. Smith, 'Mammals', in *An island in suburbia: The natural and social history of Toohey Forest*, eds. C.P.Catterall and C. J Wallace. Institute of Applied Environmental Research, Griffith University, Brisbane, 1987, pp.115-118.

1.94 The Committee appreciates the view that there is an opportunity for the ACT Government to review and rationalise the many planning and nature conservation strategies that apply in the ACT and region. The Committee is aware that the proliferation of plans and policies is partly an outcome of the Australian federal political system and the need to comply with Australian Government funding conditions, but the Committee's view is that the plethora of plans and policies applicable reduces the prospect for compliance and effective monitoring and evaluation. For example, Action Plans could be better recognised in legislation or the recommended biodiversity overlay in the Territory Plan and could subsume action plans for individual species. Under the ecosystem approach to biodiversity conservation, species' habitat and ecological communities are a paramount consideration. At present Action Plans are not directly enforceable by legislation.

1.95 In the Committee's view it would be timely to incorporate a Biodiversity Overlay or a Green Plan in the Territory Plan, consistent with the approach currently taken in the structural and concept planning stages of proposed variations to the Territory Plan. This overlay or green plan should have mandatory effect, and be enforceable under the revised legislation or amendments expected to be introduced as a result of the Planning System Reform Project.

1.96 The Committee previously examined some of the issues raised during this inquiry in its report on DV209 – East O'Malley Extension of Mugga Mugga Nature Reserve. The Committee then recommended that for all future draft variations that concern the expansion of residential areas, or impact on Canberra Nature Park, maps and data that demonstrate how the proposed variation will contribute to ecological connectivity and regional targets for protection of species should be included in the public documentation produced by the ACT Planning and Land Authority. This would be consistent with Objective 4 of the ACT Lowland Woodland Conservation Strategy. Map 7 of the *Canberra Spatial Plan* shows wildlife corridors for biodiversity conservation and it would be helpful if proposed variations were to locate the land affected in that larger context for public education purposes and to demonstrate the ecological impacts of the proposed variation.

1.97 The Committee appreciates that the ACT Planning and Land Authority may

work with template documents but reiterates its view that stakeholders would benefit from more graphic ecological information in draft variation documents and recommends again that this be done.

1.98 DV231 proposes to insert into the Territory Plan a range of principles to guide the detailed planning for the suburbs of Kenny and Throsby. These aim for the integration of the natural environment and human activity and sustainable urban development.[173] The Committee commends the ACT Planning and Land Authority for these principles.

1.99 The Committee notes that policy development is underway with respect to riparian areas. A draft Aquatic Species and Riparian Zone Conservation Strategy is being developed.[174] When finalised, this strategy will inform planning and management of waterways and aquatic biodiversity in the ACT.

1.100 At present unconnected land remnants exist in the form of rural leases in both the ACT and NSW. These leases are managed through Land Management Agreements. As is recognised in the ACT Natural Resource Management Plan, remnant vegetation on these properties could be better linked within corridors for the benefit of biodiversity conservation and water quality. In the Committee's view these could be the basis for increased funding applications under the Natural Heritage Trust and National Action Plan for Salinity and Water Quality.

1.101 During this inquiry, on 4 June 2005, the Chair of the Committee attended the Woodlands for Wildlife seminar hosted by the Canberra Ornithologists Group, in collaboration with Environment ACT and the ANU. One concern raised at the seminar was the increased predation by Pied Currawong (*Strepera graculina*).

1.102 The Committee notes that these birds are a recognised threat to small birds, including common (introduced and native) species in woodlands and urban environments, but roaming cats are probably a comparably high threat. Pied Currawong populations are thought to be relatively stable in the ACT. Their

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[173] ACT Planning and Land Authority, *Variation to the Territory Plan No 231: East Gungahlin Suburbs of Kenny and Throsby and Goorooyarroo Nature Reserve*, April 2005, p.26.

[174] ACT Government, *Chief Minister's Department Annual Report 2004–05*, vol. 1, p.62.

apparently permanent (rather than seasonal) presence may be attributable to the prevalence of woody weed species in the ACT such as Blackberry (*Rubus fruticosus*), Sweet Briar (*Rosa rubiginosa*), Firethorn (*Pyracantha* spp.), Hawthorn (*Crataegus monogyna*), and Cotoneaster (*Cotoneaster* spp). The Canberra Ornithologists Group has been reported as finding that while predation rates are high, this may not significantly decrease small bird populations overall. For example, the Superb Fairy-Wren (*Malurus cyaneus*) has been increasing in numbers in the ACT since the early 1990s but also experiences a high level of nest predation by Currawongs in the ACT.[175] The Committee also notes Currawong are a recognised pest under the *ACT Vertebrate Pest Management Strategy*.[176]

1.103 Several submissions emphasised the importance of enshrining in legislation 'conservation in perpetuity' for protected areas in the ACT. The Territory Plan and National Capital Plan already offer substantial protection but are open to amendment, as are all ACT laws and policies. The *Australian Capital Territory (Self-Government) Act 1998* (Cwlth) does enable the ACT Legislative Assembly to require special procedures for the making of certain enactments, but that provision of the Self-Government Act is not immune from amendment.[177] It may be possible to 'entrench' those provisions of the *Land (Planning and Environment) Act* (or any successor following the finalisation of the Planning System Reform Project) that deal with variations of the Territory Plan concerning wilderness areas, national parks, nature reserves, special purpose reserves and possibly urban open space.[178] But such an amendment would be vulnerable to being overridden by the Australian Parliament in a general or specific sense. 'Conservation in perpetuity' in a legal sense is not possible as

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[175] ACT Commissioner for the Environment, 'State of the Environment 2003 Australian Capital Territory: Indicator: Pest Animals' <http://www.environmentcommissioner.act.gov.au/pestanimals03p.pdf>, accessed 18 November 2005.

[176] ACT Government, *ACT Vertebrate Pest Management Strategy* accessible at <http://www.environment.act.gov.au/Files/vertpestmgmntstrategy.pdf>

[177] Section 26 *Australian Capital Territory (Self-Government) Act 1988* (Cwlth)

[178] as was done in the *Proportional Representation (Hare-Clark) Entrenchment Act 1994* (ACT) which includes special procedures for amendments to the ACT (e.g. agreement by a 2/3 majority of Legislative Assembly members or a majority of electors at a referendum held in accordance with the *Referendum (Machinery Provisions) Act 1994*).

legislation and subordinate instruments passed by the ACT Legislative Assembly can always be overridden by the Australian Parliament in the exercise of its power to legislate for territories.[179]

1.104 This request may have arisen in view of the situation in freehold land tenure systems, where conservation covenants in perpetuity can be attached to land and run with the land title as it passes to new owners. Land in the ACT is leasehold, and ultimately vested in the Commonwealth.[180]

1.105 In relation to the proposed Southern Tablelands Ecosystem Park, the Committee is of the view that this concept should be further assessed by the Shaping Our Territory Working Group in the Chief Minister's Department, which has carriage of the development of the Canberra International Aboretum and Gardens project.

1.106 The Arboretum and Gardens is to be established in the Green Hills Forest area west of the Tuggeranong Parkway and Lake Burley Griffin, extending from the existing Cork Oak plantation in the north, through the existing Himalayan Cedar plantation, past Dairy Farmers Hill and towards the Molonglo River in the south. Stage 1 of the project continues until the Aboretum opens in Spring 2008.

1.107 The winning design for the Aboretum and Gardens selected from the 45 entries in the 2004 international competition was the '100 Forests/100 Gardens' submission by Tonkin Zulaikha Greer Architects and Taylor Cullity Lethlean Landscape Architects. The winning design concept features 100 forests and gardens, of primarily endangered species, planted across the site. A terrace loop walk will link sections of the Arboretum and Gardens, and will feature an illuminated 'Crowning Light' sculpture on Dairy Farmers Hill.

1.108 In the Committee's view, the proposed Southern Tablelands Ecosystem Park is compatible with the aims of the '100 Forests/100 Gardens' concept. Both envisage a permanent botanic garden open to the public in an area rehabilitating a degraded landscape. Both aim to raise awareness about endangered flora. For example, the Aboretum could include garden beds

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[179] Section 122 of the Federal Constitution

[180] Under the *Seat of Government (Administration) Act 1910* (Cwlth).

showcasing native grassland vegetation communities which have high conservation value because of their endangered status, as well as other Southern Tablelands vegetation communities.[181]

Committee recommendations

RECOMMENDATION 1

1.109 The Committee recommends that the proposed variation to the Territory Plan (DV231) proceed, subject to the relevant recommendations below.

RECOMMENDATION 2

1.110 The Committee recommends that the ACT Planning and Land Authority review the boundaries of the suburb of Throsby and re-draw them back towards Horse Park Drive so as to reduce the impact of residential development on Goorooyarroo and Mulligans Flat Nature Reserves.

RECOMMENDATION 3

1.111 The Committee recommends that earlier programming of the new suburbs in Molonglo should be encouraged.

RECOMMENDATION 4

1.112 The Committee recommends that the ACT Government explore the opportunity of maintaining the 25ha of Yellow Box-Red Gum and Red Stringybark woodland adjacent to Goorooyarroo Nature Reserve with a view to the provision of assistance to conservation groups to manage this area.

RECOMMENDATION 5

1.113 The Committee recommends that for all future draft variations that concern the expansion of residential areas, or impact on Canberra Nature Park, maps and data that demonstrate how the proposed variation will contribute to

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[181] These include wet *Themeda*, *Poa Labillardieri*, *Austrodanthonia*, and dry *Themeda* grasslands: see generally ACT Government, *A Vision Splendid of the Grassy Plains Extended – ACT Lowland Native Grassland Conservation Strategy*, Action Plan 28, Canberra 2005, pp.15–16.

ecological connectivity and regional targets for protection of species should be included in the public documentation produced by the ACT Planning and Land Authority.

RECOMMENDATION 6

1.114 The Committee recommends that cat containment be mandatory in the proposed new suburbs of Kenny and Throsby.

RECOMMENDATION 7

1.115 The Committee recommends that the current array of policy documents on environmental management, including biodiversity conservation, be reviewed, integrated and streamlined, and better integrated with environment protection and planning legislation.

RECOMMENDATION 8

1.116 The Committee recommends that the ACT Government introduce a reporting system, such as State of the Parks report, which identifies programs to monitor management effectiveness and progress towards achieving protected area objectives.

RECOMMENDATION 9

1.117 The Committee expects that the proposed Regional Management Framework will provide for biodiversity conservation and recognise wildlife corridors. The Committee recommends that as a flow-on reform, the advisory, program delivery and consultative committees involved in NRM on a local and regional scale be reviewed and better integrated.

RECOMMENDATION 10

1.118 The Committee recommends that remnant vegetation with high conservation value on rural leases be better managed as wildlife corridors under land management agreements with these to be the basis for increased funding applications under the Natural Heritage Trust and National Action Plan for Salinity and Water Quality.

RECOMMENDATION 11

1.119 The Committee recommends that the Chief Minister request the Shaping Our Territory Working Group to assess the feasibility of incorporating key elements of the Southern Tablelands Ecosystem Park proposal in the Canberra International Aboretum and Gardens.

Mick Gentleman
Chair

November 2005

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Appendix 1 – Current Territory Plan Policies

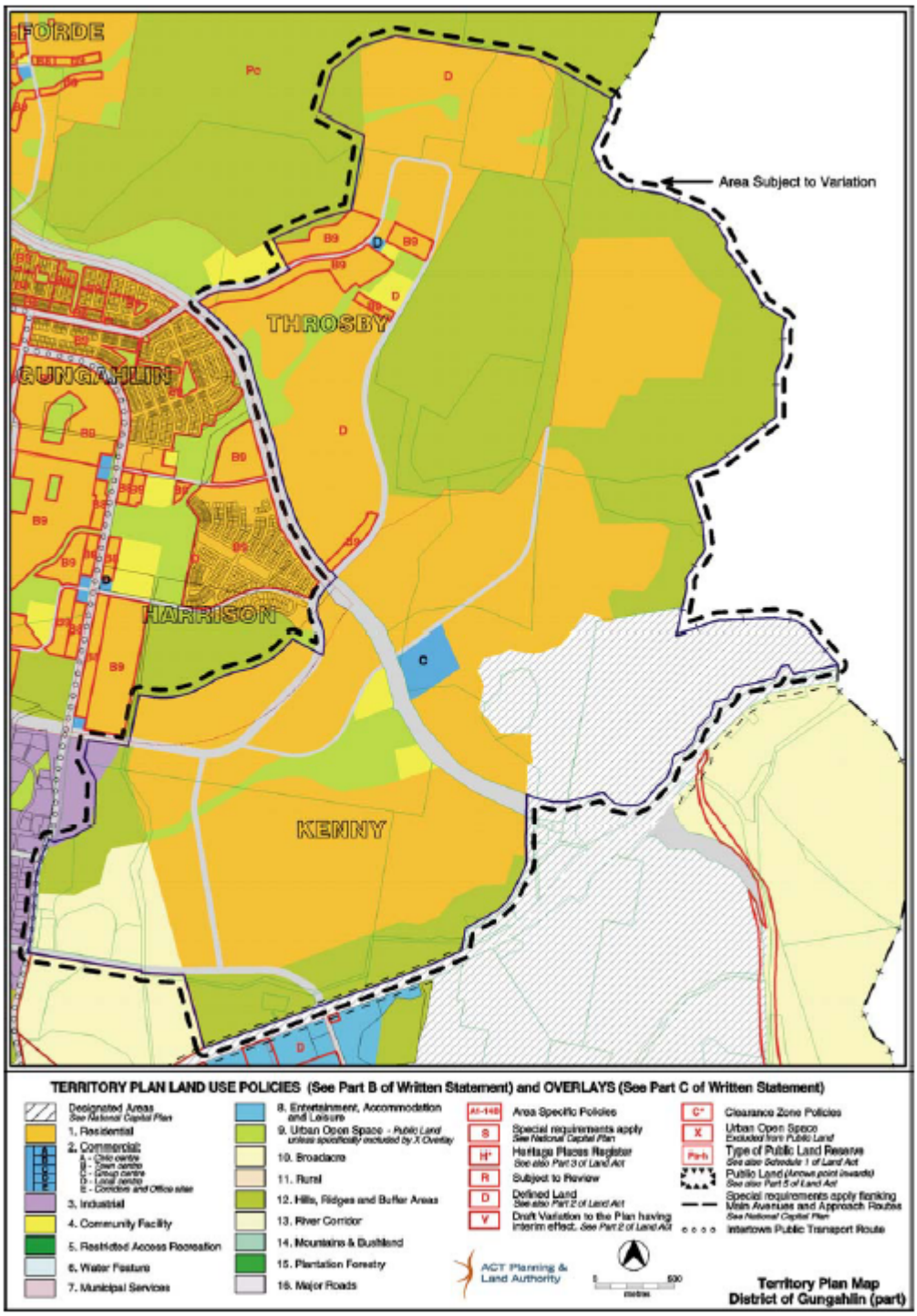

FIGURE 1 – TERRITORY PLAN CURRENT LAND USE POLICIES

Appendix 2 – Proposed Variation to the Territory Plan Map

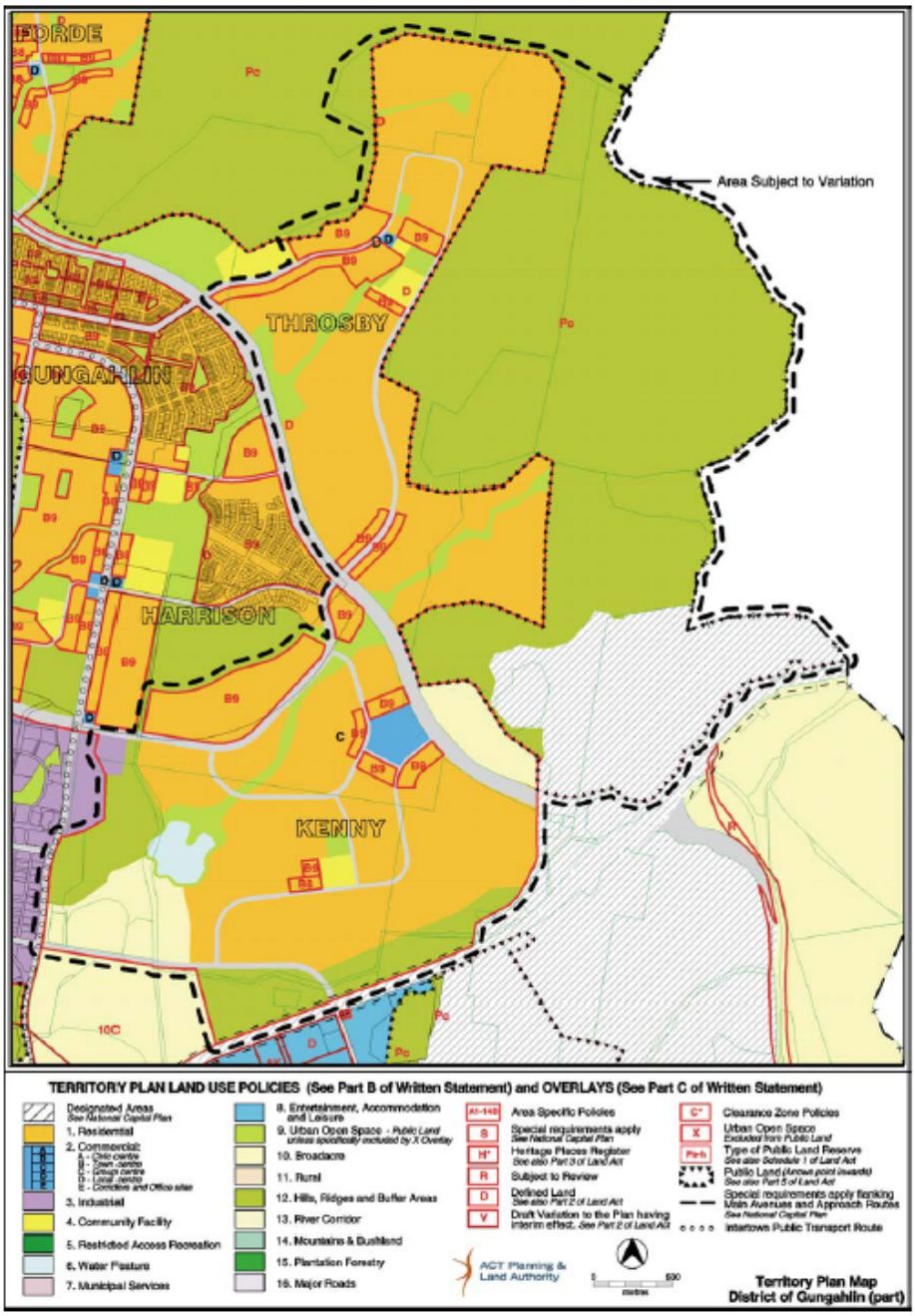

FIGURE 2: PROPOSED VARIATION TO THE TERRITORY PLAN MAP

Appendix 3 – Proposed land use policies in Throsby

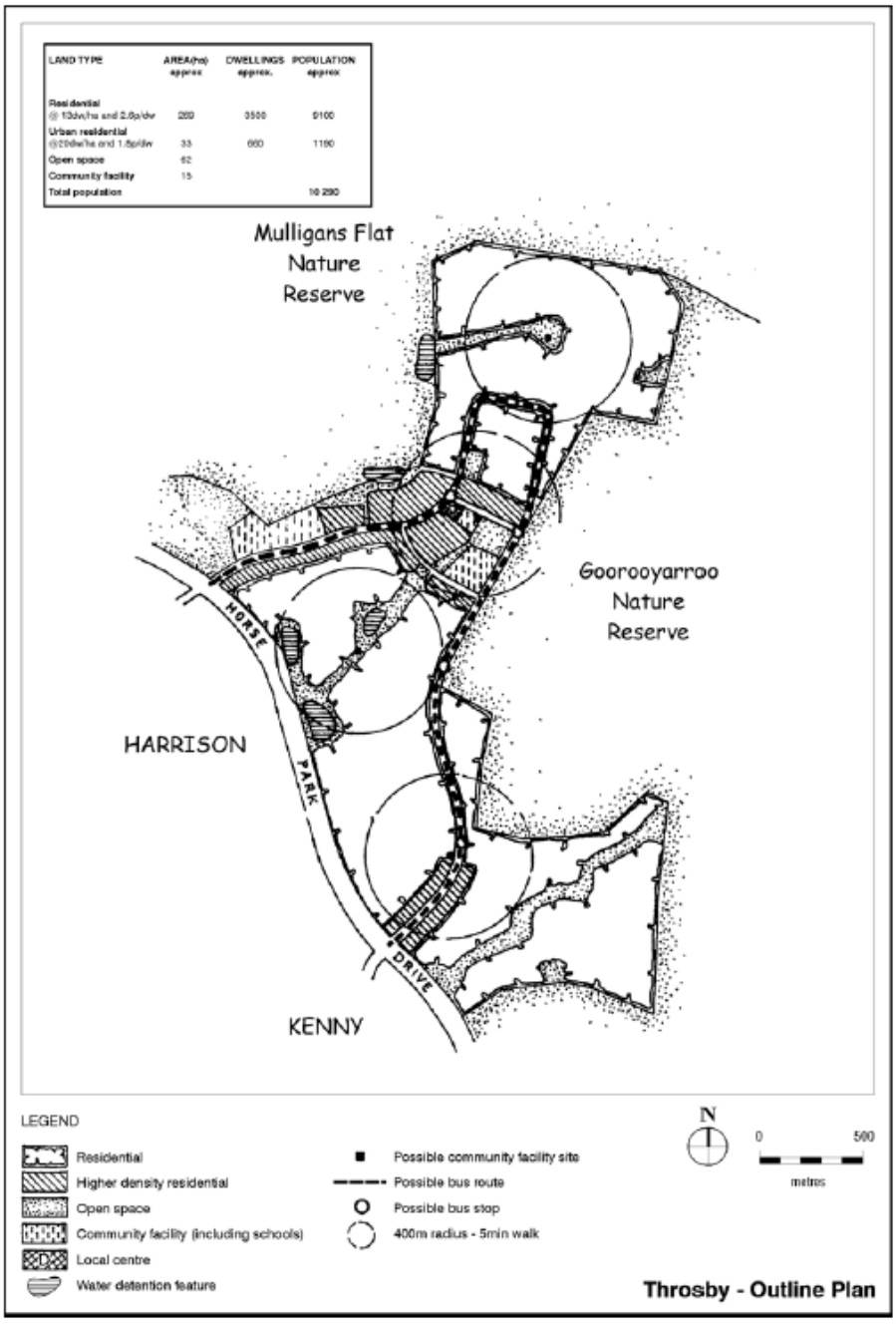

FIGURE 3: PROPOSED LAND USE POLICIES IN THROSBY

Appendix 4 – Paris Declaration on Biodiversity[182]

The scientists assembled in the International Conference *Biodiversity Science and Governance* held in Paris in January 2005 agreed on the following declaration:

1. Biodiversity is a natural heritage and a vital resource for all humankind

The Earth is home to a tremendous biological diversity, which not only includes the millions of different species that inhabit our planet, but also the diversity of their genes, physiologies, and behaviours, the multitude of their ecological interactions with each other and with their physical environment, and the variety of the complex ecosystems they constitute. This biodiversity, which is the product of more than 3 billion years of evolution, is an irreplaceable natural heritage and a vital resource upon which humankind depends in many different ways:

· it is a source of aesthetic, spiritual, cultural, and recreational values; ·

it provides goods that have direct use values, such as food, wood, textiles and pharmaceuticals;

· it supports and enhances ecosystem services on which human societies depend often indirectly, such as plant and animal production, crop pollination, maintenance of water quality and soil fertility, carbon sequestration, nutrient cycling, protection against pathogens and diseases, and resistance of ecosystems to disturbances and environmental changes;

· it provides opportunities for human societies to adapt to changing needs and circumstances, and discover new products and technologies.

2. Biodiversity is being destroyed irreversibly by human activities

Human alteration of their environment is having unprecedented effects on the distribution and abundance of species, ecosystems, and the genetic variability of organisms.

Species are currently being lost globally at a rate that is about 100 times faster than the average natural rate, and tens of thousands of other species are already committed to future extinction because of the recent worldwide loss of their habitats.

The primary causes underlying the loss of biodiversity are demographic, economic, and institutional factors, including increasing demands for land and biological resources due to the growth in the human population, world production, consumption and trade, associated with a failure of people and markets to take into account the long-term consequences of environmental changes and the full array of biodiversity values.

These causes manifest themselves in the loss, fragmentation, and degradation of habitats; the overexploitation of biological resources; the introduction of non-native species; the pollution of soil, water, and atmosphere; and, more recently, signs of long-term climate change.

The loss of species and genetic biodiversity is essentially irreversible, and therefore poses serious threats to sustainable development and the quality of life of future generations.

3. A major effort is needed to discover, understand, conserve and sustainably use biodiversity Strong actions must be taken now to inventory, understand and protect biodiversity in order to meet the Millenium Development goals, and ensure food security, human health and the quality of life. If humankind fails to do this, we risk losing forever the ecosystem services supported by existing biodiversity as well as the opportunity of reaping its full potential benefits to humankind in the future.

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[182] Accessed September 2005 from <http://www.recherche.gouv.fr/biodiv2005paris/en/Paris%20declaration.pdf>.

Most of the biodiversity that surrounds us on our planet, its current changes, many of its impacts on ecological processes and services on which we depend, and many of its potential uses, are still unknown to science. The ecosystems in which most of the Earth's biodiversity is concentrated are still poorly understood because they constitute very complex assemblages of species and interactions with the physical environment. Extending the scientific knowledge of biodiversity requires a major co-ordinated effort internationally that ◎obilizes scientists from all disciplines and geographical regions. The vision and effort that have been put into space exploration are now needed for exploring and understanding life on Earth. This objective can rely, among others, on technological advances that offer novel opportunities to discover and identify living organisms.

The conservation and sustainable use of biodiversity need to become an integral component of social and economic development by correcting past policy and market failures. Innovative social, economic, institutional and legal frameworks are needed to develop more ecologically based management systems that take into account the multiple values of biodiversity and to ensure that conservation and sustainable use of natural resources are integrated successfully into public and private decision making. New production and consumption technologies are essential so that economic development and poverty alleviation favour the long-term preservation of living resources and ecosystems.

The broad lines of the statements presented here were already known 13 years ago at the time of the Rio Summit, and the scientific knowledge accumulated since then has amply confirmed them. Yet, in spite of some protection efforts, the threats to biodiversity have clearly increased without a significant and effective response to them.

Therefore we urge governments, policy makers, and citizens to take the necessary actions to support the development of the scientific knowledge, as well as the conservation and the sustainable and equitable use of biodiversity:

· **Ambitious interdisciplinary research programmes must be set up to discover, understand and predict biodiversity, its status, trends, and the causes and consequences of its loss, and to develop effective science-based decision tools for its conservation, and sustainable use.**

· **Biodiversity must be integrated without delay, based on existing knowledge, into the criteria considered in all economic and policy decisions as well as environmental management.**

Appendix 5 – Plans and Policy Instruments (regional and local) for biodiversity in the ACT

Policy/Plan	Legislative status
A Vision Splendid of the Grassy Plains Extended – ACT Lowland Native Grassland Conservation Strategy	Policy taking an integrated, territory-wide approach to the protection of the remaining lowland native grasslands.
ACT Greenhouse Strategy (2000)	Promotes vegetation planting to counteract vehicle emissions.
ACT Natural Resource Management Plan 2004–2014	A Clwth-ACT accredited plan produced by the ACT Natural Resource Management Board, in consultation with the community, to meet the requirements of the Bilateral Agreement for the delivery of the Natural Heritage Trust. It provides a strategic framework for natural resource management activities and investment in the ACT and surrounding region.
ACT Nature Conservation Strategy	Policy document providing a framework of implementation of goals. Recognises importance of a regional perspective and complementary actions in NSW. Includes a map with a preliminary delineation of a nature conservation network for the ACT and sub-region.
ACT State of the Environment Report	The ACT Commissioner of the Environment undertakes a program of state of the environment reporting.
ACT Strategic Bushfire Management Plan	Prepared by the Emergency Services Authority under the Emergencies Act 2004, the plan provides a basis for bushfire hazard assessment and risk analysis; bushfire prevention, including hazard reduction; and agency and community preparation and response in relation to bushfires.
ACT Weeds Strategy (ACT 1996) and Vertebrate Pests Strategy (ACT 2001)	Policy documents which provide a process for enabling effective and efficient control of weeds and feral animals. Recognises that interests extend beyond the ACT border and that the ACT Government will collaborate with regional stakeholders.
Canberra Nature Park Management Plan	Addresses management objectives, policies, issues and actions specific to CNP and is consistent with the National Capital Plan and the Territory Plan.
Canberra Spatial Plan (2004)	Outlines a strategic direction to manage change and provide for growth to achieve the social, environmental and economic sustainability of Canberra.
Integrated Catchment Management (ICM) Framework for the ACT (2001)	Consists of principles, processes and commitments to guide community and government natural resource related activities.
Jerrabomberra Wetlands Nature Reserve Management Plan 1994	Provides for the management of Jerrabomberra Wetlands (an area classed as Public Land (Nature Reserve) in the Territory Plan and adjacent lands), and its development and management as a wetlands education centre
Land Supply Strategy 2005–2010	The ACT Government's agreed metropolitan development sequence.
Lower Molonglo River Corridor Management Plan 2002	Addresses the management issues, objectives, management policies and procedures specific to the Corridor. It is consistent with the National Capital Plan and the Territory Plan. Management of the Corridor recognises the wider system of ACT land and water planning, administration and management
Management plans for public land	Murrumbidgee River Corridor Management Plan; Tidbinbilla Nature Reserve Management Plan, Belconnen Region Plan of Management, Woden/Weston Region Plan of Management
Master Plans for urban areas	E.g. City West Master Plan 2004

Minister for Planning's Statement of Planning Intent	Issues pursuant to sub-section 14(1) of the Planning and Land Act 2002 setting out the main principles that are to govern planning and land development in the ACT (the statement of planning intent).
Murrumbidgee River Corridor Management Plan 1998	Addresses the management issues, objectives, management policies and procedures specific to the Corridor
National Capital Plan	Is the National Plan for the ACT, implemented at a Federal level under the Australian Capital Territory (Planning and Land Management) Act 1988 (Cth).
Neighbourhood Plans	E.g. Forrest, Griffith, Narrabundah, Red Hill, Garren, Hughes, Yarralumla, Downer, Hackett, Watson
New Focus for Nature Conservation in the ACT	A 2002 policy statement including a program to establish strategies for priority species/ecological communities.
Planning for Bushfire Risk Mitigation Interim Guideline	Adopted onto the Interim Register of Planning Guidelines on 15 January 2005 under the Territory Plan, to provides guidance to mitigate adverse impacts from bushfires in the ACT. In particular, the Guideline addresses the planning and development processes.
Planning Framework for Natural Ecosystems of the ACT and NSW Southern Tablelands (2002)	Planning framework developed with ACT agencies, NSW local and state government agencies covering the ACT and region providing a more coordinated approach to threatened species conservation in the region.
Regional Settlement Strategy	Under development. ACT Planning and Land Council is working with the NSW Government to develop this strategy.
Spatial Plan	Provides guidelines for the Territory Plan to operate within and is intended as a key strategic planning document in the ACT.
Strategic Bushfire Management Plan for the ACT(2005) and Bushfire Operational Plan	Fire management programs address biodiversity conservation under a zoning system for different land parcels.
Territory Plan	Statutory document. Identifies and regulates land use and development. Protects open space, conservation of ecological resources and functions.
Tidbinbilla Nature Reserve Management Plan	Addresses management objectives, policies, issues and actions specific to TNR. It is consistent with the National Capital Plan and the Territory Plan and includes policy statements that will guide the decision making process.
Woodlands for Wildlife – ACT Lowland Woodland Conservation Strategy	Conservation strategy covering endangered Yellow Box- Red Gum Grassy Woodland, other lowland woodlands and associated species
Working Together for the ACT's Environment – A Support Strategy (2001)	Recognises the importance of the active participation of the ACT community in natural resource management.

Plans and Policy Instruments (regional and local) for biodiversity in NSW

Policy/Plan	Legislative status
Catchment strategies and catchment management plans	Advisory. (Relate to coordination functions of catchment management trusts and boards under the *Catchment Management Act 1989 (NSW)*)
NSW Biodiversity Strategy	Policy only. (Referred to in Threatened Species Conservation Act 1995 *(NSW))*
National Local Government Biodiversity Conservation Strategy	Policy only. (Australian Local Government Association & Biological Diversity Advisory Council 1998)
Local Agenda 21 plans	Policy only.
Regional vegetation management plans	Environmental planning instruments under Native Vegetation Conservation Act 1997 (NSW)

Threatened species recovery plans	Threatened Species Conservation Act 1995 *(NSW)*, Fisheries Management Act 1994 *(NSW)*
Threat abatement plans	Threatened Species Conservation Act 1995 *(NSW)*, Fisheries Management Act 1994 *(NSW)*
Local environmental plans, regional environmental plans & State environmental planning policies	Environmental planning instruments under the Environmental Planning and Assessment Act 1979
Development control plans	Policy, but legally required to be considered in the determination of development applications under the *Environmental Planning and Assessment Act 1979*
Bushland plans of management	Local Government Act 1993, State Environmental Planning Policy No 19
Koala plans of management	State Environmental Planning Policy No 44
Mechanisms for Improved Integration of Biodiversity Conservation in Regional NRM Planning	Policy only.
The Biodiversity Guide for NSW Local Government	Policy only.

Plans and Policy Instruments (regional and local) for biodiversity in NSW and the ACT

Policy/Plan	Legislative status
ACT and Sub-region Planning Strategy (1998)	Developed by the Australian Government, ACT and NSW Governments and local shires/city councils. Provides a strategic framework for future growth and development. Proposes a regionally consistent approach for ecological surveys, natural resources management, and identifies indicative wildlife corridors. It includes strategies for rural land uses, and indicative future long-term development.
Australian Capital Region State of the Environment Report	A program of state of the environment reporting is undertaken by the ACT Commissioner of the Environment, including a review of all the local government areas subject to the planning framework.
Planning Framework for Natural Ecosystems—NSW Southern Tablelands and ACT (2002)	Prepared by the ACT Government, NSW National Parks and Wildlife Service, Planning NSW and the Housing Industry Association (ACT) in cooperation with all local governments in the region.
ACT State of the Environment Report	The ACT Commissioner of the Environment undertakes a program of state of the environment reporting.
National Heritage Trust and National Action Plan for Salinity and Water Quality	Established in 1997 under the Natural Heritage Trust of Australia Act 1997 (Cwlth), the Trust was substantially revised in 2002 with a regional focus. The NAP did not provide funding to the ACT Government as at Nov 2005.
National Action Plan for Salinity and Water Quality	Policy document providing for future intergovernmental agreements.
Murrumbidgee Blueprint	Policy document providing for future intergovernmental agreements.
Sydney-Canberra Corridor Strategy	Policy document providing for future intergovernmental agreements.

Appendix 6 – General Planning Principles and Policies for East Gungahlin

GENERAL PLANNING PRINCIPLES AND POLICIES

a) To provide a series of connected, overlapping residential areas around a series of local centres, schools, community facilities and open space.
b) To provide an urban structure that is simple, legible and flexible.
c) To encourage a mix of land uses, including appropriate commercial, retail and other uses, which contribute to a diverse character.
d) To maintain and enhance natural systems and protect key natural areas.
e) To provide residential areas that are walkable, permeable and compact.
f) To encourage development that is ecologically sustainable, and minimise pollution through design and technology of stormwater, wastewater, sewerage, traffic and other systems.
g) To limit and discourage the use of non-renewable resources.
h) To limit the consumption of energy and encourage the use of passive and active solar systems and energy efficient building design.
i) To provide a variety of housing types to meet housing needs at the present time and in the future.
j) To ensure housing densities support a viable, accessible, frequent and energy efficient public transport system.
k) To develop a landscape that is sympathetic to the cultural and heritage values of the area and conducive to a variety of uses and natural experiences, with a character that retains the inherent site values and cultural associations.
l) To create a landscape pattern that brings the open space network close to all urban development, providing access and amenity, and that correlates closely with the broader natural landscape setting.
m) To maintain and create an open space system which is representative of local natural environments, e.g. forest on protected hills, woodland on hill slopes, grassland on lowlands and wetlands in valleys and drainage lines.

ENVIRONMENT

Nature Conservation

To establish conservation areas and provide for management arrangements which are sufficient to conserve threatened fauna, woodlands and grasslands.
To ensure land uses adjacent to conservation areas do not have significant adverse impacts on threatened species.

Energy

Make provision for the public transport system to be an integral part of the structure of the East Gungahlin area.
Facilitate the use of natural energy systems (solar and other alternative energy sources) in building design and public infrastructure, including street lighting.
Facilitate pedestrian and bicycle movement between East Gungahlin and Gungahlin Town Centre and adjacent areas.
Encourage reduction in energy use in the construction and operation of infrastructure.

Water

Facilitate reduced water consumption by design and possible recycling of wastewater.
Encourage reduction in water consumption by the use, where appropriate, of native plant species, preferably indigenous to Gungahlin.

Building

Facilitate recycling of waste products and use of recycled products.
Give preference to materials which;

- Cause minimum environmental impact and use of energy in terms of their extraction, manufacture and assembly;
- Can be recycled and which minimise site contamination, and
- Have a minimum life cycle cost.

Encourage the use of low energy systems for lighting, heating and cooling, and appliances.
Provide for solar efficiency in buildings through orientation and design.
Ensure residential uses within mixed use areas incorporate acoustic design measures to ensure provisions of the relevant noise control legislation are complied with.

CULTURAL PLANNING

Reflect the cultural significance of the Gungahlin Area, including its landscape, natural environment and history of occupation, in the design of dwellings and open spaces. Encourage public appreciation of the heritage of East Gungahlin through appropriate interpretation.
In the planning process, facilitate community cultural development which reinforces the role of the site in providing and developing identity for the community, particularly with regard to the interaction between:

- Natural heritage
- Aboriginal heritage
- European heritage
- Open space systems

- Contemporary cultural diversity among residents
- Built form and streetscape design, and
- Contemporary visual, craft, performing and community arts practice.

Access

Provide sites for community facilities amongst other uses where this enhances their access and community safety, and where their permanence can be assured.
Provide safe and convenient bicycle and pedestrian access between transport and car parking and retail nodes (public transport facilities community and recreational facilities), and to adjoining suburbs.
Discourage through traffic where it provides a barrier to pedestrians, by the provision of convenient alternatives and by street design that calms traffic.
Enhance access and reduce costs and seek opportunities for co-location or joint provision of community and recreation facilities, or their inclusion in joint ventures.

Equity

Provide sites for the equitable distribution of services and facilities having regard to the level of provision in other residential areas.
Provide for a variety of affordable types and retirement housing, including public tenure.

Amenity

Provide spaces which are useable and pleasant, and spaces for quiet reflection and casual meeting.
Provide a coherent residential layout with appropriate 'landmarks' and adequate signage.

Community Safety

Where practicable, provide natural surveillance of public areas through active frontages in the ground level of buildings with particular reference to out-of hours use.

Flexibility

Provide for long-term flexibility in planning the urban area and in community use building design to accommodate different uses as needs change.
Provide opportunities for collaborative and coordinated management of facilities.

ECONOMIC

Encourage mixed-use developments, which provide for home-based employment and small-scale workplaces.
Facilitate the development of viable local centres in the residential areas.

TRANSPORT

Provide an appropriate hierarchy of streets and other movement systems.
Provide a street system that is clear in use, character and connectivity.
Provide slow speed environments, where necessary, to ensure a high level of pedestrian amenity.
Provide direct connections for pedestrians and cyclists to the metropolitan and district pedestrian and cycle network.

Parking

Ensure car parking does not visually or functionally dominate other land uses.
Provide ample parking for people with disabilities adjacent to their destinations.

Public Transport

Ensure that the residential sectors are conveniently served by public transport.
Locate public transport routes and stops within easy walking distances with numerous opportunities for boarding and alighting.

Pedestrians

Provide functional, convenient, safe and attractive pedestrian routes for both access and recreation.

Bicycles

Provide safe and attractive cycle routes connecting major destinations and linking to district and metropolitan cycleways.

Facilitate the use of bicycles for recreation by integrating cycleways with the open space system.

PUBLIC SPACES

Provide public spaces with a high level of environmental amenity.

Ensure public spaces have edges that are sufficiently developed to provide appropriate surveillance.

Encourage community ownership of public spaces.

Provide a variety of public spaces, which are capable of both formal and informal use.

Provide a high quality of urban design, landscape, street furniture and lighting in all public spaces.

STORMWATER

Develop a stormwater system that is based on principles of sustainability.

Integrate the stormwater system into the general open space.

Provide for a diverse range of vegetation types and wildlife habitats within the stormwater system and incorporate wildlife links where possible.

Encourage the development of individual block or group housing on-site stormwater storage, reuse and management systems.

Integrate overland stormwater systems into site developments, limit the piping of stormwater where practicable with the use of swale drains.

Control runoff from urban areas, both during and after the development phase in order to protect downstream water quality.

URBAN DESIGN

Develop an urban form that is walkable, permeable and compact.

Provide for residential development that has a significant variety of housing types.

Develop an urban form that is robust and enables incremental development and flexibility.

Ensure that development responds to the natural and cultural features of the site and preserves and enhances these features where appropriate.

Base the urban form on a hierarchical network of streets, which restrict vehicular speeds.

Provide residential precincts that have a distinct urban character and are visually harmonious and legible.

Provide an urban form that has direct connections for pedestrians, cyclists and motor vehicles to adjoining areas.

Define the edges of residential precincts by peripheral streets, distinctive landscape treatment and appropriate building forms.

Ensure that the ground floor levels of higher density buildings are integrated with adjoining verge or finished site levels to enable easy access for both disabled and able-bodied persons.

URBAN STRUCTURE PRINCIPLES

Detailed planning, based on a number of urban structure principles should provide the framework for future development.

East Gungahlin Land Use

East Gungahlin Land Use is based on principles that:

- Provide a variety of residential densities that respond to the location of housing.
- Provide flexibility for change over time.
- Mix land uses as appropriate.

- Provide for the location and integration of adequate community facilities within or adjacent to local centres or for their co-location with schools.
- Provision may be made for a site for a service station north of Mitchell.

CONSERVATION

Provision is made for the conservation of threatened species and ecological communities through reserving land for nature conservation purposes. The main principles are:

- Establish conservation areas which are adequate in area, with a sufficient buffer from development areas.
- Establish conservation areas with suitable management arrangements to protect flora and fauna.
- Make the conservation areas part of the overall landscape character by ensuring their visual integration into the open space system.
- Ensure land uses adjacent to conservation areas do not have a significant impact on reserve areas.
- Where appropriate, edge roads are to be used to provide an interface between development and significant conservation areas.
- Management practices are implemented within the reserve areas to improve the ecological condition and habitat value for threatened and declining woodland birds.

STREET AND MOVEMENT SYSTEM

The street and movement system is based on principles that:

- Provide a hierarchy of streets and roads that are safe and appropriate to their function.
- Use the streets as means of enhancing and conserving the site's characteristics as well as reinforcing the area's component parts.
- Ensure the street system is fully integrated with the existing and proposed system for the remainder of Gungahlin and the metropolitan area.
- Improve safety and limit vehicle speeds, where appropriate, through road design.
- Ensure pedestrian and cycle routes form an integral part of the overall transport system.
- Maintain provision for an Intertown Transport System.

URBAN OPEN SPACE

The urban open space system is based on principles that:

- Create a hierarchy of open space, beginning with the street system, and continuing through the local parks, floodway system, large urban parks and the conservation areas.
- Provide a safe, convenient open space network that links residential areas to community facilities and other destination points and is readily accessible from residential areas.
- Ensure that the open space network is designed to provide opportunities for wildlife movement corridors, sustainable transport (walking and cycling) and overland flow paths for major storms.
- Incorporate a variety of experiences and uses within the open space system.
- Ensure open spaces are planted with appropriate local native species, including grasses where practicable.
- Encourage local residents to develop 'ownership' of open space by directly relating housing and community facilities to the open space, and by ensuring that housing faces onto open space.
- Ensure high levels of public access to and surveillance of open space by the provision of edge roads with housing facing across to the open space.
- Provide adequate and appropriate open space buffers to heritage sites of significance that aid in their interpretation and characterisation.
- Protect and enhance the cultural, natural and heritage features and characteristics of the open space system.
- Make provision for necessary public infrastructure including sewer and flood ways within the open space system.
- At appropriate locations, provide access points that assist in providing an attractive interface between development and areas of nature reserve.

URBAN FORM

The main principles that underlie and create the urban form are:

- The reserves, overland flow paths and open space system will respond to the natural landscape form and cultural values of the site.
- This diagonal system is overlaid with a slightly modified rectangular grid, with urban boulevards and east-west and north-south connector streets.
- The urban boulevards are the location for denser residential development (along major transport corridors) with a possibility of mixed uses. This is reinforced by the location of local centres on the boulevards at public transport stops.

- Where residential areas front the park system, edge roads provide protection and passive surveillance by housing fronting these edge roads.

LANDSCAPE

The landscape is based on principles that:

- Establish a landscape that relates to the natural environment and promotes biodiversity by the use of local plant material and the incorporation of a variety of plant community and habitats.
- Establish culturally meaningful landscape settings for aboriginal and post-contact sites of significance that enhance their preservation and interpretation.

Conservation Areas

Make the conservation areas part of the overall landscape character of the East Gungahlin area by ensuring their visual integration into the open space system of the area.

Watercourse Parks

Use the stormwater management and resultant open space system as a formative element in the design of East Gungahlin.

LOCAL PARKS

Provide local parks in residential areas where private open space is limited and the distance to the public open space system is greater than 200m.

Defined Land Principles and Policies – Suburban

The principles and policies to guide further detailed planning for the suburbs of Kenny and Throsby area set out below. These principles and policies replace the ones currently applying to existing defined land in the suburb of Throsby included in Variation 53 Gungahlin Town Centre and Central Area.

GENERAL

The development of East Gungahlin should incorporate sustainability principles including economic, social, cultural considerations.

The landscape setting and values of the East Gungahlin urban area are to be recognised and enhanced. Boundary hills and significant internal ridges within the urban fabric are to be protected from development and planted with native vegetation. Significant trees are to be incorporated into the urban fabric where possible.

Conservation and heritage sites such as Wells Station Road and adjacent trees are to be retained and protected within open space.

Detailed planning is to take advantage of the natural, cultural and heritage characteristics of the area and extend them to create a program to support and strengthen the community's identity.

Community facility sites should be located close to public transport and in places where, for reasons of safety, people already have a cause to congregate particularly at shopping centres and schools.

Open space, within close proximity to retail centres, and various other nominated sites, may be utilised for possible community and recreation facility uses. The size and type of facility will be determined at a later detailed planning stage.

Retail centres serving larger populations should be well located on major roads in order to serve a cluster of suburbs and ensure the long-term viability of the centre.

Sustainable urban water management design principles are to be adopted to secure economic, social and environmental benefits of integrated 'water in the landscape' (including water sensitive urban design techniques) and 'total water cycle' based designs to achieve a better balance of water across the landscape.

An integrated cycling and pedestrian network should connect commercial centres, schools, parks, ovals and hilltops and provide links to trunk routes.

The road hierarchy should be coherent and provide good and safe access to all users and encourage high levels of public transport usage.

Subdivision design should encourage housing diversity and enhance access to energy efficient house design. Higher density residential development is to be located around activity nodes and transport routes.

Major public utilities are to be provided as required.

Aboriginal and historic heritage places are to be recognised and significant sites conserved in open space where appropriate.

Suburb Plans

The Outline Plans indicate the manner in which the Territory Plan will be implemented for the suburbs of Kenny and Throsby. The Outline Plans are included to assist in the understanding of the implications of the Variation to the Territory Plan.

Only the primary road system is shown on the Outline Plans and the alignments are representative of the planning intentions.

The Outline Plans indicate the location of the various land uses proposed for the suburb and reflect the requirements shown on the Outline Plan generators diagram.

KENNY

General Policies (Refer to Figure 3)

A. A Group Centre with adjoining higher density housing is to be developed at a major road intersection with Horse Park Drive.

B. Edge roads to be utilised wherever possible as a buffer between residential development, urban open space and nature reserves.

C. A local bus route is to be provided through the suburb via the Group Centre, areas of higher density and primary school site, encouraging public transport usage.

D. Opportunities are to be provided for small scale community facility sites in open spaces in convenient locations predominantly along public transport routes.

E. Neighbourhood oval to be located adjacent to proposed Government Primary School.

F. A water detention feature is required as part of Sullivan's Creek Drainage Study.

G. Higher density and mixed-use residential areas will be located adjacent to the primary school.

H. Development is to be for Broadacre purposes that complement the reserve.

Specific Policies (Refer to Figures 3 and 4)

1. Existing drainage lines to contribute to linear park
2. Cultural and / or natural heritage sites are to be preserved within open space and provide a pedestrian/cycling underpass to urban areas of Kenny east of Horse Park Drive.
3. Cycleway/pedestrian link to be provided within open space.
4. Wells Station Road and adjacent trees to be retained in open space.
5. Ensure Sandford Street extension to Federal Highway connection.

THROSBY

General Policies (Refer to Figure 5)

A. The local centre will incorporate and be adjacent to areas of higher density housing and community facilities sites. Higher density areas may include provision for mixed-use development.

B. A local bus route to be accommodated through the suburb via the local centre, areas of higher density and schools.

C. Water detention features are required to be located within the natural drainage line in open space.

D. Edge roads to be utilised wherever possible as a buffer between residential development, areas of open space and nature reserves.

E. Provide an area close to the local centre for a community facility site.

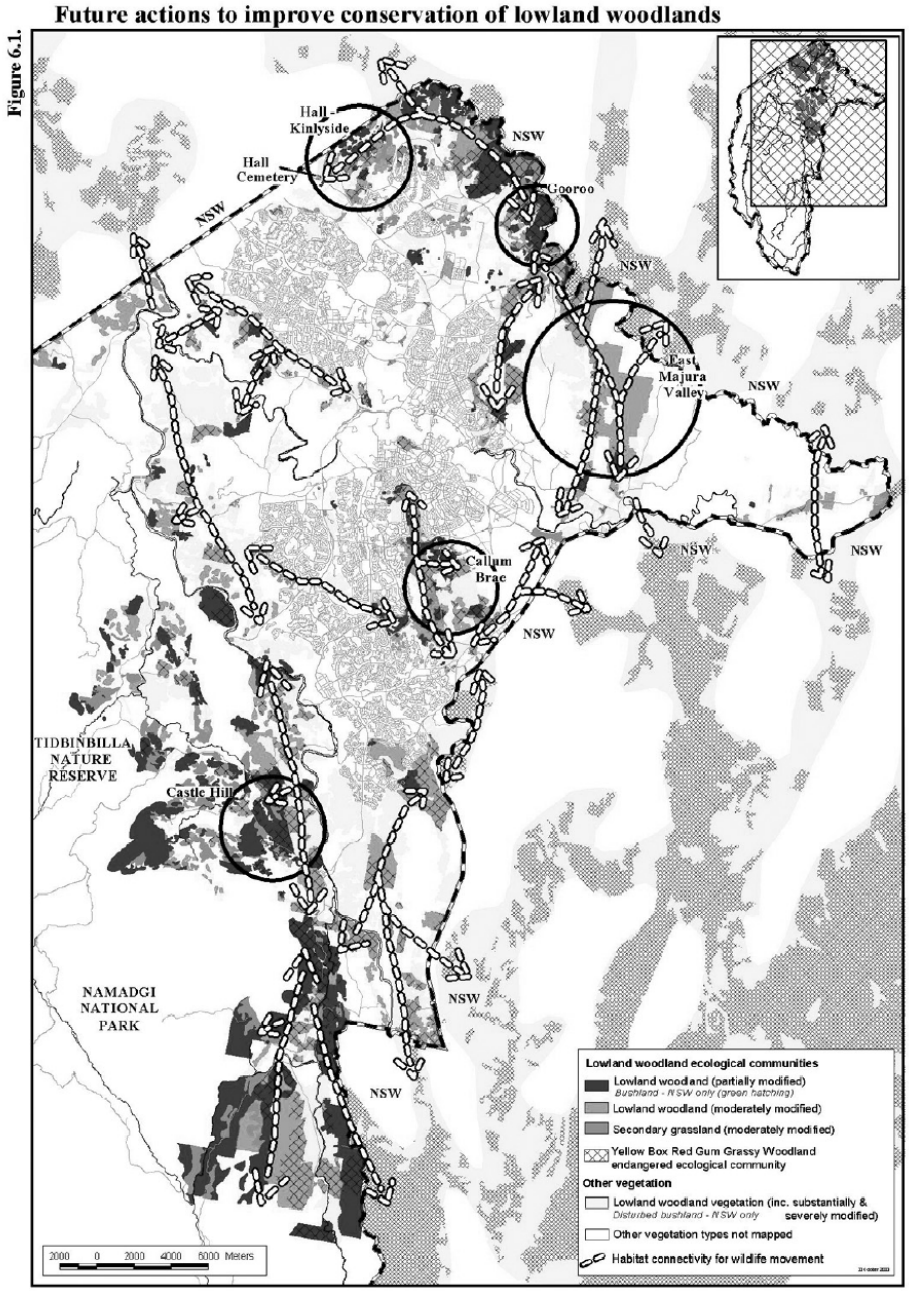
F. Government Primary school to be located centrally within the suburb.

G. Opportunities are to be provided for small-scale community facility sites in open space in convenient locations.

Specific Policies (Refer Figures 5 and 6)

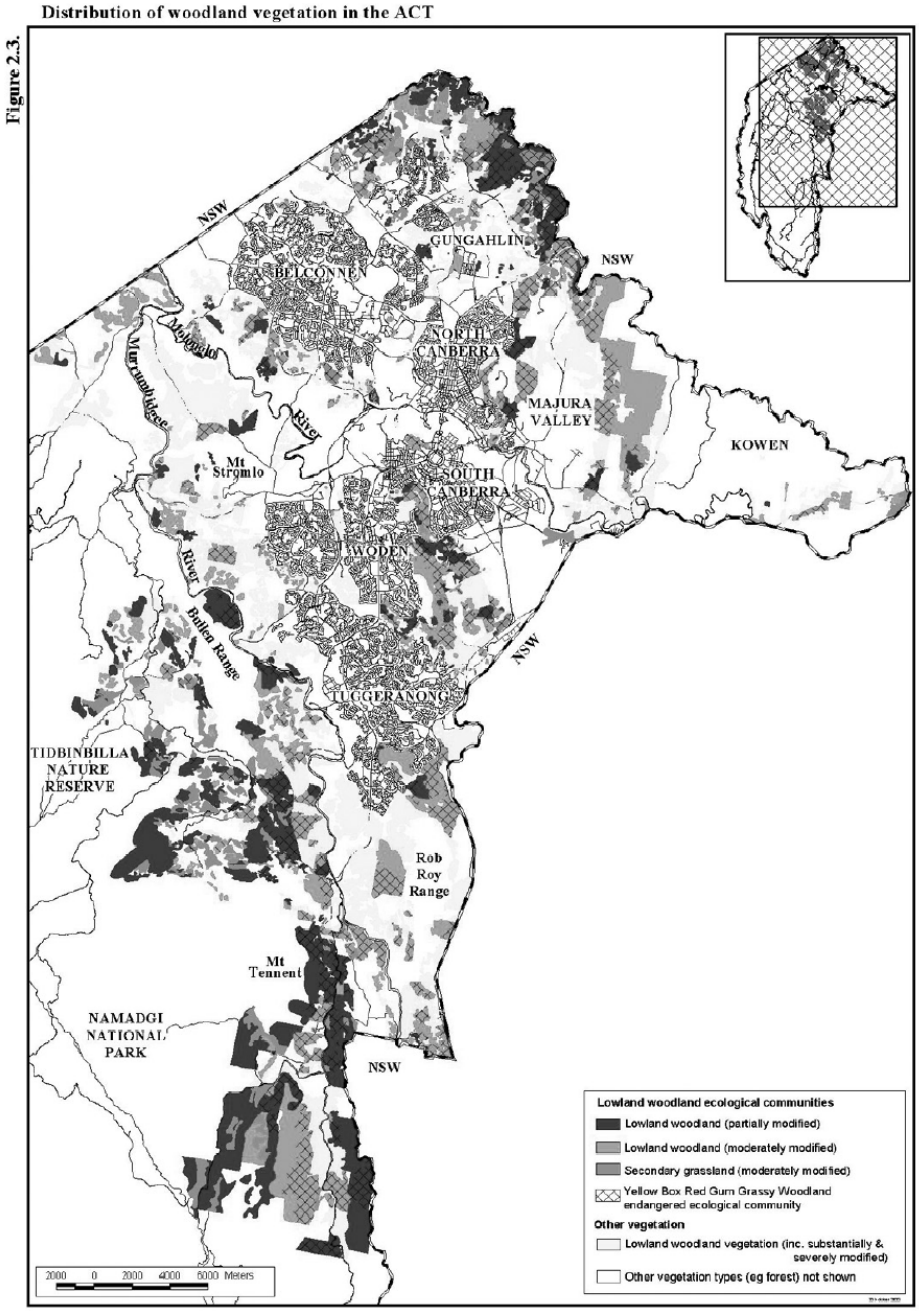
1. Road connections to the suburb to be from extensions of Anthony Rolfe Avenue and Wells Station Drive.
2. Cultural natural and/or heritage sites are to be retained in open space.
3. Existing drainage lines to contribute to linear parks and combine pedestrian and cycleway links.
4. Areas of higher density housing to be located along major transport routes within the suburb and adjacent to local centre.
5. Site to be identified for denominational Secondary School adjacent to District Playing fields.
6. Suitable site to be identified for District Playing Fields.

Appendix 7 – Landscape Level Priority Wildlife Corridors[183]



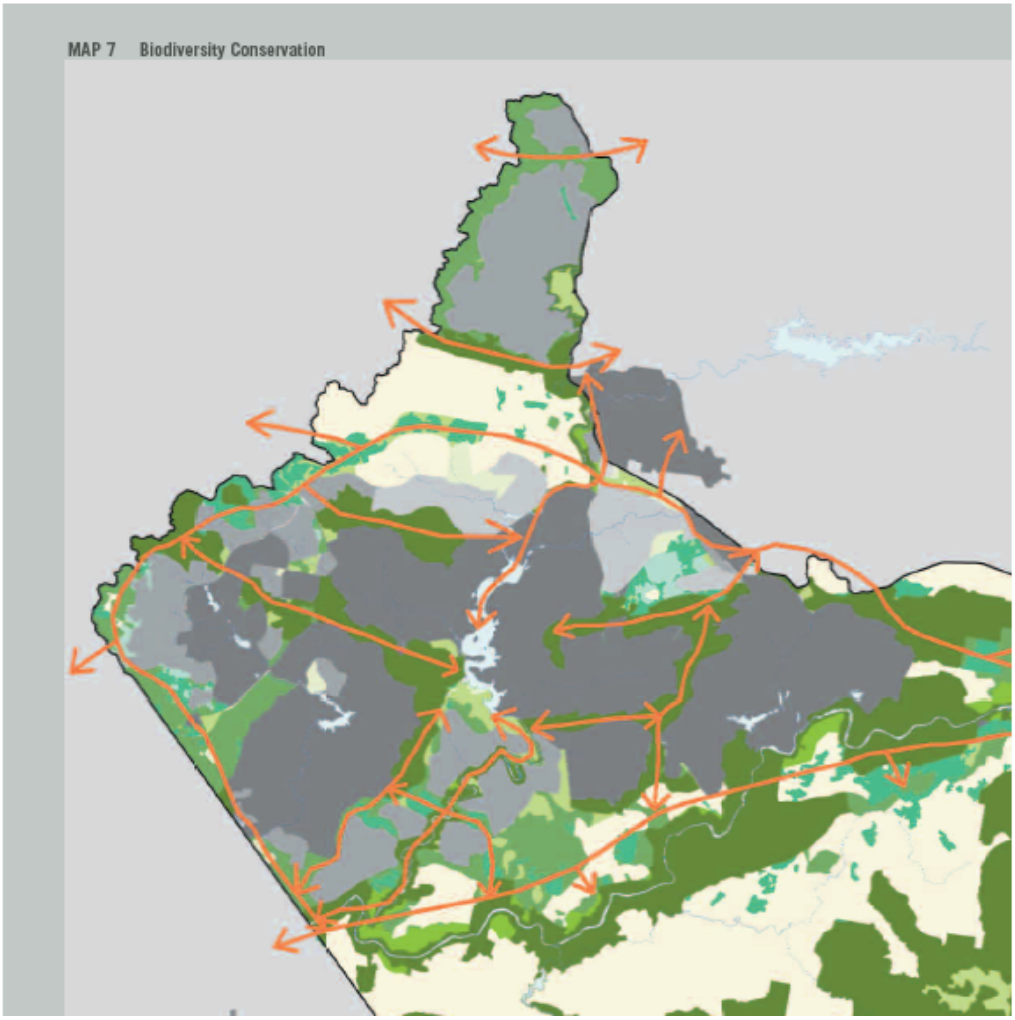
[183] Figure 6.1 in the Woodlands for Wildlife – ACT Lowland Woodland Conservation Strategy: Action Plan 27, p.102.

Appendix 8 – Distribution of ACT woodlands[184]



[184] Figure 2.3 in the Woodlands for Wildlife – ACT Lowland Woodland Conservation Strategy: Action Plan 27, p.83.

Appendix 9 – Biodiversity Conservation in the *Canberra Spatial Plan*



Sourced from the Canberra Spatial Plan.

Appendix 10 – Wildlife Corridors – Department of Urban Services, Design Standards for Urban Infrastructure – 14 Urban Open Space[185]

14.6 Urban wildlife and nature conservation

14.6.1 Wildlife corridors

Landscape restoration and the conservation of biodiversity can be achieved using wildlife corridors to link habitats and remnant vegetation into a functional and legible ecological network through public open space. Wildlife corridors can lessen the environmental pressures emanating from urban development.

A wildlife corridor puts wildlife movement as a priority over the needs of people. To improve the contribution of wildlife corridors to the conservation of biodiversity, it is important that wildlife corridor design and management approaches incorporate factors that influence the connectivity function and habitat provision for wildlife.

Wildlife corridors can either be linear or non-linear and occur in diverse sizes and urban environments. Areas which may form part of a wildlife corridor include semi-natural open spaces, heritage places, waterways, road corridors, parks, informal use ovals and native grassland and woody sites. Each site has its own specific requirements, project needs and opportunities (or constraints) for nature conservation and wildlife movement potential. Designs and techniques will need to be adapted to suit each site.

14.6.2 Principles of nature conservation and wildlife corridor management

Well managed urban green spaces and parks can make a significant contribution to the enhancement of local biodiversity values as well as providing recreational facilities valued by the community. Effective nature conservation in urban areas usually requires:

- controlling unauthorised vehicle access
- minimising the impact of domestic and feral dogs, cats and other vertebrate pests
- managing pedestrian movement and any associated wear and surface erosion
- controlling illegal dumping and domestic garden encroachment
- minimising site pollution by litter, chemicals and fertilisers directly, by runoff or ground water transfer
- implementing sediment control runoff management using filter ponds, swales and erosion management

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[185] ACT Government, Department of Urban Services, Design Standards for Urban Infrastructure – 14 Urban Open Space, accessed at <http://www.parksandplaces.act.gov.au/public/urbanopenspace.pdf>, 15 November 2005.

- effective design and management of the interface between natural and development areas
- removal of unsafe tree limbs in select access areas (the method of tree surgery should consider undercutting to allow wildlife continued access to hollows).

For a wildlife corridor to have the greatest value for wildlife, the following design principles apply.

- Use a diversity of indigenous native plant species to provide resources that are adapted to the local environment and to recreate habitat suitable for a range of endemic species.
- Include a variety of flowering trees, shrubs and grasses appropriate to the site to provide a diversity of resources for wildlife within a vegetated area and to help restore the natural ecosystem.
- Include all strata found in original, pre-existing vegetation of the area (that is, before clearing by Europeans) to ensure structural diversity to meet the different needs of species.
- Keep corridors as wide a possible to reduce the potentially negative impact of edge effects.
- Limit access where appropriate to prevent loss of habit quality through damage to understorey and ground cover species and to protect the remaining original vegetation.
- Ensure external factors such as fertilisers and changed water regimes do not contribute to corridor degradation.
- Control weeds.
- Encourage natural regeneration.
- Control land degradation.
- Utilise screening and buffers if appropriate.

Existing vegetation corridors not primarily established or maintained for nature conservation can be optimised as wildlife corridors through the following design and planning principles.

- Apply the precautionary principle: assume that corridors do have a potentially useful function, not only in providing habitat, but also in enhancing movements of wildlife.
- Smaller corridors or native conservation patches in urban areas must be viewed as a sub-component of a broader regional and major reserve conservation system such as the National Parks and the Canberra Nature Park reserves. The smaller urban open space areas support the main corridors by providing options for wildlife populations within the fragmented urban landscapes. This includes habitat for migratory, transient and relatively fixed home range species.
- Connectivity is not necessarily defined or determined by physical continuity of habitat. Some populations are connected in patchy landscapes.
- Barriers lower the quality of a corridor by increasing the risk of death by either traffic or predators. Examples of barriers include roads, car parks and vehicular bush tracks.
- To get the most from linear vegetation corridors, landscape design to restore sites for nature conservation should aim to recreate and maintain as many natural strata species and as much spatial mix as possible. The ecosystems created should be diverse and self-sustaining. Elements that affect the survival of native flora and fauna such as exotic weeds and pests need to be limited.
- Ongoing protection, maintenance and monitoring are essential components of the corridor development process. They are essential to ensure habitat suitability over the long-term, to assess

corridor function and effectiveness and to provide information to make further improvements to corridor design.

- Consider if there is cover for movement; refuge; mix of habitats and successional stages; topographic variety; and the ability to increase the foraging area for a wide range of species or provide a source to recolonise surrounding environments when suitable habitats become available.
- Consider local genetic diversity, risk species, targeted species, competitors and predators.
- Corridor dimensions (width, length, continuity of retained vegetation and size of patches), presence of gaps and barriers, and the impact of the surrounding land matrix is critical. For instance, narrow corridors may be dominated by aggressive edge species.

14.6.3 Habitat assessment

All projects should include a site analysis and assessment to identify habitat occurrence, significance and potential. On environmentally sensitive sites advice should be sought from specialists in flora, fauna, ecology, natural resource management, hydrology and archaeology as appropriate. Site planning should then balance and integrate the site opportunities and constraints and as many specialist recommendations as are feasible within project requirements.

In most instances projects need not have significant adverse impacts and the emphasis should be based on designing sustainable and functional solutions with active integration of suitable wildlife habitats into the urban framework.

If a rare or threatened species or community occurs on or near the site then the environmental context of the development becomes paramount. The requirements, viability and specific management needs of the target species require thorough investigation. Sufficient buffer protection should be provided.

The assessment and analysis should consider the following issues.

(a) Vegetation

Assessment criteria	**Yes**	**No**	**N/A**
What vegetation occurring on the site is worthy of retention? • remnant trees • shrubs and groundcover • native grasslands • wetland or periodic inundation zones			
What other key habitat features are present? • nesting sites, roosts or breeding hollows • fallen logs • vegetation strata and/or other shelter • rock outcrops/crevices • heavy leaf litter			
• others			

Are a range of vegetation layers or strata present?			
Does the site have diverse flora species?			
Are there any endangered, vulnerable or otherwise significant flora on site?			
Can wetlands be increased or have the potential to be created?			
Would a specialist vegetation survey be beneficial?			

(b) Fauna

Assessment criteria	**Yes**	**No**	**N/A**
Is the existing site likely to be regularly used by: • birdlife • reptiles • animals • fish and amphibians.			
Would a wildlife survey be beneficial?			
Is the site part of a recognised wildlife movement corridor?			
Are there any endangered, vulnerable or otherwise significant fauna species present on site?			

(c) Site disturbance

Assessment criteria	**Yes**	**No**	**N/A**
Is the site stable based on slopes, soils and surface cover?			

Has the area been disturbed by: • erosion • fire • grazing • clearing.			
Are siltation, erodability, surface flows, or ground water regimes an issue?			
Are degrading weeds present? Is their impact significant? Can they be readily managed and controlled?			
Are degrading feral animals present? Is their impact significant? Can they be readily managed and controlled?			

Is the site susceptible to potential weed infestation?			
Is the site susceptible to high fire hazards?			
Can effective fire management be incorporated into the design?			

(d) Natural regeneration potential

Assessment criteria	**Yes**	**No**	**N/A**
Is there potential for regeneration using: • seed or cuttings collected from site • topsoil stripping • vegetation mulching.			
Would a prescription burn encourage indigenous seed regeneration for rehabilitation?			

Would a prescription burn encourage regrowth and produce a better age class and species diversity in the vegetation?			
Is there evidence of regeneration on site?			

(e) Other issues

Assessment criteria	**Yes**	**No**	**N/A**
Will remnant vegetation or other nature conservation values on the site be affected by: • existing movement patterns, for example, human desire lines, service easements and vehicle access • potential movement patterns • site construction management and environmental controls • future maintenance.			
Are significant cultural or heritage features present?			

Appendix 11 – List of submissions

No. 1 – Dr Brendan Mackey for School of Resources, Environment and Society, Faculty of Science, ANU

No. 2 – Ms Jenny Bounds for the Canberra Ornithologists Group

No. 3 – Mr Eric Martin for Eric Martin & Associates

No. 4 – Mr James Larmour-Reid for National Capital Authority

No. 5 – Dr Michael Mulvaney for Red Hill Regenerators

No. 6 – Mr Jon Stanhope, MLA, Minister for the Environment, for Environment ACT

No. 7 – Ms Rosemary Blemings

No 8 – Ms Anne I'Ons for Mt Taylor Park Care Group

No 9 – Mr Simon Corbell MLA, Minister for Planning, for ACT Planning and Land Authority

No 10 – Mrs Mary Falconer for Friends of Aranda Bushland

No 11 – Ms Julie McGuiness and Ms Jenny Bounds for Canberra Ornithologists Group

No 12 – Ms Diana Hill for Australian Institute of Landscape Architects (AILA) ACT Chapter

No 13 – The Hon. Bob Debus, Minister for the Environment, for NSW Department of Environment and Conservation

No 14 – Dr Geoff Hope for Friends of Grasslands

No 15 – Ms Trish Harrup for Conservation Council of South East Region and Canberra

No 16 – Ms Marg Peachey for RSPCA (ACT) Inc

No 17 – Mr David Harriss for NSW Department of Infrastructure, Planning and Natural Resources Murray / Murrumbidgee Region

No 18 – Dr Rosemary Purdie, ACT Commissioner for the Environment

No 19 – Professor David Lindenmayer, Australian National University