FOCUSSING ON CREEKS: WIRADJURI ECOLOGY, SOCIALITY AND COSMOLOGY

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Abstract

Creeks, rather than the rivers they feed, are central to thinking about pre-colonial relationships between Wiradjuri people and country. Rivers connect creeks like an ancestral thread, just as ancestors connect people to their environment and their kin. Each creek, and each person, contributes to and is responsible for the whole. This paper links the creeks of Wiradjuri country to their rivers, social and ritual life, and land management practices. It shows why the crisis of river management in the Central West has come about—in large part due to the wilful ignoring of what Wiradjuri people knew about these river systems.

Thinking ‘A River’

One morning in February 1844 the Murrumbidgee valley turned into an inland sea. Sarah Musgrave (1973:36) described how, after a dry spring, the summer rain came in torrents, continuing for weeks across southern New South Wales (NSW). Horses and cattle were bogged in sodden ground, farms were swept away, and many lives were lost. Only two of the 91 inhabitants of Wagga survived, but local Wiradjuri people knew the warning signs and had escaped to the mountains:

The blacks, too, knew what to expect when they heard the roaring of the flood in the distance, when they heard the logs and fallen timber being smashed against the trees; even without waiting to see the river swell. But the white people were not so well acquainted with the habits of floods, and did not realise their danger till they were beyond saving themselves.
(Musgrave 1973:36)
On the Lachlan River, Wiradjuri men saved several white people and were awarded brass gorgets in thanks. British men and women had lived on these inland rivers for over a decade but had not learned of their dangers. No doubt they had not thought to ask Wiradjuri people: they brought with them colonial arrogance and British understandings of ‘a river’. They superimposed technologies and understandings of rivers, plants and soil that been honed over centuries, but on the other side of the world, in a different ecology and climate. These were inadequate to maintaining the health of Wiradjuri river ecosystems. Settlers made many mistakes, and many more lives and livelihoods ended.

Wiradjuri people told me theirs was ‘the Country of the three rivers’: the Macquarie, Lachlan and Murrumbidgee; the major tributaries in the centre of the arc formed by the Barwon-Darling before it meets the Murray River. People on the Bogan were at pains to tell me that, really, there were four rivers. Scientists understand the Macquarie-Bogan as one catchment: presumably Wiradjuri ancestors also knew it as a single system.

The Murray Darling Basin (MDB), covering 1,059,000 km² is Australia’s most significant drainage system—the catchments of the Murrumbidgee, Lachlan and Macquarie-Bogan comprise 20 per cent (244,417 km²). The Wiradjuri language adheres to the upper and mid-sections, an estimated 200,000 km², giving way to closely related languages before these rivers join the Barwon and Murray. The Murrumbidgee and Bogan retain Wiradjuri names—the Lachlan was Kaliyarr and the Macquarie was Wambool (Donaldson 1984; Macquarie 1838). Evidence suggests that parts of creeks and rivers were named, even that there may also have been a way of speaking of the whole (Hercus and Simpson 2009:14). We do not know if these were the names Wiradjuri people gave to the whole river.

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1 I have worked in the Wiradjuri region since 1981, across several local communities. I have had many teachers and interlocutors over those years, who have generously contributed to my understandings of how Wiradjuri people speak and think about their country.
Wiradjuri country looked very different in the early 19th century. Quickly appropriated after settlers found routes across the Blue Mountains, the eastern Wiradjuri experienced what the *Sydney Gazette* (11/8/1824) called ‘an exterminating war’. We know little about how they dealt with the unimaginable trauma: massacres, murders, disease, dispersals; the desecration of sites and waterways. The rush to produce wealth from their grasslands and rivers destroyed their ways of life. Survivors found ways of coping, readjusting and making new sense of waves of destructive change. Ostensibly beneficial policies introduced from the 1970s were designed to ameliorate their deprivation, but have created more stress.

Recently, the damage to the vast fragile landscape Wiradjuri people had managed for millennia has become better understood. Clearing of land and waterways, hooved livestock, ploughing and irrigation transformed this country, and new production technologies continue to be introduced. In its *Stressed River Assessment* of 1998, the NSW Department of Land and Water Conservation found that every sub-catchment was experiencing hydrological stress. Although restoration efforts were put in place, ten years later 28 per cent of available surface water on the Lachlan was still being extracted, and a 2012 audit
found its ecosystem health remained very poor, especially in the irrigated lowland (MDB Authority nd). These river systems are dying because an immense body of knowledge has been ignored in favour of European river paradigms.

British rivers were lush and rarely dried up. The main streams were fed by tributaries, regular rainfall, and melting snows. Extensive peat bogs allowed stored water to seep continually into the system. The rivers of Wiradjuri country, although much longer, with far greater catchment areas, are fragile. They have their source in the Great Dividing Range. The southern rivers, the Murrumbidgee and Murray, are fed by melting snows in spring, and there are small fens, bogs and peatlands in the alpine plains (Bilney 1997). The Lachlan and Macquarie depend on rain. On the Lachlan, evaporation exceeds rainfall before the river reaches half way down the western side of the range.

The health of creeks is vital. Before invasion, abundant plant life performed the role of peat. Plants made the streams barely visible, retaining water, allowing slower seepage, and providing protection from the high rate of evaporation in the exposed main channels. One uncleared creek has never run dry, even through severe drought. It is an exception: most were cleared (Figure 2). Creeks were the heart of Wiradjuri river management, and the heart of their religious and social life, but how much of past Wiradjuri understandings can be uncovered?

Figure 2 Creeks on the Cowra-Grenfell Road, taken during drought, December 2009. Left: Bunjalong Creek, cleared, no water flow. Right: Tyalong Creek, partially cleared but with water flow. The reeds were buzzing with the sound of insects and small birds.
The importance of water in Aboriginal social life and cosmology is well recognised (Langton 2006; Rose 1996; Strang 2004; Toussaint et al. 2005; Weir 2009), and Indigenous understandings are being included in water management systems across the continent, including in the MDB (cf. Weir 2009). My efforts to unravel ways in which Wiradjuri people in the past ‘thought’ through and about their riverine environment developed from a desire to understand the former practice of carving intricate designs on implements and trees in south eastern Australia. This quest revealed how hydrology, rather than ecology, shaped the Wiradjuri world.

For years Wiradjuri people told me of old pathways, up one creek, down another, stopping at favourite campsites along the way. Gradually I saw the landscape in terms of water, not roads. These insights helped me interrogate a fragmented archival record, revealing how Wiradjuri people had acted on their riverine environment. I have drawn on historical observations made in the Riverine and North Eastern cultural blocs (see Horton 1996), where there is a great deal of congruence in cultural practice and riverine ecology. This is complemented by ethnography from elsewhere in Aboriginal Australia. The quest is fraught, but respectful: I acknowledge the challenge of constructing, from fragments, who Wiradjuri people were prior to colonial incursion. I can produce only some ‘hard’ evidence. Rather, I propose a set of relationships which make cosmological, social and ecological sense. I hope to provoke discussion and invite others who might flesh out (or refute) this picture.

Wiradjuri Thought and Practice

The Macquarie, the Lachlan, and the Murrumbidgee are described primarily in terms of their main channels. For Wiradjuri people, ‘river’ meant an entire catchment, not a line of water. A catchment is far more than a river. It is a hydrosphere: relationships between bodies of water—that come from the sky as rain, gather up on the ground as dew, and form creeks,
rivulets and billabongs that link into a network. It is also an ecosphere: the relationship between those waters: the sands and rocks through which they travel, their riparian zones, and the entire lotic ecosystem; biotic and abiotic interactions between humans, plants, insects, animals, micro-organisms, soils, winds and sunlight—interconnected life worlds that are constantly changing through seasons, weather cycles and human uses.

We can assume that, as elsewhere in the MDB (Weir 2009) and across Aboriginal Australia, every waterway in Wiradjuri country would have been an expression of creative spirit activity, of sustenance and social interaction. This hydro/ecosphere was a cosmic sphere: the shaping of the landscape and the waters by ancestral spirit forces found expression and connectedness through their ongoing activity, and the kin-relatedness of all life, human and non-human, animate and non-animate. As the ancestors shaped landscapes, they gave each part a distinctive language and also names (cf. Merlan 1981). People of that country bore its identity and language. Wiradjuri means a distinctive and visible sphere of cosmic existence, connected to neighbouring spheres of ancestral and human interaction.

In the sophisticated Wiradjuri allocative economy (Macdonald 2017, forthcoming), production included material and non-tangible things of value. Social relatedness focussed on distribution (‘sharing’): one produced in order to allocate. Reduction of this complex system of land and resource management to ‘hunter gathering’, implies it did not intrude on ‘nature’. This view that chance, not skill, sustained life is only slowly being challenged (see Gammage 2011; Pascoe 2014).

Humphries (2007) cites Mary Gilmore’s account of Wiradjuri practices in the 1870s on the Murrumbidgee. Gilmore described the ubiquity of fish ‘balks’ and traps, that allowed fish to move up or downstream and on which the conservation of fish depended: ‘without them the great fish would devour the smaller varieties and the end would be loss’. When these were destroyed, or replaced with dams, that loss proved fact. Humphries (2007) observed:
These balks, together with the transport of fish (using hollow logs, baskets and ‘coolamons’) resulted in the presence of fish in places which would not normally be expected to hold fish and gave rise to early settler’s theories about fish falling with rain. The death and displacement of the Aborigines, Gilmore asserts, resulted in the loss of fish, as there ‘were no sanctuaried areas; no close [sic] season for breeding; no selection in netting fish; and, as I said before, the 70 pounders ate the smaller fish, and the once plentiful breeding diminished’.

Humphries (2007:106–7) further argued that Aboriginal ‘exploitation of aquatic resources was so wide that the breadth of their impact would have likely been more significant than other species: they were not just top predators, like eagles or Murray Cod...[they] used most components of the fauna and flora in one way or another’. Wiradjuri people were ‘environmental modifiers’. The ‘aquatic environment encountered by Europeans was not in stasis; rather, it was dynamic and under the influence of, among other influences, the dominant humans of the time’ (Humphries 2007:107).

Kin-based groupings lived on a creek catchment, owned by the core members. Often called ‘hunting grounds’, they hunted, fished, maintained trees and gathered fruit and honey, distributed seeds and harvested vegetables in these territories, which were named for distinctive local resources, such as plants, trees or swamps in the district (Mathews 1906:941; Donaldson 1984). This distinctiveness is no longer evident because so much land has been cleared (Hercus and Simpson 2009:16). They were a person’s home country, their territorial identity, which Wiradjuri people knew as their nguram-bang (Grant and Rudder 2010:99; Mathews 1897:118).

Langloh-Parker (1905) explained that belonging to this territory was the second most important identity one acquired, after one’s matritotem (the third ‘name’ being one’s section name, women from their MM [mother’s mother] and men from their MMB [mother’s mother’s brother]):
The next name of connection is local, based on belonging to one country or hunting ground; this name a child takes from its mother wherever it may happen to be born. Anyone who is called a Noongahburrah belongs to the Noongah-Kurrajong country; Ghureeburrah to the orchid country; Mirriebhurrah, poligonum country; Bibbilah, Bibbil country, and so on. This division, not of blood relationship, carries no independent marriage restriction, but keeps up a feeling equivalent to Scotch, Irish, or English, and is counted by the blacks as ‘relationship’ but not sufficiently so to bar marriage.

Langloh-Parker (1905) is also describing the use of the burrah/bara suffix, used across the region to denote ‘the people of a local territory’ (Macdonald 2009:21).

Ritual sustained ecology—neither symbol nor representation, it was both practice and an attitude. A small ritual focussing on a waterway included clearing that waterway of weeds, branches or other impediments to its flow. The interdependence of sections of the river system was reflected in social and cosmic relations. The rivers were kinship written on the land, connected as the people themselves were connected, both relationships constantly maintained.

Wiradjuri practices privileged the health of each body of water. They understood that the central flow of water was the vulnerable part: managing tributaries was essential to managing the main stream. Gilmore (1986:140) contrasted Wiradjuri practices with settlers’ lack of management:

...when I asked my father why we could not get fish as formerly he said, ‘When the blacks went the fish went’: meaning that the habit of preserving the wild was destitute in the ordinary white settler. Yet at that time the white population on the rivers was only a fraction of what the black had been...Beside the fish, where there were deep valleys, running water and much timber, the natives invariably set aside some parts to remain as breeding-places or animal sanctuaries. Where there were plains by a river, a part was left undisturbed for birds that nested on the ground. They did the same thing with lagoons, rivers, and billabongs for water-birds and fish. There once was a great sanctuary for emus at Eunonyhareenyha, near Wagga Wagga. The name means ‘The breeding-place of the emus’, the emu’s sanctuary. The one-time fish-traps on the Darling, the Murrumbidgee, and the Lachlan all indicated sanctuary; the small fish would escape, or could multiply beyond the rocky maze that formed the trap or balk; the large remained within the fishing area. When on the lower side the fish were plentiful and the upper part required a rest, keystones were lifted, or put in if
they have been lifted, and sanctuary was moved over the barrier... The law of sanctuary in regard to large or wide breeding-grounds, such as Ganmain and Deepwater, where once there were miles and miles of swamps (as also down near Deniliquin), was that each year a part of the area could be hunted or fished, but not the same part two seasons in succession.

Gilmore had captured a glimpse into what Langton (2006:144) refers to as Aboriginal waterscape ontologies:

Bodies of water are constituted by Aboriginal people as being more than just a physical domain. They are construed spiritually, socially and jurally, according to the same fundamental principles as affiliations to terrestrial places in the land; the dialogic relationship in Indigenous thought between the ancestral past and its effect on human existence derives from the Aboriginal understanding of the transformative powers of the spiritual beings that inhabit those places, whether a landscape, waterscape or skyscape.

Gilmore’s comment about ‘preserving the wild’ makes an assumption still common: that the environment was pristine, unsullied by humans. In one article concerning degradation, Bond and Lake (2003) referred to the need to reverse ‘the damage done by humans to streams and rivers’. These ‘humans’ are the British and others who devastated carefully managed Wiradjuri country. Contrastingly, Humphries (2007:110) asked, ‘What might have been the ecological effects of the removal of Aboriginal people and their replacement by Europeans in the riverine environment?’ He considered the possibilities that their removal might have both increased and decreased various forms of aquatic life (cf. Rose 1996:50). As Aboriginal people ‘went from playing a major role in the ecology of rivers, wetlands and lakes, to playing a very minor role’ (Humphries 2007:109), the ecology went from health to crisis.
The Muddied Waters of Colonial History

When Governor Macquarie first saw the Wambool in 1815, later to be named after him, he had been made aware there was little water in the rivers on account of ‘long continued droughts’. Yet he recorded:

The appearance of Bathurst Plains from the Depot extending for many miles on both sides of the Macquarie River, and surrounded at a distance by fine verdant Hills, is truly grand, beautiful and interesting, forming one of the finest Landscapes I ever saw in any Country I have yet visited. The Soil is uncommonly good and fertile, fit for every purpose of Cultivation and Pasture, being extremely well watered, and thinly wooded.

(Macquarie 1815)

As remarkable was John Oxley’s (1820) sighting of the Bell River, a tributary of the Macquarie:

Imagination cannot fancy anything more beautifully picturesque than the scene which burst upon us. The breadth of the valley to the base of the opposite gently rising hills was between three and four miles, studded with fine trees, upon a soil which for richness can nowhere be excelled...In the centre of this charming valley ran a strong and beautiful stream, its bright transparent waters dashing over a gravelly bottom, intermingled with large stones, forming at short intervals considerable pools, in which the rays of the sun were reflected with a brilliancy equal to that of the most polished mirror.

They did not see the hand of Wiradjuri people on this landscape. These descriptions are hard to visualise when standing on these banks today. Greed overtook common sense:
As early as 1803 Governor King issued a proclamation forbidding the felling of trees along the banks of rivers and watercourses. He was convinced that indiscriminate clearing allowed the banks to erode and floods to become more intense, washing away ‘many acres of ground’. Like many efforts to protect the land, this one was ignored...Wastage, although it was rarely total, fuelled the frontier. Settlers crossed mountains, rivers, and near waterless plains hoping to make good. They took with them their disregard for life-support systems. (Rose 1996:77, citing Bolton 1981:37)

Wiradjuri management supported a mosaic of forest, temperate and semi-arid woodland, wetland, shrubland, heath and grassland. The riparian zones had good soil: when healthy, they improved water, enhanced flora and fauna, increased fish stocks, and curbed erosion and algae growth. They were wildlife corridors, providing refuge for animals during fire. The settlers cleared vegetation along the creeks to allow access for stock and water extraction. This clearing, and hooved animals, devastated these fragile waterways, and thus the main channels into which they flowed. The rivers are in crisis: too shallow to swim, too cold for fish. The creeks are often dry, their banks eroded, a metaphor for the social history of colonisation.

A Cosmic Hydrosphere

The Wiradjuri world was a cosmic hydrosphere: the corporeal expression of the ever-present ancestral forces which brought life into being. Arguably more destructive than damage to the rivers has been the loss of the social and spiritual specificity of Wiradjuri relations to their country. There is a strong focus on water in sacred stories of the Riverine, which ‘allocate rights and interests among particular people to water sources such as lakes, rivers, springs’ (Behrendt and Thompson 2003:1). There are references to rain-making ceremonies (Reay 1945:319) and each water site had associated rituals (Weir 2009:403).

A Wiradjuri person’s Spirit Home or Spirit Country, Mi’yur, was the resting place where shades of members went after death. Located in a fixed direction from one’s territory (Mathews 1905:85), each Mi’yur had its fabled watering places.
and hunting territories (Mathews 1904:292). Like all sites and objects, Mi’yur were divided into moieties; one’s Mi’yur was that of one’s MM (mother’s mother) (or M [mother] in case of direct descent).

Wiradjuri people on the Lachlan called the river and the Milky Way by the same name, Kalarr (Howitt 1904:432). Also known as Warrumbal, it was the sacred home of many Wiradjuri spirit ancestors (Ash 2009:183; Mathews 1904:364; cf. Ridley 1875:273–4) a large watercourse where flood waters overflowed on polygonum (knotweed) flats. Its water fell on earth. Baiame’s camp is in the Milky Way, as is the Emu, and every river and waterhole has a cosmic counterpart (Gold 2006; cf. Clarke 2003:25). The black streak in the Milky Way, towards the Southern Cross, is an ancestor of Wawi (the bunyip). The Wawi lived in deep waterholes burrowed into the banks. After a thunder-shower, a clever man painted his body with red ochre and followed the rainbow to visit Wawi’s waterhole, where he could learn new songs for corroboree (Mathews 1904:364).

Across the Riverine and North East, young men on their initiation received a sacred name and a specific locality or site. These were water sites—a waterhole, a bend in a creek or a swamp. Thereafter, as an actor in the work of the spirit ancestors, he would identify himself in ceremony in two ways. First, he called out his matritotem, an identity that he inherited through his matriline, that had existed before he was born. This was the first and foremost name every child received. Second, he would call out the name of his identifying water site (Kelly 1935; Langloh-Parker 1905). For the Yuwaalaraay and Wiradjuri, these sites were bends in the creeks:

The men and boys in camp march up and down to some distance from the camp. The old women keep on singing, and one man with a spear painted red with a waywah [a man’s waistband made of possum sinew with bunched strips of paddymelon skins hanging from it, Langloh-Parker 1895:93] fastened on top, walks up and down in the middle of the crowd of men, holding the spear, with its emblematic belt of manhood, aloft; as he does so, calling out the names of the bends of the creek, beginning with the one nearest to which they are camped. When he gets to the end of the names along that creek and comes to the name of a big river, all the men join him in giving a loud crow like 'Wah! wah! wah!'
Then he begins with the names along the next creek across the big river, and so on; at the mention of each main stream the crowd again join in the cry of 'Wah! wah! wah!'...As they approached the place of gathering the head man, with the painted spear, began calling out all the names of the places along the creeks from whence he came; at the name of each big watercourse they all cried together 'Wah! wah! wah!' (Langloh-Parker 1905:62–3, 64–5; cf. Mathews 1904, 1896:321–3; Radcliffe-Brown 1954:105–6).

In the drier Ngiyampaa country to the west, swamps, not creek bends, were critical water sites. Wangaaybuwan Clever Man, Fred Briggs, born in the 1880s, explained to Beckett (1959) that local groups were not recruited on a unilineal principle: there were no distinct patrilineal hunting grounds. The hunting grounds of his F (father), MB (mother’s brother) and WF (wife’s father) were as one to him. He explained that:

Every man 'owned' a series of (adjacent) swamps...He shouted their names as he came on to the ceremonial ground and he might sometimes be addressed by the name of the most important one. He was not the sole 'owner' but he had the right to hunt in them and to give others the permission to do so, whereas hunting in another man's swamp necessitated giving the owner half the kill. In the only two cases Biggs could cite...the swamps had been acquired from the father-in-law; however (they)...could be acquired from one's father or mother's brother. (Beckett 1959:206)

Winterbotham (1957:39–40) said of the Gabi Gabi that, during the bora ceremonies, ‘all the members were given certain portions of the tribal territory as theirs’. Gaiarbau Mackenzie told him a section of a creek that was the breeding ground for the freshwater jewfish was allocated to him: no one could fish it without his permission (Winterbotham 1957:39).

Langton (2006:155) illustrated for Cape York how:
The social dimensions of a single water body...might encompass religious beliefs, observances and rituals concerning water and waterscapes, naming practices specific to water bodies, principles of kinship and descent, the social organisation of estate-owning groups, regional sharing practices, and the allocation and distribution of rights and responsibilities in places.

It is evident that allocation of a water site to a young Wiradjuri man was far more than an identity attachment—it was an allocation of ecologically-strategic rights, responsibilities and relationships. The bends on creeks and spots where feeder creeks join the flow are good for fishing, especially where they are timbered or have reed or grass cover. But the bends get silted up in floods. I suggest this was the reason for allocating men across the creek system. Each bend in the river must be cleared—a judicious, knowledgeable clearing that allows for the flow but also encourages its retention. Then the water, its riparian zones and its people find equilibrium again.

The hydrosystem, as well as plants and animals, the focus of the totemic system, required ‘looking after’. The distribution of men to manage and monitor flows across the entire river catchment was arguably so important that it could not be left to the vicissitudes of descent. People inherited totemic identities through their matriline, but the allocation of creeks and swamps at initiation would have allowed older people to distribute young men across the waterways according to need. No advantage would be served by inheriting the creek bend of a man still able to care for it when another bend had no caretaker. This ritual practice ensured a system of ecological management (cf. Weir 2009:3).

On receiving his creek, a Wiradjuri man received his designs, which identified him in ceremony, and were carved onto his implements—they were a primary spatial referent (Howitt 1904:746; Kelly 1935; Langloh-Parker 1895). There are still examples of Wiradjuri carving, but we know almost nothing about their meanings. I think these personal designs referred to a man’s matritotems and his creek or water site. Clearly identifiable in carving on trees, ground drawings and implements are recognisable animals and celestial bodies that were matritotems. But there are also many abstract designs. Mathews (1896:39; cf. 1898) described these at a bora ground as
including 'straight, wavy, and zigzag lines, forming imperfect rectangles, ovals, and different indefinite patterns, no two of which are alike, although there is a general similarity in their construction'. He noted these designs, ‘whether cut upon the ground or upon trees, are called yammun-yamun’ by Wiradjuri and Gamilaraay. In the case of Wiradjuri funerals, a ‘symbol is afterwards carved upon the nearest tree, which seems to indicate the particular tribe to which the individual may have belonged’ (Mathews 1896:41).

Mathews (1896:43) referred to the meaning of only one design, cut on a belar tree at a Wiradjuri Burbung ground. It represented marks left by lightning, the longitudinal strips indicating the course of the electric fluid down the tree, while the zigzag lines represented the forked lightning itself. He noted:

> The lines carved on native weapons and utensils are generally in the form of the chevron, herring-bone, saltier, or oval, but occasionally the figure of a human being or an animal is found. The instruments used in carving wood consist of pieces of broken stone or shell, sharpened pieces of bone, or the teeth of animals. Sometimes their shields, etc., are painted in red and white lines. The natives marked their bodies by scars, ordinarily in a very rude manner, but occasionally men have been seen whose bodies bore cicatrices in regular lines, making a sort of pattern. These scars are made with instruments similar to those used in wood carving.
> (Mathews 1896:47)

Von Brandenstein (1972:226–7), writing about the ‘so-called zigzag design’ in the Pilbara of Western Australia (WA), saw these as similar to those of Wiradjuri, noting that the term ‘riverine’ was apt for the geography of that western coastal region. Pilbara-carved designs symbolised creeks or rivers of the owner’s country. The particularity of a design signified a specific river or part thereof: a river’s distinctive geography was symbolised and groups along it had their own variation. Von Brandenstein (1972) was helped by Robert Churnside-Parraruru, a leader and medicine-man of the Pilbara Ngarluma, who told him that ‘the Ngarluma call the zigzag lines or flutings thurrungul or ‘straights’, and the angles formed by them wangu or ‘bends’’. Churnside-Parraruru ‘insisted that the zigzag design as
a whole had a name and that the horizontal cuts through the wangu were the distinctive features in the recognition by the Aborigines of the origin of the weapon and of the tribal identity of its carrier’ (von Brandenstein 1972). They used two trees, Cadjeput or Corkwood, while neighbours used other woods.

Von Brandenstein (1972:223) found other clues: in a Ngarluma vocabulary, Hall (1971) noted ‘[t]he lines thus on a shield are the Rivers in the tribes’ territory’; and Porteus (1931:36) of Beagle Bay Mission claimed incised designs on sacred board ‘represented waterholes and creeks or other landmarks in the owner’s country’. Churnside’s examples included a Pandal shield showing two horizontal cuts for three sections, belonging to the Pandjima on the Fortescue River (Figure 3). A comparable design in three variations was shared by three neighbouring people (Pangkurda). Von Brandenstein (1972) argued that these zig-zags ‘mapped’ a person’s river (Figure 3).

Figure 3 Carved shields and river sections, Pilbara region, WA. Above left, Pandal shield and three Pangkurda shields. Carved designs reflecting sections of the Fortescue (left) and Yule (right) Rivers. Source: von Brandenstein (1972:224–225, 229–230).
Knowing the geographic origin of Wiradjuri objects is rare. However, I suggest that Wiradjuri ‘zig-zag’ carving carried similar meanings, associated with specificities of their river system, the places with which each man was associated (see examples in Figure 4). They were carved in association with the other key symbol of identity, a man’s matritotem. This would explain why objects, including burial trees, carried either a variant of a zig-zag design or a totemic creature. Wiradjuri people also used two specific trees: Yarran (*Eucalyptus alba*) and Myall (*Acacia* spp.), using the one associated with their own matrimoiety.

![Figure 4 Wiradjuri shields. Left to right: (1) and (2) Broad shield and parrying shield, mid 19th century, NSW, Davidson (2017) (used with permission); (3) Broad shield, mid 19th century, NSW, Gaynor Macdonald, private collection; (4), (5) and (6) three shields from McCarthy (1958:18).](image)

The view from the Bigga Rock Art Site, 672 m above sea level, across the Lachlan Valley at Reid’s Flat is spectacular and one of few rock art sites in Wiradjuri country. Its ochre paintings of figures are characteristic of the region but it is distinctive for a strong wavy line in yellow-orange ochre. In 1984 senior Wiradjuri women explained to me that this was the Lachlan.
Layton (1992:135) described it in his overview of Australian rock art:

A rock shelter at Bigga, New South Wales, is dominated by an undulating figure over four metres long. The tradition handed down by European settlers since the area was colonised in the 1840s is that this figure represents the Lachlan River, which flows nearby. Wiradjuri people, in whose tribal country the site lies, still regard the site as important, and give a similar interpretation of the painting, but in Feary and Bell’s assessment, ‘it seems that this originated from a European source and not through Aboriginal tradition’ (Feary and Bell 1986:16-17). Flood, while acknowledging a resemblance between the painting and the course of the Lachlan River, argues that it is more likely the depiction of a snake, since a river map, ‘would be unique in Australian rock art’ (Flood 1980:138). While it is nothing more than an untested hypothesis, it is worth noting that the two interpretations, river and snake, would not be mutually exclusive in central Australia. A sinuous line might represent both the body of a legendary snake and the creek bed formed by its track.

Flood’s scepticism is unwarranted. She gave little attention to the ways in which rivers connected people—in mythology, art, ritual and daily life. There is also no reason this ‘river map’ could not be unique. From this high vantage point, the river can be seen snaking across the valley as in the painting (Figure 4). Many studies, including von Brandenstein’s, make reference to the Aboriginal capacity to visualise their country as if looking down on a map, evident in the Wiradjuri aptitude for surveying (Musgrave 1973). There is a strong relation between the snake and rivers. Von Brandenstein (1972:229) observed that ‘All rivers in the north-west of Western Australia are the creation of a serpent from the sea. Some rivers in Queensland and in New South Wales are also reported to be created by serpents’.
Figure 4: Bigga Rock Art, Reid’s Flat, Lachlan Valley. Showing diagram of the rock art (Kelton 1991) compared with the view of the river from that site (adapted from Bonzle maps).
The allocation of a creek or swamp was only one way of attaching people to country beyond rights of filiation. Two others were birthplace and marriage. Both allowed for choice that involved social and ritual connections and responsibilities. Identity was spatially determined. When it became known a woman was pregnant—birthplace rather than conception place being important—the group would move to the appointed site when she was to give birth (Mathews 1905:15). Donaldson (2009:210) explained: ‘For the Ngiyampaa people of my teachers’ generation, mostly born around 1900, your birthplace in the ngurrampaa named you, and your relations followed suit: Liza Kennedy said that her Uncle Red Tank called her ‘nothing but’ Wirrpinyi, the name of the place where she was born’.

The other choice made at initiation that impacted on a man’s spatial identity was his wife. This established his all-important father-in-law relationship. His WF was in the same matrimoiety section as himself, sharing a socio-centric identity. They would be particularly close if sharing the same totem. A father-in-law extended knowledge about, and rights to, country. Most men spent many years in their wife’s country, at least while children were raised, sometimes remaining there (Langloh-Parker 1905; Reay 1945).

Marrying locally allied neighbouring families, strengthening claims to country and forming an ‘enclave’ of power over adjoining territories, leading to patterns of matri-clan association which Beckett (1959) observed. Conversely, matri-totemic obligations ensured people maintained regional networks, preventing the formation of exclusive land-owning groups (Gold 2006). Marriage choices managed demographic unbalance, as well as ensuring safety nets required by cycles of drought and flood: drought sent people downstream, floods brought them upstream. Weather and ceremonial rounds meant a constant need to act as hosts.

Belshaw (1978), studying seasonal patterns of movement in northern NSW, found evidence for movement between territories in response to surpluses: abundance provided increased sociality. West of the range people moved in response to water availability. Predictably, during dry seasons people in drier areas accessed the main rivers. Flood in the
inland was worse than drought. During drought, water was available in sub-surface rocks and gravel underlying the creeks: many have substantial under-surface flows even when their bed is dry. Wiradjuri people would have known where to dig, and which trees would yield sap. Frogs hiding under the mud could be dug up to drink the water stored in their swollen bellies. The story of Tiddalik the frog, about drought, flood and greed, is shared across the Riverine. Koalas only drink water in a long drought or when it is unseasonally hot. They, too, were blamed for droughts (Connolly 2007; Morton 2006; Moyal 2008:72ff).

When drought breaks, the barren brown landscape rapidly becomes greener. Only a long severe drought required relocation. Floods, on the other hand, are devastating. Bringing vast amounts of dangerous water, floodwaters sweep up debris, uproot trees and erode the river banks and riparian zones. Flight is the option until the water subsides. It may take months for plants to re-emerge, re-establishing habitable life. The men responsible for creeks had the responsibility of repair. Clearing debris had to be judicious. Dead wood, which provided a protective habitat, was problematic after floods and had to be contained.

**Boundaries and catchments**

Wiradjuri geo-cultural boundaries were not arbitrary. They were defined by hydrology (Macdonald 2009, 2011). Tindale (1976:13ff., 24–26), convinced that boundaries were observed, assumed they were based on ecological changes. He noted ‘a tendency for boundaries to fall where changes of a broadly ecological nature occur, whether these be indicated by strictly botanical, geographical, pedological, or geomorphic and microclimatic differences’, noting the ‘Wiradjuri/Narinari boundary, about 25 km east of Hay, appears to be marked by a change from open Eucalyptus woodland and grassed plains, first to Eucalyptus and saltbush (Atriplex) and then as one enters further into Narinari territory to salt-bush on an almost featureless plain’ (Tindale 1976:13ff., 24–26). Yet he spoke of river systems as territories:
Along the coast of southern Queensland and New South Wales, rivers originating in the rugged highlands of the Great Dividing Range fan out on limited alluvial plains to form extensive marshes and swamps, often lush with vegetation, including rainforests where the habitat favoured them. Each river system tended to be the territory of one or more tribes but where more than one was present they were sometimes closely related. (Tindale 1976:126)

But he missed the catchment logic, as did Flood (1980:40ff.) in her study of the Australian Alps, although she observed ‘the high degree of correlation between tribal and physiographic boundaries’, and that different groups each had well-watered valleys.

Stanner (1965:5-6) toyed with the idea of drainage-systems, but it was Peterson (1976:64–5) who identified their significance as determinants of regional cultural blocs, considering that some language-units were drainage-based. Anderson (1984) identified drainage system-based social organisation in Cape York, and Sutton (1990:73–5) saw that this could be extended to micro levels such as clan estates, referring to ‘riverine dialect groups’ and watercourses as the ‘bones or structural definers of estates’ (Sutton 2003:58–59). I have identified them in Wiradjuri country and south-east Queensland (Macdonald 2009, 2011). Mathew (1910:67ff) described the language areas of south-east Queensland as ‘river basins’ and, describing Gabi Gabi local groups to Winterbotham (1957:27–8), Gaiarbau Mackenzie identified sub-catchments. Lane (1914), probably the first published Aboriginal cartographer, mapped Wangerribara local territory: it is clearly a map of the Albert River catchment. Attempting to identify the territory associated with the Yagera language of the Fassifern/Lockyer districts, Steele (1984:85, 142) expressed surprise: they were ‘almost surrounded by Bundjalung people (Yugumbir and Gidabal)’. When mapped in terms of catchments, this geography makes perfect sense.

The flow of water tells a traveller when they are entering another territory. The eastern Wiradjuri boundary is the ridge of the Great Dividing Range (Macdonald 2011; Flood 1980:38). The western boundaries do not take in the lower portion of the main river catchments: there the language gives way to smaller language groups, closely related to Wiradjuri.
Early studies often referred to them as part of Wiradjuri, today they are considered distinct language territories. They form buffers between Wiradjuri and neighbouring large language areas such as Gamlaraay (north) and Paakantyi (west).

The three river catchments of Wiradjuri country were marked by linguistic distinctions, as were the hundreds of local territories, nguram-bang. Small but evident speech differences (mostly of vocabulary or pronunciation) served as identifiers of people and place; they still do in the small Wiradjuri lexicon used by older people (Macdonald 1996).

Nguram-bang supported kin-based groupings averaging 50–70 people. Protocols in relation to them were as strict as at higher levels of territorial identity. A Wiradjuri story is illustrative: in 1821, James Blackman and three companions explored a route from Bathurst to the Cudgegong River with a Wiradjuri guide, Aaron. They travelled across the Turon River to the granite hill now known as Aaron’s Pass (Figure 5), beyond which he refused to go. This ridge separated his nguram-bang on the Turon from one on the Cudgegong. Had he continued without permission, he would have been trespassing, so he pointed Blackman in the general direction (Greaves 1966).

Figure 5 Aaron's Pass, looking north at creeks flowing to the Cudgegong River. Source: Gaynor Macdonald, 2009.
Nguram-bang were not equivalent to patri-estates, nor to the ranges of which Stanner (1965) wrote. Neither Jeremy Beckett (pers. comm. 2017) nor I have found mention in the early literature of patriclans and patriclan estates across these two vast regional blocs (see also, O’Rourke 1997:144–5). Also distinctive is that the sections did not regulate marriage. In his review, Elkin (1933:87) concluded they functioned to ‘(a) classify man and nature into two mutually dependent divisions, (b) to order ceremonial life, and (c) to order social life, camping, fighting and play in a dual organisation’. The hunting grounds are defined in terms of matrilineal descent by Howitt (1904:57) and, more significantly, by Langloh-Parker (1905) who had long-term access to Yuwaalaraay people. It is more probable that there were no ‘estates’ and that sites, both earth-based and celestial things, in which there were often economic as well as social rights, were divided up on the basis of both patrilinial and matritotemic relations. Recent writers assume patriclan estates, reasoning that they are present across the rest of the continent. This argument might have force if the absence of reference wasn’t so total. The intellectual homogenising of the continent, so far challenged only for the Western Desert (Keen 1997) is surprising.

**Failing Ecosystems**

Wiradjuri country was claimed by European colonisers for pastoral and agricultural use. The sheer scale of degradation is barely imaginable to those now accommodated to the altered landscape. By 1920 the Lachlan River was ten feet shallower than in the 1840s: the muddy, reed-lined banks had gone, sandbars had appeared. Many creeks now flow only in floods. The Box and Ironbark woodlands have been reduced by as much as 90 per cent, making this one of the most significantly altered plant communities in the State. Isolated trees have little understorey structure or species diversity, no regeneration, and are not functional ecosystems (cf. Green et al. 2011). Species of animals, insects and birds are declining, native plant life is not regenerating. Salt from ancient ocean sediments is natural on these rivers but irrigation and land clearing concentrate salinity, devastatingly impacting biodiversity, and water and soil health.
Building on flood plains, and constructing levees and flood banks to protect dwellings and towns, removes flood storage, exacerbating floods as water rushes downstream, then floods upstream through backwater pressure. Dams alter water temperature and flow, impacting aquatic plants and fish. Floodplain wetlands are isolated from the main rivers because regulation reduces high flows and floods. Introduced carp, which have no natural predators and can survive in degraded waters where native fish cannot, dominate the failing aquatic ecosystem.

Langton (2006:159) argues that water places are constructed socially, through the experiences of knowledgeable people living in these landscapes, as tenure systems and spiritscapes; and can be understood through Indigenous worldviews. Conceptualising Wiradjuri country as sub-catchments is one such insight. Concern about the state of the rivers has been growing over the years, but not until the 2000s were sub-catchments assessed for hydrological purposes. As Wiradjuri people knew, a whole of catchment approach is essential.

Efforts to recognise Aboriginal rights and practices is hampered by what Weir (2009:90) calls the construction of Indigenous people as pre-moderns, without history and measured according to an imagining of tradition. This renders traditional owners across the MDB unequal partners. As Weir (2009) explains, they participate, hoping they can ‘transform the other actors’ and influence ‘water management responses to ecological devastation’ which threaten their cultural meanings and practices. But, across the continent, involving Aboriginal people in water management remains largely symbolic. The relations are unequal.

Wiradjuri people are largely alienated from their ancestors’ expertise. Segregation and control disrupted cultural practices for generations: assuming they hold ancestral knowledge is a dehistoricised, racialising expectation. How should they be involved today? Even where knowledge and practice on the rivers remains strong, Jackson and Palmer (2012:14) observe ‘at best, Indigenous rights and water
management practices are paid lip service by governments and, at worst, they are deliberately obstructed by national legislation and intervention policies’. Ten years after the MDB Ministerial Council launched its 1990 strategy of ‘integrated catchment management’, water quality and ecosystem health continued to decline. They emphasised ‘the importance of people in the process developing a shared vision and acting together to manage the natural resources of their catchment’; a study of Aboriginal involvement found a ‘chasm between the perception of the available opportunities for involvement and the reality experienced’ (Weir 2009:23).

Wiradjuri country was Australia’s pastoral and agricultural heartland. There was no pristine wild state, there is no ‘turning back’ to that era of teeming life, but the involvement of Wiradjuri people need not be ‘tradition’ or past-oriented. It can be rehabilitative rather than restorative, inspired by, rather than attempting to recreate, the past. It could encourage a new and central role, restoring to Wiradjuri people the right to the knowledges and practices required to maintain these systems, and the responsibility to do so on behalf of all who now use them. Scholarships for Wiradjuri people to study ecological and aquatic management—both Wiradjuri management and current approaches used today might lead to the allocation of a ‘bend in a creek’ which that person would be charged to protect: to liaise with local landowners and users, ensure protocols for restoration, as well as producing annual reports on the health of their creek. This would be a restoration of a very productive kind.

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