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Planning for biodiversity on the urban fringe - re-imagining the suburb

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This case study originally appeared in *Cities for the future: Innovative and principles-based approaches to urban equity, sustainability and governance* (published in April 2015).

Cities for the future is the biannual flagship publication of the Global Compact Cities Programme and is financially supported by the Research and Innovation Portfolio at RMIT University.

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Environment

Planning for biodiversity on the urban fringe – re-imagining the suburb

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Researchers in Melbourne, Australia, are confronting the challenges of urban growth, working to create the paradigm shift required in urban design and planning to better nurture nature in city development.

Many people around the world gain benefits from engaging with 'nature' in the places where they live and work. These benefits include aesthetic and cultural inspiration, recreation and air and water purification, to name just a few. Plants and animals in cities are often the only exposure people have to natural environments, so urban habitat represents an important educational opportunity. Preserving 'nature' in cities requires that we manage biodiversity; that is the variety of life at the gene and species levels. It also requires managing the ecosystems of which species are a part and the ecological and evolutionary processes that maintain them.

Nurturing nature in our cities has become increasingly challenging over the last 100 years, as cities around the world have dramatically increased in size. This urban growth has resulted in profound impacts on natural areas, including the loss of natural habitats and landscape fragmentation, the introduction of pests and weeds, the modification and pollution of natural waterways, increased road surfaces and traffic, problems of sewage and waste disposal and disturbance from intensive tourism and recreation.

Because urban areas tend to be located in productive regions with regular rainfall and fertile soil they often coincide with areas of high biodiversity. This means that the biodiversity value of natural areas in and around cities is often highly significant. For example, in Australia over 40 per cent of nationally listed threatened ecological communities and more than 50 per cent of threatened species occur in urban fringe areas. For these reasons, urbanization is considered one of the greatest current threats to biodiversity and there is an urgent need to improve conservation planning in these regions.

However, despite the introduction of planning legislation and frameworks to preserve biodiversity, many cities around the world are facing a looming extinction crisis; short-term economic gains consistently win over biodiversity concerns on a localized case-by-case basis. Through research being undertaken by researchers in the Interdisciplinary Conservation Science Research Group at RMIT University in Melbourne, Australia, we are working to create the paradigm shift required to nurture nature in the city.

Two key challenges

The native ecosystems on Melbourne's urban fringe contain highly threatened species and communities, including some of the last remaining examples of Victorian Volcanic Plains temperate grasslands. Many of these grasslands exist primarily on private land and housing development threatens many remaining areas. As a result, the grasslands and the species that rely on them face a perilous future. Without a major re-think, it is entirely possible that we will see the extinction of many constituent species — if not the whole ecosystem type — in the near future.

Two major problems are driving the loss of grasslands on the urban fringe. Firstly, once development occurs, grasslands inevitably deteriorate. Community perception of grasslands is very poor and appropriate management is difficult to maintain. Over time, the fragmentation of the landscape, introduction of pests and weeds, increased roads and traffic and disturbance from intensive recreation results in the disappearance of sensitive flora and fauna species. These impacts can be controlled and substantially better outcomes are possible, but achieving this depends on better and scientifically-driven urban design that meets the needs of species and manages community use and perception.

The second major problem is that Melbourne's key growth corridors are aligned with grassland biodiversity hotspots. This inevitably leads to conflict in land use, with biodiversity values typically deprioritized in favour

of development and the continued expansion of the urban growth boundary into biodiversity-rich areas. Alternatives to urban sprawl exist, but projections of the consequences of status quo and alternative scenarios for communities, local economies and biodiversity are urgently needed.

With the support of The Myer Foundation, our research is seeking to find solutions to these two problems.

Planning for grasslands within housing developments

A major output of the project is a new planning protocol for 'biodiversity sensitive urban design' that highlights possibilities for maintaining and even improving grasslands within urban developments.

The protocol's design principles focus on locating grasslands within a development and maintaining viable populations of vulnerable flora and fauna species. Other issues being considered include minimizing human/nature conflicts, protecting and creating habitat, facilitating dispersal and encouraging stewardship from local communities.

Planning housing development to avoid grasslands

We are running planning scenarios to evaluate big-picture planning approaches as alternatives to urban sprawl. The principle aim is to assess the likely consequences of status quo alternative plans for Melbourne's remnant grasslands.

Blue Devil (Eryngium ovinum) is one of the plants that grows in Melbourne's grasslands. Image: RMIT University.

A number of different scenarios will be explored, from simply adjusting lot sizes to urban consolidation with no further expansion of the urban boundary. Recognizing that the argument for alternative planning approaches will not succeed on the basis of biodiversity alone, we are collaborating with experts in urban planning, housing affordability, transport planning, health and wellbeing, and sustainable housing to evaluate the implications of these scenarios for other key planning objectives.

Better nurturing nature in the city

The project has the potential to develop planning for biodiversity that is rigorous, effective and based on sound science. Importantly, it also has the potential to generate interest in alternative designs for cities that are more sustainable in many different dimensions and create livable and desirable cities for humans and biodiversity alike.

Dr Georgia Garrard and Associate Professor Sarah Bekessy are part of RMIT University's Interdisciplinary Conservation Science Research Group. For more information visit:
www.rmit.edu.au/socialhumanities/conservationscience

The City of Melbourne was the first city in the world to make the commitment to the UN Global Compact, becoming a participant in 2003. The city led the establishment of the Global Compact Cities Programme, in partnership with the Committee for Melbourne, establishing the ´Melbourne Model´ as a cross-sectoral framework for cities to implement the Ten Principles.

Nurturing nature in our cities has become increasingly challenging in the face of rapid urbanization. RMIT researchers are working to generate interest in alternative designs for more sustainable cities. Image: Tommaso Durante/The Visual Archive Project of the Global Imaginary.