

# GREEN SPACES IN GREY PLACES: ARE GREEN ROOFS AND WALLS ENOUGH?

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## Abstract

This paper explores the causes and consequences of the fact that many of the people living in cities no longer value nature and no longer see it as relevant to their lives. The paper suggests ways to ensure that the experience of urban nature will foster understanding and appreciation of nature in general, so that more people will be willing to invest in biodiversity conservation both in and beyond the urban environment.

## Introduction

A variety of geologic processes and events have caused five mass extinctions in history of animal life on our planet. During each of these mass extinctions, there has been a catastrophic decline in the Earth's biodiversity as a significant proportion (more than 50%) of animal species has become extinct in a geologically insignificant period of time (Hallam & Wignall 1997).

It appears that we are now experiencing a sixth mass extinction (Kolbert 2014). The *Red List of Threatened Species* maintained by the International Union for the Conservation of Nature (2014) estimates that 26% (21-36%) of the world's mammals species, 13% (13-14%) of its bird species and 41% (31-56%) of its amphibian species are currently threatened with extinction. Barnosky et al. (2011) concluded that if all of these species and the other animal and plant species listed as threatened on the *Red List* were lost during this century, and if the current rate of extinction were to continue, we could lose three-quarters or more of all species within a few centuries, 'a state of mass extinction that has previously been seen only five times in about 540 million years' (Barnosky et al. 2011, p. 56).

Global biodiversity reached a maximum, in the present geologic period, about 30 000 years ago. Global biodiversity has declined since this maximum, primarily due to human impact on natural ecosystems. These impacts include:

- overexploitation, mainly through hunting, fishing and forestry
- habitat loss, through native vegetation clearance for agriculture and, to a lesser extent, urban development
- introduction of invasive species, which has had a devastating impact on Australia's biodiversity
- spread of diseases (e.g., the chytrid fungi affecting frogs)
- pollution, particularly fresh water pollution
- and the knockout blow, climate change (Chapin III et al. 2000).

The magnitude of the current extinction crisis, its causes and its consequences for humanity are not news to those of us interested in environmental issues. As Richard Hobbs (2013, p. 146) has noted, we grieve for a natural world that is mostly 'characterised by loss':

Whether it is a local and personal loss such as the destruction of a piece of local woodland or a species that was once abundant now being scarce or non-existent, or whether it is loss on a grander and more general scale, such as the destruction of rainforest, the extinction of Australian marsupials, or the decline of the Arctic ice sheet, people with an interest in species, ecosystems, and the environment in general are constantly assailed with accounts of past or impending loss.

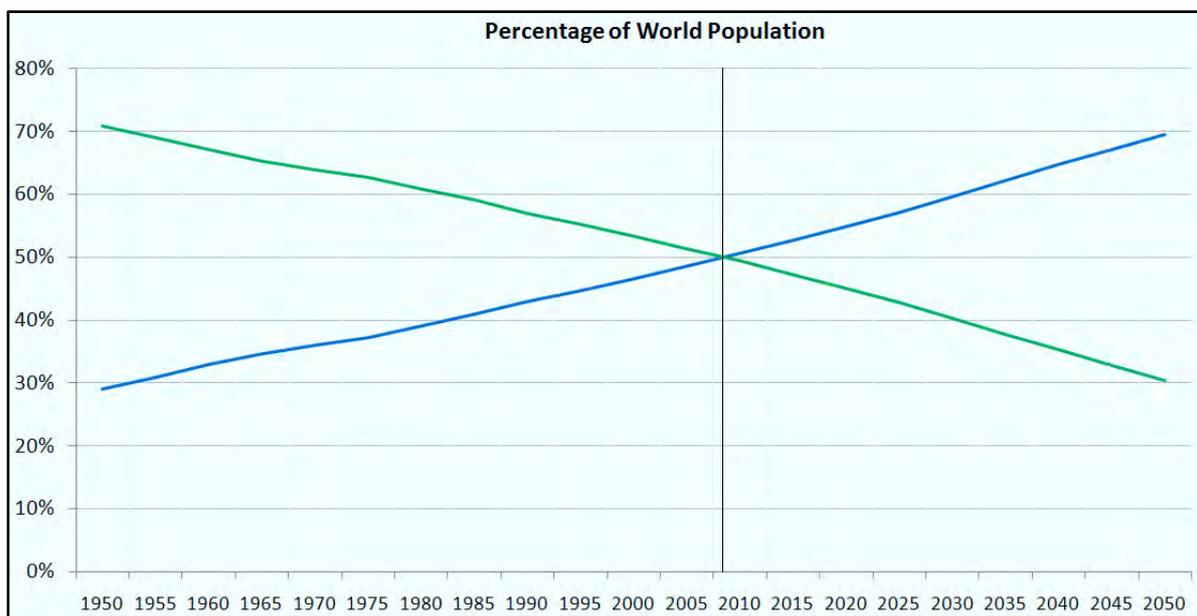
The grief we experience, consciously or unconsciously, as environmental scientists, educators and activists is compounded by anger and frustration that we have conspicuously failed to convey the relevance and the urgent need for biodiversity conservation to the general public (Miller 2005).

The reasons for this failure are complex, but one reason is undoubtedly the fact that many people no longer value nature and no longer see it as relevant to their lives. The increasing estrangement of people from nature engenders ignorance about natural processes. This decline in ecological literacy encourages each generation to accept increasingly degraded natural environments as the norm, a process that has been termed ‘the extinction of experience’ (Pyle 1993, p. xiii). The current rate of biodiversity loss is catastrophic, but it continues largely unnoticed by the majority of people who react with scepticism, apathy or indifference to predictions of a biologically impoverished future.

## Estrangement from Nature

Urbanisation is one of the main factors responsible for the increasing estrangement of people from nature. More and more people are living in towns and cities. More and more towns are becoming cities. More and more cities are becoming mega-cities.

Since 2011, the world’s urban population has exceeded its rural population. By 2050, it is expected that 70% the world’s people will live in towns and cities (Figure 1) (United Nations 2011).



**Figure 1 World Urban and Rural Population Percentages. Source: United Nations 2011.**

Australia is one of the world's most urbanised countries. About 90% of Australians currently live in towns and cities and about 40% of all Australians live in the Greater Sydney and Melbourne Statistical Areas. Although South Australia is not Australia’s most highly urbanised State, it is highly urbanised. About 78% of South Australians live in the urban and peri-urban environments of the Greater Adelaide Statistical Area; the area that used to be known as Metropolitan Adelaide and Outer Adelaide (Australian Bureau of Statistics 2014). We tend to think of Australian towns and cities as green and leafy places, at least during the winters of La Nina years, but we are rapidly losing urban greenspace. We are also making less use of the urban greenspace that we have. This is true of both private urban greenspace, particularly the residential backyard, and public urban greenspace, mainly urban parks.

## Private Urban Greenspace

GIS-based research has shown that private greenspace forms a very significant component of the total greenspace of our cities and towns, greater than 60% in some suburbs. However, the contribution of private greenspace to urban biodiversity and the ecosystem services provided by private greenspace have been largely unrecognised and undervalued (Barnett, Beaty & Doherty 2005).

In many cases, the traditional Australian backyard is considerably more biodiverse than the local urban park on the other side of the back fence (Taylor, Murray-Leach & Smith 2005). Unfortunately, as Tony Hall (2010) has demonstrated, the traditional Australian backyard is becoming almost as much a relic of the past as the traditional Hills Hoist.

According to Hall (2010, p.41), during the early 1990s, 'a dramatic change in Australian suburban form began. Houses with large backyards ceased to be built. Dwellings built since then now extend to within a few metres of the side and rear boundaries of the lot.' New suburban developments also commonly lack sidewalks, street verges and, therefore, street trees (Figure 2).



**Figure 2 Older Residential Area Versus New Residential Area. Source: Google Earth.**

### **Public Urban Greenspace**

Most of Adelaide's urban parks date from the post-WWII period of population growth and suburban sprawl. Earlier parks in the city centre, known as aesthetic or pleasure parks, were generally large and elaborately landscaped. The new urban parks were created mainly to provide active and passive recreational opportunities for the inhabitants of the suburbs. So the post WWII urban parks were downsized and their landscaping was simplified to more closely resemble playing fields than parklands (Nankervis 1998).

The City of Charles Sturt illustrates the development of urban parks following WWII. Charles Sturt has 390 hectares of public open space and 113 parks. Some of these are large regional parks, but most are small local recreation parks, generally less than two hectares in area (Figure 3). Children's playgrounds have been constructed in 110 of the parks (City of Charles Sturt 2006).



**Figure 3 Open Space in the City of Charles Sturt. Source: City of Charles Stuart (2006).**

Recreation parks generally contain large expanses of grass and tree shaded places for people to sit and have picnics. They tend to lack ornamental vegetation, beyond a few flowering shrubs, and have minimal biodiversity value. The larger recreation parks may also have team clubrooms and facilities like goal posts, basketball hoops, tennis courts, netball courts, bowling greens and cricket pitches.

In the post WWII period of immigration and the 'baby boom', children were recognised as significant urban park users, and play grounds were installed in most suburban parks(Nankervis 1998). The provision of facilities for children has continued with the installation of skate and BMX parks. Modern recreational trends have attempted to attract adult park users by including dog parks, exercise equipment and fitness trails. The loss of the traditional backyard has also created a demand, in many suburbs, for the inclusion of community gardens in larger urban parks.

Beginning in the 1970s, urban parks were increasingly required to perform ecological functions: cooling the urban heat island, storm water interception and retention, providing wildlife habitat, restoring watercourses and wetlands(Nankervis 1998).In many cases, this 'bush garden' trend in urban park design sacrificed social value for enhanced ecological value as recreational facilities were replaced by dense plantings of Australian shrubs.

More recently, there has been an emphasis on sustainability in urban park design, particularly in terms of water use, and also a reemphasis on making new urban parks attractive to people as well as wildlife; with limited success (Wright 2013).

While the ecological and social value of many of the new and redeveloped 'showcase' urban parks is very high, financial constraints have meant that the quality of many urban parks in the older suburbs has deteriorated. This is particularly true of the numerous small local urban parks that were established to provide recreational opportunities within walking distance for people living in the suburbs.

There is one of these local urban parks near my home. It is, typically, very small, about the size of a normal house block in my neighbourhood. It has a few trees and shrubs over lawn, a seat and some play equipment. It is reasonably well maintained, but during the 20 years I have been driving past this urban park, I've never seen anyone in it. Wright (2013, p. 312) tells a similar story about a small urban park near her home in Brisbane.

There are a number of reasons why people don't use their local urban parks:

- the decline in recreational use of urban parks in favour of indoor leisure and social activities
- the decline in unsupervised, unstructured outdoor children's play
- increasing vandalism and other anti-social activities
- increasing maintenance costs (security costs, labour costs, irrigation costs, insurance costs etc.)
- declining maintenance standards as a result of increasing maintenance costs
- deterioration and removal of facilities
- concerns about safety, particularly the safety of children, in urban parks.

## Children's Outdoor Play

Two recent reports on children's activities have noted with alarm the low level of unsupervised, unstructured outdoor children's play in Australia:

- *Missing Trees: the Inside Story of an Outdoor Nation* (Planet Ark 2013)
- *Is Sport Enough?: 2014 Report Card on Physical Activity for Children and Young People*(Active Healthy Kids Australia 2014).

The first of these reports found that ...'1 in 4 Australian children under 16 years spend, on average, less than 2 hours of their spare time per week playing in natural outdoor environments' (Planet Ark 2013, p. 5). The second report found that Australian children are among the least active in the world and that 'the majority of Australian children and young people are not meeting the daily Australian physical activity guidelines' (Active Healthy Kids Australia 2014, p. 8).

Young children (2-4 year olds) are the most likely to be physically active and to play outdoors, while older children (5-17 year olds) are generally inactive and unlikely to engage in outdoor play (Active Healthy Kids Australia 2014).

Kellert (1996) notes that attitudes towards nature are mostly formed in childhood, particularly between the ages of nine and twelve years when children may acquire an interest in nature and the way that it functions, and between the ages of thirteen and seventeen when teenagers often become concerned with wildlife conservation and the ethical treatment of animals. However, the development of curiosity about and concern for nature depends on experience of the natural world, even if this experience is limited to mucking about in back yards and urban parks.

Richard Louv (2006), in his book *Last Child in the Woods: Saving our Children from Nature Deficit Disorder*, argues that direct exposure to nature is also essential for healthy childhood development. Louv directly links estrangement from nature to some of the most disturbing recent childhood trends, such as the rises in obesity, attention disorders and depression.

## Reconnecting People with Nature

In our increasingly urbanised world, contact with urban nature will be the only direct experience of nature that most people have. This begs the question, how can we ensure that the experience of urban nature will foster understanding and appreciation of nature, in general, so that people will be willing to invest in biodiversity conservation both in and beyond the urban environment?

Miller (2005) has suggested that we need a new biodiversity management strategy that will put nature back into the places where people live, work and spend their leisure time. This new strategy is intended to complement biodiversity conservation and restoration, but to go beyond these strategies in urban environments by consciously designing urban places to reconnect people with nature.

*Future Park: Imagining Tomorrow's Urban Parks* by Amalie Wright (2013) contains numerous, lavishly illustrated examples, in a wide range of countries, of urban parks and other urban places that have been designed to reconnect people with nature, often incorporating the latest trend in landscape architecture, green roofs and walls. The First Creek Wetland, located in the Adelaide Botanic Garden and the Goods Line Project in Sydney are Australian examples of the reconnection strategy.

Unfortunately, the design ideas illustrated by *Future Park* are expensive and mainly relevant to major urban development or redevelopment projects. Small local urban parks are unlikely to receive a *Future Park* makeover and will continue to decline without community intervention. So if you have a needy local urban park in your neighbourhood, consider adopting it.

The Adopt-a-Park movement for urban parks began in North America, but has been implemented by a few Australian City Councils. Adopt-a-Park volunteers participate in urban park maintenance and form Park Watch groups to increase urban park safety. Even more importantly, some Adopt-a-Park groups also organise events with a nature-focus (e.g., BioBlitzes) to encourage the use of urban parks as oasis of nature in the built environment and not just as venues for weddings and rock concerts.

However, to connect children with nature, all an urban park needs to provide is a safe green space where they can look and listen, dig and splash, chase and catch, explore and discover. A young child's curiosity about nature may foster a teenager's concern and an adult's action, but 'what is the extinction of a condor or an albatross to a child who has never known a wren?' (Pyle, 2003, p. 207).

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