

The city in a fragile landscape: an exploration of the duplicitous role landscape plays in the form and function of Canberra in the twenty first century

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Abstract

This paper examines what relationship the landscape and the city have developed in the last quarter of Canberra's first century. It identifies increasingly global environmental and economic narratives that re-evaluate the landscape setting which, over the last century, have defined the urban design legacy of the national capital. Since the 2003 fires, Canberrans have had to reflect and consider the way in which landscapes are valued and resources allocated to retaining the landscape character of the city. In the face of persistent climate change adaption narratives, the community is divided as to whether the landscape is a threat, as it was in 2003, a liability on the public purse or a saviour from extremes of drying hotter climate. This paper looks at a series of reviews and reports that uncover some of the key the issues facing Canberra's landscape. In particular it focuses on the National Capital Open Space System (NCOSS) to argue that debates around these issues define the landscape beyond the scenic legacy of the Griffins' plan. Such narratives have the potential to re-position the landscape as the key organising principle by which the city will develop and adapt into its second century.

Introduction

The incorporation of landscape elements in the city and the value of green spaces in urban areas has been the subject of scholarly enquiry since the late nineteenth century¹. Ebenezer Howard's Garden cities of tomorrow 1902 is often cited as the first substantive work that addresses the social benefit of urban landscapes from a spatial planning perspective². Yet interest in urban green spaces for aesthetic and public health reasons dates back to 18th Century. Olmsted's Central Park in New York is the most famous example from an Anglo-European perspective³. In early twentieth century Australia, the site selection and design competition for the capital of the newly formed commonwealth of Australia focussed national attention on the role of landscapes in the modern city. The Griffins' sensitivity to the Australian landscape setting and their refusal to impose a European urban vernacular over the grassy limestone plains were considered the defining elements of their prize winning design⁴.

Canberra has been internationally recognised as a model garden city for much of the twentieth century; yet one hundred years later, the city has developed a tenuous relationship with the landscape.

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While contemporary scholarly research into urban landscapes has affirmed the social, economic and environmental benefits, the ACT government and community have had to come to terms with other risks associated with managing and even retaining existing landscape elements in the urban fabric⁵. This paper argues that while the role of urban landscapes are again attracting the attention of urban designers around the world⁶, other approaches are needed to manage, retain and conceptualise landscapes in the twenty first century city.

Contemporary urban landscape value

There is an increasing body of empirical evidence establishing a relationship between spatial distribution of landscapes, other environmental influences, levels of physical activity and other health determinates in urban areas⁷. Contemporary concerns prevail about the changing health patterns of children and links to community attitudes towards the landscape⁸. This is, in part, attributed to the change in the configuration, size and distribution of available open spaces in urban areas⁹. Changes to cultural attitudes toward housing have also produced unintended consequences for the configuration of urban landscapes¹⁰. Likewise, increased environmental pollution has been attributed to urban densification; creating institutional impediments to effective water management¹¹. Empirical evidence also shows that the changes to the development patterns in existing urban areas has lead to a cumulative loss of urban forest¹², and increased urban heat island effects¹³. While the positive social benefits of green space in urban areas are known but difficult to quantify¹⁴, the effects of fragmenting and diminishing the urban landscape have measureable negative impacts. Such social and environmental effects resulting from urban development practices highlight the need for strategic assessment of landscape values in cities. Consequently, research into urban landscape values has enjoyed a resurgence of interest in the last decade¹⁵. Terms such as urban ecology, environmental services, green infrastructure and urban resilience all appear to signal a renaissance of landscape objectives in the metropolitan plans of the twenty first century.

Canberra, often derided for its 'Bush Capital' identity, has a long history of consciously incorporating landscape objectives in the metropolitan plan. While the spread of low density suburbs in Canberra was informed by the neighbourhood planning principles of the British New Town movement, individual champions ensured the landscape played a prominent role in the development of the city. Landscape architects and scholars employed by the National Capital Development Commission (NCDC) such as Richard Clough and George Seddon were largely influenced by concept that landscapes were products of their time and people's perception and understanding time and space. This thinking was largely inspired by Lowenthal and later Mcharg whose seminal work 'Design with Nature'¹⁶ popularised landscape modelling and became a precursor to the development of geographic information systems (GIS) in urban landscape research. McHarg's work opened the field of landscape

analysis to increasingly complex and detailed understandings of spatial systems. With the advent of satellite technology, McHarg's layering approach dramatically expanded the available methods for examining landscapes from an ecological and geographic perspective. This approach, popular today in ecological and natural sciences, is deeply embedded in measurable data and relies heavily on computer systems and software design. However this approach was not designed to interpret the experiential, affective and perceptual dimensions of landscape. Nor was it able to capture broad narratives to do with increasing global environmental concern.

Following Mcharg, research into such interpretive approaches to everyday aspects of landscape as a cultural practice and textual interpretations of landscape helped to foster new theoretical understandings¹⁷. These more qualitative approaches were developed alongside the GIS based methods, but remained quite separate, in all but their shared commitment to working in the field. During the early twenty first century, remote sensing and satellite imagery technology introduced landscapes to ecological researchers at a finer urban grain, more the domain of cultural geographers and other social researchers. These researchers were interested in the more complex mixes of built and unbuilt forms using GIS based methods. In doing so, new understandings of geographic and geological interpretations of landscapes, more familiar to social and cultural research were introduced.

While increasing interest in the impact of urban settlement on rural and other non-urban landscapes has gained popularity, it was the overlapping of seemingly distinct research fields of ecology and cultural heritage that has provided the most useful and interesting theoretical developments¹⁸. In particular, it illuminated the competing impacts of occupation, and the politics of contested territory between the way landscapes are valued and how they are incorporated into strategic metropolitan planning. More recent research into the use of high resolution satellite images has shown that there is considerable scope to improve strategic planning by analysing land coverage and land use categories, especially in combination with urban growth modelling¹⁹.

However rich the data offered by new technology, intended planning objectives are rarely achieved because the changing dynamics of the landscape is more or less chaotic, but also reflect the conflicting non-urban and urban ways of life and associated practices of land organisation²⁰. In short, cultural practices and perceptions have primarily led to the spatial patterning of the landscape, therefore the merging of qualitative and quantitative research traditions have much to offer contemporary landscape research. Such methods are not merely a refinement McHarg's analytical mapping, but add a rather novel way to understand the landscape impact of social and political drivers mobilised by development.

Measuring urban landscape values

Until the twentieth century, urban landscape interventions usually represented baroque power of city state government. Yet for centuries, landscapes have been consciously valued for their role in contributing to the health of the city and its citizens. City planners have long acknowledged the environmental and social benefits of the corridors of green and public open spaces²¹. Yet it was the application of high resolution satellite imagery (HRSI) in GIS that has nourished researchers' interest in the complex environmental interactions occurring in cities²². The development of such research has also factored in contemporary ethical issues facing society such as globalisation, climate change and sustainable development.

More recently, landscape geographer Marc Antrop, has examined the concept of landscape in two important and relevant ways. Firstly, he argues, landscapes are both a material reality originating from continuous interplay between human intervention and natural processes, but also possess existential values of which the physical landscape is the signifier²³. Secondly, different landscapes can be recognised and in turn, define regional variation; however they also should be considered holistically and in the context of total human ecosystem services perspective²⁴. These theoretical developments, in turn, contextualise the way landscape is understood from a metropolitan planning perspective and require a critical analysis in the face of ongoing rhetoric to do with urban density, liveability and sustainability.

The most significant shift in the planning of urban landscape networks in the twenty first century has been the multidisciplinary approach governments have adopted to incorporate landscape elements in the face of significant pressures to accommodate a rapidly growing urban population. Once the domain of spatial planning and landscape architecture; urban landscape planning now includes engineers, ecologists, sociologists and economists evaluating the potential value of urban ecological spaces at the city scale²⁵. This is unsurprising given the high value placed on residual urban spaces facing development pressures. Hence establishing metrics to value landscape spaces in cities has become an important feature of modern urban planning. More recent attempts to understand the spatial impact of development on landscape values has focussed on metrics that delineate built and un-built surfaces²⁶. These increasingly complex methods of quantifying landscapes, along with changing governance models, have resulted in a new language of urban landscapes values²⁷. The most salient feature of this change has been the incorporation of economic narratives in urban landscape planning.

Strategic planning documents have increasingly referred to landscapes using terms such as green infrastructure²⁸, ecostructure²⁹, and resilient socio-ecological systems³⁰. These terms all point to an increasing need for urban planners to argue that the component parts of the landscape have

quantifiable value that should be captured by an accounting method tied to infrastructure investment. Thus the landscape has become a form of infrastructure that can be assessed alongside other forms of infrastructure- so much so that the never ending drive for numbers has shifted planners to acquit their decisions and advocacy for landscape conservation against a set of measurable outcomes. However, many tacit values embodied in the landscape cannot be captured in the redevelopment process and as such landscape elements risk becoming ‘value managed’ out of major urban developments. As a result, the way in which landscapes are accounted, rather than experienced and consumed dictates how they are valued from a planning perspective.

Canberra’s relationship with the landscape 1911-2003

Canberra itself has a particular planning history that is very different to other Australian cities. It was a product of a master plan, or at least a vision resulting from a design competition commissioned by the fathers of federation. Through them, the Australian people embodied the idea of a national capital that expressed the symbolic union of the states to form the Commonwealth. The new capital was of such importance that the federal senate committee for choosing a site and the commissioning of an international design competition felt the city should mirror the ambition and optimism of the nation in its infancy³¹. The landscape played a central part in this new national identity through the extensive plantings by Charles Weston along with the development of the garden suburbs by Sulman and the eventual adoption of the Griffins’ plan, gazetted in 1925. While the framework and landscape vernacular of the city was established in the first thirty years, the majority of urban development in Canberra occurred after world war two.

The form and configuration of suburban development, under the direction of the NCDC, was typified by a small brick bungalow on a large lot. The style of domestic properties was substantially low density and dominated by open spaces containing lawns, gardens and trees and this typology remained largely the same until recently. For most of the twentieth century, Canberra planners have paid significant attention to the landscape setting in the city, yet the formal recognition of landscape elements into the regulatory planning framework did not receive attention until the 1960s. In the same year Lake Burley Griffin was completed, the NCDC special report to the cabinet on the planning of the national capital identified areas of special national concern which included the inner hills and Lake Burley Griffin³². This report initiated further planning work to recognise and protect the values provided by the landscape. It was another decade before the NCDC formalised the landscape structure of the ACT by recognising the National Capital Open Space System (NCOSS). The NCDC emphasised the national importance of Canberra’s landscape setting by the creation and formal adoption of the concept of the NCOSS in the metropolitan Y plan of 1984. The hills and ridges within

and around the urban area of Canberra were to be kept free of urban development, both to act as a backdrop and setting for the city as well as providing a means of separating and defining the towns³³.

The major concerns about the implementation of a NCOSS into the metropolitan plan were pragmatic issues to do with ownership, access for recreation, environmental management and planning responsibility. Land management became a priority concern as the NCDC anticipated the division of land tenure that would result from the Territory's move to self government. As the main beneficiaries of the NCOSS would be the permanent residents, the NCDC believed the ACT government should pay for the cost of land management, and this decision more so than any other has troubled both levels of government grappling with the challenge of valuing the landscape.

The investigation into the proposal to formalise the NCOSS by George Seddon in 1977 raised a number of questions related to landscape value and the purpose of an identified open space system. He emphasised the importance of understanding the NCOSS as more than a land use category and argued that "land is by its very nature, is a non-homogenous commodity, and sites differ greatly in their attractiveness"³⁴. He was most concerned about how the landscape would be valued for both recreation and visual amenity. However, managing the visual impact of development remained an integral principle of the NCOSS objectives, in particular, how the visual setting or view from certain points around the ACT would represent the lineage to the original Griffin design. Seddon was also concerned how the landscape setting invoked meanings of national significance.

Protecting environmental values in Australian cities during the 1970s became politically charged under the activism of the organisations such as the Builders' Labourers Federation in NSW led by Jack Munday who fought to protect many residual open spaces from development. However, in Canberra the problem of open spaces was quite the opposite. Seddon was aware of the public criticism of the city's lack of density. He rather prosaically alluded to this when, in the introduction to the 1984 policy and development plan, he quipped that the problem for Canberra was not finding the landscape among the buildings, but rather, finding the buildings between the landscape³⁵. However this only reinforced his view that the city was planning for the future. As the city grew, the division between the urban and non-urban spaces would become more prominent and pressure from users would increase. He suggested that a future territory government should adopt a 'honey pot' approach to land management and identify a few areas to be intensively used and managed. He believed largely dispersed medium intensity use of the NCOSS would be damaging both ecologically and economically.

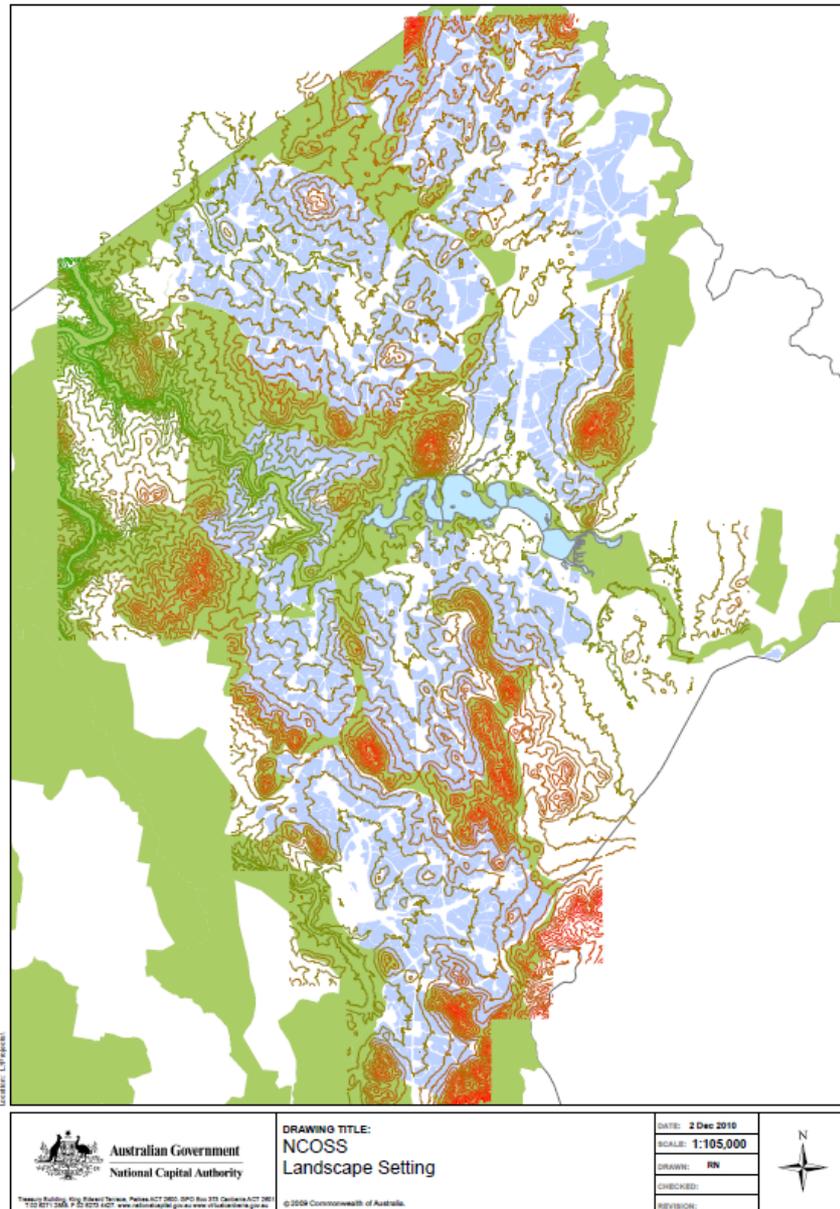


Figure 1. The NCOSS is represented in green and the major contours indicate its relationship to the local topography³⁶.

By the early 1990s, the ACT became a self-governing territory and the focus of both the new National Capital Planning Authority (NCPA) and the ACT government revolved around division and transfer of land management responsibilities. The NCPA also continued to investigate how to promote and make meaningful the NCOSS values to the Australian people³⁷. This included an investigation how NCOSS areas could be managed and classified to reflect conservation values as well as examining development potential for recreation and tourism. This legacy of urban landscape planning meant the NCOSS now defined the spatial structure of Canberra as a polycentric city. Today, each town centre is surrounded by predominantly low density suburban development and each of those ‘towns’ has a clear

urban edge, a desirable goal of contemporary urban planning logic. In effect Canberra doesn't have one edge but five urban edges.

As land management priorities shift to deal with climate uncertainty at the beginning of the twenty first century, the value of the urban landscape remains under the spotlight as other global environmental narratives enter the policy discourse. The next section will examine shifts in the way the landscape has become embedded in a broader global narrative at a time when uncertainty associated with climate change makes valuing urban landscapes increasingly difficult from a metropolitan planning perspective.

Shifting landscape values in a climate of uncertainty.

In 2003, after the Canberra bushfires, the ACT government prepared '*Shaping our Territory: Options and Opportunities for Non-Urban ACT*'. The report provided the most comprehensive and holistic study of future uses for urban landscapes in the ACT since self government. It was the first study by the ACT government that substantially focussed on land use in the NCOSS. While the territory has management plans in place for up to fifty Canberra Nature Parks, this report presented a vision for future land use in and around the cities extensive landscape network. For the first time, environmental narratives to do with mitigation, biodiversity conservation and resilience-particularly in relation to fire risk- emerged as a priority.

A year later, the ACT government released the Canberra spatial plan which set out principles for the growth of the city over thirty years including for the first time, a key metropolitan planning objective of preserving biodiversity. While this was an important goal of the spatial plan, there was little supporting evidence to show how it could be implemented. More importantly, biodiversity drew the attention of community members wanting to see such global environmental narratives incorporated into development goals. In 2006, the ACT parliamentary standing Committee on planning and environment recommended that the ACT should be nominated as a UNESCO Biosphere Reserve. The committee recommended that the ACT develop and implement an effective communication and consultation strategy so that stakeholders better understand the benefits of biosphere reserve listings³⁸. The aim of the listings was to promote solutions to balance the conservation of biodiversity and sustainable land use. The listing was broadly supported for various reasons including the need for landscape scale land use planning and the recognition of the city as an international exemplar of urban design. The proposal also acknowledged the opportunity to encourage Canberra to become a more sustainable city and help to grow the educational institutions, agencies and companies working on sustainability issues in the region. However, lack of community support and funding to proceed with the nomination shelved the project. It may have been ahead of its time and required a more concerted political effort to see the nomination succeed, however, the listing positioned the landscape within a

global discourse at a time when the city was coming to terms with chronic water shortages, drought, the aftermath of the 2003 fires and an urban forest that was predicted to senesce and die off over the next twenty to fifty years.

In 2008, the ACT territory and municipal services (TAMS) commissioned an ANU report into the value and replacement cost of the city's urban forest as part of the Urban Forest Replacement Project (UFRP). It was this report in particular that adopted a city scale accounting method to determine a more econometric approach to valuing the landscape. While the costs were measurable and highly localised, namely the maintenance and removal of the ageing urban forest, the benefits were well and truly embedded in a global environmental language³⁹. The benefits of the ACT vegetation biomass sequestration was measured in carbon tones and given a dollar value based on energy savings, pollution mitigation, hydrological engineering and water quality benefits. In 2008 the vegetation biomass mitigation value of the urban estate was estimated to be \$23,564,000 per year⁴⁰.

Despite this seemingly persuasive estimate of vegetation value, the UFRP was shelved in 2009 and subject to an enquiry by the ACT commissioner for the environment. The Commissioner's report found that the cost to the community of replacing the urban forest was both prohibitive and politically unacceptable⁴¹. No viable alternative has been found for this program to date and the difficulties faced by this program soon focused the community's attention on the challenges faced by the ACT concerning the landscape values more generally.

In December 2009 the ACT Planning and Land Authority commissioned a Territory Plan Urban Principles Review. It reinforced the symbolic and aesthetic values of the landscape by identifying the significant features of the Canberra fabric⁴². However the thrust of the report included that the most significant challenges facing the city included the retention of the NCOSS as an integral part of the city's setting. In attempting to reconcile between measurable costs and global environmental benefits, the report listed the landscape values in terms of its contribution to the city's sustainable performance.

“Canberra has a significant advantage and opportunities compared to other cities; urban landscape[s] support biodiversity, sequestration of carbon; organic waste disposal, food production, regulating local and micro climate, purifying urban water and air, wildlife habitat, alleviating flood and managing water retention. There are significant ecological services that can be performed by Canberra's urban environment while contributing to sense of place and character. Quantification and assessment of the effectiveness of these aspects of the landscape needs to be integrated into the overall planning framework to inform decisions about the extent, species selection and character of the landscape desired.”⁴³

It goes on to revisit some of the values ascribed by Seddon's earlier work but in a less tangible or pragmatic way. The report highlights both the difficulty policy makers have incorporating and managing landscape values in metropolitan planning.

The most recent review into the NCOSS places the challenge of managing the landscape legacy of the city in the context of climate change. It suggests the International Panel on Climate Change projections on global carbon emissions and associated temperature increase presents climate change scenarios that will impact on the landscapes of South Eastern Australia⁴⁴. These impacts on the landscape are still unknown and as modelling and information processing improves, new information and impact scenarios will come to light. From a planning perspective, these changes should be acknowledged as ongoing factors to inform future NCOSS values, management priorities and land use planning⁴⁵.

The final part of this paper identifies the emerging relationship between the global environmental challenges and the urban landscape that a century of growth has left us. It argues the shift from scenic approaches, to more pragmatic resource descriptions follows the changing aspirations of successive agencies to come to terms metropolitan planning challenges facing a city moving from a growth to consolidation phase. This shift has resulted in an uneasy and ultimately unsatisfactory relationship between the landscape and the industrial economic narratives that are used to come to terms with such an urban design legacy.

Dealing with uncertainty in a system designed for certainty

The landscape structure of the city- its physical setting has not changed substantially over the last century. The original vision of a capital city surrounded by 'natural' hills and bordered by the Murrumbidgee river corridor can be traced back to the deliberations of the senate committee for the site selection of the capital in the first decade of the Commonwealth⁴⁶. Over the twentieth century the language used to account for the landscape values on the other hand have changed as the expectations of decision makers and the community have changed. Perhaps Seddon anticipated the future challenges facing Canberra's landscape legacy when he oscillated between romantic narratives of scenic beauty to more pragmatic questions to do with allocation of resources. As the city grew and emphasis changed from building a capital to maintaining an urban design legacy, the landscape has been incorporated into planning and management differently. Most notably planning agencies have increasingly sought to legitimise the value of the landscape from an econometric perspective.

Coercing language of the modern industrial economy sounds logical as it appears to legitimise the value of landscape in a policy context. Yet as the late twentieth century sustainability debates have

shown, such terms can risk rendering the meaning of landscape useless. Recently the Australian Institute of Landscape Architects (AILA) adopted and promoted landscapes as 'green infrastructure'. This form legitimisation measures landscape values using ill defined 'green' credentials. It seems the goal of AILA is to uncritically adopt global environmental narratives to persuade governments to value urban landscapes from a very narrow quasi-economic perspective. In Canberra, this approach promotes landscapes as assets for providing ecological services, but is also a liability from a public investment and fire risk perspective.

At the beginning of the twenty first century, accounting landscape values has become increasingly complex. Dealing with climate change uncertainty has added another dimension to the way landscapes are incorporated into metropolitan plans. As cities come to terms with increased risks associated with extreme weather events it is possible that urban landscapes such as those that thread Canberra's urban form together will be viewed through a new set of cost accounting metrics. However, such use of quasi-economic language ultimately fails when tacit values that are held to be important by the community are unable to be considered. In Canberra this approach is further complicated as symbolic landscape values take on a national significance dimension. In Canberra, the landscape symbolises the nation's interest in the capital. National significance of the landscape is usually expressed in and through references to the Griffins, as if landscape was the ethos of their vision for a capital. To the Griffins, aspects of nature should be incorporated into the city structure as part of a social and moral order that gave interesting precursors to notions of sustainable living. Perhaps this misappropriation of the Griffin-Landscape symbiosis should be, but is not, the most contested debate about landscapes in the city. Depending on how the landscape values are expressed in the future metropolitan plans for Canberra may become a bench mark for sustainable urban development.

Conclusion- Contemporary landscape values in Canberra

The NCOSS is an urban design tool. It is key to determining the form and distribution of new developments in Canberra. It includes the physical elements that make up the non-urban hills and ridges in and around the inner suburbs to the north and south of the lake, the Murrumbidgee and Molonglo River corridors, the ribbons of various landscape typologies dividing the town centres and circumscribing the urban edge. It is the reason that Canberra is so spread out but not the reason it is low density. It also influences the built form and architecture of the city. The building height restrictions are designed to retain a city horizon set into a topographical basin where the balance between landscape and built form is determined the relative height of the buildings to the urban forest canopy. This, more so than any other idea, expresses Canberra as a city in the landscape.

It also represents part of the Canberra residents' inhabited sense of place. People don't distinguish between the suburban streetscapes and the urban bush when referring to the character of the city.

Perennial surveys about what Canberrans like about the city come up with the low density-leafy character as the clear favourite. This relationship to landscape is far more nuanced and subjectively constructed in and through interactions with residents and visitors habits, rituals and daily life experiences of walking and driving through the city and domestic activities to do with home.

Finally the landscape is a liability. This paper shows how difficult it will be to find a politically and financially acceptable way to continue to retain the landscape values embodied in all of these different material, conceptual, and symbolic and global manifestations of landscape value in Canberra. Yet the merging of the fields urban planning and global environmental and economic narratives, even within a single paradigm such as landscape, have produced new concepts and discourses in the way cities are understood. It may be that if cities adopt a metropolitan scale approach to understanding landscape values, objectives to do with liveability, resilience and adaptability may seem more tangible.

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