The Development of an Australian Style in Australian Urban Landscaping

R. Mibus and I.J. Shepherd
South West Institute of TAFE
Portland, 3305, Victoria, Australia

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Abstract
The selective use of Australian native plants for urban landscape designs in Australia has lead to the development of urban landscapes with a uniquely Australian style. This trend has occurred principally in the last 3 - 4 decades. Hesitancy accompanied early plantings of different native plants as people experimented, unsure of how they would grow and adapt to the constraints of the Australian urban setting, or how they would be accepted. Through the persistence of nurserymen and the creativity of early pioneers of Australian landscape design using native plants, the movement toward the ‘natural garden’ style continued to grow and expand. In conjunction with the parallel national movements of Australian Landcare and Aboriginal reconciliation, a greater appreciation of the Australian natural landscape and the subtle qualities of its unique, native vegetation has led to increased acceptance and popularity of native plants in urban settings. Designers continue to explore the subtle attributes of native plants in a wider selection of design applications. People are more confident about planting natives having greater understanding of their growth requirements, such as low nutrient regimes, specific light and soil pH requirements, or salinity tolerance or sensitivity. Native plants are now used in a broad range of urban landscapes, from residential through to commercial and industrial sites and increasingly in public spaces. The evolution of an Australian style in urban landscape design based on the use of Australian plants is on the brink, with the vast potential of Australian plants still to be more widely explored, valued and understood.

INTRODUCTION
The planning of landscapes in Europe has a long history based on plants which have been domesticated for many centuries and which are deeply familiar to both landscape architects and the general population. This contrasts profoundly with the planning of urban landscape in Australia, where in the 200 years since colonisation, the application of endemic flora has emerged only in the last 50 years. Through trial and error planting, native plants have proved better suited to local climatic extremes than introduced species, particularly the low rainfall and high summer temperatures in many zones. In the relatively short span of several decades, native plants have received broader acceptance and more widespread application, this reflecting the emergence of a uniquely Australian style in urban landscaping.

When considering the development of a contemporary Australian style in urban landscaping, it is important to understand the historical context in which landscape designers find themselves working at the beginning of the twenty-first century. Such an understanding helps to explain why Australians are increasingly turning to the natural landscape as a source of inspiration for expressing and confirming a newly acquired sense of place and stronger Australian identity. The historical context, including the main factors that have influenced this development, is briefly explored in the next two sections. This is followed by an overview of the characteristics of the Australian natural and urban environments, the experimental use of plants in design and the brief mention of the key proponents and examples of urban landscapes exemplary of the current Australian style.
HISTORICAL CONTEXT

With colonisation in the early 1800s European settlers were confronted with a harsh, alien environment and so the struggle to conquer an unfamiliar, new land began. The settlers cleared the land of vegetation for housing and agriculture, introducing new plants, animal and cultivation methods from Europe. The planned landscapes of early settlement where in typical English style relying on introduced species. These landscapes conveyed a sense of familiarity in the isolation of an inhospitable, alien Australian bush environment. Such English and European styles continue to be a major influence on the design of domestic gardens and urban landscapes throughout the Australia.

The destruction of many natural landscapes and widespread environmental degradation caused by land-clearing has resulted in the loss of numerous vegetation types and a high extinction rate of native plant and animal species (Australian Native Vegetation Assessment, 2001). Erosion, silting and salinity have reduced water quality and land productivity.

The direct and indirect impact of environmental degradation on the quality of life has caused Australians to consider more carefully the environment they live in. Today there is a greater understanding and appreciation of Australia’s finely balanced ecosystems and the vegetation it supports. Australians now have a greater sense of place and stronger identity with the country they live in. No longer is it an alien environment, but one appreciated for its beauty, uniqueness and intrinsic value.

FACTORS INFLUENCING THE ACCEPTANCE OF AUSTRALIAN PLANTS

A Growing National Identity

The events of the twentieth century also contributed to the search for an Australian identity. In particular, Australian participation in the world wars of the northern hemisphere and the development of a diverse, multi-cultural, post-war society drove on the debate of “what it means to be Australian?” More recently, the Aboriginal Land Rights and Reconciliation movements, as well as the debate on whether Australia should become a Republic have helped consolidate this sense of an Australian identity.

This consolidation has been underpinned by the increased awareness of the natural environment resulting from having to address the problems of environmental degradation. The establishment of the Australian Landcare movement has contributed to raising awareness on the role vegetation plays in the health and maintenance of the environment. Landcare, a community based movement supported by government, helps redress the effects of land-clearing at a grass-roots level through increasing public awareness of environmental issues, providing information on seed collection and propagation (Ralph 1994, 1997), as well as actively working to restore natural landscapes through the revegetation of large areas using provenance based seed and mixed species planting. It has become a world leader in this field.

The foundation of the Society for Growing Australian Plants (SGAP) in the mid-1950s (Wrigley & Fagg, 1998) and the more recent establishment of the regional Catchment Management Authorities (CMAs) have further helped consolidate the awareness of native plants and environmental issues. SGAP has supported an Australian style in urban landscapes through fostering an appreciation of the uniqueness and beauty of Australian native plants and by providing information on their growth and maintenance (Society for Growing Australian Plants, 1959 – 2001). This has given people greater confidence to plant native species, often to attract native birds and wildlife into their gardens.

All these events have contributed to a ground swell in the collective Australian consciousness, which is expressed in the greater acceptance and appreciation of native plants and their deliberate inclusion in urban landscapes. This is a reflection of the maturing Australian identity. The steady increase in the past three to four decades of the number of urban landscapes incorporating native plants, or based exclusively on endemic species, demonstrates this. Furthermore, proactive local communities, often at the urban
fringe (e.g. Eltham, Melbourne), have initiated community action to ensure that local environmental planning preserve remnant native vegetation. This has also lead to the incorporation of sensitively designed urban native landscapes linked to intact bushland at the urban fringe (F. Shepherd, B. Hanson, pers. commun. 2002).

THE APPLICATION OF AUSTRALIAN PLANTS IN URBAN LANDSCAPES

Australian Natural Landscape

The natural landscape of Australia has a distinct character defined largely by the unique flora that has evolved over very long time-periods under a continually changing environment. The Australian continental landmass is very ancient (2500 million years) (Costerman 1998), geologically stable, of topographic relief and has been covered by vast inland seas. Widespread weathering, erosion and deposition have rise to nutrient-depleted soils often with salt-laden subsoils. The vast majority of the continent is arid with low, sporadic rainfall and extreme temperatures. The higher rainfall areas confined to the narrow coastal fringe are diverse, ranging from tropical and subtropical zones in the north and cool temperate and alpine zones in southern and mountain areas. As a result the Australian flora is comprised of numerous, highly adapted vegetation types; many plants have developed fire survival strategies because of the periodic burning by Aboriginals over the past 40,000 – 60,000 years.

Aboriginal survival has depended on an intimate knowledge of their environment and the plant and animal life. This contrasts greatly to the survival of European settlers who, in less than 200 years, have produced widespread environmental destruction. The recent assessment of Australian native vegetation identifying 85 bioregions, which are ‘areas with distinct landscapes’ (Environment Australia 2001), reports how extensive clearing has resulted in the loss of the broad fabric of vegetation that is the defining element of these natural landscapes. Since settlement 13 % of the continent has been cleared and less than half the bioregions identified are in good health (Table1).

The unique and floristically diverse vegetation across the continent provides landscapers with a vast palette of plants. Yet, of the estimated 16,000 indigenous vascular plant species in Australia only a small percent is cultivated or used in landscape design. Indigenous plants have evolved and adapted to the Australian environment making them highly suited to urban landscapes where they impart a characteristically Australian style, and where they are the cornerstones of creating sustainable urban landscapes. Such landscapes require fewer inputs compared to English and European-style landscapes relying on large expanses of lawn and introduced species. However, investigation into the propagation and cultivation of many wild plants is needed before the vast potential of the Australian Flora can be more fully realised.

Design Qualities of Australian Plants

The qualities of Australian plants making them desirable to use in urban landscape are: (i) their unique appearance, (ii) their adaptations for survival under local conditions, in particular dry environments with extremes in temperature, saline soils or exposed coastal situations, (iii) the characteristic scent of the leaves, flower and bark of certain genera, (iv) the dappled light formed by the sparse canopy of mature eucalypts, (v) their ever-green, non-deciduous habit and (vi) the ability to attract native wildlife, especially birds into the landscape.

The unique appearance of native plants species, compared to the often uniform appearance of introduced plants, can be attributed to their less uniform, asymmetrical habit, as characterised by the mature eucalypt. Also, the great diversity in unusual leaf forms provides a vast, year-round range of textures for the designer - deeply serrated, (e.g. proteaceeous genera: Banksia, Grevillea and Dryandra), needle-like (Casuarina spp., Hakea spp., Xanthorea australis and Isopogon spp. and many native grasses, tussocks and sedges) - not to mention the subtle range of leaf colours, varying from bright to dark green, or blue-grey on the upper surface; or white, cream or rust on the underside, e.g.
Banksia integrifolia, B. marginata. Leaf colour and form may vary significantly between juvenile and mature leaves, as typified by eucalypts. The waxy juvenile leaves of eucalypts are usually light grey-green, sessile and ovate; in contrast to mature leaves, which are darker green, lanceolate, alternate and hanging vertically from the branches.

The Eucalyptus genus alone has over 600 recognised species (McCartney Chippendale, 1988). The textures of the bark of different subgroups differ markedly. Some groups have smooth, uniformly coloured or spotted trunks; others have dark, deeply fissured bark, or bark which strips off in ribbons. The texture of the bark can be a striking design feature in landscapes if planned thoughtfully.

In addition to the leaf texture and colour, there is the seasonal colour-bonus provided by the growth of new shoots, buds and flowers. Many native species have unusual, often conspicuous flowers that makes them suitable either as specimen plants (e.g. Callistemon, Telopea, Banksia, Hakea), or for use in massed planting (e.g. Correa spp. or the tall upright stems of Anigozanthus spp.). These are just a few of the more obvious examples of native plant characteristics that lend them to application in urban landscapes.

Experimenting - Propagation and Growth

Experimental work of pioneering nurserymen has ensured the availability of native plants for use in urban landscapes. Early efforts to transplant or propagate wild native plants produced successes that have been built on. Yet many difficult to propagate woody perennial species remain (Mibus 1998). Further research into propagation and the specific growth requirements (low nutrient regimes, optimal pH, light and day length requirements, susceptibility to disease and salinity tolerance or sensitivity) is needed.

The requirements of seed germination and growth to maturity of many native plants are well documented (Elliot and Jones 1993; Ralph 1997; Handreck and Black 2002). However, many desirable species will remain in the wild, where they are inaccessible to landscapers, unless there is a continued commitment to research into the propagation and growth requirements.

Experimenting - Urban Landscape Design

The hesitancy and sense of nervousness that accompanied the early plantings of native species in Australian cities is in retrospect predictable due to numerous unanswered questions: how would the plants grow under the constraints of an urban setting? What was the best way to incorporate native plants into designs? Would the community accept such novelties? What were the maintenance requirements of the plants during establishment and maturity? Could large tree species be planted next to buildings without causing damage? Despite the uncertainty, designers experimented, learning and gathering experience as they progressed.

Native species were initially incorporated into traditional designs based on introduced species and slowly their virtues began to emerge: their unique appeal and subtle, rugged character, their lower maintenance requirements and greater suitability to the environmental conditions. The evolution of the Australian style in landscaping had begun.

Today extensive massed planting of natives, such as Correa, Lomandra and native grass species can be found in numerous locations in Australia’s major cities, particularly along highway verges. In addition to providing an ascetically pleasing landscape, the massing of smaller native plants over extensive areas also reduces the need for high-input lawn requiring frequent mowing and watering. By massing herbaceous natives and small shrubs it is even possible to create an Australian cottage garden. A wider selection of appropriate plants would be beneficial in providing greater variety in such landscapes.

The maintenance inputs for native landscapes, although lower than traditional European landscapes, are still necessary. Regular tip-pruning is needed to maintain a bushy habit, plant vigour and regular flowering in many Australian native plants, which otherwise become open, woody and often unattractive. As landscape areas increase in size
and staff numbers are reduced landscape maintenance becomes less affordable. This challenges the designer, whose onus it is to ensure the sustainability of the landscape design through the choice of plants, yet keeping this in balance with the design’s original spirit, as well as budgetary provisions for later maintenance of the landscape.

**URBAN LANDSCAPES DESIGNED WITH NATIVE PLANT SPECIES**

**The Urban Environment**

Unrestrained residential expansion has resulted in Australian urban areas becoming large and sprawling, and where the inhabitants are accustomed to the luxury of space. The heart of city centres is often barren and devoid of green. Parks and green spaces within cities are either associated with the city’s botanical garden, or linear parks running along the major watercourses. Larger parks or bush-land reserves exist at the fringe of suburbia.

The prevailing conditions of an area, as well as the microclimates created by buildings and other urban structures (e.g. roads, bridges) are determining factors for the survival of urban landscape plantings. The range of environmental conditions found within large sprawling cities, such as Melbourne, necessitates the range of suitable species. For example frost tolerant plants at higher elevations, e.g. Dandenong Range or salt tolerant plants for exposed coastal areas subject to salt-laden wind. Soil characteristics such as pH, salinity and nutrient levels influence the choice of plants. Soil structure, compaction or the presence of impenetrable sub-horizons will influence drainage and root penetration and subsequent plant vigour and survival.

**Purpose and Benefits**

The creation of new urban landscapes centred on native plants reinforces the growing Australian identity and newfound sense of place. These landscapes may be contemporary designs or the resynthesis of original natural landscapes within cities by linking remnant vegetation, often along degraded watercourses or adjacent to estuaries and wetlands, to bush-land at the urban fringe. The tangible benefits of establishing such native plant landscapes include the provision of area for recreational, educational and aesthetics pursuits; visual and noise pollution buffer zones; improvement of water catchments and the provision of native fauna habitat and a network to support biodiversity.

**Design Elements**

The urban native plant landscapes established in past decades often include two key design elements: boulders and water. These two physical landscape elements have been successfully incorporated into residential landscapes or public recreational areas aimed at creating a natural continuum with the bush. Unheard of a few decades earlier, this is now possible due to increased acceptance and appreciation of the natural environment.

The vegetation of Australia’s natural landscapes is dominated by woody evergreens, such as eucalypts and acacias. These plants intermittently shed their leaves, bark and occasionally branches. As living components of urban designs eucalypts have been considered untidy, especially in traditional designs where large lawns are continually littered by leaves, bark and branches. If eucalypt species are planted with massed indigenous understorey plants in continuous beds – emulating native woodland communities – then the leaf litter formed by the leaves and bark becomes an integral part of the design and a desirable mulch. Unusual trunk characteristics, such as the deeply fissured, ribboned or mottled bark, become the focal point and a striking design feature.

Another fluid design element in terms of colour and sound unique to Australian urban landscapes is the rich bird-life. This can be consciously designed into landscapes by planting species known to attract native birds that feed on the plants nectar, seeds and associated insect life. For many people this is one of the main reasons for planting native
species.

Once committed to using natives, the choice of plants for specific design purposes is almost inexhaustible. For each introduced plant, with the exception of deciduous plants, there is more than likely a native equivalent with respect to habit and form. Possible choices of natives range from specimen trees, shrubs, ground-covers, grasses, climbers and scented plants, suitably adapted to local conditions. The limiting factor in their use is that many plants that fulfil certain design criteria are not yet readily available because methods of propagation and commercial cultivation have not yet been developed.

EVOLUTION OF AN AUSTRALIAN STYLE

The Pioneers

Edna Walling (1896 - 1973), a popular designer in Melbourne for many decades, strongly influenced the public perceptions on the natural garden style and pioneered the integration of natives and exotics into landscape designs. Nurserymen from the 1930’s such as Bernard Schubert and Moreton Boddy supported her. She was also instrumental in the conservation of remnant vegetation and using native plants along roadsides. Her work as a garden designer has been inspirational for successive generations of designers, as well as her contemporaries, such as Ellis Stones (1895 – 1975). Stones’ residential development in Rosanna, designed in the late 1960’s, was named “Elliston” in his honour. Melbourne University commissioned Ellis Stones in the 1970s to design the landscapes around the then new Baillieu Library.

The natural garden school of landscape design evolved further. Drawing on the natural heritage of Australia, it aimed to replicate the spirit of the Australian bush. A leading exponent was Gordon Ford (1918 - 1999) (Ford & Ford 1999). For over fifty years his landscaping language has reminded people of nature; his selection and allocation of plants has allowed them not just to see, but really feel the bush. The placement of plants and rocks has not been indiscriminate, but has duplicated the natural environments from which he drew inspiration. Ellis Stones was his mentor and friend; together they strongly influenced contemporary designers such as Bev Hansen, David Leech, Sam Cox and Paul Thompson. These contemporary designers, for whom the boulder has become a prominent hallmark, have continued in the natural garden tradition. They have been instrumental in the emergence of an Australian landscape style now prevalent in many areas of urban Australia.

The continued evolution and refining of the use of indigenous plants, augmented by the increasing number of species available, has resulted in the emergence of a characteristic Australian style. Hard landscape elements, such as boulders and stonework placed naturally to form steps, walls or terraces are complemented with an increasing selection of native species. Trees or large shrubs are chosen as feature plants because of their unique form, texture or colour of their leaves or bark, otherwise they are used as structural elements. The repeated trunk of a single stemmed species, or multiple stemmed mallee, underlined with massed plantings of strappy or spiky leaved species, such as grasses (*Poa* or *Danthonia* spp.) or tussocks (*Lomandra* and *Juncus* spp.), or herbaceous species (*Correa* spp), forms a textural expanse pleasing to the eye. Massed plantings of understorey or grass species are currently being used to striking effect along highway verges in major urban centres.

In the past two decades wetlands have become another prominent type of urban landscape. Many urban parks extend along rivers or old creek beds. Newly designed landscapes often integrate these wetland areas, or completely synthesise new wetlands. This requires specialist knowledge of native riparian and aquatic plants (Thompson 1998). In the future, wetland landscapes will become increasingly important to urban greening in Australia.

Rural land management groups have positively influenced landscaping in urban areas. For example, the previously scant knowledge of the collection and cultivation of Australian native grassland species has expanded rapidly in the past 4 – 5 years due to the
efforts of Bushcare (Scholfield 2002). Investigations into the harvesting, cleaning and broad-scale sowing of native grass seed has lead to greater quantities and availability of seed from some grassland species that urban landscapers can now access for planting in urban landscapes.

CURRENT URBAN DESIGN PROJECTS

Native plants are now used in urban landscapes from residential to commercial and industrial sites and in public spaces. Recent examples of the successful application of native plants in contemporary urban landscapes include Sydney’s 2000 Olympic Park, the surrounds of the Exhibition Building and new Melbourne Museum in Fitzroy, Melbourne; the Esso Building landscape on South Bank, Melbourne. In Western Victoria there is the Royal Mail Hotel, the Meier Property at Dunkeld and the Victoria Hotel at Port Fairy (the landscaping of the latter two was designed by Paul Thompson). Many major streetscapes have extensive native plantings, as seen along Melbourne’s Eastern Freeway, Western Ring Road and Geelong Freeway. These are just a few examples of Australian urban landscapes based solely on native plants. Numerous examples exist in other major cities and towns from other climatic zones.

CONCLUSION

Native plant landscapes are increasing in occurrence throughout urban Australia. Landscape designers are developing expertise in the use of native plants in urban environments. The emergent Australian style will continue to evolve as the palette of commercially available Australian plant species broadens. Designers will continue to play an important role in extending the range of design applications, drawing inspiration from numerous native vegetation types not yet fully explored.

Many native urban landscapes have been founded on easily propagated tree and shrub species. The development of cultivars for a range of other species, as well as for understorey and grassland species is possible. An increasing knowledge of the propagation, cultivation and performance in urban settings of many species will provide a wealth of new possibilities for urban design into the future.

Landcare and similar organisations will continue to positively influence urban landscape design by helping solve problems relating to the cultivation of understorey and grassland species and the range of native species that can be used in urban environments typical of modern Australian cities. It will be an interesting to examine the result in 10 - 20 years time. The application of the vast potential of Australian plants is open to further exploration within the various urban landscape settings.

ACKNOWLEDGEMENTS

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Literature Cited


Tables

Table 1. Degradation of selected bioregions (Source: Environment Australia 2001).

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<thead>
<tr>
<th>Vegetation type</th>
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<th>% of total land cleared</th>
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<tr>
<td>Eucalypt woodland</td>
<td>25</td>
<td>45</td>
</tr>
<tr>
<td>Mallee woodland</td>
<td>33</td>
<td>14</td>
</tr>
<tr>
<td>Acacia woodland (brigalow &amp; mulga)</td>
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<td>10</td>
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<tr>
<td>Rainforest</td>
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<td>1</td>
</tr>
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<td>Heathland</td>
<td>50</td>
<td>2</td>
</tr>
<tr>
<td>Tussock grassland</td>
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<td>6</td>
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