

Urban bushland – stepping stones, living museums or cemeteries?

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ABSTRACT

Urban bushland has survived for a variety of reasons. In some cases Sydney bushland is protected from possible development, but many stands do not enjoy protection under the planning process. Urban bushland is valued for a range of different purposes and if it is to survive then its permissible uses must satisfy community expectations. While conservation must be given priority in some circumstances, the management of many stands will need to accommodate multiple uses. Questions which need to be addressed in developing a long-term strategy for management are raised, and the urgency of attaining community agreement on the answers is stressed.

Key words: urban bushland, urban development, planning policy, endangered ecological communities, wildlife corridors

Introduction

Urban bushland in Sydney was, for a long time, in Benson and Howell's (1990) memorable phrase, 'Taken for Granted'. It was something which was very much part of Sydney, accepted as contributing to general amenity (except during the bushfire season when it became a threat) but rarely given great thought, and even less rarely subject to active management. The situation has changed in the last thirty years or so; urban bushland is now highly regarded by many, and has been the setting for some memorable conservation battles¹. Two triggers to the awakening of interest in urban bushland can be identified: the threatened loss of a site (Kellys Bush in Hunters Hill) in 1970, which led to the world's first Green Ban and was the catalyst for environmental activism around the globe, and awareness of the degradation of urban bushland by invasive weeds which lead the Bradley sisters to initiate bush regeneration (see Bradley 1988).

What is urban bushland?

The network of urban bushland across Sydney¹ was neither planned for nor designed. In the majority of cases urban bushland is made up of the bits left over after development (normally because of severe constraints to building), or the bits the developers have not reached yet. In some cases areas may have been set aside for some future development

creating the setting for battles to come. For example the Rockdale Wetland Corridor (see Gibbs 2004) and its continuation south of the Georges River through Sylvania were reserved from development over 50 years ago as the corridor for a future motorway (the F6). At that time bushland was not highly regarded and the corridor was only part of more extensive bushland. Now the corridor comprises the majority of bushland remaining in the suburbs through which it runs. In 2002 the State government announced that the F6 would not be built through the corridor as originally intended, but that part of the easement would be retained for future transport options. The fate of the rest of the corridor is still to be determined. While the survival of the bushland is due to its designation as a road corridor, any future proposals to develop parts of the bush are likely to generate fierce opposition.

Urban bushland in Sydney covers a wide range of tenures and control by a wide range of management (or, in many cases, non-management) authorities. Much of the bushland is in public ownership, but contrary to the belief held by many in the community, public ownership in itself does not guarantee long-term protection.

Urban bushland includes a number of formal conservation reserves; these range from the large, long established national parks (Royal, Heathcote, Ku-ring-gai and Garigal)

¹ My discussion is focused on Sydney, but the general points are applicable to other cities. Sydney is to be taken as encompassing the current metropolitan area and those further areas likely to be developed over the next few decades. It thus extends north to the Hawkesbury River; west to the Nepean River and southwest to the proposed urban release areas between Campbelltown and Camden. It is an area of considerable geological and topographical diversity and exhibits a steep gradient in annual rainfall from the well-watered North Shore to the much drier conditions of the outer western suburbs.

on Sydney's outskirts with management problems arising from being on the urban interface, recently established reserves on the frontier of urban expansion (including Windsor Downs Nature Reserve and Scheyville National Park) to small parks and reserves embedded within suburbs. There are also limited areas of State Forest which are effectively conservation reserves. Local government is a major player, owning a large number of areas of urban bushland, and being responsible for managing many other areas of Crown Land. In some cases the bushland may be only a small component of a large recreational reserve, in others the whole site is bushland. A large number of state and federal agencies and utilities also have bushland holdings within Sydney; many of these are earmarked for future development. At the Commonwealth level the major landholders are the Department of Defence and the Department of Finance and Administration. In the case of the latter, management is outsourced to Price Waterhouse Coopers (Senate Foreign Affairs, Defence and Trade References Committee 2001). Significant Commonwealth holdings are scattered across the entire Sydney region. Sites where conflict between development ambitions and conservation interests have given rise to recent controversies include Malabar Headland and Bundock Street Randwick in the eastern suburbs, St Marys Australian Defence Industries (ADI) in the west and Holsworthy in the south. Much urban bushland is privately owned, ranging from single undeveloped building blocks to substantial parts of larger land holdings.

In terms of history, current tenure and probable future of bushland, Sydney is several cities. A major disjunction can be drawn between the sandstone and the shale. Because of differences in topography and soil fertility, the two substrates would always have provided habitat for different faunal and floral assemblages. Much of the shale country had a history of agricultural development prior to urbanization and much more of the remaining bush is in private hands. On the sandstone much of the remaining bush survives by virtue of the topography being too rugged for close development. More extensive areas of bush survive on sandstone north of the Harbour than in the eastern suburbs where the extensive nutrient poor sand sheet, which provided the habitat for Eastern Suburbs Banksia Scrub (Benson and Howell 1990), although no attraction for agricultural development was no impediment to builders.

Although the nature of the surviving bush reflects the underlying geology and climatic gradients across Sydney it would be erroneous to view the stands of bush as the remaining patches of the landscape cover of 1788. Certainly there will be similarity, but there will also be differences. The vegetation will have changed as a result of alterations to moisture and nutrient regimes (as a result of modified patterns of run-off), the presence of introduced species (of plants and animals), altered fire regimes, modified microclimates and the variety of change in use (including the deliberate exploitation of some species). The remaining bush is part of a cultural landscape, with its present character strongly influenced by history; an important issue is to what extent this history should also guide future management.

One of the conservation icons of Sydney's bush is Towra Point Nature Reserve, the largest remaining saltmarsh/mangrove complex on the Central Coast and recognized as being of outstanding international significance by inclusion on the Ramsar list. While it is well known that many wetlands have been lost to reclamation most people would assume that surviving saltmarsh would be the closest possible to a 'pristine' environment in the urban area. This would be an error; Towra Point has had a complicated history since European settlement and at one time the saltmarsh was a heavily stocked, if unsuccessful, grazing property (Holt 1972).

While the proximity of development poses many threats to urban bushland the habitat value of fragments may paradoxically be enhanced by their being set in a matrix of gardens, which may, for at least some species, provide continuity of habitat and allow for movement between patches, militating against the affects of fragmentation. Particularly in the eastern parts of Sydney, gardens now contain a higher density of trees, with taller canopies, than would have been the case in the vegetation of 200 years ago prior to development. Much of this re-afforestation is relatively recent (Eby pers. comm.). Today this green matrix is under threat from both urban consolidation, as large gardens are subdivided for townhouses or retirement accommodation at an ever-increasing rate, and the promotion of instant, low-maintenance gardens in which vegetation is largely replaced by paving.

Why do we want to keep urban bushland?

Urban bushland has different values for different people, but for most I suspect that bushland is seen as an amenity. It is attractive, it contrasts with both built up areas and formal lawns or sporting reserves, it provides an opportunity for a range of recreational activities including seeing nature, although often only a small subset of what is there, and often without distinction being made between indigenous and alien species. Urban bushland is also valued for its links to the past, both indigenous and colonial. Many sites contain artifacts of various types or have connections to particular events or people.

Urban bushland is also important for nature conservation, but while this may be the primary objective of some bushland activists, it is not necessarily the highest priority for all relevant land managers.

How can we protect urban bushland?

Just as urban bushland is physically fragmented and dispersed so is the responsibility for its protection and management (Holden 2001).

In the Sydney region there is a widespread belief that urban bushland is 'protected' by State Environmental Planning Policy (SEPP19) – Bushland in Urban Areas. SEPP19 is an important instrument but has some major limitations, in particular that it is restricted to bushland zoned or reserved for public open space purposes. Private land is thus excluded, as is public land owned by various instrumentalities and not zoned for public open space.

SEPP19 addresses the control of development, but does not address ongoing management. Under the *Local Government Act 1993* community land under the control of councils must be managed in accordance with a plan of management. Community land has to be categorized into various types, including natural areas. Natural areas must be further classified as bushland, wetland, escarpment or foreshore – somewhat artificial distinctions.

The management plan must meet a number of objectives established by the Act. For bushland these include ensuring ‘the ongoing ecological viability of the land by protecting the ecological biodiversity and habitat values of the land, the flora and fauna’ and retaining ‘bushland in parcels of a size and configuration that will enable the existing plant and animal communities to survive in the long term’ (Holden 2001).

The adequacy of the plans prepared to meet these obligations, and the effectiveness of their implementation, have not been subject to scrutiny.

Local government has a major role in determining the future of urban bushland not in Council ownership or management. Local government approves most development in urban bushland, although for major infrastructure the state government is likely to assume this role. Instruments which Council might consider when assessing development include protective zoning, heritage listing (local government, state and federal), although local councils have not always been comprehensive in compiling their heritage lists, and tree preservation orders.

An additional set of obligations which has arisen in recent years is the need to consider threatened species (and ecological communities and populations). Items listed under both the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act) and the *Threatened Species Conservation Act 1995* (NSW) (TSCA) occur in Sydney’s urban bushland. Given the size of the urban area it is not surprising that there is a number of rare species of limited distribution which satisfy criteria for listing. If the data were available there would undoubtedly be other species, particularly invertebrates, which could be considered for listing. A small number of invertebrates has been listed, this presents considerable difficulties for developers, consultants and regulatory authorities. Major problems include lack of comprehensive distributional data, shortage of expertise on the identification and biology of the species and lack of knowledge about appropriate management techniques for the conservation of many invertebrates. (Clark 2004 discusses a number of the issues in relation to snails occurring in vegetation on the Cumberland Plain). The aspect of the new legislation which has given rise to the greatest controversy in relation to urban bushland has been the ability to list endangered ecological communities. The combination of biota and habitat again mean that it is not surprising that in an area the size of Sydney there will be unique communities, and given the range of threats there is a likelihood that the criteria for listing as endangered will be met. Many of the communities on the shale in western Sydney have been listed on the TSCA, as have communities on other substrates.

Listing does not guarantee that communities will be absolutely protected. It will still be possible to argue that in particular circumstances the social and economic benefits of a development outweigh those of conservation. Fire poses many issues for managers of urban bushland. Is the maintenance of urban bushland compatible with the protection of property assets and human life? Public concerns have been heightened by the 2001-2 and 2002-3 bushfire seasons; particularly in 2002-3 complacency about the fire break potential of pasture and sports fields was severely shaken. Amendments to the *Rural Fires Act 1997* and *Environmental Planning and Assessment Act 1979* introduced by the *Rural Fires and Environmental Assessment Legislation Amendment Act 2002* substantially strengthen the powers of the Rural Fire Service and NSW Fire Service to address bush fire hazard and planning in areas where bush fire hazard has been mapped. Measures to protect assets may involve clearing of bush, even in areas where very little bush remains (for example in Randwick – see Defence Corporate Services and Infrastructure and Fitzwalter 2003). On the other hand the ability to influence the planning and approval process may result in greater protection of bush at sites which are not yet set in an urban matrix. How the interaction between the fire services, landowners, developers and Councils will work in practice remains to be seen.

Even if a site is not developed there are few mechanisms to ensure management. Degradation may continue, and a site may become a reservoir of feral species, adversely affecting the survival of other sites. It is unfortunate that in matters of weed control neither state nor federal departments set good examples.

Options – what do we want of urban bushland?

Urban bushland occurs in a variety of settings and serves a range of purposes. For sites which are formal conservation reserves, or council public open space where items listed on the schedules of the TSCA or EPBC Act occur, then conservation objectives should be priorities. However, what should those objectives be? If the matters of concern are individual species or populations then these can be addressed in management plans, although whether we can save all populations of threatened species will have to be determined. Patches of urban bushland may be too small, or too exposed to various threats for populations of some species to be viable over the long term. Analyses such as those described by Banks (2004) will be required, although in many cases the types of data which are available for the North Head bandicoots will not yet exist. Who will pay for the numerous studies required? Given the importance of local icons, not only in their own right but for the conservation cause more generally, who will perform triage and not commit public money to a hopeless cause?

If the significance of a particular site is the presence of one or more endangered ecological community the questions are different, but none the less pressing. Local extinction is a much more nebulous concept for communities than it is for a population of a species. Extinction of a community is more likely to result from degradation and change than

from absolute disappearance unless all examples are to be replaced by concrete. Thus we are not faced with condemning occurrences of communities to extinction, rather we will have to decide how much change from some ideal is acceptable, and how we can draw the line so that no further unacceptable change occurs. In making these decisions the inherent variability of communities at a variety of spatial and temporal scales has to be acknowledged, and naïve ideas of the balance of nature need to be set aside (Adams 2003).

The majority of ecological communities listed to date have been characterized by lists of plant species. Not all the species included in the determinations will necessarily occur in all stands of a community. As stands are fragmented and reduced in size, the number of native species they support will decline although weeds might increase. How many species should be present if the community is to be recognized as occurring at a site? Since the introduction of the TSCA this has been a frequently asked question, but it is one which must be addressed on a case by case basis and no hard and fast answer can be given. The identification of a particular stand as representative of a particular community is a separate process from determining the conservation value or significance of the stand. Just because a stand is very small or is degraded does not mean it is not identified as a particular community, although these factors may influence assessment of its value. In some cases there will be a valid case for arguing that even isolated trees which are remnants of a once more widespread community have high conservation value. We will need to consider what is the “essence” of the community and seek to retain that, while acknowledging the inappropriateness of attempting to preserve things as they were 200 years ago. It is a legislative requirement that recovery plans be prepared for endangered ecological communities, although so far the rate of listing is much greater than the rate of plan production. Recovery plans will need to set targets, and for these to be credible and attainable, considerable thought needs to be given to their definition, particularly in the case of communities found predominantly as urban bushland.

One issue to be addressed is what levels of weeds can be tolerated, because we will never completely eradicate them. There are some species which, because of their degree of dominance and rate of spread, completely alter the character of communities and should be subject to continuous intensive control. (As an example I would suggest *Juncus acutus* in saltmarshes, although, as yet, little control is practised and the appropriate methodology is uncertain). Other weed species are apparently more benign in their effects and control is probably not cost effective. (A saltmarsh example would be *Aster subulatus*, very widespread for over a century, but rarely present at high density). In making decisions that some species do not pose a serious problem we need to be aware of the propensity for potentially major weeds to have long latency periods before displaying their full weed potential. The recent study by Noe and Zedler (2001) also gives rise to concern; apparently relatively insignificant weeds may adversely affect rare species.

Many of the next generation of weed problems are probably already lurking in parks and gardens. Landscape professionals, the horticultural industry and Councils have a large responsibility not to promote even more problems. The invasion potential of plants rarely seems to be an issue when some new species becomes the latest attraction for landscapes and gardens. Local councils have a poor track record over recent years and we are likely to rue choices for street tree planting in future years as the offspring of today's street trees invade the bush (*Celtis*, *Ulmus* and *Triadica* spring to mind as recent undesirable choices in the Sydney region).

For the majority of council-managed bush reserves, threatened species considerations are not likely to be paramount. While a very strong case could be mounted for the importance of nature conservation, other social objectives have to be acknowledged. The average member of the public who values their local patch of bush may not be too concerned that coral trees are exotic – they are colourful, attractive trees which attract birds. The person spreading breadcrumbs is pleased to attract any birds, regardless of whether they are all introduced species. The fitness fanatic may want exercise stations installed at regular intervals along the jogging track, even if that entails clearing a few square metres of vegetation. Local children may want an adventure bicycle track with muddy patches, jumps and other obstacles. The local historical society may be anxious to clear the encroaching bush from the ruins of some early structure. Many patches of bush are too small to satisfy all demands, but all will have to serve multiple purposes. At present there is usually a bun-fight on a site by site basis without there being an overall district plan or strategy. The multiple use model for conservation sites has been anathema (for good reason) to many in the Australian conservation movement, but for much urban bush it may be the only opportunity to retain any conservation values. In many Council areas, despite how green we like to think the community has become, total loss of bushland to recreational facilities is still a very real possibility. Recher (2004) has suggested that we might consider introduction of new species to urban bush to enhance amenity – this is not an argument I would like to support but I would agree that a narrowly doctrinaire approach to every site is likely to be unsuccessful in maximizing conservation options.

The challenges in managing urban bushland in the face of changing environments and competing interests are not dissimilar to those which have been addressed in the cultural and historical heritage fields for many years (Hall and McArthur 1996). Bushland managers need both to work with practitioners in those fields and to learn from them.

This discussion of options has so far addressed only bushland to be retained as such in public ownership. What is to happen to bushland owned by public authorities, or in private ownership and zoned so as to permit future development? If bushland values in much of western Sydney are to survive, these are the important questions.

No government has yet been prepared to attempt to halt Sydney's population growth. The current rate of growth is above that predicted only a few years ago, and extensive

new areas have been released for urban development in the Liverpool area and elsewhere along the western fringe of Sydney. In the face of established government policy, incentives for conservation on private land are unlikely to be successful on the urban fringe. Anything which could be offered would pale into insignificance beside the profits accruing from property development. Unfortunately too many of the decisions have already been made, largely in ignorance of the value of bushland and in the absence of any coherent strategy for long term management for the retention of bush. Recent mapping and inventory exercises across western Sydney, although valuable, have a strong element of closing the stable door after the horse has bolted.

In some cases it may be possible to bargain at the local level, giving concessions for increased development on former industrial or agricultural land, in return for preservation of patches of bush, but such an approach will lack any overall cohesiveness and may not be successful in every instance. Importantly, who will manage the surviving patches, how will management be funded and could the patches withstand the pressures from the greatly increased surrounding populations?

Stepping stones, living museums or cemeteries

My title referred to 'stepping stones, living museums or cemeteries'. These are three possible roles for urban bushland.

If by living museum we mean preserving bushland in its 'original' form as a reminder of what was here before European settlement then the cause is already lost. However, if we accept that with appropriate goals and management urban bushland patches can be ecologically functional and retain key elements of the natural ecosystems of the metropolis then some at least of the urban bushland remnants can function as museums, in the same way that sympathetic management and use can preserve buildings as cultural museums without them being frozen at one arbitrary point in time.

One of the consequences of managing bushland sites through denying change is that they can very easily become cemeteries for some of the very things we might want to conserve. The trend to local extinction is documented by Recher (2004) and Banks (2004) in these proceedings. Managers need to be very aware of these dangers, but it is up to society as a whole to decide how much money we can spend to prevent such happenings. [Physical cemeteries, such as Rookwood, can be very important refuges for nature conservation values, the burgeoning urban population also places demands on burial plots and threatens those values].

One way to reduce the risk of local extinction is to reduce the isolation of bushland remnants. The diversity, functioning and survival of Sydney's bushland would be enhanced through maximizing connectivity. The former NSW Minister for Planning, Dr. Refshauge, raised in a number of speeches the need to maintain ecological permeability, which is essentially the same concept. The concept of developing corridors is an appealing one, but not without difficulties.

In the already highly developed areas of Sydney, the opportunities for new linkages are limited. Connectivity between stands will be strongly dependent on networks of gardens and street trees, which are under threat for a whole range of social and economic reasons, and will not be effective for all elements of biodiversity.

In the west there are far greater opportunities to plan networks for the future, and in some areas there are large scale attempts to revegetate corridors, notably the Greening Western Sydney project which commenced in 1992 under the management of Greening Australia. In other areas there is no overall plan, and a great deal of *ad hoc*ery. However, there are encouraging signs in the commitment of councils across Sydney to the Green Web project (Buckley 2004). There is still much to learn about corridor design but if corridors are to be more than tokenism they have to be designed as such, not be the bits left after development. If there are good reasons to suggest that in order to minimize edge effects a particular corridor should be 100 m wide, then a 20 m strip serves little purpose. Equally a strip of vegetation restricted to a single development, unconnected at either end, is not a corridor.

I would argue that, before it is too late, we need to have a grand vision for Sydney's bush; to identify those patches which must be retained, to set overall management objectives and to plan for connectivity. This planning exercise clearly has to be co-ordinated, with an integrating authority, although it will necessarily involve input from many parties. Do we need a special management authority with sole power to ensure appropriate management? Given the diversity of tenures, and the close connection between local communities and 'their' bush, I would argue not. (In this I would agree with the argument put forward by Rackham (2001) against a single authority for managing ancient woodland in the UK – "conservation, like forestry, is a human activity, and, like other long term human activities, is much influenced by changes of fashion. Changes of fashion and philosophy would be very unfortunate if they were to be simultaneously applied to all ancient woods. I favour a mixed approach so that at least somebody shall get it right.")

Managing urban bushland, because of its fragmentation and the nature of the threats, will be expensive. There is a limit to what can be done by volunteers and society will have to decide what it is prepared to pay for. The dedication of volunteers has been critical in preventing the loss of bushland, and by example volunteer groups help educate the broader community about the values of bush and help to identify the threats to bush survival. The sense of community generated by volunteer groups is an important social force. Nevertheless, volunteer groups require both financial support and professional and technical guidance. In the newly expanding suburbs, Councils may need to take the initiative to promote the establishment of bush care groups. However, our options will be very soon greatly constrained unless we plan for the bush of the future, given continuing urban expansion and urban consolidation. Year by year the attrition of the bush continues, year by year decisions continue to be *ad hoc*. There is an abundance of legislation which could be used to reverse the situation; what has been lacking has been the will to apply it in a consistent and logical way.

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