REPRESENTATIVE FRESHWATER AQUATIC PROTECTED AREAS: THE AUSTRALIAN CONTEXT

Jon Nevill

Only One Planet Consulting PO Box 106, Hampton Victoria 3188 Australia. Ph +61 4 2292 6515. onlyoneplanet.com.au

Abstract

Australian governments (at national and State levels) are committed, on paper, to the development of systems of reserves containing representative examples of all major freshwater ecosystems. We review policy and programs at both national and State levels related to these commitments. We conclude that, to the extent that such reserves have been developed, this has generally occurred incidentally rather than deliberately. Recommendations are made focused on mechanisms to facilitate implementation programs through (a) developing nationally consistent approaches to ecosystem classification and inventory, and (b) identifying gaps in existing reserve systems, and selecting possible sites to fill the gaps.

Keywords: representative, reserves, freshwater, ecosystems, protected areas

INTRODUCTION

Biodiversity needs to be protected within the landscape – it is neither practical nor effective to conserve biodiversity values within 'captive ecosystems'. Within this larger framework, protected areas (or reserves) play a crucial role. This paper summarizes the development of representative freshwater reserves in Australia.

Protected areas established to conserve representative examples of major ecosystems are an accepted component of terrestrial and marine biodiversity conservation programs. The establishment of such reserves is in fact a obligation for nations, including Australia, that have signed the International Convention on Biological Diversity 1992. Additionally, representative reserves have important value in protecting ecosystems of special importance, and in providing ecologically-based benchmarks useful in assessing the sustainability of management programs. At a national level, the establishment of representative freshwater reserves is an explicit requirement of the Council of Australian Government's 1992 InterGovernmental Agreement on the Environment.

However, in spite of these international and national commitments, Australian State governments have been slow to establish systems of representative reserves in freshwater environments. Although all eight Australian jurisdictions have endorsed the concept of such reserves in policy statements, only Victoria, the Australian Capital Territory and Tasmania have developed programs to implement these commitments. In two of these three jurisdictions the programs remain incomplete. Existing terrestrial reserves do protect some important examples of representative freshwater ecosystems, but there appear to be many important gaps – especially relating to river and aquifer ecosystems.

In this paper, recommendations are made, largely focused on national leadership and coordination of both methods and funding programs to promote the establishment of systems of representative freshwater protected areas.

The national context

The establishment of networks of freshwater protected areas (PAs) including representative reserves has been identified as a commitment of all Australian governments in several key strategies, including the National Strategy for Ecologically Sustainable Development (Commonwealth of Australia 1992a), the InterGovernmental Agreement on the Environment (Commonwealth of Australia 1992b) and the National Strategy for the Conservation of Australia's Biological Diversity (Commonwealth of Australia 1996).

Objective 10.1 of the National Strategy for Ecologically Sustainable Development states that the objective for a nature conservation system is:

> *To establish across the nation a comprehensive system of protected areas which includes representative samples of all major ecosystems, both terrestrial and aquatic; manage the overall impacts*

of human use on protected areas; and restore habitats and ameliorate existing impacts such that nature conservation values are maintained and enhanced. (Commonwealth of Australia 1992a; p. 54)

Item 13 of the InterGovernmental Agreement on the Environment schedule on Nature Conservation states that:

The parties agree that a representative system of protected areas encompassing terrestrial, freshwater, estuarine and marine environments is a significant component in maintaining ecological processes and systems. It also provides a valuable basis for environmental education and environmental monitoring. Such a system will be enhanced by the development and application where appropriate of nationally consistent principles for management of reserves. (Commonwealth of Australia 1992b; p. 40)

In the National Strategy for the Conservation of Australia's Biological Diversity, protected areas are to be integrated with other measures for achieving ecologically sustainable use of natural resources. Objective 1.4 states:

Establish and manage a comprehensive, adequate and representative system of protected areas covering Australia's biodiversity. (Commonwealth of Australia 1996; p. 9)

It is generally recognised that a system of protected areas needs to be representative of ecosystem biodiversity. Without systems of representative reserves, biodiversity will decline as ecosystems are modified and simplified by human use.

In spite of the commitments set out above, there is at present no national program specifically to assist the States in developing systems of representative freshwater reserves. The National Reserves System (NRS) does protect many wetland ecosystems, but no attempt has been made at this stage to assess their representative characteristics. Whereas some wetland types will be well protected with the NRS framework, others will not. At this stage we do not know the situation regarding the conservation status of freshwater ecosystems, because no State has a comprehensive inventory on which to base an assessment. It seems safe to speculate, however, that the NRS does not do a great deal to protect representative rivers and aquifer ecosystems, except in instances where these ecosystems form comparatively small components in large terrestrial reserves.

National Ramsar commitments and programs include the development of inventories and the establishment of protected areas. However, such programs remain incomplete in all Australian jurisdictions except the Australian Capital Territory.

According to the minutes of the Land, Water and Biodiversity Committee of the Natural Resources Management Ministerial Council (NRMMC) Meeting 1, December 2001, the Council has considered establishing an inter-jurisdictional working group to explore the feasibility of creating a national reserves system for 'Inland Aquatic Ecosystems'. It is understood that the setting-up of this group will be further considered following the completion of a Directions Statement on the NRS (this document is known as the NRS Action Plan.)

Given the commitments that have already been made (see below), one would think that such a working group might be more effective if, rather than examining the issue of *feasibility*, it was asked to examine the *implementation* of existing commitments regarding the protection of freshwater ecosystems within the framework provided by the NRS and State NRM programs.

Terminology

Where the term "*freshwater ecosystem*" is used, this includes all habitats covered by the Ramsar definition of the term "wetland", including river, aquifer, ephemeral wetland, and estuarine ecosystems (where such ecosystem is heavily dependent on freshwater flows. Where the tem "*wetland*" is used (unless it is specifically mentioned that the Ramsar definition is being used in that context), the term equates to the definition used in the Commonwealth Wetlands Policy (see Appendix 8 of the Australian Society for Limnology discussion paper on representative reserves).

Australian Capital Territory (ACT)

The ACT, being Australia's smallest jurisdiction (by a long way) is also in the position where all land is either Crown controlled, or leased from the Crown. Given this unusual situation and a single State/Local Government administration, land management presents arguably less complex challenges here than in other jurisdictions.

The ACT Nature Conservation Strategy (NCS) 1998 takes the place of both a biodiversity strategy and a wetlands strategy. The NCS does not include specific commitments to the development of representative freshwater reserves; however, it does make clear commitments to establish comprehensive, adequate and representative (CAR) protection of *all* ecosystems, and states: "riverine systems are … an area of concern".

This commitment has already been largely completed, owing to the small size of the ACT.

The Cotter and Murrumbidgee are the two rivers of highest ecological value. The Murrumbidgee is largely protected in the series of reserves that form the Murrumbidgee River Corridor, and the Molonglo River below Coppins Crossing is similarly protected. The great majority of the Cotter River is protected within Namadgi National Park (B Wilkinson, *pers. comm.*)

The NCS makes commitments: to complete the ecological survey of the ACT, and to identify deficiencies and gaps in the reserve system. This program should lead, in theory, to:

- the development of a comprehensive freshwater inventory, although this is not identified as an outcome; and

- the development of a system of representative reserves which includes examples of all major aquatic ecosystems.

Action plans for threatened species and ecological communities prepared under the Nature Conservation Act 1980 are reviewed every 3 years and updated as necessary. CAR reserves (all ecosystems) are being reviewed and developed within an Interim Biogeographic Regionalisation of Australia (IBRA) framework.

New South Wales (NSW)

NSW has three key strategies[1] affecting freshwater biodiversity, all fitting within the general framework created by the NSW *Catchment Management Act 1989*, the *Water Management Act 2000*, the *Fisheries Management Act 1994*, and the NSW Total Catchment Management Policy 1987. These are:

- the Rivers and Estuaries Policy 1993.

- the Wetlands Management Policy 1996, and

- the Biodiversity Strategy 1999.

All three strategies contain clear commitments to the establishment of representative freshwater protected areas. However, the NSW government has not allocated specific funds to any program focused on putting such a network of freshwater PAs in place. Although Objective 2.2 of the Biodiversity Strategy is to 'establish a comprehensive, adequate and representative reserve system', the Strategy defers issues in the freshwater area by stating:

NSW Fisheries is preparing an additional component to the Biodiversity Strategy,

dealing with the protection of … the fish and other organisms in our streams, rivers and lakes. A draft will be released for public comment in late 1999.

This draft had not been released at the time this paper was checked in November 2003.

Aquatic reserves may be declared under the *Fisheries Management Act* (managed by NSW Fisheries). There are thirteen aquatic reserves in NSW, spanning some 2100 ha – but none as yet in fresh water. These reserves have generally been declared to protect small areas of habitat vulnerable to damage from high usage (tidal rock platforms, for example). Although such reserves could be declared over freshwater areas, all existing areas protect marine or estuarine locations.

The NSW State of the Environment Report 2001 reviewed the matter of freshwater reserves, and recommended (p.263) that existing management programs '… would be complemented by the development of a protected area system for riverine habitats'. The *State Water Management Outcomes Plan 2003* (p.7) contains a target to establish aquatic reference sites based on biogeographical regions. The purpose of the sites is "to provide benchmarks for habitats and ecological flow response assessment". If implemented, this target could provide a framework for establishing representative freshwater protected areas in each bioregion within NSW, although 'reference sites' could alternatively be interpreted in a more restrictive way simply as monitoring sites in unprotected areas.

Northern Territory (NT)

The National Parks and Wildlife Commission of the Northern Territory has produced two strategies: the first (1999) dealing with threatened species and communities[2], the second (2000) dealing with wetlands. The NT has no plans to develop a Biodiversity Strategy.

Both of the NT's strategies follow similar formats: a goal and guiding principles lead to objectives, and action statements address the objectives. Both strategies acknowledge international and national biodiversity protection frameworks. For the purposes of policy implementation, the NT government regards the NT wetlands strategy as including rivers and streams (M Butler, *pers. comm.*).

The wetlands strategy contains a commitment to the establishment of *representative* wetland reserves:

---

[1] The groundwater policies (framework, quality, flow, and groundwater-dependent ecosystems), and the Weirs Policy (1997) are important supporting policies to this group.

[2] Government of the Northern Territory (1999).

Objective five:

To enhance the system of National Parks and other protected areas to maintain the full range of wetland types and ecological functions.

Action statements include the following:

- identify wetlands in each biogeographic region of the Northern Territory;

- undertake biological and environmental surveys of wetlands;

- develop a wetland inventory based on geographical information system (GIS); and

- examine the range of wetland types included in the present reserve system, and identify gaps in representation.

This framework provides a good basis on which to develop CAR wetland reserves, and could easily be expanded by a minor policy statement to include riverine as well as the more traditional "still water" wetlands, because the Northern Territory administration includes 'rivers' under its definition of wetland. This places the NT in much the same position as most other Australian jurisdictions: the commitments have been made, but not yet implemented.

Queensland

Queensland's key strategy in this area is the *Wetlands Strategy 1999*. The Ramsar definition of wetlands (in a slightly modified form) is used, covering *static or flowing* waters.

The Strategy has four central objectives, of which Objectives 2 and 3 are particularly important:

- 2. Ensure a comprehensive and adequate representation of wetlands in the conservation reserve system;

- 3. Base the management and use of natural wetlands on ecologically sustainable management and integrated catchment management practices.

The Strategy commits the Queensland government to the development of representative freshwater reserves through Objective 2. Disappointingly, however, initiatives 1.1, 1.3 & 1.5 do not identify the need for a comprehensive State inventory of wetlands which would lay the foundations for the development of CAR freshwater reserves, and initiative 2.1 merely re-states the objective. It seems possible that the development of a *Queensland Rivers Policy* could see these gaps covered – although this initiative, alive in 2001, seems now dormant.

Under the Queensland government's wetlands program, considerable progress has been made in assembling inventory material over the past three decades. Although the Wetlands Inventory program includes rivers, the limited data collected do not appear to have been used in a systematic way to help identify rivers of high conservation value.

Fish Habitat Areas can be declared under the provisions of Queensland's *Fisheries Act 1994*. Although around 10,000 km^2 of estuarine habitat is protected under these provisions, they have not yet been applied to significant freshwater areas.

South Australia (SA)

The Wetlands Strategy for South Australia (2003) provides a mandate for the development of both a comprehensive wetland inventory (p.16) and reserves protecting comprehensive, adequate and representative examples of wetland types (p.22):

> **Objective 5.** To identify those wetlands which are important at the regional, state, national and international levels, and ensure appropriate recognition, management and protection of these sites.
>
> **Actions:**
>
> 5.1 Establish a comprehensive, adequate and representative system of protected areas to contribute to the conservation of South Australia's native biodiversity associated with wetlands.
>
> 5.2 Ensure that key wetland sites are identified in the State Wetlands Databank (see Action 6.1) defining their importance at the regional, state, national and international levels. Collate monitoring, survey, and management information for wetlands across the state and link these data to information from associated water resources that wetlands rely upon.

South Australia has a wetlands inventory program, where inventories are being developed region by region with the intention of achieving full State coverage; this program is being developed within a limited budget. There are no plans at present to establish a comprehensive inventory of freshwater ecosystems, including both flowing and still waters. The State is however, progressing the development of a broad-scale inventory of terrestrial ecosystems, within the IBRA framework, and this may ultimately be extended to cover freshwater

ecosystems, particularly given the use of the Ramsar definition of wetlands within the State wetlands strategy.

The State has no threatened species legislation. Prior to the publication of the wetlands strategy, there were no requirements for local government, within the State's landuse planning framework, to take biodiversity or wetlands inventories into account when considering development proposals or changes to landuse zoning[i]. This has changed under Objective 5 of the strategy (p.23).

South Australia has followed all other jurisdictions in committing to comprehensive, adequate and representative freshwater protected areas. The critical issue now is funding programs to develop comprehensive freshwater ecosystem inventories, and identify and rectify gaps in the existing reserve system.

Tasmania

The final version of Tasmania's Nature Conservation Strategy 2002-2006 contained a 'priority recommendation' (p.ii):

> Improve protection for freshwater environments. As a priority, identify and establish freshwater CAR reserves and complete integrated catchment planning for natural resource management. (Expanded by Actions 15, 47)

The Conservation of Freshwater Ecosystem Values (CFEV) Project has been initiated by the Tasmanian Government as part of the Water Development Plan for Tasmania. The Department of Primary Industries, Water and Environment (DPIWE) is responsible for the Plan. The development and implementation of a strategic framework for the management and conservation of the State's streams, waterways, and wetlands is identified as an integral part of the Water Development Plan.

The project will consider in its scope the following ecosystem types: *rivers, lakes and wetlands, saltmarshes, estuaries,* and *groundwater dependent ecosystems*.

The project aims to develop a Freshwater Conservation System for Tasmania, based on the reserve-design principles of comprehensive, adequate and representative protection (CAR Principles), in order to achieve the following outcomes:

- a coordinated system for the recognition and conservation of freshwater ecosystem values that can be used for water management planning;

- increased conservation of high priority freshwater ecosystem values in areas under both Crown control and private land;

- increased confidence on behalf of government, industry and the community that high priority freshwater ecosystem values are appropriately considered in the development and management of the State's water resources; and

- increased ability for Tasmania to meet national obligations for protection of freshwater ecosystems.

A comprehensive inventory of Tasmania's freshwater ecosystems is under development as an adjunct to this project. Tasmania's wetland inventory has been expanded from around 1000 sites in 1999 to currently contain information on 8000 sites. See Appendix 10 in Nevill and Phillips 2003 for more information on the CFEV project.

Tasmania's Inland Fisheries Act 1995 contains provisions for establishing fauna reserves. As yet, these provisions have not been used.

Victoria

Victoria has been, and remains, a leader with regard to the protection of representative examples of freshwater ecosystems, in spite of failings in the implementation of policy. The *Reference Areas Act 1978* was, at the time, benchmark legislation with regard to the protection of representative terrestrial ecosystems. The *State Conservation Strategy 1987* established the need for representative protected areas covering both rivers and wetlands. The recommendations of the Land Conservation Council (LCC) *Rivers and Streams Investigation* in 1991 resulted in the designation of 15 *representative rivers*, and the development of protective management plans for 11 of these. The LCC's recommendations also resulted in the passage of the *Heritage Rivers Act 1992*, which provided statutory protection to 18 river reaches and 26 small but relatively undisturbed catchments of high natural value.

The *Heritage Rivers Act* represents benchmark river protection legislation in the Australian context. Although attempts have been made by other Australian jurisdictions to develop similar legislation, all have failed. *Victoria's Biodiversity*, released in 1997, re-iterated earlier commitments towards representative reserves covering both wetlands and rivers. The *Victorian Healthy Rivers Strategy* 2002 identifies the need for representative river ecosystems, and included the development of a strategic target.

This record surpasses that of any other Australian State. However, Victoria failed to carry through

aspects of the *State Conservation Strategy 1987* and the 1997 biodiversity strategy which would have seen the development of a comprehensive and representative protected area network covering wetlands. In addition, although the Victorian government instructed its departments to implement protective management for the designated *representative rivers* in 1992, after 10 years four of those 15 rivers remain without management plans. The implementation of the 11 plans that have been prepared has not been publicly reported.

The Victorian Government, through the Victorian River Health Strategy (VRHS) (launched August 2002) is committed to review representative rivers in view of their ecological attributes. This review will apparently be undertaken by the Victorian Environment Assessment Council (VEAC) (the successor to the LCC), with relevant Catchment Management Authorities required to prepare management plans for the rivers. The VRHS strategic target is that identified representative river reaches should be ecologically healthy by 2021. It is hoped that these arrangements will lead to a more detailed and comprehensive system for identifying and managing representative rivers in Victoria.

The VEAC is the logical vehicle to resuscitate earlier (1987) plans by the LCC to examine the issue of representative wetlands. The Victorian Government is understood to be considering this option.

Western Australia

The Western Australian Government published a *Wetlands Conservation Policy* in 1997, divided into two main sections, a *Statement of Policy* and a second section on *Policy Implementation.* The Statement of Policy *uses the full Ramsar definition of wetlands*, and thus applies to virtually all Western Australian freshwater ecosystems – rivers, lakes, floodplain wetlands, estuaries, and underground karst environments. Given that State wetland policies are in part designed to facilitate the fulfilment of Australia's international commitments under the Ramsar Convention, this approach appears logical and courageous, and one that other Australian States could do well to follow.

Moreover, the Policy provides a commitment that should provide the foundations for the development of a system of comprehensive, adequate and representative freshwater ecosystem reserves. *Objective 2* commits the State Government to the protection of "viable representatives of all major wetland types" – again, using the full Ramsar definition of wetlands. However, the policy implementation

plans – the second part of the Policy – are limited to "still" waters only. The logic for this division provides for the values of 'flowing' water wetlands (i.e. rivers) to be protected under the programs developed by the then WA *Water and Rivers Commission*.

At this stage WA does not have a biodiversity strategy. Draft versions of *A Nature Conservation Strategy for Western Australia* and a Wildlife Conservation Bill to replace the WA *Wildlife Conservation Act 1950* were released for public comment in 1992. Since then, successive State governments have committed to develop a Biodiversity Conservation Strategy and, similarly, to comprehensive biodiversity conservation legislation to replace the Wildlife Conservation Act[3]. Work towards these initiatives continues.

Comprehensive strategic inventories of the State's freshwater ecosystems, and the procedures necessary to support effective integration of land-use planning and environmental-assessment procedures, are in early stages of development. Under the *Wetlands Conservation Policy*, catchment-based inventories of "still" wetlands are being prepared by the Department of Conservation and Land Management. The scope and coverage of these inventories vary from catchment to catchment – an appropriate early response in such a large State where threats and pressures vary significantly with distance from the main population centres.

WA also has an Environmental Protection Policy for the Swan Coastal Plain Wetlands, which aims to protect the 20% of remaining conservation-category wetlands from the effects of land development.

A draft Statement of Planning Policy for Natural Resource Management has been released for public comment. This initiative aims to provide the mechanisms for natural resource management issues to be embedded into local government planning schemes and thus development decisions. The draft SPP includes a sub-component dealing with wetlands.

The WA government released the *Draft Waterways WA Policy* in November 2000 for comment. In many ways a progressive document, the draft failed[4] to pick up and expand the existing policy statements relevant to waterways set by the Wetlands Conservation Policy 1997. In this respect, the most important missing element relates to the development of representative

---

[3] CALM website checked 14/6/02.

[4] For more detail, see http://www.netspace.net.au/~jnevill/Submission_WA_waterways.doc .

freshwater reserves. The final version of this policy has not been released[5], because the government hoped to develop a draft waterways strategy (which is likely to include a commitment to protect near-pristine rivers of high conservation value) and release both the policy and strategy together in early 2003. A check of the WA government website in November 2003 suggested that neither document has been released at this stage.

Australian inventories of freshwater ecosystems

Generally speaking, all jurisdictions have developed State-wide inventories for *important wetlands,* although in every case except the ACT these inventories remain under development or review. Only the ACT, NSW and Victoria have developed detailed *river* inventories, although all other jurisdictions have initiated river inventory projects of some kind. The national wild rivers database was constructed from information supplied by State governments. *Subterranean ecosystems* (aquifers) have not been inventoried in any jurisdiction, although NSW has made plans to initiate inventory projects, subject to funding.

The condition of State inventories of freshwater ecosystems can be assessed by the use of four criteria.

- Are they *comprehensive*? – do they cover rivers and subterranean ecosystems as well as wetlands?

- Do they contain adequate information on ecosystem *values* to support State planning and assessment frameworks?

- Do they contain *condition* indices enabling ongoing reporting? Sustainability targets depend on these data – without them the effectiveness of 'sustainable' resource management cannot be adequately assessed.

- Are they readily *accessible*, not only to decision-makers, but to all relevant stakeholders?

Natural Heritage Trust funding, as well as funding through State river health programs and the Commonwealth Land and Water Australia / Environment Australia river health programs, has enabled considerable information on condition to be collected by the use of AusRivAS macroinvertebrate data and condition indices such as the Victorian Index of Stream Condition. The National Water Quality Management Strategy (formally backed by the Council of Australian Governments COAG water reform framework, and more recently the National Action Plan) has provided a nationally consistent framework for the collection and evaluation of water quality data.

At this stage, information on the fine details of State inventory programs has proved difficult to obtain. It seems safe to say, however, that inventories of wetlands are better developed than inventories of river or subterranean ecosystems. Inventory data on value are sparse in several States, but generally more available than data on condition. Public accessibility to inventory data varies considerably depending on the type and scale of the data, but is difficult in several jurisdictions. Some data held by State agencies (like the Queensland river value data, for example) have not been released at this stage – so are effectively completely inaccessible.

Victoria, New South Wales, Queensland and Tasmania all have State-wide wetland inventories, although in all cases except Victoria these inventories are incomplete even with respect to location data for smaller wetland types. None of these inventories contains comprehensive value or condition information. Victoria, New South Wales and Queensland have funded projects specifically aimed at identifying rivers of high natural value. At this stage, the report from the Queensland program remains unpublished, whereas both Victoria and NSW have published reports.

Only Victoria has a State-wide inventory of river ecosystems carrying data on value and condition – however, even here data access is a problem, because information is contained in a variety of datasets, some of which are difficult to obtain or out-of-date. No jurisdiction has developed a State-wide inventory of subterranean ecosystems, and New South Wales is the only jurisdiction to propose the development of such an inventory.

Inventory recommendations

All States need to take major steps to improve inventories in the interests of the sustainable management of natural values. The federal government needs to provide additional focussed funding, particularly where opportunities exist to assist efforts to develop coordinated national approaches to inventory preparation and dissemination.

Consistency of approach across different States is an area where considerable improvements could be made – for example in relation to classification systems for wetlands, rivers and aquifers. In this regard, the wetland classification methods adopted in the Queensland Wetlands Inventory may offer a useful lead.

---

[5] WRC website checked 14/6/02 – draft policy 2000 still listed as available. No information on final policy availability.

Condition indices are another example. The Victorian Index of Stream Condition (ISC) has become widely used, and has prompted developments that may see a national approach to the measurement of stream condition. Having succeeded with rivers, research now needs to be put into developing indices applicable to different types of wetland and subterranean ecosystems. Public access to inventory data is an area where all jurisdictions need to make significant improvements.

CONCLUSION

Although all Australian jurisdictions are committed (on paper) to the development of representative freshwater reserves, only Victoria, the ACT and Tasmania have funded programs aimed specifically at these commitments. The ACT is the only jurisdiction to have fully implemented the commitment. Programs in other States that protect representative freshwater ecosystems do so more by accident than by design.

Representative freshwater protected area programs currently developing around Australia's jurisdictions are hampered by a lack of consistent approaches to ecosystem classification and inventory. Federal coordination, through the Natural Resource Management Ministerial Council, could greatly assist these programs. The most effective roles for the Australian government and the Council to take in this matter appear to be

(a) assisting the development of consistent national approaches to the classification and inventory of freshwater ecosystems, and *(b)* providing focused funding to assist in the identification and selection of representative freshwater reserves.

REFERENCES:

This paper is based on a detailed analysis of State and Territory policies and programs – to be found in:

Nevill J, and Phillips N (eds)(2003) *Protected Areas for Managing Rivers, Wetlands and Aquifers: the policy background, role and importance of protected areas for Australian inland aquatic ecosystems*. Australian Society for Limnology Representative Reserves Working Group; Hampton Melbourne. Available from www.onlyoneplanet.com.au .

For additional references refer to http://www.netspace.net.au/~jnevill/ASL_bibli ography.htm, and onlyoneplanet.com.au.

---

[i] " While there is no statutory requirement, local government can be encouraged to consider biodiversity issues as part of the rezoning/policy development process. For example, areas of natural significance can be zoned as 'Conservation Zones'. The Plan Amendment process requires local government to ensure policies are consistent with the State's Planning Strategy. The Strategy has a section on Environment/Natural Resources". Gary Mavrinac, email 26/2/01.