



**LEGISLATIVE ASSEMBLY**  
FOR THE AUSTRALIAN CAPITAL TERRITORY

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STANDING COMMITTEE ON ENVIRONMENT AND TRANSPORT AND CITY SERVICES

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## Submission Cover Sheet

### Nature in Our City

**Submission Number: 12**

**Date Authorised for Publication: 8 August 2018**



## Nature in Our City

### Submission by the Fenner School of Environment and Society, Australian National University to the Standing Committee on Environment and Transport and City Services

#### Summary

From a perspective of ecological sustainability, the Fenner School supports more compact urban development as a model for growing Canberra's population. However, we consider that any reduction in urban open space should be offset by increasing the quality of urban open space for biodiversity. This can be achieved by replacing a large proportion of the mown area with landscaping that represents better habitat for Canberra's biodiversity. This strategy will not only improve biodiversity in Canberra's suburbs, but will have co-benefits in terms of reduced maintenance costs, natural play spaces and will act as a catalyst for Canberra's residents to be more actively engaged in the development and maintenance of urban open spaces. We suggest that the ACT Government implement a pilot scheme to evaluate our proposal.

#### Introduction

The Fenner School of Environment and Society at The Australian National University has a strong interest and expertise in sustainability issues within urban landscapes across disciplines spanning the social sciences, energy, biodiversity and water. In this submission we focus on the ecological sustainability of urban open space in Canberra and its co-benefits to the community.

The Fenner School notes the context for this inquiry: that the amount and quality of Canberra's urban open space is a critical to its character and lifestyle; that Canberra has the highest growing population of all Australian capital cities according to the last census; sprawling development in Canberra impacts upon nationally listed threatened species or communities (and places pressure on the city's infrastructure); and therefore the ACT Government views compact urban development (and urban infill) as part of the solution to this problem.

#### Values of urban open space

The Standing Committee should note that there is empirical research to indicate that urban open space provides the following benefits and services:

- Positive effects on human physical and mental wellbeing (Lee & Maheswaran, 2011, Maas *et al.*, 2006)
- Increases in adjacent property values (Pandit *et al.*, 2013)
- Potential for improved biodiversity (Ikin *et al.*, 2015)
- Services that mitigate impacts on climate change and reduce energy consumption (Brack, 2002)
- Benefits for storm water management and water pollution.

The Fenner School highlights the conclusion by Maas *et al.* (2006) that there is sufficient evidence that urban open space is associated with the wellbeing of residents to indicate that open space should adopt a central position in urban planning.

#### Indicators that Canberra's urban open space is not managed sustainably

There are several indicators that Canberra's urban open space is currently not managed in a sustainable way:

- Mowing alone is approximately \$9 million per annum and yet the mowing regime in urban open space promotes African lovegrass (a Weed of National Significance) (Figure 1) and Chilean needlegrass (a Declared Pest).

- Key habitats for native species (native ground cover, mid-storey cover, ecologically mature trees and dead wood) that occur in adjacent nature reserves are lacking in most of Canberra's urban open space (Le Roux *et al.*, 2014) (Figure 2) and it follows that many species of ground-cover plants, woodland birds, small terrestrial mammals, insectivorous bats, reptiles and amphibians that occur in adjacent nature reserves and leasehold land do not occur, or occur in low frequency, in Canberra's urban open space (Le Roux *et al.*, 2018).
- A number of hyper-aggressive native species (e.g., noisy miner, pied currawong) occur in large numbers within Canberra's urban open space and adjacent nature reserves to the detriment of many woodland bird species (Rayner *et al.*, 2015).
- Domestic cats contribute to the loss of urban fauna (domestic cats kill 167,000 birds per day in Australia) (Woinarski *et al.*, 2017).
- Much of Canberra's urban open space is not heavily utilised.
- The level of volunteerism by the community in the management or maintenance of their local urban open spaces is almost non-existent (c.f. with Canberra's nature reserves).



Figure 1. African lovegrass (a Weed of National Significance) is a dominant plant in parts of mown urban open space in Canberra and a likely source of seed for adjacent nature reserves.

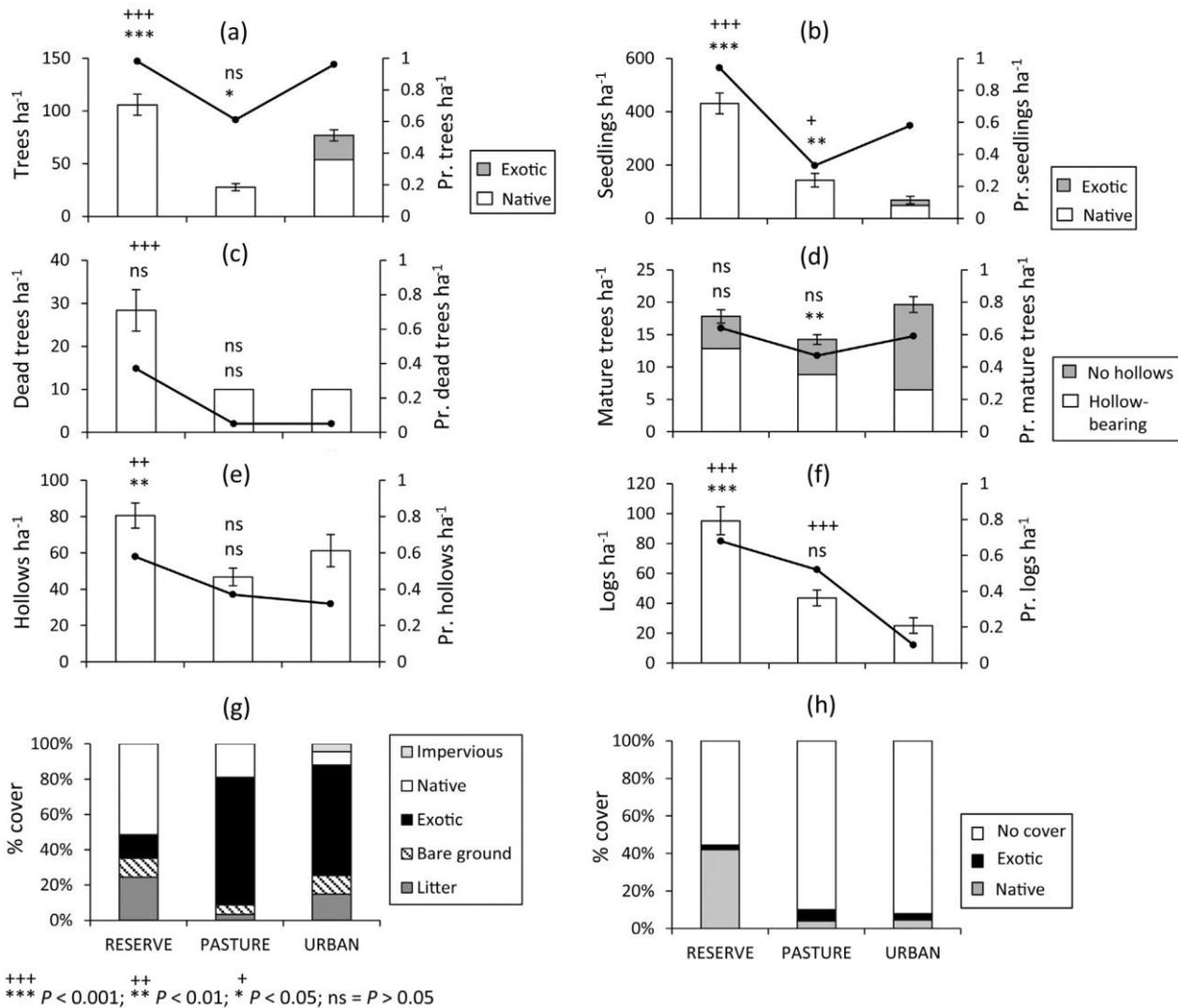


Figure 2. A comparison of the amount of key habitat in nature reserves (reserve), leasehold land (pasture) and urban open space (urban) in Canberra (Le Roux *et al.*, 2014).

### Offsetting the impact of urban infill

We note that all greenfield urban developments in Canberra impact upon nationally threatened species (e.g., pink-tailed worm lizard, golden sun moth, superb parrot) and ecological communities (e.g., natural temperate grassland, box-gum grassy woodland) and remove large numbers of eucalypts that pre-date European settlement. Research suggests that compact, as opposed to sprawling, development results in better outcomes for biodiversity (Sushinsky *et al.*, 2013, Villaseñor *et al.*, 2017). We believe there is scope to mitigate or offset the impact of urban infill in Canberra with the following:

- The area of mown grass in urban open space should be reduced considerably and replaced with alternative forms of landscaping that is more attractive to biodiversity. Research in Sweden (Ignatieva *et al.*, 2017) indicates that the majority of lawn area is not heavily utilised in urban open space and people prefer a diversity of experiences to monotonous lawn areas. Replacing a proportion of mown grass in Canberra's urban open space with different forms of ecological restoration will attract greater biodiversity to Canberra's urban open space, considerably reduce maintenance costs and provide a vehicle for greater community engagement in the creation, management and maintenance of Canberra's urban open space. Further, this creates an opportunity to maintain a smaller area of well-maintained grass in a greater number of urban open spaces across Canberra.

- We emphasise that opportunities for multiple users such as informal paths, natural play-spaces (e.g., logs and rocks) and mountain bike trails can be integrated to, and are not inconsistent with, naturally landscaped zones within urban open space.
- Landscaping in grassed areas should focus on the habitat elements that occur in adjacent nature reserves, but are absent or occur in low frequency within urban open space (Figure 2).
- Note that shrubs, due to their relatively fast growth rates, provide rapid structure, shading and carbon sequestration co-benefits in urban open space.
- Areas within urban open space that are dominated by native grasses or forbs (e.g., *Rytidosperma* spp., *Austrostipa* spp.) should be formally delineated and managed primarily for conservation. These areas typically have low productivity and will often require no mowing or an infrequent mowing regime and in appropriate areas can be burnt with input from the local Aboriginal community (this is also a fun community activity if undertaken in the evening).
- All mature eucalypts in urban open space should be foci for landscaping to ensure these irreplaceable features are protected in the long-term, discourage pedestrian traffic and allow fallen branches to remain in situ (Figure 3). Mature trees have a disproportionate value for biodiversity in Canberra's urban open space (Stagoll *et al.*, 2012) and this will reduce maintenance costs associated with these trees.
- Landscaping should make use of informal (dirt or gravel) paths, dense tree plantings and logs and rock to minimize maintenance cost.
- Different "zones" within urban open spaces should be delineated formally (e.g., with a mulch bed, rock, logs, along paths) to reinforce the different types of management. Delineation of manicured/not manicured areas is important in terms of aesthetics, acceptance by the community and recognition by mowers.
- Urban open spaces that contain values for biodiversity should be managed as a network to maximize connectivity between these areas and adjacent nature reserves.
- Landscaping and engineering works in concrete drains that: slows the velocity of water, creates areas where water ponds, creates conditions for native vegetation to establish within the waterway and adjacent areas and adds habitat structures such as rock and logs will greatly increase biodiversity in these areas.
- Existing nature reserves and areas of high conservation value should not be targeted for urban infill. Hazards associated with falling limbs and bushfire risk are often raised as concerns against greater use of ecological restoration (i.e., mature trees, shrubs, litter, logs, native grasses) in urban open space.

We would like to highlight that mature living and dead trees, which are keystone structures for wildlife, are not typically managed (i.e., lopped or felled) in Canberra's nature reserves despite large pedestrian numbers along the main paths. This contrasts with the practice in other areas of urban open space where mature trees are managed conservatively. Transport Canberra and City Services is beginning to change their approach to managing mature trees, but we suggest they adopt formal Quantitative Tree Risk Assessment (Ellison, 2005) to bring greater transparency and consistency to the way mature trees are managed, as this is a very important resource for Canberra's biota (Stagoll *et al.*, 2012). Options to felling mature trees such as removing targets under mature trees, lopping dangerous branches where a target exists and bracing trees should be explored before a tree is totally removed, as mature trees often pre-date European settlement and therefore are essentially irreplaceable.

Maintaining large areas of mown grass and removal of shrubs and fallen tree-limbs is cited as a mechanism to reduce risk from bushfires (e.g. [https://www.accesscanberra.act.gov.au/app/answers/detail/a\\_id/94/~/\\_/grass-mowing](https://www.accesscanberra.act.gov.au/app/answers/detail/a_id/94/~/_/grass-mowing)). However, it should be noted that the maximum distance from bushland that houses have been destroyed in Australia is 700m and that 85% of houses destroyed during bushfires in Australia have occurred within 100m of the urban-bushland interface (de Oliveira *et al.*, 2013). Further, fuels <6mm in diameter contribute to the intensity of a bushfire so coarse fuels (e.g., logs) also do not constitute a bushfire risk. Thus landscaping with logs, native grasses and shrubs, which are habitats lacking from much of our urban open space (Figure 2) does not constitute a bushfire risk in the vast majority of urban open space in Canberra.



Figure 3. A mature eucalypt at The Australian National University that is managed with landscaping to minimize risks to people or infrastructure. These trees pre-date European settlement in the Canberra region and are disproportionately important for birds and bats.

### Alternative funding models for urban open space initiatives

The following document reviews funding models for urban green space projects (<https://www.theparksalliance.org/paying-for-parks-eight-models-for-funding-urban-green-spaces/>). In addition to the models reviewed here we suggest that the Committee consider the following:

- Crowd-sourcing from local communities or ongoing opportunities for residents (or the private sector) to co-invest in their local open space.
- A levy on land taxes/rates managed as a Trust (this has been proposed by Ginninderry).
- Reallocation of recurrent funds through savings that accrue from low-maintenance design principles (e.g, reduction in mown area), use of natural materials as play spaces (e.g., logs) and community involvement in maintenance.

Examples from other parts of the world include the Green Alley Project, which is based on crowd-funding ([http://www.greengaragedetroit.com/index.php/Green\\_Alley\\_Project](http://www.greengaragedetroit.com/index.php/Green_Alley_Project) and <https://vimeo.com/98930830>) and Growing a Greener Britain (<https://www.spacehive.com/movement/ggb>).

### Recommendations

- The Fenner School supports a more compact—as opposed to sprawling—Canberra urban landscape.
- We consider that any reduction in urban open space should be offset by increasing the quality of urban open space for biodiversity. We believe that greater use of ecological principles to underpin the management of Canberra's urban open spaces will not only benefit biodiversity, but have co-benefits in terms of reduced maintenance costs, greater utilisation of the urban open space network by Canberra's residents and greater community involvement in the establishment and maintenance of urban open spaces.
- We recommend that the ACT Government introduce a pilot scheme whereby local communities have involvement in the design, implementation and maintenance of low-cost alternative urban open spaces in their neighbourhoods (e.g., ecological restoration, natural play-spaces, informal pathways/cycleways, smaller areas of well-maintained dryland grass, citizen science, community-based maintenance).

- As part of this pilot, we recommend the ACT Government explore alternative funding models for revitalising urban green space (e.g., crowd-sourcing).
- We recommend that a pilot be introduced alongside research that evaluates the social, environmental and financial outcomes relative to traditionally-managed urban open space.

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