



Office of the Commissioner for  
Sustainability and the Environment

*Facing the challenges – positioning our  
nature reserves for the 21st century*

Report on Canberra Nature Park (nature  
reserves); Molonglo River Corridor (nature  
reserves) and Googong Foreshores  
Investigation

**Summary and Recommendations**

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## SUMMARY AND RECOMMENDATIONS

Canberra is renowned for being the Bush Capital because of its location in the 'bush'. This title is also fitting because of the way in which the 'bush' is a dominant part of our urban landscape. It is a city where significant areas of bushland located on its hilltops and ridges are a dominant feature of the urban landscape and are protected in a system of nature reserves that together are called Canberra Nature Park. The nature reserves of Canberra Nature Park are the main focus of this Investigation, although the Lower Molonglo Nature Reserve and Googong Foreshores are also considered.

Our extensive network of reserves is connected by open spaces that provide us with the opportunity to live with nature and access an extensive network of recreation areas. As Canberra grows, this privilege is likely to increase in value; however, pressures from urban growth are expected to impact on our nature reserves which will require additional management intervention in order to ensure they receive the required level of protection.

'Our reserves are very important to me' is a strong message given to this Investigation from members of the community and the 'me' includes a very diverse range of people such as residents, neighbours of nature reserves, environmentalists, ParkCarers, runners, walkers and riders. Many and diverse demands are made on our nature reserves, each of which needs to be managed within the context of the reserve's natural environment as well as cultural and social values.

Our nature reserves, together with our street and park trees, some of which are Australian native species, form a major part of Canberra's green infrastructure which provides essential ecosystem services that help to support our economic and social systems. The health benefits provided by green infrastructure, particularly in the nature reserves, are significant; having access to and using a healthy natural environment can have positive physical, social, mental and spiritual health outcomes. Management of our green infrastructure so that it continues to be one of the most significant characteristics of living in Canberra presents significant management and funding challenges.

The importance and challenges of managing our nature reserves is reflected by the direction to me as the Commissioner for Sustainability and the Environment, from Mr Simon Corbell MLA, Minister for the Environment, Climate Change and Water, on 13 October 2009, that pursuant to section 12(1) (b) of the *Commissioner for the Environment Act 1993*, I undertake an investigation into the Canberra Nature Park (nature reserves); Molonglo River Corridor (nature reserves) and Googong Foreshores, (hereafter known as this Investigation) and address the eight Terms of Reference shown in Box 1.

### **Box 1 Terms of reference**

An investigation will be undertaken into Canberra Nature Park (nature reserves); Molonglo River Corridor (nature reserves) and Googong Foreshores that:

- 1 assesses the condition of the forests, woodlands and grassy woodlands in these areas, including the effects of grazing by stock and/or kangaroos, vertebrate, pests and weeds;
- 2 identifies actions to protect and enhance these areas, including land use or boundary changes while taking into account their purpose, values, and location and the status of indigenous species and communities protected in the nature reserve system;
- 3 reviews existing land management programs and practices for these areas and areas that adjoin them. This is to include but not be limited to agistment, leasing, culling arrangements, Land Management Agreements or plans of management which may apply;
- 4 identifies any urgent actions and longer-term changes that are needed to improve the management of these areas. This is to include identifying successful management measures that should be retained;
- 5 identifies knowledge gaps, research or survey needs, and compliance and monitoring requirements that may be necessary to support improved management programs and practices while taking into account the context of the areas and effects of climate variability;
- 6 identifies ways for ensuring effective communication and involvement of stakeholders, including Aboriginal people, whose actions potentially, indirectly or directly, affect these areas;
- 7 identifies potential biodiversity offset management actions or sites; and
- 8 identifies the evidence justifying the need for managing grazing pressure in the context of sound reserve management practices.

In undertaking the investigation, the Commissioner is to consult with all relevant experts and key stakeholders, including staff in TAMS and in the Department of the Environment, Climate Change, Energy and Water.

**Note:** The management of grassland nature reserves in Canberra Nature Park was recently reviewed as part of the Commissioner's inquiry into Lowland Grasslands of the ACT and will not be included in this study.

This Investigation has responded to the Terms of Reference and the many issues that have emerged during its conduct, by attempting to find ways of facing the challenges confronting our nature reserves and to identify ways of positioning them for the 21<sup>st</sup> Century. To do this, information was obtained from numerous sources including public submissions, community

forums, discussions with experts, information from government agencies<sup>1</sup> and from commissioning technical papers, as outlined in *Section 1.2 Investigation process*. Our nature reserves are a product of their history, both environmental and social, which is explored in *Chapter 2 History*.

How the community views and values our nature reserves is discussed in *Chapter 3 Community views and values*. The majority of issues identified in public submissions relate to Park Management (44.1 per cent) and Policy/Planning (39.8 per cent). Other issues were Urban Design Planning, Funding, ParkCare, Research and Park Users. A key message from the submissions is the high value that is placed on the existence, accessibility and amenity of our nature reserves. However, it is also evident that there are many different and sometimes conflicting perceptions about the purpose of our nature reserves, the appropriateness of the way we use them, and expectations we have as to how they should be resourced, supported, managed and maintained.

As the Investigation was particularly concerned with the condition and ecological value of nature reserves, significant field work was undertaken to examine this and can be found in *Chapter 4 Addressing challenges on our nature reserves*. Ways in which on-ground activities can be significantly shaped by legislation and policies are considered in *Chapter 5 Management framework*, with additional detail provided in *Annex A to Chapter 5 Legislation, strategies and plans*. *Chapter 6 Strategically positioning our nature reserves*, considers the impacts of climate change on our nature reserves and the need to ensure connectivity between them; the classification of nature reserves; environmental offsets for development; and research.

This Investigation has found that not all the challenges currently confronting our nature reserves are being addressed and that there are many opportunities to undertake enhanced management actions which would improve their resilience. Therefore *Chapter 7 Future funding* examines sources of additional funds.

Six main recommendations with twenty nine sub-recommendations, together with other information in the abovementioned chapters address the Terms of Reference. The relationship between the Terms of Reference, information in the Report and recommendations are shown in Table 1 in *Chapter 1 Investigation context and process*.

While all recommendations are considered important twelve sub-recommendations have a higher priority than others. These high priority recommendations are considered to offer significant advantages if implemented soon as they are likely to have immediate and long term effects.

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<sup>1</sup> During this Investigation, the names of some ACT government agencies changed. The names used in this Report are those current at the time of publication, or current at the time when information was provided.

The high priority recommendations are summarised below and presented along with the other recommendations, in full, later in this document:

- **Strengthen community awareness and involvement** by developing and implementing a community education and awareness program promoting the ecological, health and social values and benefits, and appropriate uses of our nature reserves (Recommendation 1.3).
- **Improve the condition and resilience of our nature reserves** by:
  - taking action now as warned:...*Do not wait for improved climate and impact information before taking further action that will enhance the resilience of the Nature Reserves*<sup>2</sup> (Recommendation 2.1);
  - giving priority to those routine management actions identified in this Investigation for each nature reserve (refer to Table 7 in the Report) (Recommendation 2.2);
  - implementing a nature reserve restoration program which would be additional to routine management actions (Recommendation 2.3); and
  - strengthening connectivity between nature reserves (Recommendation 2.4).
- **Better direct and inform the management of nature reserves** by:
  - preparing a Nature Reserve Operational Plan for each nature reserve (Recommendation 3.1); and
  - developing and implementing a nature reserve monitoring strategy (Recommendation 3.2).
- **Strengthen the management framework and strategically position our nature reserves** by developing and implementing an ACT Rabbit Pest Management Plan (Recommendation 4.3).
- **Integrate community health and well-being with nature reserve protection** by:
  - developing and implementing an ACT Nature Reserve Recreation Strategy (Recommendation 5.1); and
  - improving the provision and management of appropriate recreation infrastructure in nature reserves (Recommendation 5.2).

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<sup>2</sup> Webb, B., 2011, *Impacts of Climate on the Canberra Nature Park: Risks and Responses*, Report for the ACT Office of the Commissioner for Sustainability and the Environment, page 8.

- **Increase the protection and restoration of our nature reserves by sourcing new funding by:**
  - establishing the Capital Woodland and Wetland Conservation Trust and monitor its effectiveness in sourcing additional funds (Recommendation 6.1); and
  - identifying new sources of funding (Recommendation 6.2).

## **STRENGTHEN COMMUNITY AWARENESS AND INVOLVEMENT**

### ***Findings that informed Recommendation 1***

From the consultations for this Investigation the issue of ACT Government staff meeting with different groups and these groups not being given the opportunity to meet with each other was raised as an issue. It was found that there were several consultative forums for stakeholders of nature reserves but no single forum that provided the opportunity for all stakeholders to meet. This could be addressed by expanding the Parks Conservation and Lands Recreational Users Group (*Section 3.7.1 Parks Conservation and Lands Recreational Users Group*) and reducing the number of other consultative groups, as suggested in Recommendation 1.1. To further strengthen community involvement, it is suggested that a biennial forum be held as suggested in Recommendation 1.2. This forum would provide a mechanism for coordinating research, monitoring and data collection and raising community education and awareness. It should include community members and stakeholders from across all nature reserves.

Community education and awareness was raised as an issue in all our community engagement activities in relation to compliance, signage and permitted uses (*Section 3.7.3 Community education and awareness*). Our nature reserves are important to us and future generations and for developing children's relationship to nature. On-going awareness and education is required to safeguard the future of our nature reserves by instilling the ecological, health and social benefits and values, and appropriate uses of nature reserves in our community and specifically children. Recommendations 1.3, 1.4 and 1.5 address these issues. Recommendation 1.3 is given a high priority as it is fundamental to ensuring that our community gives support to, and plays its part in protecting, our nature reserves.

Forty per cent of the nature reserves in this Investigation, and 32 per cent of all nature reserves, have a dedicated ParkCare, 'Friends of' or other volunteer group which meets regularly to undertake management and conservation activities including weeding, planting, and monitoring condition (*Section 4.4.3 ParkCare*). These groups and activities need to be encouraged and supported to better protect our reserves. Furthermore, more nature reserves can benefit from such support through more groups.

## **Recommendation 1**

### **Strengthen community awareness and involvement by:**

- 1.1 Expanding the membership of the Parks, Conservation and Lands Recreational Users Group and reducing the number of consultative groups.
- 1.2 Holding a biennial nature reserves forum with representation from all stakeholders that promotes:
  - information exchange;
  - community education and awareness; and
  - planning.
- 1.3 **(High Priority)** Developing and implementing a community education and awareness program promoting the ecological, health and social values and benefits, and appropriate uses of our nature reserves.
- 1.4 Improving on-nature reserve signage and information.
- 1.5 Integrating information on nature reserves into the Australian Sustainable School Initiative and encouraging schools to adopt a nature reserve.
- 1.6 Enhancing support for and encouraging the formation of new ParkCare groups so that the majority of nature reserves are supported by such a group (currently 32 per cent of nature reserves have a ParkCare group).

## **IMPROVE THE CONDITION AND RESILIENCE OF OUR NATURE RESERVES**

### ***Findings that informed Recommendation 2***

This Investigation considers the condition of 34 nature reserves and one proposed nature reserve, the majority of which form the Canberra Nature Park that is located within the urban areas of Canberra. Those nature reserves considered in this Investigation but not located in the urban area are Googong Foreshores, Lower Molonglo Nature Reserve and Molonglo Gorge Nature Reserve. *Chapter 4 Addressing challenges on our nature reserves* presents a detailed discussion of the condition, challenges and ways of addressing challenges in our nature reserves.

The condition of the forests, woodlands and grassy woodlands in the nature reserves including the effects of grazing by stock and/or kangaroos, vertebrate pests and weeds, was assessed and is reported in Ms Sarah Sharp's *Landscape function in Canberra Nature Park and impacts of threatening processes on landscape function* report (Appendix G).

This Investigation has shown that one nature reserve, Mount Painter is in a critical condition, six (17 per cent) are approaching a critical condition and 28 (80 per cent) are in overall satisfactory condition, as discussed in *Section 4.2 Condition of nature reserves*. Of the nature reserves in overall satisfactory condition, 24 (69 per cent) are considered to be of high conservation value, which reflects the presence of threatened species or

ecological communities, high conservation value woodland or forest vegetation and/or are important for connectivity. Even though most of our nature reserves are in satisfactory condition, there are localised areas on these nature reserves that were assessed as being in critical condition or approaching critical condition. The combined area of those reserves in overall critical condition and approaching critical condition covers about 4 200 hectares (the equivalent of almost 6 000 football fields). If Googong Foreshores is excluded, the area is 2 270 hectares (or about 3 200 football fields). This is a large area of land that needs to be restored. A restoration program of the scale needed to address this issue would need to be additional to routine management actions.

The disturbance factors observed as adversely affecting the condition of some nature reserves were; native vegetation clearance, grazing pressure and soil disturbance from herbivores, weed infestations, erosion and bare soil, impacts from fire events (operational burns and wildfires) and other bushfire operations, visitor use impacts and impacts of maintenance of infrastructure within nature reserves.

Much of the clearance of vegetation from our nature reserves occurred during the European settlement period of 1820-1910. The effects of clearing native vegetation were particularly evident on Cooleman Ridge, Isaacs Ridge, Rob Roy, Mount Painter, Red Hill and Urambi Hills. The effects ranged from extensive major clearing of tree and ground cover on Mount Painter to localised major clearing of tree and ground cover on Red Hill and Urambi Hills. Black Mountain is an example of recovery of vegetation; in the late 1800s there were few trees there, by the 1920s vegetation sparsely covered most of the mountain and now the vegetation has considerably 'thickened', this is illustrated in Figure 2.

The field work undertaken for this Investigation identified the adverse effects of grazing by rabbits, kangaroos and stock on 30 nature reserves (85 per cent). In particular, grazing pressure from rabbits had adversely affected the condition of 19 nature reserves (54 per cent) and grazing pressure from kangaroos had adversely affected the condition of 24 nature reserves (69 per cent). At the time of the assessment, grazing by stock for fire fuel management was impacting on the condition of parts of Kinlyside. Only Bruce Ridge, Molonglo Gorge, Oakey Hill, O'Connor Ridge and Percival Hill nature reserves were not being significantly affected by grazing pressure. On Mount Painter, the only nature reserve assessed as being overall in a critical condition, loss of vegetative cover leading to soil erosion is so severe that the ability of the land to recover after reducing grazing pressure is unlikely without additional significant intervention.

Erosion and bare ground was adversely affecting the condition of 28 nature reserves (80 per cent). In most cases the bare ground was the result of extremely high grazing pressure from kangaroos and digging activity by rabbits. Weeds were adversely affecting the condition of 28 nature reserves (80 per cent). While weeds can be problematic, they can sometimes play an important function in stabilising the soil, as was evident on Mount Painter Nature Reserve.

Fire events including operational burns and wildfire have had major impacts on the condition of five nature reserves (14 per cent) and minor impacts on the condition of 11 nature reserves (31 per cent). There are also residual impacts from the 2003 wildfire, with extensive loss of mature trees on parts of Farrer Ridge, Lower Molonglo and McQuoids Hill nature reserves although regeneration is now occurring.

This Investigation was advised that given the combined effect of existing disturbance factors such as grazing, weeds and physical disturbances with likely changes in climate in the ACT such as continuing increases in mean temperatures, along with more frequent and severe heat waves, a high probability of long term rainfall changes, increased evaporation leading to reduced runoff and stream flow and more frequent and severe drought, our nature reserves are faced with a 'climate whammy'. Given this, it is recommended that action to enhance the resilience of nature reserves be progressed as a matter of high priority as is stated in Recommendations 2.1, 2.2, 2.3 and 2.4.

Not all the challenges currently confronting our nature reserves are being addressed and there are many opportunities to undertake enhanced management actions - including restoration programs - to increase their resilience, as emphasised in recommendation 2.3.

Our nature reserves can be protected by off-reserve actions such as ensuring they are adequately linked via corridors. Corridors are particularly important in Canberra because of the fragmentation of our nature reserves. For example, the 33<sup>3</sup> nature reserves and one proposed nature reserve considered in this Investigation total 11 359 hectares out of the 75 166 hectares in the Canberra urban area, range in size from 47 hectares to 994 hectares and span a maximum distance of approximately 45 kilometres north-south and 30 kilometres east-west.<sup>4</sup>

This Investigation acknowledges that habitat connectivity is increasingly being recognised as a key element in planning and management for wildlife conservation<sup>5</sup> and that landscape connectivity is a key aesthetic element in the planning of Canberra. Retaining or enhancing connectivity between nature reserves and across the ACT/NSW border to link reserves with protected areas in NSW is an important consideration as urban areas expand in the region.

An innovative proposal which seeks to improve connectivity for the woodland reserves in Gungahlin is for the creation of a connected and productive landscape for the 'Greater Goorooyarroo'. More innovative work such as this should be encouraged. However, similar initiatives in other areas are needed and it is encouraging that the Environment and Sustainable Development Directorate<sup>6</sup> is undertaking a connectivity analysis to determine key areas for wildlife movement and viability across the whole region. Given the importance and challenge of protecting areas of connectivity, it would be wise to

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<sup>3</sup> Excludes Googong Foreshores as it is located in NSW.

<sup>4</sup> Email from Mr Graeme Hirth, Department of Territory and Municipal Services to Mrs Narelle Sargent, Office of the Commissioner for Sustainability and the Environment, 9 June 2011.

<sup>5</sup> Department of the Environment, Climate Change, Energy and Water, 2010, *Discussion Paper review of the Nature Conservation Act 1980* Enhancing *nature conservation in the Australia Capital Territory*, page 16.

<sup>6</sup> Formerly Conservation Planning and Research within the Department of Territory and Municipal Services.

ensure that independent strategic and scientific ecological advice is sought and monitoring is undertaken, as stated in recommendation 2.4.

All sub-recommendations in Recommendation 2 are considered to have a high priority as they are designed to directly improve the condition and therefore resilience of our nature reserves. This is important if these nature reserves are going to continue to have environmental, social and economic benefits in the 21<sup>st</sup> Century.

## Recommendation 2

### Improve the condition and resilience of our nature reserves by:

- 2.1 **(High Priority)** Taking action now as warned: ...*Do not wait for improved climate and impact information before taking further actions that will enhance the resilience of the Nature Reserves.*<sup>7</sup>
- 2.2 **(High Priority)** Giving priority to those routine management actions identified in this Investigation for each nature reserve (refer to Table 7) (These actions should be part of the Nature Reserve Operational Plans (Recommendation 3.1). However, implementation of actions should not be delayed pending the development of these plans).
- 2.3 **(High Priority)** Implementing a nature reserve restoration program which would be additional to routine management actions with priority given to:
  - restoring the condition of those nature reserves that are overall approaching critical condition or in critical condition (20 per cent) (refer to Table 5);
  - restoring localised areas that are approaching or in critical condition on nature reserves in an overall satisfactory condition, especially those with high ecological values (refer to Table 5); and
  - protecting and enhancing the ecological values of all nature reserves.

(These actions should be part of the Nature Reserve Operational Plans (Recommendation 3.1). However, implementation of actions should not be delayed pending the development of these plans).

- 2.4 **(High Priority)** Strengthening connectivity between nature reserves with on-ground actions being guided by independent strategic and scientific ecological advice and monitored by one of the existing advisory committees (such as Flora and Fauna Committee, Natural Resource Management Advisory Committee or Natural Resource Management Council).

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<sup>7</sup> Webb, B., 2011, *Impacts of Climate on the Canberra Nature Park: Risks and Responses*, Report for the ACT Office of the Commissioner for Sustainability and the Environment, page 8.

## **DIRECT AND INFORM THE MANAGEMENT OF NATURE RESERVES**

### ***Findings that informed Recommendation 3***

In addition to the specific actions for each nature reserve that have been identified and are the subject of Recommendation 2, there will be a need to change management actions more broadly and over time in response to changing conditions. Therefore it is proposed that a Nature Reserve Operational Plan (Plan) be developed for each nature reserve and that it be updated annually according to actions implemented and current site conditions, refer to Recommendation 3.1. These plans need to reflect adaptive management approaches, as discussed in *Section 4.4.2 Adaptive management and monitoring*, overarching guidance and strategies for these Plans already exist in management plans and other policies.

Under the *Canberra Nature Park Management Plan 1999* a management strategy for each nature reserve is required. These however, have never been developed. It is considered that the Nature Reserve Operational Plans would fulfil the same function as these management strategies. While Nature Reserve Operational Plans are being developed for some nature reserves, all nature reserves need such a plan to facilitate the integration of activities across a nature reserve, particularly between the ACT Government and ParkCarers.

A Nature Reserve Operational Plan, although intended to cover the activities undertaken on a nature reserve over a year, should include proposed actions covering three years to allow forward planning, continuity and cover all activities to be undertaken including those proposed to be undertaken by utility agencies.

Nature reserves approaching a critical condition or in a critical condition and those nature reserves with high ecological values (as identified in Table 4) need to be given priority for the development of the Plans.

In order to inform the Nature Reserve Operational Plans and allow adaptive management to guide activities, monitoring is critical. A monitoring program is needed to ensure threats are quickly identified and managed to prevent nature reserve condition from deteriorating. At present there is no over-arching monitoring strategy for the nature reserves. This could be part of the nature reserve monitoring strategy proposed in Recommendation 3.2

The condition assessment of the 207 sites on the nature reserves and provision of a report with detailed appendices and photographs for this Investigation cost in the vicinity of \$70 000. The method used was designed to allow sites to be quickly assessed. As the sites assessed were global positioning system (GPS) located, the results can now be used as a bench mark for future monitoring. It would be beneficial to undertake such an assessment on a rolling basis with a proportion of sites assessed annually, but ensuring that all sites are assessed at least every five years.

It is estimated that about 10 per cent of controlled burns in nature reserves are monitored.<sup>8</sup> While it would be unnecessary to monitor all burn sites, a greater representation of sites in urban areas and monitoring of specific fauna indices would help better target burns on the nature reserves which are the subject of this Investigation. A long term target of monitoring about 40 per cent or more of all burns in reserves with high conservation values should be considered. In a shorter time period a target of around 20 per cent or more might be appropriate to secure a more representative sample. Improving monitoring of controlled burns is the subject of Recommendation 3.3

As mentioned in *Chapter 2 History*, many of Canberra's nature reserves were initially created because they were valued for their landscape amenity and consequently the hills and ridges over approximately 625 metres above sea level were not developed.<sup>9</sup> It was not until the gazettal of Mulligans Flat Nature Reserve in 1994, that areas were added to Canberra Nature Park in order to conserve their significant ecological values.<sup>10</sup> As a consequence of this history, the nature reserves of the Canberra Nature Park vary in their ecological values.

Notwithstanding this variation in natural values the management objectives of all nature reserves are set out in legislation as:

- 1) *to conserve the natural environment and,*
- 2) *to provide for public use of the area for recreation, education and research.*<sup>11</sup>

The former is the primary objective and the latter is the secondary objective. Superimposed on the various natural values of the nature reserves are a range of recreational and other uses, with some of the most intense usage occurring in nature reserves with a high conservation value. To guide the management of nature reserves and assist in prioritising resources, it would be beneficial if nature reserves were categorised to better reflect their values and therefore guide their uses. This is the subject of Recommendation 3.4.

A northern ACT national park was proposed as a means of protecting and highlighting Yellow Box - Red Gum grassy woodland, a nationally threatened ecological community. Having considered the advantages and disadvantages of this proposal, it is appropriate that consideration of this idea be pursued further. However, this is best done within the context of an overall review of the classification of all nature reserves in the ACT including those not considered in this Investigation (Recommendation 3.4). If Recommendation 3.4 is not progressed this should not prevent consideration of a

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<sup>8</sup> Email from Ms Hannah Matthews, Environment and Sustainability Directorate to Mrs Narelle Sargent, Office of the Commissioner for Sustainability and the Environment of 28 Jul 2011, 10.5 per cent of burns on nature reserves in this Investigation that were monitored.

<sup>9</sup> Sharp, S., 2011, *Landscape function in Canberra Nature Park and impacts of threatening processes on landscape function*, Report to the Commissioner for Sustainability and the Environment, page 1.

<sup>10</sup> Sharp, S., 2011, *Landscape function in Canberra Nature Park and impacts of threatening processes on landscape function*, Report to the Commissioner for Sustainability and the Environment, page 1.

<sup>11</sup> *Planning and Development Act 2007* schedule 3.

northern ACT national park, but in order to do this it is suggested that a public discussion paper on the proposal be developed, as stated in Recommendation 3.5.

Comprehensive, documented information about what research is being undertaken on nature reserves or about issues that affect nature reserves was not readily available for this Investigation. While there is some significant and nationally important research being undertaken, there are research gaps. Recommendation 3.6 seeks to address this issue.

### **Recommendation 3**

#### **Better direct and inform the management of nature reserves** by:

3.1 **(High Priority)** Preparing a Nature Reserve Operational Plan for each nature reserve which:

- guides all management actions on a nature reserve;
- presents the nature reserve's key conservation and other values and its management goals;
- includes priority management and restoration actions (Recommendations 2.2 and 2.3), fire management actions and infrastructure and urban protection works;
- has a map of the nature reserve boundaries with recreation areas and tracks shown;
- has an attachment listing relevant research;
- has a monitoring program (guided by a comprehensive nature reserve monitoring strategy – Recommendation 3.2); and
- is prepared and implemented in collaboration with all relevant stakeholders including local groups (especially ParkCarers), utility agencies, and if relevant researchers.

3.2 **(High Priority)** Developing and implementing a nature reserve monitoring strategy which includes:

- condition, ecological values, impacts of threatening processes and recreation use;
- bench-marking against information collected for this Investigation; and
- defined monitoring procedures – the Landscape Function Analysis technique used in this Investigation should be included.

3.3 Enhancing controlled burn monitoring that is part of the Strategic Bushfire Operations Plan from the current approximate 10 per cent to:

- around 40 per cent or more particularly in high conservation nature reserves over the longer term (5 to 10 years);
  - around 20 per cent or more particularly in high conservation nature reserves in the short to medium term (2 to 5 years); and
  - include indices of specific plants and animals.
- 3.4 Categorising nature reserves to:
- define the goals and objectives for each nature reserve using criteria that include their environmental, recreational, health and cultural values and draw upon the protected area categories adopted by the International Union for Conservation of Nature. These goals and objectives should then be used to inform and guide the priorities in each Nature Reserve Operational Plan (Recommendation 3.1); and
  - guide decisions regarding a northern ACT national park, especially its boundaries.
- 3.5 Advance the consideration of a northern ACT national park via a discussion paper which details areas for inclusion, management structure, costs and funding etc. If Recommendation 3.4 is not pursued this paper should be progressed based on existing information.
- 3.6 Fostering research as a means of informing nature reserve management strategies and practices by:
- encouraging research partnerships with universities and qualified members of the community with direct funding, in-kind contributions and support for funding proposals;
  - improving opportunities for staff to access research findings and to adopt evidence-based management practices on our nature reserves (Recommendation 3.1);
  - ensuring research priorities are coordinated with relevant strategies and plans, for example the ACT Natural Resource Management Plan (Bush Capital Legacy) and action plans for threatened species and ecological communities; and
  - monitoring being a key part of natural resource management and included in the design and execution of projects in order to encourage land managers to adopt adaptive (or learning) management practices (Recommendations 3.2 and 3.3).

## **STRENGTHEN THE MANAGEMENT FRAMEWORK AND STRATEGICALLY POSITION OUR NATURE RESERVES**

### ***Findings that informed Recommendation 4***

Legislation and policy which applies to our nature reserves provides the framework that guides what can and should occur on our nature reserves. The two key pieces of legislation applicable to our nature reserves are the *Planning and Development Act 2007* and the *Nature Conservation Act 1980*. These pieces of legislation and others were considered in this Investigation, are discussed in *Chapter 5 Management framework* and *Annex A to Chapter 5 Legislation, strategies and plans*.

It is timely that the *Nature Conservation Act 1980* is currently under review as this Investigation has identified amendments that would strengthen the Act with respect to our nature reserves. These are discussed in *Section 5.1 Legislative amendments*, these are the subject of Recommendation 4.1.

The *Planning and Development Act 2007* requires the preparation of plans of management for all areas of public land. The 10 year review of the Canberra Nature Park Management Plan was due by 20 July 2009. When the review of the Canberra Nature Park Management Plan 1999 occurs, it will be important to ensure that this review addresses issues discussed in *Section 5.2.1 Canberra Nature Park Management Plan 1999* these are the subject of Recommendation 4.2.

While a draft Pest Animal Strategy is being developed which will provide a framework for considering the management of all pest animals and native animals, it is understood that it will not provide the detailed management information that is needed for on-ground activities. Therefore an ACT Rabbit Pest Management Plan, as discussed in *Section 5.2.3 ACT Rabbit Pest Animal Management Plan*, is proposed. The assessment of the condition of our nature reserves indicates that grazing pressure from rabbits has adversely affected the condition of 54 per cent of nature reserves. To effectively manage rabbits it is necessary for on-going programs to be guided by a plan that covers all land owners in a given area. Given this, the development of an ACT Rabbit Pest Management Plan is considered to be a high priority and is the subject of Recommendation 4.3.

The former Department of Territory and Municipal Services developed a Code of Practice and a draft Code of Sustainable Land Management (discussed in *Section 5.2.4. Code of Sustainable Land Management*). These Codes provide guidance for infrastructure management on our nature reserves - tracks, powerlines, water reservoirs, communication towers, sewer lines and gas pipelines. The condition of 20 per cent of our nature reserves was identified as being affected by infrastructure maintenance activities such as track damage adjacent to powerlines. The Code of Practice and draft Code of Sustainable Land Management require Works Plans to be developed for a range of activities including construction of access tracks, road works (including design, siting, construction and maintenance of roads and tracks) and vegetation management such as mowing and slashing. Given this, it is appropriate that the draft Code of Sustainable

Land Management be finalised and implemented as soon as possible, as proposed in Recommendation 4.4.

Some aspects of biodiversity offsets have been considered in this Investigation in *Section 6.4 Environmental offsets for development*. Biodiversity offsets only occur if there is development and they can be used for a range of environmental attributes beyond just biodiversity, therefore a better term might be Environmental Offsets for Development, as suggested in Recommendation 4.5. The Investigation has also considered what actions might occur on nature reserves as Environmental Offsets for Development and concluded that these can best be identified by using principles to guide such decisions. This is discussed in *Section 6.4 Environmental offsets for development* and the principles are presented in Recommendation 4.6.

Some locations that could be considered as Environmental Offsets for Development are listed in Boxes 8, 9 and 10 in *Section 6.4 Environmental offsets for development*. These warrant further assessment but they do provide some initial options. Recommendation 4.7 addresses this issue.

Plantings in nature reserves as carbon offsets were also considered as discussed in *Section 7.3.4 Vegetation plantings on nature reserves as carbon offsets*. This matter needs further consideration as it was not possible to reach a conclusion. However, if plantings were to occur they should be ecologically appropriate as perverse results could occur if this principle is not applied. Accordingly it is suggested that this matter be progressed in the development of Action Plan 2 under the ACT Climate Change Strategy 'Weathering the Change', as suggested in Recommendation 4.8.

## **Recommendation 4**

### **Strengthen the management framework and strategically position our nature reserves** by:

- 4.1 Amending the *Nature Conservation Act 1980* to:
  - improve enforcement options;
  - increase penalties;
  - include powers to ensure historical encroachments onto nature reserves are removed at an encroacher's or user's expense; and
  - include relevant climate change and connectivity matters (including those raised in *Impacts of Climate on the Canberra Nature Park: Risks and responses* by Dr Bob Webb - Appendix E and *Ecological Connectivity for Climate Change in the ACT and surrounding region* by Manning *et al.*).
- 4.2 Reviewing the Canberra Nature Park Management Plan 1999 as mandated under the *Planning and Development Act 2007* and in so doing include:
  - nature reserves added to the reserve system since 1999;

- addresses categorising nature reserves (recommendation 3.4);
  - polices to address current issues and those developed since 1999, particularly;
    - Action Plan No. 27 - ACT Lowland Woodland Conservation Strategy;
    - Action Plan No. 28 - ACT Lowland Native Grassland Conservation Strategy;
    - Action Plan. No 29 - ACT Aquatic Species and Riparian Zone Conservation Strategy; and
  - consideration of climate change (including *Impacts of Climate on the Canberra Nature Park: Risks and responses by Dr Bob Webb* - Appendix E) and connectivity (including *Ecological Connectivity for Climate Change in the ACT and surrounding region* by Manning *et al.*).
- 4.3 **(High Priority)** Developing and implementing an ACT Rabbit Pest Management Plan. This plan should address the recommendations in *Managing Rabbits in Canberra Nature Park* by Dr Kent Williams (Appendix D).
- 4.4 Finalising and implementing the Code of Sustainable Land Management and address infrastructure construction and maintenance.
- 4.5 Using the term Environmental Offsets for Development to replace the term Biodiversity Offsets.
- 4.6 Guiding Environmental Offsets for Development on nature reserves (and lands affecting nature reserves including areas of connectivity) using the following principles:
- *net environmental gain* to the ecological communities or species most affected by the development in the ACT i.e. seeking potential long term overall improvement in the environment;
  - *additional actions* are undertaken, that is, actions taken are above those normally implemented or funded on a regular basis;
  - *timely and certain environmental gains* are achieved;
  - *monitoring and adaptive management* is applicable to all land management actions at all offset sites;
  - *independent decision-making in the use of funds*;
  - *transparency in decision-making*; and
  - *flexibility* to ensure the application of the above principles.
- 4.7 Assessing areas identified in this Investigation (Boxes 8, 9 and 10) as having potential for Environmental Offsets for Development.

- 4.8 Ensuring that any plantings in nature reserves intended as carbon offsets are carefully considered as to their ecological appropriateness in the development of Action Plan 2 under the ACT Climate Change Strategy 'Weathering the Change'.

## **INTEGRATE COMMUNITY HEALTH AND WELL-BEING WITH NATURE RESERVE PROTECTION**

### ***Findings that informed Recommendation 5***

Our nature reserves are highly valued by our community and play a significant role in providing natural settings close to our homes for a diverse range of recreational experiences, uses and activities, as discussed in *Chapter 3 Community views and values*. While visitor numbers for our nature reserves are not available, observations of visitation in some nature reserves indicates that numbers have significantly increased. With a forecast increase to Canberra's population of 80 000 over the next 20 years, more people are likely to use our nature reserves thereby increasing the pressure on them.

A comment overheard from a community member captured their idea of the health value of our nature reserves:

*... our reserves probably do more good for peoples' health than our two hospitals.*<sup>12</sup>

While our nature reserves do and can continue to provide the opportunity for a range of recreation activities that foster community health and well-being, there is no overall recreation strategy for our nature reserves. The *Strategic Plan for Sport and Active Recreation in the ACT & Region 2011-2020* which has recently been released, while being relevant to nature reserves, appears to have been developed without explicit consideration of recreation in these reserves. The development of a nature reserve recreation strategy could support the *Strategic Plan for Sport and Active Recreation in the ACT & Region 2011-2020* and provide a means for providing for appropriate recreation while protecting our reserves, as discussed in *Section 5.2.5 Recreation strategy*. It could also incorporate the Canberra Centenary Trail where appropriate as well as guide the development and maintenance of other recreation infrastructure. Improving recreation infrastructure is an important issue to many users of our nature reserves. Recommendations 5.1 and 5.2 related to recreation are considered a high priority.

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<sup>12</sup> Community person on Mount Ainslie in a general discussion March 2011.

## Recommendation 5

### **Integrate community health and well-being with nature reserve protection by:**

- 5.1 **(High Priority)** Developing and implementing an ACT Nature Reserve Recreation Strategy which:
- identifies the appropriate balance and mix of recreational opportunities for each nature reserve;
  - directs recreational activities to appropriate locations and encourages users to respect the environment and each other;
  - incorporates the Centenary Trail where appropriate;
  - specifically addresses track planning and management;
  - guides infrastructure development;
  - is developed in consultation with the community, in particular, reserve user groups and ParkCare groups; and
  - aligns with the ACT Government's *Strategic Plan for Sport and Active Recreation in the ACT & Region 2011-2020*.
- 5.2 **(High Priority)** Improving the provision and management of appropriate recreation infrastructure in nature reserves.

## **INCREASE THE PROTECTION AND RESTORATION OF OUR NATURE RESERVES BY SOURCING NEW FUNDING**

### ***Findings that informed Recommendation 6***

In 2010-11 the ACT Government spent \$8 million<sup>13</sup> on Canberra Nature Park. This is 0.2 per cent of the ACT Government's budget or approximately 20 per cent of what can be considered as funding for the environment which is \$40 805 225 (1 per cent of the ACT Government's total budget) (refer to *Chapter 7 Future funding* for details). Included in the approximate \$8 million allocated to the management of Canberra Nature Park, was \$565 000 for the Urban Wildlife Program (aimed at protecting and managing native wildlife in urban areas, not in nature reserves) and approximately \$4 million for implementing the Bushfire Operations Plan on nature reserves. Funding of approximately \$530 000 for Googong Foreshores, Lower Molonglo Nature Reserve and Molonglo Gorge Nature Reserve is not included in these figures.

While support for bushfire management in the ACT is essential given our location and climate, it is a major part of funds spent on nature reserve management. Adequately

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<sup>13</sup> Email from Mr Stephen Hughes, Department of Territory and Municipal Services to Dr Maxine Cooper, Commissioner for Sustainability and the Environment, 9 June 2011 and Emails from Mr Neil Cooper, Department of Territory and Municipal Services to Mrs Narelle Sargent and Ms Joanna Temme Office of the Commissioner for Sustainability and the Environment, 6 June 2011 and 17 June 2011. Refer to note (d) of Table 1 for details.

funding conservation and visitor programs is problematic particularly due to the large area of nature reserves that needs to be managed. While our nature reserves are a major asset they are also a significant challenge to fund. A comparison of population, nature/conservation reserves (hectares), and funding in Hobart City Council, Brisbane City Council and Canberra is presented in the table on the following page, which is Table 8 in *Part 1. Report*. While a comparison is informative it is also problematic. Accordingly, this comparison needs to be used as an indicator of difference and not as a precise measure. It was not possible to secure data for the same years, Brisbane data is for 2009-10<sup>14</sup> and Hobart and Canberra data is for 2010-11.

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<sup>14</sup> Personal communication from Ms Margaret Barrett, Brisbane City Council with Mrs Narelle Sargent, Office of the Commissioner for Sustainability and the Environment confirming that the 2010-11 budget estimate and funding per hectare of nature reserves is comparable to the 2009-10 budget on 15 June 2011.

Comparison of population, nature/conservation reserve area and funding in Hobart City Council, Brisbane City Council and Canberra (Table 8 in *Part 1. Report*)

	Hobart	Brisbane	Canberra
Resident population (approx 2009-10 figures)	49 887 <sup>15</sup>	1 052 458 <sup>16</sup>	352 200 <sup>17</sup>
Nature/conservation reserve (hectares)	2 966 <sup>18</sup>	7 786 <sup>19</sup>	12 008 <sup>20</sup> (a)
Nature/conservation reserve area per person (square metres)	594	73	340
Annual Funding for nature/conservation reserves (millions)	\$2.98 <sup>21</sup> (b) (\$2.6 approx excluding bushfire management)	\$6.15 <sup>22</sup> (c) (data not available to exclude bushfire management)	\$ 8.00 <sup>23</sup> (d) (\$4 approx excluding bushfire management)
Bushland Preservation Levy or equivalent (millions)	Not applicable	\$19.2	Not applicable
Approx funding per hectare of nature/conservation reserve excluding levy funds	\$1,005 (\$884 excluding bushfire management)	\$790 (data not available to exclude bushfire management)	\$666 (\$364 excluding bushfire management)

Notes:

(a) Excludes Namadgi National Park, Tidbinbilla Nature Reserve and Googong Foreshores.

(b) Figure for 2010-11, includes \$2.05 million for operational works and \$0.93 million for strategic/project works. Includes approximately \$360 000 for Bushfire Management on reserves. Funding sourced from general revenue, Hobart City Council does not currently have a dedicated environmental levy.

(c) Figure for 2009-10, includes recurrent and capital funding, however value of capital works in 2009-10 was zero. Figure includes management and maintenance of the conservation estate and bushfire management but excludes funding for acquisition of lands for the conservation estate, which currently is separately funded by the Bushland Preservation Levy. Expenditure from the Bushland Preservation Levy in 2009-10 was \$19 163 000.<sup>24</sup> An estimate of funds raised from the levy in 2010-11 is \$21 383 000. From 2006-2011 funds from the levy have been allocated wholly to acquisition of land for the conservation estate (including costs

<sup>15</sup> Australian Bureau of Statistics, National Regional Profile, Hobart

[www.abs.gov.au/AUSSTATS/abs@nrr.nsf/Latestproducts/LGA62810Population/People12005-2009?opendocument&tabname=Summary&prodno=LGA62810&issue=2005-2009](http://www.abs.gov.au/AUSSTATS/abs@nrr.nsf/Latestproducts/LGA62810Population/People12005-2009?opendocument&tabname=Summary&prodno=LGA62810&issue=2005-2009), accessed 26 May 2011.

<sup>16</sup> Brisbane City Council, Estimated Resident Numbers, <http://profile.id.com.au/Default.aspx?id=327&pg=210>, accessed 23 December 2010.

<sup>17</sup> Australian Bureau of Statistics, Australia Capital Territory, [www.abs.gov.au/ausstats/abs@.nsf/Products/3235.0~2009~Main+Features~Australian+Capital+Territory?OpenDocument](http://www.abs.gov.au/ausstats/abs@.nsf/Products/3235.0~2009~Main+Features~Australian+Capital+Territory?OpenDocument), accessed 23 December 2010.

<sup>18</sup> Email from Mr Adam Muyt, Hobart City Council, to Mrs Narelle Sargent, Office of the Commissioner for Sustainability and the Environment, 4 February 2011.

<sup>19</sup> Email from Ms Margaret Barrett, Brisbane City Council, to Ms Joanna Temme, Office of the Commissioner for Sustainability and the Environment, 1 June 2011.

<sup>20</sup> Email from Mr Graeme Hirth, Department of Territory and Municipal Services to Mrs Narelle Sargent, Office of the Commissioner for Sustainability and the Environment 9 June 2011.

<sup>21</sup> Emails from Mr Adam Muyt, Hobart City Council, to Mrs Narelle Sargent and Ms Joanna Temme, Office of the Commissioner for Sustainability and the Environment, 4 February 2011, 23 May 2011, 10 June 2011.

<sup>22</sup> Emails from Ms Margaret Barrett, Brisbane City Council, to Ms Joanna Temme, Office of the Commissioner for Sustainability and the Environment, 1 June 2011, 10 June 2011 and 15 June 2011.

<sup>23</sup> Email from Mr Stephen Hughes, Department of Territory and Municipal Services to Dr Maxine Cooper, Commissioner for Sustainability and the Environment, 9 June 2011 and Emails from Mr Neil Cooper, Department of Territory and Municipal Services to Mrs Narelle Sargent and Ms Joanna Temme Office of the Commissioner for Sustainability and the Environment, 6 June 2011 and 17 June 2011. Refer to note (d).

<sup>24</sup> Email from Ms Margaret Barrett, Brisbane City Council to Ms Joanna Temme, Office of the Commissioner for Sustainability and the Environment, 15 June 2011.

associated with acquisition such as contracts, negotiations, etc) and were not used for other conservation activities (for example revegetation, community programs etc). The allocation of levy funds may change in the 2011-12 budget, however allocation of funds from the Bushland Preservation Levy will continue to prioritise acquisition of land for the conservation estate.<sup>25</sup>

(d) Figure for 2010-11, includes \$2,812,500 for Canberra Nature Park; \$757,500 for Mulligan's Flat Nature Reserve; \$231,380 for Jerrabomberra Wetlands; and \$565,000 for the urban wildlife program, totalling \$4,366,380. Includes approximately \$4 million for Bushfire Management on reserves (Approximate figure based on estimated area of reserves in the Canberra urban area as a percentage of total area covered by the Bushfire Operations Plan, includes staff and equipment as well as physical works on reserves.) Total excludes \$270,000 capital funding for Infrastructure Improvements at Jerrabomberra Wetlands.

While overall more funds are invested in nature reserves in the ACT, we have four times the area of reserves to manage than Hobart; and only around a third of Brisbane's population, and therefore a far smaller rate base. Accordingly, there are fewer funds spent per hectare for conservation and visitor programs in the ACT.

Additional funds are needed to meet the challenges currently confronting our nature reserves and to enhance management actions designed to increase protection, restore areas in poor condition and improve the resilience of reserves. The issue of how to raise additional funds was explored in this Investigation.

A number of potential sources of additional funding were considered including philanthropic and private sector donations, round-up funds, trusts, levies and funds from carbon offsets. The Capital Woodland and Wetlands Conservation Trust, currently being established by the ACT Government is an example of a new approach in the ACT that aims to access private sector and community funding for projects located on public land, over and above normal government funded operations. This Trust is being established to support projects in Jerrabomberra Wetlands Nature Reserve and Mulligans Flat Woodland Sanctuary. It is scheduled to receive two \$1 million instalments from the Land Development Agency before 30 June 2012. The Trust is expected to source additional private sector donations.

The Trust is intended to supplement, rather than replace annual government support for normal, ongoing management of these areas. It will be interesting to observe the success of the Trust model, as the tradition of private philanthropy funding public nature reserves is not yet well established in Australia and is unlikely, at least initially, to reach levels seen in the United States of America, as noted for the Western Pennsylvania Conservancy (discussed in *Section 7.3.1.1 International examples*). However, given the characteristics of ACT residents; a high level of concern for the environment, participation in community activities and a relatively high disposable income, this may be a place where a Trust might attract private donations. Accordingly it seems appropriate to test this model and determine if it is appropriate to expand it to include all nature reserves, as stated in Recommendation 6.1. However, it would also be prudent to explore other avenues of funding in case the Trust model does not generate sufficient funds, as stated in Recommendation 6.2. One source of funds that would be more certain could be an ACT Environment Levy and if it were to be progressed it should be guided

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<sup>25</sup> Personal communication from Ms Margaret Barrett, Brisbane City Council with Ms Joanna Temme, Office of the Commissioner for Sustainability and the Environment, on 9 June 2011.

by principles presented in Recommendation 6.2 and, as it would require community support, it could be the subject of a discussion paper.

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## **Recommendation 6**

### **Increase the protection and restoration of our nature reserves by sourcing new funding** by:

- 6.1 **(High Priority)** Establishing the Capital Woodland and Wetland Conservation Trust and monitor its effectiveness in sourcing additional funds.
- 6.2 **(High Priority)** Identifying new sources of funding.
- 6.3 Guiding the management of non-government additional funds using the following principles:
  - *expenditure must be on specific and defined projects* aimed at long term overall improvement in the environment;
  - *projects are defined and publicly reported prior to commencement or expenditure;*
  - *additional actions* above those normally funded on a regular basis;
  - *independent and transparent allocation of funds;*
  - *monitoring, assessment and auditing* of results and expenditure; and
  - *public reporting* of result and expenditure.