Cultural water and the Edward/ Kolety and Wakool river system

Jessica K Weir
University of Canberra and AIATSIS

Steven L Ross
Member, Yarkuwa Indigenous Knowledge Centre

David RJ Crew
Manager, Yarkuwa Indigenous Knowledge Centre

Jeanette L Crew
Chair, Yarkuwa Indigenous Knowledge Centre

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AIATSIS
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YARKUWA
INDIGENOUS KNOWLEDGE CENTRE
ABORIGINAL CORPORATION

Contents

Figures, tables and maps

Shortened forms

AIATSIS	Australian Institute of Aboriginal and Torres Strait Islander Studies
ATSISJC	Aboriginal and Torres Strait Islander Social Justice Commissioner
CEWH	Commonwealth Environmental Water Holder
COAG	Council of Australian Governments
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DAWP	Deniliquin Aboriginal Working Party
DLALC	Deniliquin Local Aboriginal Land Council
DSE	Victorian Department of Sustainability and Environment
DWR	Department of Water Resources, New South Wales
DWE	NSW Department of Water and Environment
EWAG	Environmental Water Advisory Group
IPA	Indigenous Protected Area
JIG	Joint Indigenous Group
LALC	Local Aboriginal Land Council
MATG	Murray Aboriginal Technical Group
Murray CMA	Murray Catchment Management Authority
MDBA	Murray–Darling Basin Authority
MDBC	Murray–Darling Basin Commission
MDBMC	Murray–Darling Basin Ministerial Council
MLD EWAG	Murray Lower Darling Environmental Water Advisory Group
MLDRIN	Murray Lower Darling Rivers Indigenous Nations
MWWG	Murray Wetlands Working Group
NAILSMA	North Australian Indigenous Land and Sea Management Alliance
NBAN	Northern Basin Aboriginal Nations
NOW	NSW Office of Water
NRC	Natural Resources Commission
NWCPAG	National Wildlife Corridors Plan Advisory Group
NWI	National Water Initiative
NSW NPA	National Parks Association of NSW
OEH	NSW Office of Environment and Heritage
SEWPAC	Department of Sustainability, Environment, Water, Population and Communities
TAFE	Technical and Further Education
WANT	Werai Aboriginal Negotiating Team
Yarkuwa	Yarkuwa Indigenous Knowledge Centre
YYNAC	Yorta Yorta Nation Aboriginal Corporation

Acknowledgments

The authors acknowledge Wamba Wamba and Perrepa Perrepa traditional owners and pay respect to elders past, present and future.

This report is the result of a research partnership between Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation (Yarkuwa) and the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS). The work has been supported as an AIATSIS Council research project.

The project originated in discussions between AIATSIS and Yarkuwa in 2010. It builds on work between the two organisations and on AIATSIS's work with Murray Lower Darling Rivers Indigenous Nations and traditional owners along the Murray River on water management and cultural flows (including Ross 2009; Weir 2009; Weir and Ross 2007; and Morgan, Strelein and Weir 2004).

During the fieldwork for this research, Yarkuwa held a workshop with the Commonwealth Scientific and Industrial Research Organisation (CSIRO) for the Murray–Darling Basin Authority (MDBA) project 'The Multiple Benefits of the Basin Plan'. CSIRO and AIATSIS collaboratively co-documented the workshop.

The authors thank Yarkuwa staff, board and members for their support and insights. Jessica thanks Tran Tran and Nick Duff of AIATSIS for their collegial discussions on cultural flows. We also thank Nick Duff and David Leslie for their feedback on an earlier version of this report, and Pauline McGuire for her editorial expertise. Any errors or omissions remain the responsibility of the authors.

Methodology

This research developed out of a partnership between AIATSIS and Yarkuwa that considered the complexity of the cultural water agenda, and water reform more broadly, in the Edward/Kolety and Wakool river system. It has coincided with research and planning for environmental flows for these same rivers (Webster 2010; Hale & SKM 2011).

During the fieldwork, a meeting with the Yarkuwa board identified a number of priorities for the research, including that it provide:

- an overview of governance issues and stakeholders involved in water management in the Edward/Kolety and Wakool river system
- identification of the diversity of Indigenous governance bodies with land and water interests in the Edward/Kolety and Wakool river system
- a discussion of cultural water that identifies values broader than the emphasis on a water allocation in competition with other users.

This research also draws on three Yarkuwa documents that interlink cultural and environmental values, authored by David and Jeanette Crew (Yarkuwa 2008, 2009 and 2012a). The project was scoped around the geographic area known as the Edward/Kolety and Wakool river system, with a focus on the work and priorities of the Yarkuwa board and broader membership. It was not broad enough to include spending time with the other Indigenous organisations and governance bodies in the Edward/Kolety – Wakool.

Our research methods included the review and analysis of literature, as well as workshops, meetings and interviews with Indigenous and non-Indigenous people. The workshops and meetings were all held in Deniliquin and took place as follows:

- scoping meeting on 7 December 2010 between Yarkuwa, AIATSIS and the NSW Department of Environment, Climate Change and Water
- AIATSIS workshop with Yarkuwa board on 17 August 2011 to discuss the first draft of the research report and develop a cultural flows definition and principles
- Yarkuwa Effects of Sustainable Diversion Limits workshop with CSIRO on 8 September 2011 to discuss cultural and historical information and aspirations for future management
- Yarkuwa membership meeting on 20 September 2011, where the cultural flows definition and principles were endorsed.

Steven Ross also attended monthly Yarkuwa board meetings where he outlined and received endorsement for the project, updated progress of the research, and discussed additional aspects of the cultural flows definition and potential governance models. Notice of the meetings and the project appeared in two editions of Yarkuwa's *Nyernila Newsletter*. Jessica Weir conducted interviews with Yarkuwa members Debbie Flower, David Crew (a co-author) and Leo Briggs Jnr to complement the workshops and meetings. She visited North Deniliquin forest twice, once with Debbie Flower and her sons Patrick Moore and Jonathan Moore, and once with Debbie and co-authors Jeanette Crew and David Crew. Werai Forest was inaccessible during fieldwork because of heavy rains.

As a Murray Catchment Management Authority board member, Steven Ross also discussed this project with the Commonwealth Environmental Water Holder at the meeting 'Western Murray Catchment Community Water Meeting: Edward–Wakool System', hosted by the Murray CMA, in Deniliquin on Wednesday, 10 August 2011.

In conjunction with the meetings and workshops, Steven Ross prepared a project brief and visioning paper, which was circulated twice to Yarkuwa board members and to the Murray Catchment Management Authority. Yarkuwa board members' contributions to the paper included information on cultural aspects of the rivers and forests.

Finally, we declare the interests of the authors in this project. Steven Ross, Jeanette Crew and David Crew have significant familial ties to Yarkuwa and the case study area. Steven identifies as Wamba Wamba, Jeanette identifies as Mutthi Mutthi. Steven, Jeanette and David are immediate family. Steven was employed by Yarkuwa to assist with this report. David is the manager of the centre and Jeanette the chair.

Note on spelling and terminology

There are many different spellings for the two traditional owner groups whose country encompasses the Edward/Kolety and Wakool rivers, including Wamba Wamba or Wemba Wemba, and Perrepa Perrepa or Barapa Barapa. In this report we have chosen to use Wamba Wamba and Perrepa Perrepa; however, the other spellings are just as commonly used.

When using the name Werai Reserve we also mean those forests situated on the floodplain of the Edward/Kolety and Niemur rivers between Yadabal lagoon and Morago and including the Barratta Creek Forest, the Banangalite Forest, Werai Forest, Morago Forest and Stevens Weir Forest as defined by the NSW Natural Resources Commission (2009). During the past 150 years this area has been referred to as individual state forests, the Werai Group of Forests and the Werai Forest Group. In this report this area is referred to as the Werai Reserve or Werai.

Introduction

Indigenous people in south-east Australia have developed strategies and theories around the allocation of cultural water and the broader notion of 'cultural flows' in response to two key triggers: the poor environmental health of the inland river country and the historic and contemporary failure of the Australian state and common law to recognise the property rights and political status of Australia's first nations. In the Murray–Darling Basin, the very recent marked decline in river health and long history of agricultural settlement and colonisation are felt acutely by the traditional owners, whose ancestral homes are now inseparable from the new communities based on the agricultural and irrigation industries. In this paper we consider the experiences of the Wamba Wamba and Perrepa Perrepa people and the work of one of their key organisations, Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation. The discussion does not encompass the whole of Wamba Wamba country but focuses on the Edward/Kolety[1] and Wakool rivers and the town of Deniliquin, where Yarkuwa is based. The issues of water scarcity, drought and increased temperatures with climate change provide the context for this research, although the project started during a series of wet years, which immediately followed the long drought that dominated the start of the 21st century.

Water management has had a profound impact on this country, and Yarkuwa is keen to facilitate discussion and research on the full and meaningful participation of traditional owners in decisions about water management. The Yarkuwa board and membership argue strongly for the inclusion of cultural flows in the Edward/Kolety – Wakool river system, and this paper explores the meaning and potential of this. No cultural water allocation has been secured for the Edward/Kolety and Wakool rivers; however, this research has been supported by Yarkuwa as part of building capacity among both Indigenous and non-Indigenous people for cultural water governance in the Edward/Kolety – Wakool.

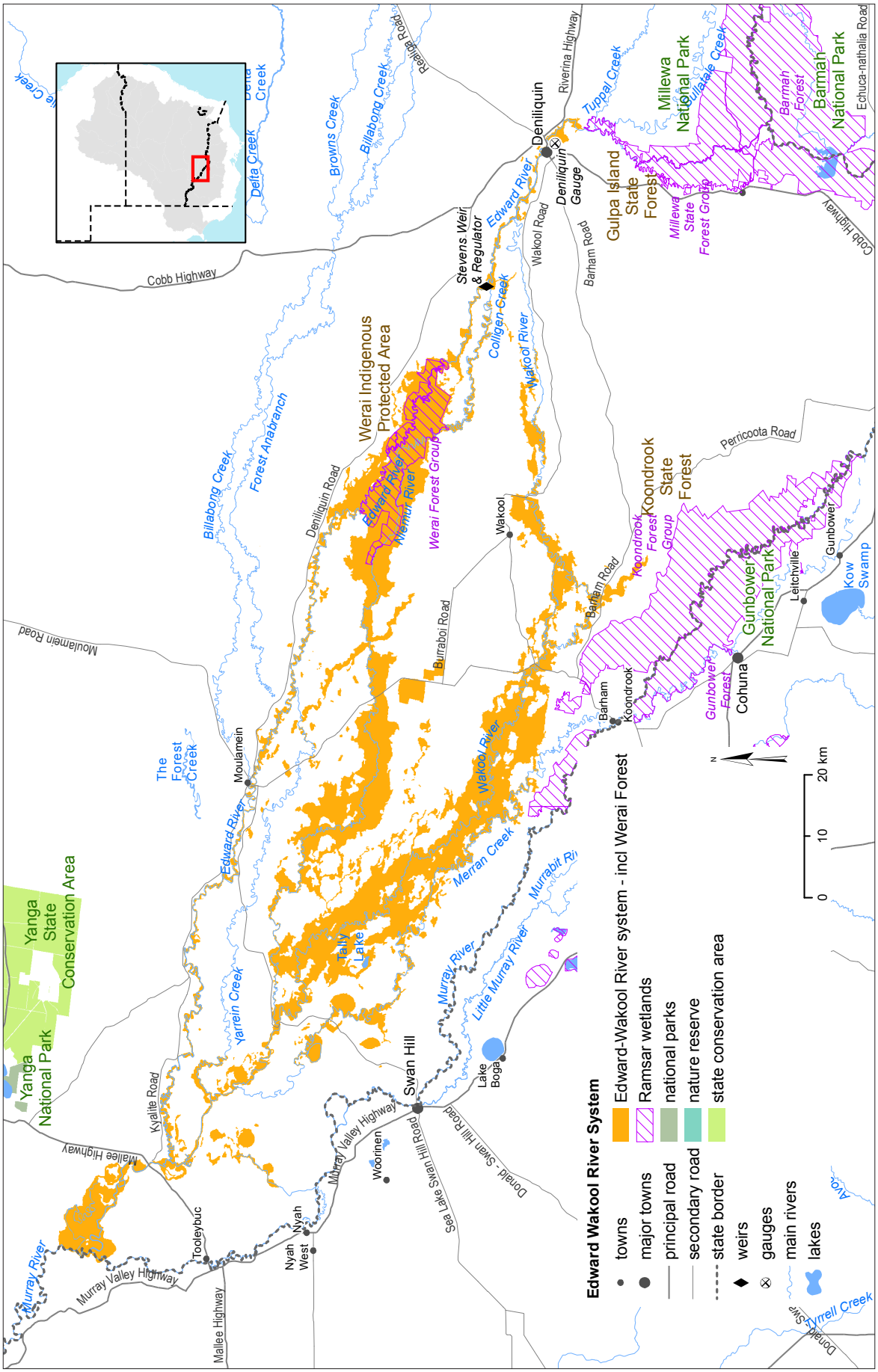
The Edward/Kolety and Wakool rivers, forests and floodplains

> These forests were our economic base for thousands of years and now provide no economic return for my people while at the same time making many non-Aboriginal people wealthy. My people's spiritual and religious connection to county are directly linked to, and cannot be separated from, the environment.
>
> Jeanette Crew, Mutthi Mutthi elder and co-author of this report (Yarkuwa 2009, p. 5)

The Edward/Kolety and Wakool rivers form an anabranch and floodplain of the Murray River, north of the Murray in southern New South Wales. Most of this area is Wamba Wamba and Perrepa Perrepa country, with Perrepa Perrepa country to the north-east and Wamba Wamba to the south-west. Their country is directly downstream from Yorta Yorta country, where the Edward/Kolety River starts. Wamba Wamba and Perrepa Perrepa have the same language, and their name for the Edward River is the Kolety (pronounced Kol-etch). Kolety is now gazetted as a dual name for the Edward River (NSW Government Gazette 2006). Wakool (pronounced War-kool) is the Wamba Wamba and Perrepa Perrepa name, and their name for the Murray is Mile (pronounced Milly). Traditional knowledge contains a creation story relating to the formation of the Edward/Kolety and Murray system by the creation snake, who was cut into pieces by the crow that was disturbed at Kyalite, where the Edward/Kolety and Wakool rivers meet (Massola 1968).

[1] This is a gazetted dual name for the Edward River (NSW Government Gazette 2006).

Map 1: Map of the Edward/Kolety and Wakool river networks



Source: Hale & SKM 2011, p. 5. Map published courtesy of the Murray–Darling Basin Authority. Please note that this map identifies the Werai Indigenous Protected Area; however, negotiations about this transfer are still underway and it has not yet been declared.

The Edward/Kolety and Wakool river network encompasses 1000 square kilometres of interconnecting rivers, creeks and wetlands (Hale & SKM 2011, p. 3; see Figure 1). Forests became established here as a result of changes to the Murray River's path 25,000 years ago, when rivers and creeks, floodplains and wetlands were formed, providing the right conditions for river red gum forests to thrive (NRC 2009, p. 21). Under state forestry legislation, these river red gum and box forests have become known as the Werai Group of Forests (or the Werai State Forest Block) and include the Werai, Morago, Banangalite and Barratta Creek state forests. The largest forest of this group is the Werai, which is connected to the Edward/Kolety River by Colligen Creek. Together, the Werai State Forest Block comprises around 11,915 hectares. To the near south is the Koondrook–Perricoota Forest and wetlands, which receive water flows from the Murray and not the Edward/Kolety and Wakool rivers. But, if the flood is big enough, water from the Murray and Koondrook–Perricoota will flow into the Wakool, which then flows into the Edward/Kolety.

Country

For more than 10,000 years the forests and plains of this country have been occupied by Indigenous people. This country has supported cultural activities, provided a stable and secure food source, and been a site of other resource use and exploitation. Sandhills provided a place of retreat from floods and a location for burials (Yarkuwa 2008). Records suggest that prior to European occupation 3000 people lived in the Werai Group of Forests alone (Yarkuwa 2009, p. 5). This is evident from the more than 100 oven mounds, 100 scarred trees and six traditional cemetery sites found in the Werai Group (Yarkuwa 2009, pp. 5, 7–8). Over the course of the last 150 years the Werai forests have been grazed and logged but continue to be valued by many traditional owners as *home* (original emphasis, Yarkuwa 2009, p. 3). In the 1920s, the Werai forests were formally vested as state forests and managed as commercial logging operations.

From the early 1800s to the mission era, the forests sheltered thousands of Indigenous people from the inexorable force of colonisation. In the late 1800s, some 80 Aboriginal people were forcibly removed from the Werai forests onto missions and reserves in the surrounding area, in particular to Moonahcullah mission. Moonahcullah is the closest Aboriginal reserve to Werai and adjoins the forest at the south-western end. Title to this land was transferred to the Deniliquin Local Aboriginal Land Council in 1983. The contemporary Aboriginal community in Deniliquin are largely the descendants of those 80 people. The traditional owners speak about their family connections to the Werai Reserve Forest as an important reason for ongoing visits to this country (participant contribution, Yarkuwa–CSIRO workshop, 8 September 2011).

The Werai Reserve is surrounded by strikingly flat plains, which are now dominated by freehold land tenures and include three local government areas: Conargo Shire Council, Murray Shire Council and Wakool Shire Council (Hale & SKM 2011, p. 4). Sheep have been an important dryland farming industry in this area. With the construction of the Mulwala Canal in the 1930s, irrigation districts were established, and irrigated rice became a very important industry (DWR 1994, pp. 8–10). Members of the Wamba Wamba and Perrepa Perrepa community have found employment in this activity, including work at the Deniliquin rice mill, and were celebrated for being 'big-gun' shearers (Hercus 1992, p. 15).

The Wamba Wamba and Perrepa Perrepa values of the Werai Forest were reported on in a submission Yarkuwa made to the investigation by the NSW Natural Resources Commission into forest values (Yarkuwa 2009). This submission included cultural locations such as:

- burials
- oven mounds
- scarred trees
- story sites
- stone artefacts.

The Yarkuwa submission listed exploited resources as:

- red gum trees—multiple use
- grasses and herbs—river mint, old man weed, flax lily et cetera
- sedges—baskets
- cumbungi—string and food resource
- rookeries—food and habit resource (Yarkuwa 2009, pp. 4–5).

Throughout the course of this research, the traditional owners repeatedly emphasised how important these forests were and continue to be for their health. The forests not only provide health benefits but also are important for cultural economy and industry, and for religious and spiritual connection. Cultural economy is a term the traditional owners use to highlight the economic values of country, to emphasise the relationship between their culture and economy, and to situate these values within contemporary Indigenous traditions (Weir 2009, pp. 129–34).

In 2009–10 the local traditional owners of Werai Forest were involved in a use and occupancy mapping project conducted by the Murray–Darling Basin Authority in conjunction with the allied Murray Lower Darling Rivers Indigenous Nations, Yarkuwa and the Deniliquin Local Aboriginal Land Council. The mapping technique used has been developed and utilised by First Nations peoples in Canada for almost 30 years and more recently is being developed in Australia (Tobias 2009; Ward 2009). The methodology relies on information obtained in interviews about diverse activities on country. This information forms the basis of GIS mapping of sites that correspond to the respondents' direct connection to country, use of resources and occupation of land. Almost 80 Wamba Wamba and Perrepa Perrepa traditional owners were interviewed, mapping on average approximately 120 sites each, with a total of over 12,000 sites identified for the Werai Forest.

On 1 July 2010 the Werai Reserve became vested with the New South Wales Minister for Environment and Climate Change for transfer to Aboriginal ownership (Schedule 6, *National Park Estate (Riverina Red Gum Reservations) Act 2010* (NSW)). This is part of a process of having Werai considered for declaration as an Indigenous Protected Area (IPA). An IPA for Werai is supported by the Natural Resources Commission (2009). It is also a product of intense lobbying and advocacy by local traditional owners, particularly Yarkuwa (see also NSW NPA 2008). In 2009 Yarkuwa received funding from the Indigenous Protected Area program to undertake an IPA consultation project, supported by Forests NSW (now Forestry Corporation of NSW), to investigate joint-management options for Werai (Yarkuwa 2009, p. 4). Since 2010, Yarkuwa has maintained a supporting process to enable the transfer to take place. The IPA consultation process may result in a full hand-back of Werai Forest by 2013. The Werai Aboriginal Negotiating Team (WANT) was established in 2011 to oversee the transfer of the land to an Aboriginal title-holding body and explore the potential to declare the area as an IPA.

Ecology

The Werai forests are recognised as regionally, nationally and internationally significant forests and wetlands. They are part of the largest complex of tree-dominated wetlands in southern Australia, supporting threatened species and providing an important habitat for birds and fish at crucial times, such as during migration and breeding, or as drought refuge (OEH 2012). However, this role is threatened by environmental change, as clearly evidenced by the poor condition of the forest trees. In conjunction with non-government environmental organisations, the traditional owners have helped document ecological values as part of a larger lobbying effort to transfer Murray River State Forests to conservation land tenures.

On the floodplains of the Murray and its anabranches (the Murray Fans region), the Werai Reserve is the third-largest remnant of the original vegetation. In 2003 the Werai block, as part of the NSW Central Murray State Forests site (which includes Millewa and Koondrook–Perricoota), was designated a Ramsar wetland of international importance. The forests of the Werai block are also recognised as wetlands of national importance on the Directory of Important Wetlands in Australia. The Werai is identified as an Indicative Key Area for the health of the adjacent forests and river system, and thus has a key role in monitoring conservation values (Todd & McDonnell 2003, p. 17, cited in Yarkuwa & the Murray Country Project with Osler, McGregor & the NSW NPA 2009). The Edward/Kolety – Wakool was also recognised as a wildlife corridor of national importance in the draft National Wildlife Corridors Plan, although the final plan does not specify any areas (NWCPAG 2012a, pp. 67–68; NWCPAG 2012b).

The forested wetlands and ephemeral creeks of the Edward/Kolety – Wakool support a high proportion of native fish and play an important role in providing a bioregional context for aquatic species recruitment (Hale & SKM 2011, p. 8). Permanent pools provide important drought refuges for the

threatened species Murray cod, trout cod, eel tailed catfish and silver perch (Hale & SKM 2011, p. 8). Lagoons, floodplain marshes and the river red gum forests together support habitat for waterbirds to breed, and significant breeding events have been observed (Hale & SKM 2011, p. 9).

Forests NSW, the former managers of the Werai Reserve and the North Deniliquin State Forest, documented the condition of the forests, albeit from the perspective of forestry management and thus focusing on timber types and their productivity (Yarkuwa & the Murray Country Project with Osler, McGregor & the NSW NPA 2009, p. 26).[2] From this information, it appears river red gums of low productivity are by far the dominant vegetation, covering 70 per cent of the study area (Yarkuwa & the Murray Country Project with Osler, McGregor & the NSW NPA 2009, p. 27). High-productivity red gum forests were found in only seven per cent of the study area, mainly along the Edward/Kolety River and Colligen Creek (Yarkuwa & the Murray Country Project with Osler, McGregor & the NSW NPA 2009, p. 26). Other vegetation types identified were box trees, a mix of red gum and box, and open plain or swamp areas. The data clearly reveals the lack of value of these forests for timber production. Moonahcullah, which has areas of black box and red gum forest and is owned by the Deniliquin Local Aboriginal Land Council, was not included in the Forests NSW study area.

Table 1: Forest NSW study of the extent of vegetation types (in hectares) in the Werai Group of Forests and the North Deniliquin State Forest study area

Forest type	Deniliquin	Werai	Barratta Ck	Banangalite	Morago	Stevens Weir	Total	Percentage
Red gum SQ1—high productivity	31	611	90	149	50	3	934	7
Red gum SQ2—low productivity	109	3,923	73	726	584	109	5,524	44
Red gum SQ3—low productivity	11	2,480	42	403	341	17	3,294	26
Red gum/box	194	218	0	0	53	25	490	4
Box	57	805	0	0	41	0	903	7
Open plain or swamp	4	1,108	10	19	25	10	1,176	9
Water body	3	159	24	4	12	0	202	2
Untyped, unproductive or unknown	13	0	0	0	21	0	34	0
Total	422	9,304	239	1,301	1,127	164	12,557	100

Source: Yarkuwa & the Murray Country Project with Osler, McGregor & the NSW NPA 2009, Appendix 1, p. 27

The Forests NSW data also records 96 species of native fauna: 77 bird species, two reptiles, one amphibian, four mammals and 12 bat species. Of these, there are five threatened species: diamond firetail, grey-crowned babbler, speckled warbler, brush-tailed phascogale and turquoise parrot. Within a 10-kilometre radius of the study area there are an additional 10 threatened species. These are:

- Australasian bittern
- square-tailed kite
- brolga
- painted snipe
- Major Mitchell's cockatoo
- superb parrot
- barking owl
- painted honeyeater
- regent honeyeater
- hooded robin

[2] The National Parks Association of NSW obtained this data under licence from Forests NSW, the Department of Environment and Climate Change and Birds Australia for the Murray region.

To gauge these figures, Yarkuwa teamed up with the community organisation the National Parks Association of NSW and others to undertake local wildlife surveys (Yarkuwa & the Murray Country Project with Osler, McGregor & the NSW NPA 2009). The surveys were conducted from 11 to 14 November 2008 at eight locations—six in the Werai State Forest and two in the Deniliquin State Forest (for methodology see Yarkuwa & the Murray Country Project with Osler, McGregor & the NSW NPA 2009, p. 10). The survey work identified 80 species, which mostly were common woodland and forest birds for river red gum forests. Of these 80 species, 25 had not previously been recorded, making a total of 121 native fauna species in the study sites. The new species identified included five frog species, four reptile species, 15 bird species and one bat species. Of these, there were several important recordings, such as the inland forest bat and the diamond firetail, which are listed as vulnerable in Schedule 2 of the *Threatened Species Conservation Act 1995* (NSW). The crested shrike-tit, white-browed woodswallow and varied sittella were also new recordings and are either rare or declining species of regional significance (Webster 2005 cited in Yarkuwa & the Murray Country Project with Osler, McGregor & the NSW NPA 2009, p. 19). Environmental lobbyists and Yarkuwa drew on this information to support their lobbying efforts to have the forests re-classified as conservation lands.

Forests, water, culture

Regulation of variable flooding regimes has been central to the declining health of the Werai forests and the culture that lies within them. The main altered flow regimes affecting the Edward/Kolety – Wakool are:

- a reduction in the frequency of low and no flow events
- the rapid rise and fall of water in channels
- a reduction in the duration of moderate floods
- changed seasonality of flows and a loss of flood pulses important for breeding cues
- barriers to fish passage (Hale & SKM 2011, p. 9).

Water flow in the Edward/Kolety River is kept at high levels for most of the year, at or near the capacity of the river banks, so as to meet orders for downstream irrigation water allocations. Areas that used to be flooded almost yearly now only receive infrequent water flows. Wamba Wamba man Leo Briggs Junior has noticed the changes:

> You can tell where water used to be, and the river could be full, but there's still no water there. And then you'll have a look and there will be a levy bank somewhere (interview with J Weir, 7 September 2011).

River regulation is part of broader land use changes in the region, including the allocation of water for irrigation, land clearing, salinity, invasive species, mining, and habitat degradation from logging, grazing and other activities (Yarkuwa & the Murray Country Project with Osler, McGregor & the NSW NPA 2009, p. 14). With climate change, it is anticipated that there will be less rainfall and higher evaporation, compounding the impact of current land use change on local ecologies and the cultures they support. Indeed, such future climate change scenarios have already been experienced. In the first decade of the 21st century there were record lows in documented rainfall in what became known as the 'millennium drought'. For the traditional owners, land use change and drought have combined to diminish their relationships with the forests and freshwater ecologies, including their cultural economy and access to country.

Broad based public concern about the failing health of river red gum forests led the New South Wales Government to fund an investigation into river red gums and woodland forests in the Riverina Bioregion (NRC 2009). The Natural Resource Commission, which undertook this task, found that the vast majority of the Werai Forest trees were unhealthy (NRC 2009, Table 4.3, p. 78). It quotes a 2005 assessment of the Central Murray State Forests that recorded only 11 per cent of trees as healthy, 27 per cent as stressed and 35 per cent as highly stressed (NRC 2009, p. 76). Within this, the river red gums were

worse off than the black box forests, as the latter have more drought resilience. The report recognised the declining commercial values of these forests as a timber source and highlighted the many other values held in the forests, including Indigenous values.

In 2010 the New South Wales Government passed the *National Park Estate (Riverina Red Gum Reservations) Act 2010* (NSW) to transfer state forest lands to the national park estate. In July 2010 the Millewa Forest was declared a national park and conservation area; it was renamed as the Murray Valley National Park and Murray Valley State Conservation Area. Deniliquin State Forest become a regional park; however, Koondrook–Perricoota remains a state forest. The Werai Reserve became vested with the Minister for Environment and Climate Change, for transfer to an Aboriginal landholding body (s. 10). This was an outcome of negotiations held between Yarkuwa, Forests NSW and the Commonwealth Government's Indigenous Protected Area program (NRC 2009, p. 143; Yarkuwa 2009, p. 4). This transference began the process for an IPA for Werai.

Alongside this growing awareness of the imperative for management change there have been explorations into how to deliver water to the Werai for environmental purposes. In 2001 an environmental water allocation of 3261 ML was released into the eastern part of the Werai Reserve by the NSW Murray Wetlands Working Group, flooding approximately 130 hectares of wetland. This was a trial watering event to better understand how much water is needed before riverbanks are breached and water floods into the forest (NSW MWWG 2001; Bark et al. 2012). This is known as 'commence to flow' requirements.

The millennium drought put water plans and their planned water uses—environmental, cultural and consumptive—on hold. Water plans are made for each catchment in New South Wales and establish the rules of water use and allocation between people with different water licences, as well as water allocations to support the environment. In November 2006, the severity of the drought resulted in the suspension of the water-sharing plan for the NSW Murray and Lower Darling Regulated Rivers, which includes the Edward/Kolety – Wakool. Contingency water-sharing measures were put in place to ensure water supply for towns and communities, and regulated water flows to specific wetlands were cut off (MDBC 2007a). At the end of May 2007, the regulated flow to the Edward/Kolety – Wakool system was cut off, and the Wakool River and Merran Creek systems dried into a series of pools (MDBC 2007b, p. 5). General security water licence holders had their water allocation reduced to zero. Business and agriculture in Deniliquin suffered, and in 2008 the Deniliquin rice mill, the largest rice mill in the southern hemisphere, closed (Mitsch 2011, p. 2).

In the spring and summer of 2009–10, heavy local and upstream rains led to the recommencement of the water-sharing plan for the 2011–12 irrigation season. This has been followed by an upturn in the economy, with a return to full water allocations and the reopening of the Deniliquin rice mill. The rains also provided opportunities for environmental watering events in the Werai Reserve. In November 2009 and January 2010, the Tumudgery Cutting regulator was opened and the flooding event extended over approximately 346 hectares. The effect of the floods on the health of the Werai was evident in the responses by plants and animals, which included:

- growth and flowering of numerous wetland plants, including common reed, lignum, spike-rush species, spiny mudgrass and wavy marshwort
- improved health of river red gums
- foraging within environmental water by various fish
- laying of egg masses by frog species, and tadpole foraging
- foraging within environmental water by the eastern long-necked turtle
- foraging and breeding of numerous waterbirds, including the grey teal, the little pied cormorant and the white-bellied sea-eagle (Webster 2010, p. iii).

With more rainfall in the summer of 2010–11, the water ran over the top of the Tumudgery Cutting and Stevens Weir. There have been blackwater events related to these flows (Hale & SKM 2011, p. 9; MCMA 2012). Blackwater is when leaf litter is broken down rapidly, discolouring the water and reducing its dissolved oxygen content, which results in the death of fish and other aquatic life that depend on certain oxygen levels. Blackwater has always been a part of the variable flow of the river, but blackwater occurrences are also a result of the increased build-up of leaf litter on the forest floor as a result of reduced flooding.

A number of recommendations for the future management of environmental flows have resulted from the environmental watering of Werai. However, Indigenous peoples were not involved in the decision making about this environmental flow. This is primarily due to environmental flows being about environmental outcomes and not cultural outcomes, as reflected in their discussion, decision making, monitoring and assessment. The exclusion of traditional owners produced the following limitations:

- Sites of significance that were not considered by previous flows were again not considered.
- Cultural outcomes were not gauged — a missed opportunity.
- Access to cultural economic places was not gauged — again, a missed opportunity.
- The capacity of Indigenous peoples to engage in this and future processes was nil.
- Increased damage to cultural sites was not recorded.
- The flooding restricted access into the forest for everybody, including traditional owners.

Cultural flows

'Cultural flows' is a term Indigenous people in Australia have developed, along with Indigenous water allocations and others, in lobbying for greater recognition of their rights, relationships and responsibilities to their lands and waters (see, for example, Behrendt & Thompson 2003; O'Donnell 2011; Morgan, Strelein & Weir 2004; Ross 2009; NAILSMA 2009; Weir 2009). It is a complex term because of the interplay of Indigenous and non-Indigenous knowledge traditions, including different understandings of water and framings of Indigenous culture. Cultural flows challenge water management that narrowly understands water as a resource for human allocation and consumption (Weir 2009, p. 118). They are about country, the health of country and the culture embedded in country. There is no cultural flow from a dead river.

Cultural flows do not neatly fit within current regulatory frameworks, in part because of their holistic articulation of environmental, economic and cultural values (Weir 2009, p. 118). Because of this, Indigenous people and others have developed other terminology, including 'Indigenous water allocations' (Weir 2009, p. 204). Strategies are developing around a suite of approaches — environmental water, consumptive water, domestic water, native title water, cultural water, as well as participatory decision-making processes and others — that could be used in combination to meet some of the broader cultural flows agenda (Tran forthcoming; FPWEC 2012, p. 7). There is at times no clear distinction between the cultural flows agenda and the Indigenous water rights agenda; they have been deliberately matched with each other and they have also been inaccurately confused. The terms are constantly used by different people with different meanings for different purposes.

Developing an agenda

Nationally, there have been two significant areas of activity in lobbying for cultural flows and Indigenous water rights, with two very different water contexts: the over-allocated rivers of the Murray–Darling Basin, where there are two regional Indigenous water alliances (the Murray Lower Darling Rivers Indigenous Nations (MLDRIN) and the Northern Murray–Darling Basin Aboriginal Nations (NBAN)); and, the unallocated or under-allocated rivers of Northern Australia, where an alliance of Indigenous

groups, organisations and communities has formed under the name North Australian Indigenous Land and Sea Management Alliance (NAILSMA). Another significant group has been the First Peoples' Water Engagement Council, which has provided advice to the National Water Commission.

MLDRIN is an alliance of 10 nation groups from part of the southern Murray–Darling Basin, with two delegates from each nation attending meetings (Weir & Ross 2007). Wamba Wamba and Perrepa Perrepa are members of MLDRIN and participate through their nation delegates. In November 2007, MLDRIN delegates met in Echuca, Victoria to discuss the meaning, impacts and benefits of cultural flows.[3] At the Echuca meeting, MLDRIN delegates endorsed the following definition of cultural flows:

> 'Cultural Flows' are water entitlements that are legally and beneficially owned by the Indigenous Nations of a sufficient and adequate quantity and quality to improve the spiritual, cultural, environmental, social and economic conditions of those Indigenous Nations (MLDRIN 2007).

This definition combines the cultural flows agenda with the Indigenous water rights agenda, seeking the expression of cultural flows as a realisable entitlement that is then allocated every year as a quantifiable amount of water. This definition was subsequently endorsed by traditional owners from MLDRIN's member nations at meetings held throughout 2008. A variation of this definition was adopted by NAILSMA (2009).

As the MLDRIN definition states, a key part of the developing agenda on cultural flows has been the relationship between culture, contemporary Indigenous traditions, environmental values, economic livelihoods and other values that are sustained by freshwater ecologies. However, when Indigenous people use the word 'culture' to argue for their rights and interests they run the risk of narrow, non-Indigenous interpretations of 'culture' as limited to pre-colonial traditions, which are then also framed as uneconomic (Weir 2009, pp. 123–5). Using culture to express deeply meaningful Indigenous values can be a double-edged sword in that those values may then be narrowly recognised as a certain type of Indigenous culture—one that is set in the past and can never grow (Kalland 2003, p. 170; Tsing 2005, p. 9).

More recently, the First Peoples' Water Engagement Council has adopted the terminology 'Aboriginal water', in part because of limitations with the cultural flows terminology (FPWEC 2012, p. 12, although see Collins 2011). In its advice to the National Water Commission, the council has identified a combination of policy measures as necessary for meeting Aboriginal water requirements. These include partnerships to maximise outcomes from environmental water, research, coordination of water planning and management with Indigenous values, and monitoring and evaluation. Aboriginal water includes 'supplemental cultural flows where environmental water regimes are insufficient to meet all identified cultural values' (FPWEC 2012, p. 7). Aboriginal people are to have ownership and autonomy over these cultural flows, with no financial costs for allocation, storage, management or delivery (FPWEC 2012). Consumptive water allocations are argued for as a separate matter to Aboriginal water (FPWEC 2012, pp. 7–8). This approach reflects a diversifying engagement between Indigenous peoples and governments in the complex work of water governance.

Indigenous water policy, Indigenous water rights

The recognition of Indigenous values in water policies and the lobbying for cultural flows have resulted in a few opportunities for Indigenous people to return water to country, such as the cultural licence in the Murrumbidgee (ATSISJC 2008, p. 189; Jackson et al. 2010, pp. 85–106). However, MLDRIN and others argue that, more than an allocation in a water plan, Indigenous property rights to water must also be recognised.

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[3] Report co-author Steven Ross attended this meeting as the MLDRIN coordinator.

In 2004 Indigenous peoples' water issues were partially recognised in the National Water Initiative:

> 52. The Parties will provide for indigenous access to water resources, in accordance with relevant Commonwealth, State and Territory legislation, through planning processes that ensure:
>
> i) inclusion of indigenous representation in water planning wherever possible; and
>
> ii) *water plans* will incorporate indigenous social, spiritual and customary objectives and strategies for achieving these objectives wherever they can be developed.
>
> 53. Water planning processes will take account of the possible existence of native title rights to water in the catchment or aquifer area. The Parties note that plans may need to allocate water to native title holders following the recognition of native title rights in water under the Commonwealth *Native Title Act 1993*.
>
> 54. Water allocated to native title holders for traditional cultural purposes will be accounted for (COAG 2004).

The NWI is a guiding document for state and territory governments and has provided impetus for Indigenous groups and catchment management authorities to meet and reform water planning to include Indigenous representation and Indigenous water issues, including cultural flows. However, the NWI's applicability to cultural flows has two key limitations: it does not include economic values and thus fails to redress economic rights; and provisions 52 and 53 are contingent upon the recognition of native title. Some Indigenous people have chosen not to make a native title application because of limitations with the native title system. Other Indigenous people may be recognised as traditional owners of country in the community; however, they are unable to successfully meet the legal requirements of native title recognition. Further, it is by no means clear that native title rights 'to water' extend beyond the personal and domestic.

State and territory government progress in implementing the National Water Initiative is reported on in biennial assessments by the National Water Commission. These assessments report that Indigenous cultural values and economic development are not considered by many water plans and that it is often assumed that environmental water will take care of Indigenous values (NWC 2011, p. 12; NWC 2009, p. 121).

In New South Wales there is a regime set up under the *Water Management Act 2000* (NSW), which includes Aboriginal cultural access licences as a category of licences within water-sharing plans. The rules and conditions for the Aboriginal cultural access licences essentially exclude economic purposes and include water used for drinking, food preparation, washing, manufacturing traditional artefacts, watering domestic gardens, cultural teaching, hunting, fishing, gathering and for recreational, cultural and ceremonial purposes. There is a separate scheme for commercial water licences for Indigenous businesses. The first cultural access licence in New South Wales was granted to the Nari Nari Tribal Council in 2004, although problems with the scheme have limited its potential (Jackson et al. 2010, pp. 85–106; ATSISJC 2008, p. 189).

Godden and Gunther argue that the inclusion of Indigenous values in policy and statutory frameworks is not enough to ensure meaningful Indigenous involvement in water management, and that substantive legal recognition is needed (2010, p. 252). For example, they view the scope for the protection of Indigenous cultural heritage under the National Water Initiative and the *Water Act 2007* (Cth) as likely to be limited to environmentally based exemptions such as limiting impacts on ecosystems (2010, p. 248). Substantive legal recognition is also the intention of the Echuca Declaration, which identifies that cultural flows are to be 'legally and beneficially owned' by Indigenous people. Altman argues that the water reform process is an opportunity to recognise Indigenous peoples' property rights in water and provide an economic resource so that Indigenous communities can establish themselves as viable economic entities (Altman 2004, p.29). The *Mabo* native title decision only partially redresses the historical failure to recognise Indigenous peoples' property rights, and arguably other legal and policy initiatives influenced by principles of non-discrimination and equity before the law are needed.[4]

[4] A social justice package was part of the federal government response to native title but it was never delivered (Brennan et al. 2005, p. 105). An Indigenous Land Fund was established to purchase land where native title is difficult or impossible to recognise.

Internationally, there are a number of instruments that convey a right to water by Indigenous peoples, a significant one being the Declaration on the Rights of Indigenous Peoples. This sets a benchmark for states in providing adequate rights for and protection of Indigenous peoples. Water is emerging as a crucial element within the broader context of human rights because water is central to life, self-sufficiency and ecosystem health. Rights enshrined in international agreements can influence the recognition of rights in relation to natural resource management within Australia and provide a consistent approach as well as minimum standards for reporting on rights implementation.

As part of lobbying for cultural flows, Yarkuwa Indigenous Knowledge Centre is actively engaged with international rights forums. In May 2011 Steven Ross attended the United Nations Permanent Forum on Indigenous Issues, where he drafted and delivered the Water Intervention (Appendix 1). A number of recommendations from the intervention were endorsed by the forum and included in the final report. These include:

- the recognition of cultural flows by all states in their legislation and policy
- the right to exploit water resources for cultural and commercial purposes
- the right to full and meaningful participation in water management processes.

Cultural flows and environmental flows

The relationship between cultural flows and environmental flows traverses intercultural contexts, carrying different and similar values and decision-making priorities for water. Environmental flows are focused on supporting ecological life and use ecological criteria such as fish and bird breeding events to determine their success (Hale & SKM 2011). The management of environmental flows is also positioned in water debates as an exercise in improving river health for agricultural production. They are part of ensuring the rivers are healthy enough to deliver water for irrigation (for example, MDBA 2011, p. vii). There is much here in synergy with cultural flows, but there are substantial and critical differences that prevail and demand attention. (For a brief history, Appendix 2 charts the policy dialogue and implementation of environmental flows and cultural flows in the Murray–Darling Basin from the 1970s onwards.)

There is often a conflation of Indigenous peoples' water interests and environmental conservation interests, with some water management plans incorporating Indigenous cultural water within environmental flows (National Water Commission 2009, p. 121; Duff, Delfau & Durette 2010, p. 2; Godden & Gunther 2010, p. 248; Behrendt & Thompson 2004, p. 103). The assumption that Indigenous interests are taken care of if environmental interests are addressed has both positive and negative effects for Indigenous people. It acknowledges the important relationships Indigenous people hold with their country; however, it reduces these relationships to narrow environmental frames and denies Indigenous peoples' agency in water management (for example, Braun 2002).

If Indigenous peoples' values are to be accounted for within environmental objectives such as environmental flows, there is a risk that this water governance can be undertaken without an active role for Indigenous people and their values — that is, the decisions about this water can be made according to ecological priorities. The consequences of such exclusion are particularly important in the over-allocated and degraded Murray–Darling Basin, where environmental water allocations are going to be small, with limited range. As Wahlquist notes, the amounts are only enough to improve river condition from severely degraded to poor (2011, p. 123). There will be winners and losers in who gets to continue to practice and pass on their cultures (Weir 2009, p. 108). MLDRIN has repeatedly raised concerns about this problem. One example they cite is the Murray–Darling Basin Authority's 'The Living Murray' program, which prioritises six 'icon sites': Barmah–Millewa Forest; Gunbower–Koondrook–Perricoota Forest; Hattah Lakes; Chowilla Floodplain and Lindsay–Wallpolla Islands (including Mulcra); the Lower Lakes, Coorong and Murray Mouth; and the River Murray Channel (MDBC 2005). For the Indigenous nations in MLDRIN it is hit-or-miss as to whether they have an icon site in their country. For Wamba Wamba and Perrepa Perrepa, their country includes Gunbower–Koondrook–Perricoota, but the Werai Reserve is left out.

This tough negotiation space is made tougher for Indigenous people by the positioning of economic and ecological objectives as competing goals (Weir 2009, pp. 24–25, 129–134). The Commonwealth buyback of consumptive water allocations to create environmental water allocations is seen by Murray–Darling communities as a threat to individual and community livelihoods (Alston & Whittenbury 2011). The most politically palatable route for Indigenous people to take in this context is to pursue cultural water that matches environmental outcomes rather than raising economic livelihood issues. What is lost in the mix is the cultural flows logic that situates healthy river ecologies as the precursor to sustainable river economies.

Based on their experience from Northern Australia, where rivers are largely in good health, Jackson and Morrison emphasise that sustaining healthy ecologies can meet many important Indigenous water values while also doing away with the fraught task of articulating and quantifying a separate cultural flow (2007, p. 31). They qualify this with the condition that Indigenous management receives the support of government agencies. Jackson and Morrison point out that many Indigenous water uses are non-extractive and do not require a specific allocation of water, that in diminished ecosystems a separate allocation of water is unlikely to make much improvement, and that there may not be sufficient Indigenous interest in abstractly separating water uses and quantifying a cultural water allocation (2007, p. 31). They also argue for greater participation and involvement of Indigenous people, including their aspirations and the role of their institutions, in water management itself (Jackson & Morrison 2007, p. 33).

Indigenous people often identify Indigenous governance as a key distinction between environmental and cultural water. With cultural flows, it is the Indigenous peoples themselves who decide where and when water should be delivered, based on their priorities and goals. This direct governance role ensures that Indigenous peoples are empowered to fulfil responsibilities to care for country (Ross 2009, p. 23). It also reduces the cost of translating their values (see *Translating cultural flows*, this report). With the Commonwealth buyback of consumptive water licences to create environmental water allocations, the potential for Indigenous governance of environmental flows is growing.

It is pertinent that the language of cultural flows developed out of Indigenous peoples' responses to water management in the Murray–Darling Basin, where they have had to develop and test arguments to communicate values that were previously supported by a healthy, flowing river. This includes arguing for the very presence of water itself. The loss of plants, animals and entire landscapes is expressed by the traditional owners as a contemporary experience of dispossession from their culture (Mary Pappin cited in Weir 2009, p. 59; Lee Joachim cited in Weir 2009, p. 61; Henry Atkinson cited in Weir 2009, p. 60; Matthew Rigney cited in Weir 2009, p. 60; see also Hattam, Rigney & Hemming 2007 and Willis, Pearce & Jenkin 2004). They express how culture and water are embedded in each other. Their arguments for holistic cultural flows follow on from this experience, reconnecting water that has become isolated as a discrete resource with the places and histories that it sustains. A discrete cultural water allocation is not enough to restore the river country; thus the larger message of the cultural flow is for all institutions to have greater respect for country. This is also stated clearly in the preamble to the Echuca Declaration, which criticises the federal and state governments for failing to care properly for country.

Cultural water in the Edward/Kolety – Wakool

The current challenge is to take the broad objectives and principles of Indigenous peoples' rights and interests—such as in the cultural flows definition and the clauses and objectives of the National Water Initiative and the Water Act—and translate them into local water allocation plans (O'Donnell 2011, p. 222). This is a challenge for both Indigenous and non-Indigenous organisations. There are many components to this work— identifying objectives and methods, building relationships and capacity, and so on. This section sets out some of that work to date, as well as the governance context in which this work takes place. Yarkuwa have strategically placed their priorities for Werai Reserve within the Edward/Kolety – Wakool system so as to match with the activity around environmental water delivery (as reported in Hale & SKM 2011).

Translating cultural flows

On 17 August 2011, the Yarkuwa board met to consider a definition of cultural flows that met their purposes, including acknowledging the importance of Indigenous peoples' participation in water decision making. The board built on the MLDRIN definition, keeping it as a first component, and added to it with a second component:

1. 'Cultural Flows' are water entitlements that are legally and beneficially owned by the Indigenous Nations of a sufficient and adequate quantity and quality to improve the spiritual, cultural, environmental, social and economic conditions of those Indigenous Nations; and,
2. Cultural flows involve the full and meaningful participation of Indigenous Nations, using free, prior and informed consent processes in all water management, including, but not limited to, environmental flows and cultural water licenses.

At the same meeting, the Yarkuwa board also developed principles for cultural flows, to give greater context to their definition of cultural flows. These principles are:

1. country as the meaningful framework for water
2. Indigenous nations as an essential part of cultural flows
3. recognition of Indigenous ecological knowledge as science
4. capacity building as central to Indigenous nations' full and meaningful participation.

The definition of cultural flows and the principles were presented by Steven Ross to the wider Yarkuwa membership at a meeting on 27 August 2011 and were supported by the members. Both the definition and principles continue with the broader agenda of cultural flows while keeping the priority for a water entitlement. The Yarkuwa board includes environmental flows and cultural water licences under the rubric of cultural flows.

The cultural flow principles and definition reflect a broad environmental–cultural agenda that Yarkuwa has been articulating (Yarkuwa 2009; Yarkuwa 2008) as part of an ongoing strategy to communicate cultural diversity in settled, south-east Australia. At the meeting where they were developed, the Yarkuwa board was concerned about the misunderstandings surrounding cultural flows and the problems with articulating the distinct role of traditional owners of country and why their water issues are so important. David Crew, Manager of Yarkuwa and co-author of this report, has discussed the context in which these issues are raised:

> In more closely settled parts of Australia you've got many different land tenures, and diverse people that have emotional, economic and social connections. Where Indigenous perspectives have been marginalised or dismissed, their assertion can be confrontational (interview with Weir, 7 September 2011).

Traditional owners have distinct relationships with country that are a part of their ongoing identity, and their lives are also now intimately related to non-Indigenous people and enmeshed with the activities of the broader community. The distinct roles and values traditional owners identify with may not be immediately obvious to someone unfamiliar with them—for example, fishing and camping, which have recreational value but are also part of continuing the links of knowledge and family through the generations. Such activities are also an opportunity to 'be' Indigenous, which is often limited in settled Australia (Behrendt & Thompson 2003). Wamba Wamba and Perrepa Perrepa people talk about the importance of opportunities to spend time out at Moonacullah without having to ask permission to access the land (participant contributions, Yarkuwa–CSIRO workshop 8 September 2011). Indigenous people do not each hold all the knowledge of the traditional owner group; different people will have different expertise and interests.

Negotiating and explaining identity issues about difference and similarity with non-Indigenous people can become tiresome; however, Jeanette Crew, co-author of this report, has noticed that things have improved in recent years:

> [Previously] no one thought we should be part of the process. There's been a lot of hard work since then. Even at the [Murray] CMA, people were questioning why they should talk to blackfellas, why we should be involved. Now they can't seem to get enough blackfella involvement. There has been a lot of hard work, and a changeover of staff (Yarkuwa–CSIRO workshop 8 September 2011).

One reason Yarkuwa have been so active in the linking of cultural and environmental issues is the impact of landscape degradation on their cultural activities. Wamba Wamba man Leo Briggs Jnr has talked about how his father used to take him out to Werai and show him burial grounds and important swamps, and how he cannot pass all of this experience on to his kids because some of these places have now gone (interview with Weir, 7 September 2011). Such losses are also felt by non-Indigenous people who have experienced changes to particular places over their lifetime, but for traditional owners they are compounded by being a loss of their culture, laws, language, identity and rights. Leo has described how his inherited knowledge can easily be lost between generations, as it is knowledge not held in books but taught and experienced on country. Sustaining this knowledge through centres such as Yarkuwa is important work.

One of the Yarkuwa board's requests was that this report articulate the potential benefits of cultural flows in forms that fit better with water policy framings. They were concerned that the cultural flows agenda had become narrowed to the point of being just a quantity of water that is in competition with water for agriculture:

> We are continually dismayed by the idea that there should be competition between consumptive users and the environment when we seek to work together to Look after Country — a traditional Aboriginal value that is well recognised — Looking after Country means Country looks after you (Yarkuwa 2012a, p. 3).

Table 2 was developed from Yarkuwa and other documents[5] with this purpose in mind — to bring attention to the broader values of cultural flows. Articulating the benefits of cultural flows in table form highlights these benefits, although it does so by simplifying and reducing a holistic, integrated concept.

[5] Ross 2009, Yarkuwa 2009, Yarkuwa 2008 and Hale & SKM 2011.

Table 2: Cultural flows reduction: anticipated benefits of cultural water in the Edward/Kolety – Wakool

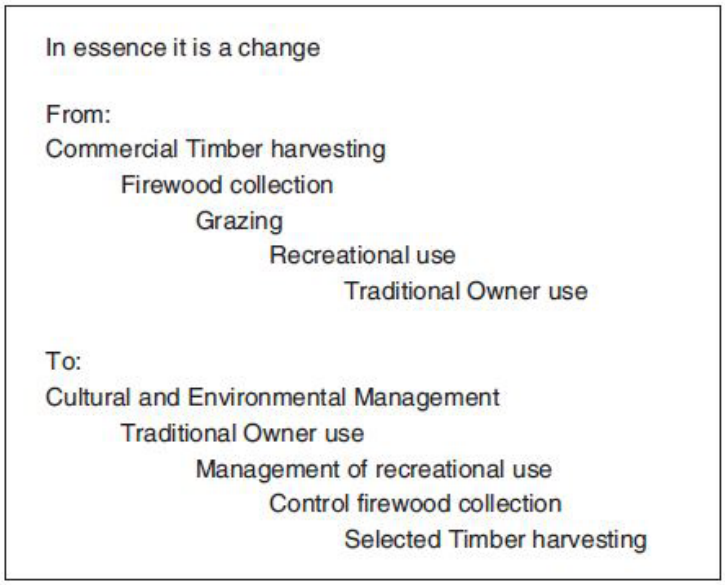
Cultural wellbeing	Environmental wellbeing	Social and economic wellbeing
Investment in traditional owner understandings of creation and existence, including totemic relationships, ancestral relationships and spirituality Care for spiritually and culturally significant places A productive and healthy environment, which will support resources such as food (fish, birds, insects, grubs), medicines (e.g. old man weed), and materials for arts and crafts (e.g. basket weaving) Active involvement in improving the health of country, which will support language, dance, song, arts and crafts, significant trees, sites, beliefs, stories, and ceremonial areas of country	Extend or supplement environmental flows to improve water quality and the connectivity between the rivers, floodplains and wetlands. This will help the habitat and refuge areas for fish, waterbirds, plants and trees. Decisions about the flows will be made to reduce blackwater occurrences and the exposure of acid sulphate soils. This activity will create positive feedback loops for the Edward/Kolety – Wakool by building on and complementing the environmental knowledge held by traditional owners, who have an intergenerational interest and experience in caring for the environmental values here.	Economic opportunities such as the provision of environmental services, educational activities, cultural camps, ecotourism, arts and crafts, water economies and carbon economies Investment in kinship relationships, teaching and learning, supporting children and elders, and family cohesion Greater support for community development, providing employment and training, and building and sustaining Indigenous governance structures and corporate capacity Development of and participation in Indigenous models of economic sustainability (and cultural economy) in restoring landscapes and adapting to climate change. Health benefits from the positive physical and mental health outcomes that are associated with caring for country[1] Empowerment and social justice through the recognition of water rights and the role of traditional owners to look after, care for and speak for country. Meeting principles of equity and respect, which creates a better society for all

Yarkuwa staff and board members have invested considerable energy in engaging with environmental and natural resource management agencies to translate their values into words and diagrams accessible for policy makers. David Crew, co-author of this report, has described the rationale for this:

> We maintain that the health of the environment has a direct connection to the health and wellbeing of our community. Access to resources, including food and medicine, are critical in working to close the gap between Aboriginal and non-Aboriginal communities (NSW Legislative Council 2012).

In a 2009 paper discussing the management of river red gum forests, Yarkuwa recommended that management plans for the Werai Forest change their focus (see Figure 1).

Figure 1: Werai Forest proposed change of management



Source: Yarkuwa 2009, p. 8

This figure shows how two different management approaches would prioritise different values. The first example is a commercial timber harvesting approach and the second is a cultural and environmental management approach. The figure illustrates how Yarkuwa is re-visioning the management of the Werai Forest to include resource extraction but as a lower priority. The diverse values of the forests remain part of the management but are reordered to prioritise the values of most importance to the traditional owners. This model reinstates the traditional owners as central to the future of the forests rather than a marginalised interest group. With the change in the status of the Werai from state forest to an Indigenous Protected Area, it is likely this management change will be achieved. Regarding the selected timber harvesting, now referred to as ecological thinning, such activities can continue on a small scale on conservation lands provided cultural and environmental values are protected. In fact, ecological thinning can be beneficial for red gum forests. Significantly, Figure 1 illustrates more than just an 'under new management' change; it embeds culture and environment as the context for the Werai's management. In doing so, Yarkuwa challenge the separation of nature and culture that has underscored the development of the Western sciences. Their holistic approach is an example of their place-based knowledge tradition of 'country', which focuses on the relationships held between people, plants and animals, culture and environment (Rose 1996).

Yarkuwa have explored many avenues to increase the participation of the Aboriginal community in looking after country, and over the last 10 years have developed partnerships with local land managers and natural resource management agencies. Without a land base, Yarkuwa's work has relied on the ability to negotiate with mainstream organisations. Various grant programs, including the NSW Environmental Trust's 'Protecting Our Places', have provided financial support to assist Yarkuwa to participate in such negotiations on a more equitable footing. Yarkuwa have undertaken multiple cultural–environmental projects; for example, at the Murray Valley Regional Park and the Deniliquin Island Sanctuary. Such projects have many benefits for the traditional owners and the broader community, most demonstrably the generation of work for Yarkuwa members and the support of mainstream agencies in providing public benefits such as environmental habitat. The synergies produced validate the arguments Yarkuwa have made about the role of Aboriginal communities linking with mainstream agencies for effective outcomes, which also requires government investment in building this local capacity. It is also work that is very meaningful for cultural development. The planting of native grasses is providing materials for basket weavers, such as Yarkuwa member Debbie Flower. Debbie held her first solo exhibition in 2012, weaving fibres as her ancestors did and diversifying this through introducing new mediums, as well as creating new figurative work representing local totems. She weaves using raffia, and started weaving during the drought when the best wetlands that used to support the basket weaving grasses were parched of water.

Throughout such activities and partnerships, Yarkuwa have continued to present their connected approaches to country. Jeanette Crew, co-author of this paper and a Mutthi Mutthi Elder, has spoken previously about the difference between a traditional owner approach to the forested wetlands and the current management (Weir 2009, p. 72–73). To counter what she saw as the marginalisation of Indigenous people and their knowledge and roles in natural resource management, Jeanette prepared a poster, 'Indigenous use of natural resources', for a festival for the sustainable use of resources held in the Riverina. This poster is on display at the Yarkuwa office and includes the text:

> The Indigenous people of the Riverine Plain, including *Wamba Wamba*, *Wiradjuri*, *Yorta Yorta*, *Birrapa Birrapa*, *Muthi Muthi*, *Nari Nari* and *Wadi Wadi*, use the natural resources of the region for food, herbs and medicines, shelter, toolmaking and trade. Indigenous people still exploit the natural resources of the Riverine Plain using a number of different technologies. This is done with land management principles in mind to ensure that resources are available for future generations. These land management principles include song, dance and ceremony, not only for the conservation of the environment, but also to ensure its continued health and fertility.

Jeanette adapts natural resource management to a cultural context allowing for contemporary use of country. Indigenous peoples' 'caring for country' is often dismissed as unscientific, spiritual fancy, or both (Weir 2011). At other times, Indigenous values are just included in the project as a 'cultural add-on'. In contrast, natural resource management or water management is often positioned within the assumed cultural neutrally of universal knowledge (see discussion Weir 2009, p.67). This characterisation of Indigenous knowledge as 'cultural' and non-Indigenous knowledge as 'scientific', results in exercises of power when it comes to whose knowledge is valuable (Muller 2012). The importance of addressing this framing of Indigenous and non-Indigenous knowledge was expressed to the authors by the Yarkuwa Board, who placed Indigenous ecological knowledge among their principles for cultural flows. Rose (2007a) identifies that the problem is not so much the privileging of scientific knowledge but how that knowledge is used in environmental management by governments—that is, what you do with the knowledge and why you do it.

Diverse Indigenous governance

The work of Yarkuwa is closely networked with, and operates alongside, that of other incorporated and unincorporated Indigenous governance bodies with interests in or responsibilities for land and water in the Edward/Kolety – Wakool. While Yarkuwa have taken a lead role in lobbying for the IPA and cultural flows, as this advocacy work starts bearing results the opportunities that come will have implications for relationships between the different Indigenous organisations. Ensuring good relationships continue between these diverse governance bodies is central to ensuring that good decisions are made by, for and with the support of the Wamba Wamba and Perrepa Perrepa community. As part of the research project, Yarkuwa asked that we document the diversity of this Indigenous governance.

Yarkuwa Indigenous Knowledge Centre was formed in 2003 by Wamba Wamba and Perrepa Perrepa TAFE students who were keen to develop their knowledge and skills in historical research. The trigger for forming Yarkuwa was a community visit to Canberra to view materials in the AIATSIS archives, including songs and photos. Yarkuwa was formed as a place to hold copies of this material, provide education services, engage in negotiations with government agencies, assist members to develop educational and research skills, facilitate the intergenerational transfer of knowledge, and, more recently, acquire land for purposes of economic and cultural economy, cultural heritage, education and conservation (although Yarkuwa has not acquired any land at the time of writing) (Yarkuwa 2012b).

Yarkuwa provides cultural heritage services and undertakes cultural and environmental work, such as water testing and noxious weed removal. Yarkuwa has programs to support the education of Aboriginal children, to support Aboriginal carers and community workers, and to promote access for the Aboriginal community to community services (Yarkuwa 2011a & 2011b). Some of the other activities and services supported by Yarkuwa include a gallery in their offices, basket weaving, free internet access, photographic and genealogical collections, a newsletter, and flu vaccinations. All active members of Yarkuwa must be direct descendants of Wamba Wamba or Perrepa Perrepa peoples.

The other key incorporated Indigenous organisations in the Edward/Kolety – Wakool are the three Local Aboriginal Land Councils (LALC): Deniliquin LALC, Wamba Wamba LALC (based near Swan Hill) and Moama LALC. The LALCs were established under the *Aboriginal Land Rights Act 1983* (NSW), and there are 119 LALCs in New South Wales. Membership of the land council is based on residency in the land council area. In some areas this has resulted in struggles over authority, especially in areas where traditional owners are a minority. In other areas, such as Deniliquin, there is a majority of traditional owners in the resident Indigenous population (Weir & Ross 2007, p. 196).

The role of the LALCs is to acquire land (either through purchase or claim), to protect and promote Aboriginal cultural heritage and to encourage and assist community businesses (Aboriginal Land Rights Act, s. 52). The land councils also have responsibility for negotiating access agreements with landholders for hunting, fishing or gathering (s. 47). One of the main functions of LALCs has been to provide social housing in towns for their members, but their functions can extend into many other activities. For example, a Joint Indigenous Group was established to monitor the extensive flood enhancement works for the Koondrook–Perricoota Forest, immediately south of the Edward/Kolety – Wakool system. Moama and Deniliquin LALCs were part of this (JIG n.d.), although Deniliquin LALC is no longer involved. The Deniliquin LALC also holds the land title for the Moonacullah Mission, which neighbours Werai Forest.

The relationship between Yarkuwa and the Deniliquin LALC is close. Most members of Yarkuwa are also members of the Land Council and the organisations have similar interests and activities, although their core business differs. Yarkuwa and the Deniliquin LALC regularly communicate on issues of joint concern—for example, the Werai Forest use and occupancy mapping project was conducted jointly with Yarkuwa and the Deniliquin LALC in 2010. The Deniliquin LALC is often a first port of call for government agencies because of its statutory role as a land council, and it will sometimes refer on matters directly relevant to Yarkuwa. Yarkuwa was formed in part to address issues that competed for space on the Deniliquin LALC agenda, which was busy with social housing and economic development concerns. However, Yarkuwa has grown and taken on more diverse roles. In addition to the challenges of being an Indigenous minority within a colonial state, the objectives of these key organisations can be put at risk by lateral violence and other negative influences from the Indigenous community themselves. Lateral violence is a term used to describe the organised, harmed behaviour that is perpetuated within a group who have experienced disadvantage, discrimination and oppression (ATSIJC 2011, p. 52).

Another local Indigenous organisation relevant to this discussion is the Larnangurag Aboriginal Association, which was set up to manage the 681-hectare property Elimdale, on the Old Morago Road west of Deniliquin and on the Colligen Creek, which flows into the Werai Group of Forests. This property was purchased by the Indigenous Land Corporation and granted to the association in October 2000. The Indigenous Land Corporation is a statutory corporation established in 1995 to assist Indigenous people with acquiring and managing land to achieve economic, environmental, social and cultural benefits. The ILC is part of a package of responses to the uneven geographic benefits of native title. It purchases properties where it is difficult or impossible for native title to be recognised. Larnangurag Aboriginal Association is a small organisation, with membership comprised of one Wamba Wamba nuclear family, and its work is focused on managing the property as a farm business. This property is close to Werai, located on the Tumudgery Creek, and includes the site of Aboriginal settlement prior to Moonahcullah.

Other incorporated and unincorporated Indigenous groups that land and water issues in the Edward/Kolety – Wakool are relevant to include:

- the traditional owner groups: the Yorta Yorta, Perrepa Perrepa, Wamba Wamba, Muthi Muthi and Wadi Wadi
- the **Werai Aboriginal Negotiating Team** (WANT), which has been established to oversee the transfer of the Werai from NSW State Forest land to an Indigenous Protected Area. WANT represents Wamba Wamba and Perrepa Perrepa family groups and is working with NSW Office of Environment and Heritage (OEH), which is facilitating the handover process. The land is vested with the Minister for the Environment for transfer to the traditional owners

- the **Murray Aboriginal Technical Group** (MATG), which advises the Murray Catchment Management Authority on technical issues, such as how to include Indigenous values in water plans
- the **Deniliquin Aboriginal Working Party** (DAWP), which is an informal forum for networking, information exchange and forging partnerships between organisations and the Indigenous community (Yarkuwa 2011)
- **Yorta Yorta Nation Aboriginal Corporation** (YYNAC), whose country is immediately upstream of the Edward/Kolety – Wakool and who have a cooperative management agreement with the Victorian Government for Barmah National Park
- the **Wiran Aboriginal Corporation**, which was established as a Wamba Wamba corporation based in Swan Hill, downstream of the Edward/Kolety – Wakool but still in Wamba Wamba country, and which managed the lease for an ILC property, though that lease expired in 2008
- the **Muthi Muthi Nation Aboriginal Corporation**, based in Balranald, further downstream from the Edward/Kolety – Wakool
- an incorporated body for Wadi Wadi, also downstream.

The MATG is a new model for an Indigenous advisory group for the Murray Catchment Management Authority and addresses problems with the previous model. The Murray CMA had been receiving advice from the Murray CMA Aboriginal Advisory Group (MAAG), comprised of one representative each from Deniliquin and Cummeragunga LALCs, and Yorta Yorta, Wamba Wamba and Wiradjuri traditional owner groups (Yarkuwa 2010, p. 10). However, there were inefficiencies in meetings, including meeting size and agenda, and problems with the exchange of information between communities and the Murray CMA board. This led to MAAG conducting a review collaboratively with the Murray CMA board to consider whether they were meeting their original terms of reference. They concluded that the group structure was not effective for the tasks they were responsible for and that a new model of engagement, based on technical expertise, was needed.[6]

MATG is a much smaller group, with a maximum of five members. MATG membership is not representative of traditional owner groups or other organisations, and instead is skills based. Members must work in the interests of the whole diverse Indigenous community, rather than for their specific organisational or personal interest. They meet at least four times a year and can invite specific technical experts to meetings for advice when needed. Applicants to MATG have to meet specific criteria, including Aboriginality, knowledge of cultural heritage, connection to the Murray catchment, and good networks and communication skills. MATG works directly to the CMA board and receives sitting fees and governance training. This smaller and more focused model is designed to be more engaged and more efficient. It will also reduce the exhausting meeting load of key Indigenous leaders.

Another relevant group, but one that has a regional focus, is MLDRIN, which is incorporated and receives funding from the Murray–Darling Basin Authority. The chair of MLDRIN sits on the MDBA Basin Community Committee. Previously, both Yarkuwa and the Deniliquin LALC were involved in selecting one of the Wamba Wamba and Perrepa Perrepa delegates for this alliance (Weir & Ross 2007, p. 196). The other representative came from the Victorian side. Currently both Wamba Wamba representatives on MLDRIN are from the Victorian side.

[6] Co-author Steven Ross was involved in this process at each stage. As MLDRIN Coordinator, he helped establish MAAG. As a board member of the Murray CMA he assisted with the review and in establishing the new model.

Table 3: Indigenous governance bodies with land and water interests of particular relevance to the Edward/Kolety – Wakool rivers.

Name	Key roles	Incorporated
(unable to locate at the time of writing)	Incorporated body for Wadi Wadi	Yes
Deniliquin Aboriginal Working Party (DAWP)	Provides an informal network for organisations and the Indigenous community in Denilquin	No
Deniliquin Local Aboriginal Land Council	Land acquisition, social housing, economic development, cultural heritage	Yes
Joint Indigenous Group (JIG)	Monitors the extensive flood enhancement works for the Koondrook–Perricoota Forest	No
Larnangurag Aboriginal Association	Holds and manages 'Elimdale' property	Yes
Moama Local Aboriginal Land Council	Land acquisition, social housing, economic development, cultural heritage	Yes
Murray Aboriginal Technical Group (MATG) (which replaces MAAG)	Advises the Murray Catchment Management Authority board on policies, programs and projects	No
Murray Lower Darling Rivers Indigenous Nations (MLDRIN)	Promotes Indigenous issues in water management and builds traditional owner capacity to engage in water issues	Yes
Muthi Muthi traditional owners of country	Inherited responsibilities from ancestors and ancestral beings	No
Perrepa Perrepa traditional owners of country	Inherited responsibilities from ancestors and ancestral beings	No
The Muthi Muthi Nation Aboriginal Corporation	Cultural heritage and environmental issues, education, research, community services, land acquisition	Yes
Wadi Wadi traditional owners of country	Inherited responsibilities from ancestors and ancestral beings	No
Wamba Wamba Local Aboriginal Land Council	Land acquisition, social housing, economic development, cultural heritage	Yes
Wamba Wamba traditional owners of country	Inherited responsibilities from ancestors and ancestral beings	No
Werai Aboriginal Negotiating Team (WANT)	Oversee the transfer of Werai Forest to an Indigenous Protected Area	No
Wiran Aboriginal Corporation	Advance Wamba Wamba rights, promote agreements, build assets, strengthen customs and traditions	Yes
Yarkuwa Indigenous Knowledge Centre Aboriginal Corporation	Cultural heritage and environmental issues, education, research, community services, land acquisition	Yes
Yorta Yorta Nation Aboriginal Corporation	Cooperative management of Barmah National Park and other areas, cultural heritage	Yes
Yorta Yorta traditional owners of country	Inherited responsibilities from ancestors and ancestral beings	No

The governance of cultural water for the Edward/Kolety – Wakool will necessarily involve this diverse group of Indigenous peoples' governing bodies. The different organisational roles and responsibilities will always be complex and can lead to conflicts and misunderstandings, as well as the problem of lateral violence. If an existing governance body does not fit the role or meet community expectations for what is required for the governance of cultural flows, a new governance body may need to be formed. If a new organisation is required, membership of this new body will have to consider whether its priority is to be representative or skills based. Resourcing and capacity building is central to the success of such a body, as discussed later in this paper.

Watering the Edward/Kolety – Wakool

> Water has always been a big issue. It's nature. If it floods, if this ground is meant to flood, let it flood, because we've just come off ten years of drought…it's only a matter of knocking so much out of a levy wall to let it run in.
> —Leo Briggs Jnr (interview with Weir, 7 September 2011)

The New South Wales state government is responsible for allocating water to users, which it does through water-sharing plans under the Water Management Act. These plans allocate water between all water users, improve river health, facilitate water trading and support regional communities. A draft water-sharing plan is prepared by an interagency panel comprised of the OEH, the NSW Office of Water (NOW) and the NSW Department of Primary Industries. After community consultation the plan is reviewed and approved by the Minister for Primary Industries and the Minister for the Environment. Catchment management authorities have observer status on the panels, provide expertise on local issues and assist with community consultation (NOW 2012). The implementation of these plans interacts with the operational rules of the weirs and regulators (in the Murray Catchment this is the MDBA, Goulburn–Murray Water and the NOW), water trading and allocation regulations (SEWPaC), and accreditation and licensing issues with using irrigation channels and escapes (Murray Irrigation Limited and NOW). In addition, the Draft Murray–Darling Basin Plan under the Water Act proposes another planning process to limit water allocations to diversions that are sustainable.

The Edward/Kolety – Wakool is included in two watering plans. The main one is the Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources 2003, which commenced on 1 July 2004 and is in place for 10 years. The other water plan of relevance is in draft form and concerns adaptive environmental water for the Murray—adaptive environmental water being water that is recovered for environmental use and held by the Minister for the Environment and others (Hale & SKM 2011, pp. 47).

The Hale and SKM (2011) report on environmental water delivery for the Edward/Kolety – Wakool recommends pulse flows in winter, spring and summer to increase flood peaks and extend the duration of floods, depending on the seasonal conditions at the time (pp. 22–23). Pulse flows are likely to have the best effect for triggering food production, fish movement and breeding (Hale & SKM 2011, p. 15); however, there can be adverse effects. There are additional water flow requirements needed to reduce blackwater events. For example, the water delivery regime needs to inundate channels and benches during cooler weather, avoid very low flows during peak leaf litter fall in summer, and use operational flows to dilute water returning from floodplains. Also, moderate flows in spring and summer are needed to stop stratification in shallow pools, and operational flows are needed to prevent the drying and exposure of acid sulphate soils (Hale & SKM 2011, p. 15). The report's authors acknowledge that there are substantial gaps in the knowledge needed for this environmental water delivery and that more research and monitoring is required (Hale & SKM 2011, p. 15).

This environmental watering has to be coordinated with priorities for irrigation water. The Edward/Kolety – Wakool river networks are interlaced with the Murray Irrigation Limited irrigation area, where water is supplied for irrigated crops from August to May (Hale & SKM 2011, p. 6). Decision making about environmental flows is linked to the established practices for irrigation water, with decisions being made in July at the start of the 'irrigation season'. Both depend on weather conditions, in particular rainfall (Hale & SKM 2011, p. 27). Likewise, the governance of any cultural water allocation will need to be responsive to irrigation water, environmental water and the rain.

The Hale & SKM (2011, p. 44) identify the 'major strategic partners in delivering water' in the Edward/Kolety – Wakool as:

- the NSW Office of Environment and Heritage, as the manager of adaptive environmental water in the Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources
- the MDBA, as the operator of the Murray system releases from Hume Dam
- the Commonwealth Department of Sustainability, Environment, Water, Populations and Communities (SEWPaC), as responsible for development and implementation of national policy, programs and legislation to protect and conserve Australia's environment and heritage
- The Commonwealth Environmental Water Holder (CEWH), as responsible for the management of water entitlements that the federal government acquires to be used to protect or restore environmental assets
- Murray Irrigation Limited and the NSW State Water Corporation, as operators of the Murray Irrigation channels and escapes
- NSW State Water Corporation and NSW National Parks and Wildlife Service, as operators of the flow regulators into and out of Werai Forest
- the Murray Catchment Management Authority, as a stakeholder in the development and implementation of watering plans
- the Victorian Department of Sustainability and Environment and the OEH, as holders of water for the Barmah–Millewa accounts
- the NSW Office of Water.

The Hale and SKM report does not mention the traditional owners, nor address Indigenous values or governance roles, but it does briefly note that the Werai Forest is a proposed Indigenous Protected Area (2011, p. 4). Because of their diverse partnerships and roles, Wamba Wamba and Perrepa Perrepa are implicitly present in Hale and SKM's list of strategic partners through:

- the Murray CMA's Aboriginal Technical Group (MATG)
- the MDBA's engagement with MLDRIN
- the NSW OEH relationship with the WANT to transfer Werai.

Steven Ross was the Indigenous portfolio board member for the Murray CMA at the time of the Hale and SKM report, although he no longer holds that position.

There is also broader Indigenous representation among the strategic partners through the MLDRIN chair's membership of the MDBA Basin Community Committee and its Indigenous Water Subcommittee. Another site for Indigenous representation is SEWPaC's Indigenous Advisory Committee (there are currently no Wamba Wamba, Perrepa Perrepa or MLDRIN members). The value of this involvement on various representative boards and advisory groups depends on the power of the particular board. Clearly much more engagement is needed than this, and the CEWH has expressed its desire to understand how Indigenous values relate to environmental water delivery and how they might be better included.[7]

Another group mentioned by Hale and SKM (2011) but not included in the 'strategic partners' list is the Murray Lower Darling Environmental Water Advisory Group (MLD EWAG). This is a non-statutory New South Wales body representing different groups and community members. It provides advice to the OEH on sites for watering, watering options under different weather scenarios, monitoring activities and community values and issues. Its advice and decisions are developed into annual watering plans. The CEWH has observer status on this EWAG but it also is supportive as a partnership for delivery of water from either state or Commonwealth sources.

[7] This was expressed to a meeting of the Murray CMA, on 10 August 2011 in Deniliquin, which co-author Steven Ross attended.

There are also numerous non-Indigenous governance bodies and alliances that are not mentioned in the report. They include the Wakool River Association, a group of irrigators who formed out of concerns about the availability of water from the Wakool River, both for consumption and for the environment; the Murray Valley Water Diverters Advisory Association; and the Wakool Landholders Association. Further, environmental groups such as the Australian Conservation Foundation, Friends of the Earth and the National Parks Association of NSW have played a strategic role in the transfer of the state forests to reserved lands.

In negotiating and lobbying for cultural flows in the Edward/Kolety – Wakool, Yarkuwa are engaged with the New South Wales Government and its water planning, as well as with the CEWH, the Murray CMA, and the MDBA and its planning process. Yarkuwa are very interested in environmental water, in part because the over-allocation of river water and river regulation has effected substantial environmental change on their country. Further, the current wet conditions, and activity around purchasing and prioritising of water for environmental purposes, make these negotiations seem more possible, although wet years also reduce the impetus for water reform. Yarkuwa are keen to highlight Indigenous values that can be met with environmental water, including the role of Indigenous people in the governance of environmental flows, which could be called a cultural flow but would not replace the broader cultural flow agenda. As already discussed, the broad meaning of cultural flows does not fit within regulatory frameworks, and multiple measures are required to address Indigenous water issues.

Within the Water Sharing Plan for the New South Wales Murray and Lower Darling Regulated Rivers Water Sources, there is provision for regulated river (high security) (Aboriginal cultural) access licences of up to 10 ML/yr per application (clause 29(f)). But as yet there has been no cultural access licence issued under the water plan. For the first five years of the plan, the target was to collect information on the Indigenous values for each water source (clause 12(h)). One of the challenges for Yarkuwa is that they do not own any land, although access and partnership arrangements with other landholders is an avenue. For example, a cultural access licence could be applied for by the Deniliquin LALC to water Moonacullah. Jackson and co-authors identify other factors limiting the Indigenous access to cultural access licences. These are: the need for infrastructure to water features and places of importance; the cost of water, administration and delivery costs and effort; and a lack of awareness of the cultural access licences among the Indigenous community (Jackson et al. 2010, p. 99).

The experiences of the Nari Nari Tribal Council illustrate some of the capacity issues around cultural water. Jackson, Moggridge and Robinson have reported on the experiences of Nari Nari people, whose country is in the Murrumbidgee catchment in New South Wales, north of the Edward/Kolety – Wakool (2010, pp. 85–106). Nari Nari have a cultural access licence, under the Water Management Act, for use on their 5000-hectare Indigenous Protected Area on Toogimbie Station. Part of Toogimbie, outside of the IPA, is leased to a farmer and provides a valuable source of income (Jackson et al. 2010, pp. 92–93). Nari Nari have both a cultural access licence and irrigation licences, which are both regarded as consumptive uses because the flow passes into a wetland or farmed area and cannot be diverted further on (Jackson et al. 2010, p. 96). Critically, Toogimbie has existing water infrastructure, including a pump and channel system, to help deliver the cultural water (Jackson et al. 2010, p. 98). However, Nari Nari were unaware of the high costs associated with water and its delivery (approximately $9000 per annum), the pumping site fee, the requirement for a licence for levees, and other administration costs and burdens (Jackson et al. 2010, p. 99). These costs have restricted their use of their cultural access licence. The New South Wales Government is now lobbying to have cultural access licences exempted from some of these water costs, in line with environmental water (Harriss 2012). There are additional costs involved in documenting and monitoring the use of this cultural water as part of demonstrating the ongoing value of this activity (Jackson et al. 2010, p. 101). It is likely that similar issues would be raised for cultural flows in the Edward/Kolety – Wakool, revealing the importance of partnerships in overcoming problems encountered with the logistical, financial, regulatory and other aspects of cultural licences.

There is also a lack of capacity among Indigenous and non-Indigenous water managers to start addressing these issues. With the over-allocation of river water, water management has changed from an engineering project to a complex balancing of diversely held interests, including the ecology. Jeanette

Crew, co-author of this paper, is already concerned about local capacity to manage the IPA and wants an assessment of what is there now and what needs doing to be part of the five-year transfer process (Yarkuwa workshop, 8 September 2011).

Capacity is challenged by the need to keep up with the rapidly evolving environmental water reform agenda. Many aspects of the management of adaptive environmental water are yet to be determined. The terms of reference for the CEWH have very strict criteria for an environmental flow. A flow to flush out leaf litter to reduce blackwater might not meet those criteria. It is also unclear who will become the managers of environmental water and how this will affect existing Indigenous governance institutions—for example, if CMAs are to become the water managers of environmental water then MATG could be an important group for facilitating cultural flows through the use of environmental water.

At their August 2011 meeting, Yarkuwa board members discussed how their capacity was challenged by getting access to the knowledge held about the water system in institutions, such as government agencies, and how that knowledge is not readily available for community education. The development of a TAFE course was suggested as one route to building Indigenous capacity in understanding water management, flood regimes and hydrology. This knowledge and other training are also needed for Indigenous peoples' management of cultural flows. Jackson and co-authors point out that investing in Indigenous capacity to manage environmental water, and to contribute knowledge to water management more generally, will greatly enhance the benefits achieved from increasing Indigenous peoples' access to a water allocation (Jackson et al. 2010, p. 10).

Conclusion

Prevalent features of both the Indigenous and non-Indigenous governance of water are the multiple layers, tenures, management systems, and shared and competing priorities. Water itself overlaps, whether irrigation water, environmental flow or cultural flow. Delivering cultural flows in this interconnecting and multilayered governance context will require innovation, practice and revision. In any case, whether Indigenous or non-Indigenous water rights and entitlements, or consumptive, cultural or environmental water, all rely on the continuing health of the rivers and creeks. The connection between healthy river ecologies and our river industries is a powerful part of the message of cultural flows that needs to travel further into mainstream water governance, to engender broader support in the environmental reform agenda. That this is a contested space is evident in the strategic approach taken by Yarkuwa, as well as in the challenges that are placed before them.

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Appendix 1: Water intervention

United Nations Permanent Forum on Indigenous Issues
Tenth Session – New York
16-27 May 2011

Agenda Item 7: Water

Joint Intervention Delivered by Steven Ross on behalf of:

Aboriginal Legal Service of Western Australia

Aboriginal Medical Service Western Sydney (AMSWS)

Amnesty International, Australia

Gugu Badhun Ltd

National Aboriginal and Islander Community Controlled Health Organisations

National Native Title Council

Office of the Aboriginal and Torres Strait Islander Social Justice Commissioner

Victorian Aboriginal Legal Service

Yarkuwa Indigenous Knowledge Centre

Thank you Madam Chair

Since the colonialisation of Australia water has been quantified, mismanaged, polluted, stolen and of most concern, commodified. Currently in Australia Indigenous peoples are locked out of water discussions, emerging water markets and decision making on the management of commercial and environmental water flows.

In the undammed and unregulated rivers of Northern Australia, governments and corporations are proposing major developments, land acquisition, population growth and irrigation works. All of this is done without the free, prior and informed consent of traditional owners.

Australia is the world's driest continent and has the most variable climate in the world. The current and future threat of climate change will severely compound this variability and means low inflows into major river systems. For example, the Murray Darling Basin is a large geographical area that currently supports some 2 million people including 15% of Australia's Indigenous population and provides 40% of Australia's food and fibre. In 2006 the Basin

experienced the lowest inflows in recorded history, which was 80% drier than the previous record.

Water has sentience and has a right to be recognised as an ecological entity. Indigenous peoples as holders of the knowledge of water sources and of the songlines and stories related to water, have a right to decide its use, fully participate in management, hold water licenses, trade and use water for cultural and economic purposes.

In many parts of Australia rural and remote communities do not have access to adequate potable water, causing and compounding disparate social health indicators such as health.

Australia's provincial governments struggle to put in place practical policies and regulations that will satisfy residential, industrial and agricultural consumers, whilst at the same time ensuring sustainable water resources for our future.

The cultural rights of Indigenous peoples to water are therefore disadvantaged due to the lack of effective processes to fully recognise and incorporate those rights due to the pressures of competing interests. With the increasing commodification of water the space for Indigenous peoples within the management of water is severely limited.

Australian Governments are placing a high price on our vast mineral resources but are not putting a similar price on one of our greatest and most precious of resources – water.

Rectifying this situation would provide significant opportunities in the water market for Indigenous communities to trade in water, in particular through negotiation with the extractive industry that needs access to water for mine production. The extractive industry should enter into free, prior and informed consent negotiations with Indigenous communities for water extraction and we should be able to negotiate payments for water that is taken from our traditional lands.

This economic imperative also includes the right to fish and extract other resources from fresh and sea water to use for cultural and commercial purposes.

At present the extractive industry has very little accountability neither to the wider community nor to Indigenous peoples in gaining access to water for mining and other activities. Most disturbing the environment safeguards are wanting in Australia, evidenced by the common currently legal practice of insitu leeching, which is outlawed in the United States of America and other Nations.

Furthermore the right of Indigenous peoples to water for cultural purposes must be recognised. Cultural flows as we call them can provide both a beneficial ecological and

human outcome and provide the justice we deserve as a result of the dispossession of our traditional land and waters.

Recommendations

That the Permanent Forum:

1. urges all States to ensure Indigenous People's cultural rights to water are recognised and protected; and
2. urges all States to recognise that water has its own rights as an ecological and sentient entity;
3. urges all States through legislation and policy to support the right of Indigenous peoples to hunt and gather resources from waters including fish, to be used for cultural and economic purposes including commercial purposes;
4. urges all States to fully include Indigenous peoples in decision making processes around water management including commercial, irrigation and environmental water management;
5. urges all States to incorporate the principles of the UN Declaration on the Rights of Indigenous Peoples in all policies relating to Indigenous cultural rights to water and that all water legislation and policy is consistent with Article 25

Appendix 2: Environmental and cultural flows time line

Timeline	Environmental flows	Cultural flows
Pre-1970	**Not considered**	**Not considered**
1970s	**On 'radar'**	
1980s	Increasing awareness of water quality and salinity problems; Murray–Darling Basin Ministerial Council and Commission established; Community Advisory Council created	
1990	**Learning**	
1991	MDBC natural resource management strategy	
1992	Barmah–Millewa Forest Management Plan / Agreement—creation of the Barmah–Millewa environmental reserve report on water use in the Murray–Darling Basin	
1993		
1994		**On 'radar'**
1995		Lake Victoria cultural heritage protection—investigation and works by Barkindji Elders Committee and Lake Victoria Advisory Committee
1996		
1997	**Strategy Development**	MLDRIN M drafted
1998	Cap on diversions	
1999	Salinity audit	
2000	Integrated catchment management policy statement	**Learning**
2001	**Action (projects)**	Scoping study on Indigenous involvement in NRM
	Environmental flows expert reference panel report	Indigenous employees
	Murray Mouth dredging	
2002	MDBMC First Step Decision on The Living Murray	**Strategy Development**
2003	River red gum health survey and trial flooding	MOU signed between MLDRIN and NSW Dept of Land and Water Conservation
2004	**On-ground outcomes (results)**	Indigenous Action Plan developed
2005	Riparian response and bird breeding events	TLM Indigenous Partnerships Project developed
	Flooding through weir raising	
2006	Monitoring and improvement	MLDRIN MOU signed by MDBC
2007–08	*Water Act 2007*, which prioritises environmental flows above irrigation allocations. No mention of cultural flows despite lobbying from MLDRIN. Major parties reject inclusion of cultural flows.	**Action (projects)**—Cultural mapping
		Strategy and cevelopment
		MLDRIN definition of cultural flows in the 'Echuca Declaration'

Timeline	Environmental flows	Cultural flows
2008–2009	Delivery of environmental flows Delivery of Environmental Flows into Barmah Forest. Establishment of Commonwealth Environmental Water Holder Senate review of parts of the *Water Act 2007* Establishment of Edward/Wakool Environmental Watering Advisory Group and other community based environmental water advisory groups Major parties again reject inclusion of cultural flows	NAILSMA endorsed MLDRIN cultural flows definition and includes 'healthy livelihoods' in their definition. National Indigenous Water Forum held in Adelaide. Service agreement between MLDRIN and Murray–Darling Basin Authority, which mentions further research into cultural flows
2009–2010	Delivery of environmental flows into Hattah Lakes, including environmental water delivered by non-government organisation Australian Conservation Foundation Development of Murray–Darling Basin Plan, which will illustrate the volume and operation of environmental flows	Establishment of Northern Basin Aboriginal Nations Establishment of First Peoples Water Engagement Council
2010–2011	Broader strategy and development and delivery Delivery of environmental flows into Werai Forest Release of the Guide Murray–Darling Basin Plan Murray–Darling Basin Plan to be released in second half of 2011	Broader strategy and development and research Cultural flows alluded to in the Guide to the Murray–Darling Basin Plan Cultural flows raised at United Nations Permanent Forum on Indigenous Issues and accepted into final report Research into the science and delivery of cultural flows approved by the Murray–Darling Basin Authority

Source: adapted and updated from Neil Ward, The Living Murray Indigenous Partnership Project, 20

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Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS)
GPO Box 553, Canberra, ACT 2601
Phone: (61 2) 6246 1183
Fax: (61 2) 6261 4288
Email: ntru@aiatsis.gov.au
Web: http://www.aiatsis.gov.au/ntru/overview.html

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