Mangrove Battlelines: culture/nature and ecological restoration

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ABSTRACT  Ecological restoration is applied natures. Whose nature? This paper explores the complex interplay of scientific, organisational and community cultures in a proposed restoration project. In March 2004 the City of Sydney released the Glebe Foreshore Plan, which included the creation of a mangrove habitat in Bicentennial Park West. Despite widespread support of the mangrove concept, the associated plan generated significant opposition, including what one local newspaper dubbed ‘mangrove battlelines’. This paper develops a framework to analyse competing visions of nature in the mangrove conflict, and the relationships of these visions to contemporary debates in ecological restoration. The article concludes that it is necessary to understand science as socially constructed, that the application of science in ecological restoration must articulate with human values of desired natures, and that the articulation of values is best achieved through the appropriate timing of a participatory approach to restoration.

KEY WORDS  Ecological restoration; culture; science; community group; media; Rozelle Bay; mangrove.

Introduction

In June 2005 the Council of the City of Sydney approved a revised plan for a mangrove habitat in Bicentennial Park West, Rozelle Bay (see Figure 1). The area to be planted with mangroves is approximately 800 m² (40 m long and 20 m wide), which is less than one third the size of the original proposal. This original proposal, which emerged in March 2004 when the City of Sydney released the Glebe Foreshore Plan, was itself a small component of a plan with a budget of $14.7 million that included parkland acquisition, the development of a continuous foreshore walk around the Glebe peninsula, and the renovation of a historic residence.

This article explores the theory and practice of ecological restoration, using the proposed mangrove habitat in Bicentennial Park West, Rozelle Bay, as a case study. The research for this article includes analysing council and committee minutes, undertaking a media analysis of local newspapers, site visits and conducting four interviews. Numerous requests for interviews were declined, owing either to people being too busy or perhaps as a result of the controversy surrounding this development proposal.
We begin by explaining ecological restoration and situating it within understandings of culture/nature, highlighting in the process a number of important debates identified through a study of the ecological restoration literature. The next section of this article explains the development of the mangrove habitat controversy in Bicentennial Park West, Sydney. This is followed by an analysis of how an understanding of culture/nature and the better application of participation processes could have improved this restoration project. The article concludes by developing Gobster’s (2001, p. 36) call for ‘broad-based citizen involvement in restoration efforts’ to emphasise the importance of the timing of public

**Figure 1.** Rozelle Bay study area.
participation so that the important values of individuals and communities are not subsumed beneath strategic arguments to support a position.

**Ecological restoration**

Ecological restoration is a concept that sounds positive, has connotations of ‘green’ and is generally associated with the avoidance of waste. It implies that something is degraded but is capable of being repaired—it is broken so we should fix it. In practice, ecological restoration is a contentious issue.

Ecological restoration is a rapidly developing field of environmental activity. Turner (2005) has traced the evolution of the field through the development of professional societies and journals, and the significant increase in restoration articles in citations of particular journals. There is considerable debate about terminology, including the use of ecological restoration or restoration ecology (Higgs 2005), or ecological restoration or environmental restoration, where the former is seen as emerging from a North American tradition while the latter indicates a British history of conservation rather than preservation (Eden 2002). Ecological restoration is defined by Higgs (2005, p. 159) as ‘the ensemble of practices that constitute the entire field of restoration, including restoration ecology as well as the participating human and natural sciences, politics, technologies, economic factors and cultural dimensions’. The term ‘restoration ecology’ for Higgs (2005, p. 159) means ‘the suite of scientific practices that constitute an emerging sub-discipline of ecology’. A tension is evident in the title of the professional organisation, namely the Society for Ecological Restoration, and the journal of this organisation, which is called *Restoration Ecology*.

A definition of the term remains contentious. The Society for Ecological Restoration has used a number of definitions since its inception in 1988. The 1996 definition (Higgs 2003, p. 109) was:

> Ecological restoration is the process of assisting the recovery and management of ecological integrity. Ecological integrity includes a critical range of variability in biodiversity, ecological processes and structures, regional and historic context, and sustainable cultural practices.

By 2002 this overly complex definition, particularly on the point of ecological integrity, was simplified. The new definition stated ‘Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged or destroyed’ (Higgs 2003, p. 110).

This definition has been challenged by Davis and Slobodkin (2004), who question the explicit lack of value recognition in what they perceive to be an overly scientifically oriented activity. Instead, they suggest defining ecological restoration as ‘the process of restoring one or more valued processes or attributes of a landscape’ (Davis & Slobodkin 2004, p. 2). While their work has been challenged in a rejoinder by Winterhalder *et al.* (2004, p. 7), there is little argument with this definition as such. Instead the rejoinder questions the role of science in ecological restoration and the implication that piecemeal restoration, as opposed to a holistic process, was valid.

In addition to the choice of terminology and the definition of key terms, there are numerous related debates in ecological restoration that are relevant for this paper. For the purposes of explication, four of these debates are presented in Table 1.
<table>
<thead>
<tr>
<th>Culture/nature criteria</th>
<th>Debates in ecological restoration</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ecological restoration (ER) or ecological architecture (EA)</td>
</tr>
<tr>
<td>The existence of ‘prior natures’ to non-Indigenous settlement</td>
<td>Yes, in both cases</td>
</tr>
<tr>
<td>Nature as an active agent</td>
<td>Yes, but it is not crucial to this debate</td>
</tr>
<tr>
<td>Humans as ‘god’ selecting desired nature</td>
<td>Yes, often out of necessity, in the EA view</td>
</tr>
<tr>
<td>Questioning of the construction of science</td>
<td>Potentially but not necessarily in ER, more likely in EA</td>
</tr>
<tr>
<td>Questioning of the application of sciences</td>
<td>Yes, particularly by EA, who say science is applied selectively</td>
</tr>
<tr>
<td></td>
<td>Ecological integrity (EI) or recreation landscapes (RL)</td>
</tr>
<tr>
<td></td>
<td>Yes. It is often the basis for EI</td>
</tr>
<tr>
<td></td>
<td>Yes, but it is managed for different goals</td>
</tr>
<tr>
<td></td>
<td>Yes, particularly if other natures impinge on R values and attributes</td>
</tr>
<tr>
<td></td>
<td>No for EI, which uses science for justification.</td>
</tr>
<tr>
<td></td>
<td>Varies with R</td>
</tr>
<tr>
<td></td>
<td>Not necessarily, both use science</td>
</tr>
<tr>
<td></td>
<td>Yes, they differ in how to work with the relationship between science and the agency of nature</td>
</tr>
<tr>
<td></td>
<td>No, restoration may be undertaken on scientific principles and other values</td>
</tr>
</tbody>
</table>

In summary, the ‘ecological restoration or ecological architecture’ debate is about restoring nature to a previous state, or fashioning a new nature that is of great beauty, but may be selective about what is included. The debate has been characterised as ‘values versus science’ by Davis and Slobodkin (2004) and Winterhalder et al. (2004). The debate about ‘ecological integrity or recreational landscapes’ addresses the tension between restoration for scientific values such as biodiversity, and restoration for other values such as recreation. While not necessarily incompatible, there are times when these values may conflict. The ‘pristine ecology or trajectory restoration’ debate is about whether it is possible, or desirable, to restore degraded environments to a previous state. There is recognition that restored ecosystems are not static. This debate is partly about time, and the impacts of extrinsic forces on a landscape or ecosystem. Finally, the debate about ‘piecemeal restoration or “making whole”’ raises questions about scale, about whether nature was ever whole, and if it was, whether humans remake nature to be whole.

These debates resonate with geographical debates about the meanings and perceptions of nature. Many authors have commented on the complexities of the idea of nature (Williams 1983; Katz & Kirby 1991; Wilson 1992; Macnaughten & Urry 1998; Castree & Braun 2001; Eden 2002; Castree 2005). Eden (2002, p. 317) writes that:

the concept of restoration, like that of sustainability, is plastic: it can be shaped and redefined by different groups and its meaning and impact are politically and culturally contingent as well as symbolically charged. Moreover, ‘nature’ can be invoked as a symbolic referent for judging restoration projects, bringing into play its multiple constructions in late modernity.

Eden (2002, p. 318) takes this point further by arguing that ‘in some ways, then, restoration is classically modern—it subscribes to sound science and experimentation, best practice, technological improvement and environmental management’. This is one of the debates highlighted in Table 1, because, as Eden (2002), Davis and Slobodkin (2004) and Higgs (2005) argue, the narrow construction of restoration as a scientific endeavour in the form of restoration ecology accepts science in an unquestioning manner while ignoring cultural constructions of science and other cultural practices. This means that for Gobster (2001, p. 36)

broad-based citizen involvement in restoration efforts is as critical as interdisciplinary professional involvement; it empowers stakeholders and helps ensure that the landscapes they desire will be maintained over the long term.

Gobster (2001) recognises that the ‘desired landscapes’ will vary depending on multiple meanings and values that people maintain about a place. Using an example of Montrose Point in Lincoln Park (which at 485 ha is the largest park in Chicago and one of the largest city parks in the USA), Gobster (2001) developed a framework that incorporated four different visions of nature (designed landscape, critical habitat, recreation and pre-European settlement) and five criteria to differentiate these visions. The criteria used were function (the ‘purpose’ of nature), structure (how vegetation defines the character and appearance of the landscape), values (which elements of the landscape are meaningful and significant
Mangrove restoration in Bicentennial Park

An examination of the controversy surrounding mangrove restoration in Bicentennial Park will illustrate how the lack of an effective public participation process meant that particular community values were not articulated and respected, and that the initial differences in visions of nature were gradually moved into the background of the arguments as more strategic positions (history, science and increasing the scale of debate to enrol other potential supporters) were adopted.

A brief history of Rozelle Bay and Bicentennial Park

Rozelle Bay is a shallow bay in Sydney Harbour, immediately west of the city centre and Darling Harbour (see Figure 1). Prior to European settlement the country was home to the Gadigal and Wangal people. The terrain was Hawkesbury Sandstone, vegetated with forests and cut by creeks flowing through mangrove swamps. The early European history involved clearing trees for agricultural activities from 1790. In the 1830s, abattoirs were established on Blackwattle Creek, which at that time flowed into the southern end of Blackwattle Bay. Associated industries, such as soap and candle factories, and tanneries, were established and by the 1840s Blackwattle Bay was severely polluted (Coward 1988). The Glebe Island abattoir, which operated from 1864 to 1916, fostered the growth of meat preserving works and soap and candle manufacturers in Balmain and Leichhardt (Coward 1988; McManus 2001). Shipbuilding and repairs were located in Balmain, timber yards and iron works in Rozelle and coal loading facilities in Blackwattle Bay (Quinn 1975). Over time, large portions of Rozelle Bay, Blackwattle Bay and White Bay were filled to construct port facilities and industrial land (McManus 2004).

The decline of some of these industrial functions late in the twentieth century created opportunities to develop recreational space. A former timber storage yard was developed into Bicentennial Park by infilling the southern end of Rozelle Bay between 1972 and 1980, using material from the bed of Rozelle Bay to improve navigation (Suh et al. 2003). Issues of pollution remained. Scientific studies by Suh et al. (2003, p. 778) noted complexities, but concluded ‘it is clear that the groundwaters contain elevated levels of many trace elements (Cu, Pb, Zn, Ni, Co, As and Cr) relative to those in natural seawater’. This study was supported by Taylor et al. (2004, p. 241) who found that in Rozelle Bay, ‘Cu, Pb and Zn concentrations are enriched ~15 fold over background values’. The Environmental Impact Statement (EIS) for the Glebe Foreshore Project Proposed Mangrove Zone found, however, only one instance of a soil sample exceeding a recommended Health-based Investigation Level (Environmental Investigation Services 2005).

The Glebe Foreshore Plan

On 8 May 2003, boundary changes transferred the responsibility for Glebe, including the foreshore along Blackwattle Bay and Rozelle Bay, from the
Municipality of Leichhardt to the City of Sydney. In March 2004 the City of Sydney released the Glebe Foreshore Plan, which had a budget of $14.7 million and was designed to create 27.5 ha of foreshore parkland over 2 km in length. More than 2½ ha of this foreshore park would be new. Importantly, while existing parklands in the west of the plan area near Annandale were to be upgraded, all of the new parkland was to be created in the east of the plan area, near Wentworth Park. This was to occur through developer contributions of over 1 ha, and the City of Sydney purchasing a 1600 m² site from private owners.

A small component of this plan and budget was to create habitats. The exact phrase in the plan was ‘where possible natural estuarine habitats including mangrove and wetland areas will be restored to provide habitat creation and diversity’ (City of Sydney 2004, n.p.). While small mangrove habitats were proposed in a number of locations, in the Detail Plan: A concept plan for Bicentennial Park West, the exact phrase used was ‘possible mangrove/wetland restoration’ (City of Sydney 2004, n.p.). This would involve the removal of part of an existing rock wall, the digging of some parkland that had originally been reclaimed from Rozelle Bay for industrial use in the nineteenth century, and the creation of ‘proposed mangroves’ on this site. The conversion of parkland was necessary because of jurisdictional matters. NSW Maritime, the organisation responsible for the management of the water in Rozelle Bay, repeatedly stated that reclamation of the NSW Maritime area for a mangrove habitat was not acceptable. As one local government elected representative said, the reaction of NSW Maritime to reclamation was ‘no way’.

In summary, as an elected local government representative noted in an interview, prior to public participation occurring ‘there was already a plan, a DA [development application] had been lodged, some plans were drawn up that absolutely terrified the locals—they didn’t like them at all because they’d spent twenty years putting their energy and affection into that space’.

Reaction to the Glebe Foreshore Plan possible mangrove restoration

The negative reaction to the plan, which was specifically the opposition to a possible small part of the plan and budget in the form of one mangrove habitat proposal, appeared to surprise many people, not least people at the City of Sydney. This is especially the case as all interviewees supported the establishment of a mangrove habitat in Rozelle Bay (albeit for different reasons), with one local government representative saying that ‘everybody thought the mangroves were a good idea. There’s no question about that! It was the location of the mangroves.’ The importance of meaningful participation by various individuals and community groups appeared to be understood only after the ‘battlelines’ had been drawn and the initial political skirmishes had occurred. In the interviews this was attributed either to the focus of the City of Sydney, which had dealt mainly with city centre business constituents rather than residential constituents prior to the boundary expansion of May 2003, or the change in council at the elections held on 27 March 2004, which resulted in the election of a more community-oriented council and Lord Mayor. As one local government representative noted about public participation processes for the Glebe Foreshore Plan, and particularly the mangrove habitat, ‘we would do it another way ... we say “here is the base, what would you like?” And then we have consultations and then experts draw up some
plans to try and reflect those and those go back to the community and so on and so forth.’

The Glebe Foreshore Plan was approved in October 2004, but Condition 1A of the consent stated that ‘the proposed mangrove area in Area A (Bicentennial Park West) is not approved at this stage’ (City of Sydney 2005, p. 417). Condition 1A also called for further investigation, including public consultation. This condition may have been applied because, as one community group leader said in an interview for this research:

when it came to the mangrove concept it came out of left field in February 2004 when an officer from the Council came to our committee meeting . . . and told us they were going to put in—that they were going to carve away the front section of the park, they had plans for [sic], to dig and reorient the parkland from the canal and put in a marshland, ahh, I’ll never forget his comment was ‘while they’ve got the bulldozers’.

Residents were clearly, but not evenly, divided about this aspect of the proposal. This division was evident at a public forum on 24 November 2004, in which over 400 objections and 200 responses of support for the proposal were submitted by 115 people in attendance (The People for Places and Spaces 2004). The main reasons for supporting and opposing the proposal at this time can be seen in Table 2. It is worth noting that not everybody at this forum thought mangroves were a good idea. There was a significant approval of the concept of mangroves, but not necessarily at the proposed site.

**Table 2. The main reasons for supporting and opposing the proposed mangrove habitat, as expressed at a public forum on 24 November 2004**

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Reason</th>
<th>No. of Post-its</th>
<th>No. of comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Support</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Creates a better environment for the future</td>
<td>86</td>
<td>12</td>
</tr>
<tr>
<td>2</td>
<td>Creates visual diversity and softening of the foreshore</td>
<td>34</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>No disadvantages, or no important or appreciable disadvantages that would justify opposing the proposal</td>
<td>18</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>To educate about natural diversity and ecology</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>Increase mangrove habitat size—which indicated support but also concern about the small size of the proposal</td>
<td>8</td>
<td>7</td>
</tr>
<tr>
<td><strong>Opposition</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Loss of open space</td>
<td>71</td>
<td>15</td>
</tr>
<tr>
<td>2</td>
<td>No benefits of the proposal</td>
<td>84</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Inappropriate siting of the mangrove proposal, but not opposed to alternative sites</td>
<td>14</td>
<td>49</td>
</tr>
<tr>
<td>4</td>
<td>Diverts money and other resources from other beneficial projects</td>
<td>14</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>Obstruction of views from the park</td>
<td>18</td>
<td>3</td>
</tr>
</tbody>
</table>

The division of opinion existed to the extent that one local weekly newspaper covering the issue, *The Glebe*, could run a headline of ‘mangrove battlelines’ over a 2 week period in February 2005, and not be publicly criticised for needlessly polarising opinion. When asked whether this was a ‘media beat-up’, two participants in the debates said no. One elected local government representative believed that it was a simplification of the issue because there was a ‘spectrum of views’, in terms of the diversity of opinion both within the community groups and in the other community groups in the Glebe area that were not participants in this media debate. A different elected local government representative stated:

it wasn’t a total beat-up and it was really interesting because there’s always been a different culture over in Glebe than in Annandale ... in terms of people who are active in the community, and therefore that reflects back then on how the community thinks it is involved and engages because that culture sort of permeates.

This view is supported by City of Sydney Councillor Verity Firth who said ‘it had been a polarizing issue and viewpoints usually depended on which side of the park people lived—those on the Glebe side usually wanted mangroves, while those on the Annandale side didn’t’ (Lake 2005, p. 3).

Under the headline ‘A community divided’, representatives of the Glebe Society and the Save Rozelle Bay Association (two well-known, long-term community organisations) argued, in approximately one-quarter of a page each, for and against the proposal, respectively. Both community groups stressed their united stance against other proposals for Rozelle Bay, particularly a proposed dry boat storage shed for 869 boats and a 400-space car park on the northern side of Rozelle Bay. There was another headline of ‘Fight for the waterfront’ which pitted the City of Sydney against Leichhardt Council. Finally, *The Glebe* conducted a telephone and e-mail poll over four days in early February 2005, and summarised the main arguments in a sentence each under ‘supporters’ and ‘opponents’. This section of the paper stated that 15 calls were received in support and 29 against, and provided brief quotes from 8 supporters and 17 opponents. Most of the supporters were from Glebe, while most of the opponents were from Annandale, although some were from outside the immediate local area.

By February 2005 it was possible to summarise the arguments in favour of the possible mangrove restoration as beautifying the park, restoring a natural environment, Rozelle Bay having the appropriate tidal movements to support mangroves and their spread, implementing a plan from the 1980s for a much larger mangrove habitat on the site and a rejection of arguments such as loss of public open space, the availability of alternative sites and loss of views.

At this stage, arguments against the possible mangrove restoration had coalesced into the history of creating a popular waterfront park out of ‘industrial wasteland’ being reduced in size (particularly for active recreation), the threat of contamination due to dredging, the increased population density meaning that the parkland was used on a regional and not just local basis, and to respect the integrity of a 1994 Bicentennial Park Master Plan. This last point is summarised by the Save Rozelle Bay Association:

The boundary change of May 2003 does not give the new City of Sydney Council the right to walk all over years of investment, planning,
community consultation, corporate generosity, and the efforts of the previous custodians, Leichhardt Council and its residents. (Save Rozelle Bay Association 2005, p. 9)

Importantly, as the debate evolved, it became apparent that history, scale and science were being increasingly invoked in the construction of nature, the changing context and the risks to the future of the bay and local residents. The above themes resonate to varying extents with some of the key debates in ecological restoration (see Table 1). Science was invoked to raise concerns of health, risk and therefore financial risk in the proposal. It was noted that the attempted remediation of contaminated sediments may result in a worse outcome than leaving Rozelle Bay in its current state. The Save Rozelle Bay Association (2005, p. 9) questioned whether the City of Sydney Council can ‘afford to expose residents to the dangers of a cocktail of toxic contamination with this proposal’.

Importantly, the timing of these appeals to history, scale and science can potentially mask the major source of conflict. In the case of the mangrove habitat, this was the existence of different visions of nature, most critically the City of Sydney’s view of the grassed area as ‘uninteresting’ and an underused resource. On the other hand, Leichhardt Council, the Save Rozelle Bay Association and others saw this area as the culmination of many years of work that had converted a former industrial site into open space that was used extensively, given the limited availability of open space in the surrounding suburbs.

**Doing mangrove restoration differently**

It is apparent that the initial attempt to restore mangroves in Bicentennial Park West resulted in significant controversy, despite many individuals and groups being in favour of the idea of mangroves. This may be partly explained by the lack of a public participation process prior to the development of the Glebe Foreshore Plan, but it is also important to note that even an appropriately timed and focused public participation process would have to address the questions of different perceptions of the existing landscape and competing aspirations for the future of Bicentennial Park West.

It is possible to extract six different visions of nature from the mangrove conflicts in Bicentennial Park West. These visions, the criteria used to differentiate these visions, and the connections between these visions and current debates within ecological restoration are shown in Table 3.

Participation in the mangrove conflict was a contest about whose visions of nature would be embodied in the ecological restoration. The debate about ecological integrity vs recreation is central to the mangrove dispute. This debate includes on one side the pre-European settlement landscapes and the potential of mangroves to improve biodiversity and the claims of improving water quality, in opposition to recreation uses which value grass in a suburb with relatively little public open space. A key argument put forward by opponents of the proposal was that public open space would be lost. This argument initially appeared to be based upon personal use of the park and the diversity of recreational uses (including for picnics, flying kites and walking dogs) but later the Save Rozelle Bay Association linked this argument with urban consolidation and the increasing population in surrounding suburbs. They then altered the scale of use from local to regional.
<table>
<thead>
<tr>
<th>Criteria, debates, proponents</th>
<th>Biodiversity</th>
<th>Water health: mangroves</th>
<th>Water health: non-disturbance</th>
<th>Recreation</th>
<th>Community history</th>
<th>Pre-European settlement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Function</td>
<td>Habitats</td>
<td>Absorption</td>
<td>Non-disturbance</td>
<td>Open space, views</td>
<td>Reminder, sense of worth</td>
<td>Emulate pre-European settlement ecosystem</td>
</tr>
<tr>
<td>Structure</td>
<td>Mangroves</td>
<td>Mangroves</td>
<td>Grass</td>
<td>Grass, wall between water and land for safety</td>
<td></td>
<td>Mangroves, beach, no artificial boundaries between land and water</td>
</tr>
<tr>
<td>Dominant values</td>
<td>Ecosystem</td>
<td>Cleanliness, visual appearance</td>
<td>Risk minimisation and management</td>
<td>Human use, equity of open space provision</td>
<td>Validation of community and local effort</td>
<td>Indigenous/’natural’</td>
</tr>
<tr>
<td>Use</td>
<td>Mixed habitats and recreation</td>
<td>Clean up water</td>
<td>Recreation: picnics, kites, etc.</td>
<td>Recreation, picnics, kites, etc.</td>
<td></td>
<td>Mixed-habitats, non-industrial, recreation</td>
</tr>
<tr>
<td>Icons</td>
<td>Mangroves</td>
<td>Mangroves</td>
<td>Grass and water</td>
<td>Grass, the ‘three bridges view’</td>
<td></td>
<td>Mangroves</td>
</tr>
<tr>
<td>Restoration debates</td>
<td>PE vs TR</td>
<td>PE or TR</td>
<td>ER vs EA</td>
<td>EI vs RL</td>
<td>Less about restoration than about de-industrial landscapes and providing open space</td>
<td>EI vs RL</td>
</tr>
<tr>
<td></td>
<td>TE vs RL</td>
<td>ER vs EA</td>
<td>PR vs MW</td>
<td>TSRBA</td>
<td>TSRBA</td>
<td>TSRBA</td>
</tr>
</tbody>
</table>

**Notes:**
PE = pristine ecology, TR = trajectory restoration, EI = ecological integrity, RL = recreational landscapes, ER = ecological restoration, EA = ecological architecture, PR = piecemeal restoration, MW = making whole, C of S = City of Sydney, TGS = the Glebe Society, TSRBA = the Save Rozelle Bay Association. Table developed from Gobster (2001, p. 40) and Eden (2002, p. 327).
They also introduced an equity argument that ‘Leichhardt [Council] has the third lowest open space ration per head of population in the Sydney region. Annandale has the lowest of all suburbs in the Leichhardt area, including Glebe’ (Save Rozelle Bay Association 2005, 9).

The arguments in favour of ecological integrity are both historical, in re-creating an environment that previously existed, and futuristic, in that the mangroves will provide a habitat for biodiversity. It was noted that while mangroves traditionally existed around parts of Sydney Harbour, now ‘in the approximate 14 kilometres of harbour frontage in the City of Sydney local government area there are four mangrove trees’ (City of Sydney 2005, p. 422).

The proposal for this particular mangrove habitat involved disturbing sediments in Bicentennial Park West because it was not possible to further infill Rozelle Bay. Restoration from a scientific perspective was potentially compromised by political realities. This situation was exacerbated, from a scientific perspective, when the compromise position of a two-thirds reduction in mangrove habitat was reached. This compromise occurred after two alternative locations were examined and rejected because the water depth was too great for the establishment of mangroves at one site, and because of the potential presence of an incompatible use (a planned marina/berthing facility) adjacent to the other site (O’Donnell 2005). One of the major benefits of the reduced mangrove habitat in its originally proposed location is that it enables the retention of the ‘three bridges view’ (a view of ANZAC Bridge, the old Glebe Island Bridge and Sydney Harbour Bridge, which many local people cherish), but has been labelled ‘token’ by opponents due to its small size having little benefit for biodiversity or filtering dirty harbour water (Lake 2005, p. 3). An environmental scientist who was interviewed for this research clarified the ecological limitations of mangroves in Rozelle Bay. He stated:

The area there is fairly small, the contaminants in that bay are highly contaminated, and there’s no chance whatever that a mangrove stand there would have any appreciable difference on the condition of the sediments at the bottom of the bay.

This raises the complex connections between visions of nature, the selection of desirable landscapes and the issue of how to manage undesirable elements of the landscape. Similar to Willott’s (2004) issue of malaria and other deadly diseases being an important consideration in wetland restoration, the issue of contamination of Rozelle Bay and Blackwattle Bay by lead, zinc, copper, PCBs, DDT and dieldrin, needed to be addressed in the ecological restoration of the Glebe foreshore. The emergence of this issue enabled the introduction of issues such as health and financial risk into the debate and was supported by anecdotal evidence about water quality from people using the bay for boating. The management implications were summed up by an elected local councillor interviewed for this research who noted that:

In terms of a balance between engineering and natural, I suppose that my view is that if you have to re-jig it all to engineering and you are pretending it is natural then it’s not. It’s going to fall over because it’s going to be very high maintenance and if it is really high maintenance then it is not natural.
The creation of particular landscapes based on competing visions is possible, but if the intention is to appear ‘natural’ and the choice of landscape requires extensive maintenance or risk management, then it is problematic from an implementation perspective. According to the councillor interviewed, if the landscape appears to require really high levels of maintenance, then it is not natural. Selecting an appropriate site for mangroves can overcome this potential problem because as one piece of correspondence to the City of Sydney noted: ‘once mangroves are established they tend to further accumulate sediment, reducing depths and increasing the area suitable for the establishment of mangroves’ (Diver 2005, p. 525). The successful establishment of even a reduced mangrove habitat could be construed as an example of trajectory restoration.

Conclusion

The conflict over the possible site for a mangrove habitat in Bicentennial Park West highlights many issues about ecological restoration in urban environments. This particular restoration proposal was a small component of a larger, multi-faceted landscape planning and design project. Despite widespread but not total support for the idea, the plan was extremely divisive. The division could have been avoided if local community history and values were understood and public involvement occurred in the formative stages of the proposal.

Ecological restoration is applied natures. However, unless lessons are learned from adverse experiences such as the proposed mangrove habitat in Bicentennial Park West, other people may be dissuaded from engaging in this activity. The most important lessons to be drawn from the case study of restoration are the importance of understanding science as socially constructed, to appreciate the necessity of scientific knowledge in restoration projects and to ensure its harmonious articulation with individual and community values and visions of landscape. These visions and values are most appropriately expressed through a timely and inclusive public participation process.

As noted by Eden (2002, p. 328): ‘restoration is not essentially good or bad but contingent upon the uses and rhetorics to which it is put’. The analysis of a proposed mangrove habitat in Bicentennial Park West demonstrates the accuracy of this statement. Invoking restoration in the Glebe Foreshore Plan ‘opened up new spaces for the cultural contestation of environmental decision-making’ (Eden 2002, p. 328). This is partly because of what was proposed, where it was proposed and how it was proposed. As this paper has demonstrated, the articulation of a deeper appreciation of competing cultures of nature and a suitable public participation process would probably have avoided the ‘mangrove battlelines’ and contributed to a successful example of ecological restoration.

Acknowledgements

The author would like to thank those individuals who participated in the research interviews, to the participants in the Applied Natures workshop in Wollongong, and to the referees and editors for their very helpful feedback on an earlier version of
this paper. The author would also like to thank Robert Fortune for preparing the maps. Any errors of fact or interpretation are the author’s own responsibility.

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