

Nature Based Solutions for Urban Liveability

Critical Policy Brief



This briefing draws upon the expertise of RMIT's urban greening, biodiversity and liveability research community to inform policy makers and the wider community on the critical opportunities nature-based solutions offer in enhancing liveability.

Population growth and increased urban temperatures will present significant challenges in maintaining the liveability of Victoria's cities and regional centres. "Re-naturing" through urban greening offers considerable potential to cool our cities and improve the quality of urban living.

Overview

Urban greening not only enhances biodiversity in our cities, it also reduces urban temperatures, encourages more healthy and active lifestyles, promotes well-being and brings communities together.² Biodiverse vegetation in and around cities provides ecosystem services critical for climate change adaptation and mitigation, most notably through cooling and flood prevention.³

The value of urban forests in the United States is estimated at \$11.7 billion dollars in avoided health care costs annually⁴

"Re-naturing" – bringing nature back into our cities – goes beyond urban greening and delivers even greater benefits, not only in improved health and well-being,⁵ but also in generating environments that support a diversity of species. Urban development currently presents the greatest threat to Australia's threatened species⁶ – embedding nature in our cities and planning for biodiversity corridors significantly diminishes this threat.⁷ Creating 'every day nature' also re-connects people with their natural environment and can promote engagement with Indigenous history and culture.

While the benefits of urban greening are well recognised by government, all but three of Victoria's 34 local government areas lost green area between 2013-16, with some inner areas of Melbourne losing more than 6% of their green cover.⁸ This policy briefing highlights four key areas in which Victoria can enhance liveability through re-naturing our cities: developing a state-wide urban greening plan; promoting the uptake of biodiversity sensitive urban design; reconnecting our community

Key Messages

- Urban greening delivers social, health, economic and environmental benefits for our cities – in the City of Melbourne alone the value is estimated to be \$700 million.¹ Victorian cities can be readily "re-natured" to improve biodiversity and liveability.
- To realise greater benefits from connected, biodiverse green areas, a state-wide urban greening plan is needed. This would present an overarching vision for development of Victoria's green infrastructure, supported by appropriate resourcing, specific greening targets and guidelines.
- Government can facilitate more extensive industry uptake of Biodiversity Sensitive Urban Design (BSUD) by specifying BSUD principles in planning and building regulations.
- Re-connecting people with nature contributes to improved environmental, social and cultural outcomes – this can be especially achieved through greening community infrastructure such as schools and by supporting community biodiversity partnerships.

to nature; and supporting community partnerships for biodiversity rejuvenation.

Develop an integrated, state-wide green infrastructure plan

Infrastructure Victoria has advocated for an increase in the amount and quality of green infrastructure in urban areas, recommending as an immediate first step the development of a state-wide green infrastructure plan.⁹ Holistic approaches to green infrastructure planning have been successfully implemented in countries such as Singapore and Sweden.¹⁰ In Australia, the Government Architect of New South Wales is currently preparing an overarching plan to guide the design and development of green infrastructure, seeking to connect urban ecosystems across that State.¹¹

A state-wide plan is similarly needed in Victoria to protect remnant vegetation, enhance green assets across the State, and promote public and private sector investment in new biodiverse green infrastructure. In built areas there is significant potential for greening through re-design of streetscapes, public spaces and facilities, drainage infrastructure, walls and rooftops to deliver both social and environmental benefits. A state-wide plan could identify where resources can be best allocated to address areas of highest need – such as those areas at most risk of heat stress, or those with poor existing access to green space. It would also address barriers to development of green infrastructure¹² and provide certainty to industry in delivering green infrastructure projects.

Promote uptake of Biodiversity Sensitive Urban Design

Biodiversity sensitive urban design (BSUD) aims to regenerate biodiversity while also improving liveability and promoting deeper cultural connections with nature.¹³ The development industry is beginning to embrace BSUD to inform building design and precinct plans. There is scope to more fully integrate this approach across all new development and in greening existing city infrastructure. Government can facilitate this by specifying mandatory BSUD requirements in planning and building regulations.

Re-connecting Victorians with nature

The Victorian Biodiversity Strategy recognises that reconnecting people with nature delivers health and environmental benefits and supports equity outcomes.¹⁴ Urban re-naturing promotes this re-connection, particularly through planting in community infrastructure such as hospitals, health centres, senior citizens centres, and schools. The advantages of re-naturing are especially compelling in schools. As well as improving the health and comfort of students through

increased natural shading, there is strong evidence that children who play in school grounds with more biodiversity have improved cognitive development and less behavioural problems.¹⁵ The City of Paris aims to green all 800 of its schools by 2040 in response to increasing urban temperatures, providing community “oases” during heatwaves.¹⁶ Habitat planting in schools can support both educational and cultural objectives. Planting iconic species in schools in partnership with Traditional Owners positively engages children with Indigenous history and culture.¹⁷

Support community partnerships for biodiversity restoration

Community involvement in biodiversity projects provides not only opportunities to rejuvenate the natural environment and biodiversity, it also builds community connection and cohesion. Melbourne’s rivers are a natural focal point for activity, connecting communities, crossing local government boundaries and providing important corridors of remnant habitat. Restoring biodiversity along rivers would advance both environmental and community well-being. Researchers at RMIT University are currently analysing the outcomes of the Upper Stony Creek Transformation project that is revegetating a large section of Stony Creek to create a vibrant community space and walking paths.¹⁸ The work of community networks such as Gardens for Wildlife Victoria, which involves local residents, schools and businesses to care for the native plants and animals in their communities similarly provides both ecological and social benefits to our community.¹⁹

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¹ City of Melbourne (2014), Urban Forest Strategy, p.7

² See for example Davern M, Farrar A, Kendal D, Giles-Corti B (2016), Quality Green Public Open Space Supporting Health, Wellbeing and Biodiversity: A Literature Review, Report prepared for the Heart Foundation, SA Health, Department of Environment, Water and Natural Resources, Office for Recreation and Sport, and Local Government Association (SA). University of Melbourne: Victoria; Infrastructure Victoria (2016), Victorian 30 Year Infrastructure Strategy, p. 191.

³ Bekessy SA, Garrard GE, Clarkson RE, Hobbs RJ (In review), ‘The critical role of ‘every day nature’ for the future of cities’; Davern M, Farrar A, Kendal D, Giles-Corti B (2016), Quality Green Public Open Space Supporting Health, Wellbeing and Biodiversity: A Literature Review, Report prepared for the Heart Foundation, SA Health, Department of Environment, Water and Natural Resources, Office for Recreation and Sport, and Local Government Association (SA). University of Melbourne: Victoria.

⁴ Wolf KL, Measells MK, Grado SC, Robbins AST (2015), ‘Economic values of metro nature health benefits: A life course approach’, Urban Forestry and Urban Greening, 14:694-701.

⁵ Bekessy SA, Garrard GE, Clarkson RE, Hobbs RJ (In review), ‘The critical role of ‘every day nature’ for the future of cities’.

⁶ Selinske MJ, Peterson I, Garrard G, Gordon A, Fidler F, Lenzen M, Malik A, Bekessy SA (In prep.), ‘Prioritized behaviours that impact Australian biodiversity’.

⁷ Ives CD, Lentini PE, Threlfall CG, Ikin K, Shanahan DF, Garrard GE, Bekessy SA, Fuller RA, Mumaw L, Rayner L, Rowe R, Valentine L, Kendall D (2016), ‘Cities are hotspots for threatened species’, Global Ecology and Biogeography, 25: 117–26

⁸ Amati M, Boruff B, Caccetta P, Devereux D, Kaspar J, Phelan K, Saunders A (2017), Where should all the trees go? Investigating the impact of tree canopy cover on socio-economic status and wellbeing in LGAs, prepared for Horticulture Innovation Australia Limited by the Centre for Urban Research, RMIT University.

⁹ Infrastructure Victoria (2016), Victorian 30 Year infrastructure Strategy, Need 1.4.6.

¹⁰ International examples can be viewed at www.naturvation.eu

¹¹ Government Architect of New South Wales (2017), ‘Greener Places: establishing an urban Green Infrastructure policy for New South Wales’, Draft Policy for Discussion.

¹² Such as restrictions imposed by bushfire regulations, for example.

¹³ Garrard GE, Williams NSG, Mata L, Thomas J, Bekessy SA (2018), ‘Biodiversity sensitive urban design’, Conservation Letters 11: 1-10.

¹⁴ Victoria Department of Environment, Land, Water and Planning (2017), Protecting Victoria’s Environment – Biodiversity 2037.

¹⁵ Dadvand P. et al (2015), ‘Green spaces and cognitive development in primary schoolchildren’, Proceedings of the National Academy of Sciences of the United States of America 112: 7937–7942; Faber Taylor A, Kuo FE (2011), ‘Could Exposure to Everyday Green Spaces Help Treat ADHD? Evidence from Children’s Play Settings’, Applied Psychology: Health and Well Being, 3: 281–303.

¹⁶ Clement, M. (2018), ‘Green space in every schoolyard: the radical plan to cool Paris’, Guardian online, 16 August.

¹⁷ RMIT University is currently working with the Victorian Government and the National Environmental Science Programme Threatened Species Recovery Hub to pilot a program of habitat planting for iconic species in schools that has potential for state-wide roll-out.

¹⁸ ‘Upper Stony Creek Transformation to Begin’, Brimbank Buzz, City of Brimbank, 10 April 2018.

¹⁹ Mumaw L, and Bekessy S (2017), ‘Wildlife gardening for collaborative public-private biodiversity conservation’, Australasian Journal of Environmental Management 24(3):242–260; Mumaw LM, Maller C, and Bekessy S (2017), ‘Strengthening wellbeing in urban communities through wildlife gardening’, Cities and the Environment, 10(1):art 6.