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Wetlands as social ecological systems, and relationality in the policy domain

Pierre Horwitz[A,*]

For full list of author affiliations and declarations see end of paper

***Correspondence to:**
Pierre Horwitz
Centre for People Place and Planet, Edith Cowan University, 270 Joondalup Drive, Joondalup, WA 6160, Australia
Email: p.horwitz@ecu.edu.au

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ABSTRACT

A wetland policy perspective based on social ecological systems accepts that wetlands are part of landwaterscapes, that people are part of wetland ecosystems, and that the health of wetlands and the health of people are interdependent, evidence of the close, reciprocal and indivisible relationships between nature and culture. These relationships are storied and place-based, associated with place attachment, and are representations of relational values. They are most easily located wherever and whenever Indigenous and local peoples' knowledge and interests are at play in wetland settings. Legal and administrative processes that recognise Chthonic law and rights for wetlands will elevate relational values and provide the governance arrangements for their inclusion in wetland (and other ecosystem) management. Co-designing with Indigenous and local communities in developing wetland policies and operationalising practices will allow for wetland stories to be shared, respectfully cared for, and built into educational curricula and ecosystem valuation models. (Warning: this article contains the name of deceased Aboriginal person.)

Keywords: Chthonic law, cultural ecosystem services, landwaterscapes, natureculture, relationality, settings, social ecological systems, wetlands.

Introduction

Humans are fed, nourished and structurally, culturally and spiritually supported and challenged by wetlands. Communities become locally reliant on the life support and context for living that wetlands provide. As much as that, wetlands also mirror the way humans are with water and the land; water quality and the form of the wetland assume the signatures of cultural activities. This reciprocity points to a relationality that is too often neglected in wetland narrative and policy.

This paper argues that language about, framing of, and policies for, wetland ecosystems need to be realigned with relational concepts of reciprocity and the interdependence humans share with water and wetlands. It follows other calls for social ecological framings like that proposed by Kumar *et al.* (2021) for the wise use of wetlands under the Ramsar Convention, where wetland character incorporates a plurality of worldviews and value systems.

This re-alignment is necessary because wetland policy is currently framed around extraction, degradation and loss. The world's wetlands have been described as being deepened, widened, diverted, drained, channelised, filled-in and built over, and dammed, and water and sediments have been extracted and distributed for a multitude of uses. The widespread deterioration (Davidson *et al.* 2020) has come from an emphasis on instrumentality, and perceptions including various degrees of (mis)understanding, ignorance, neglect, and delusions of abundance. Wetland policy is strongly influenced by cognitive processes emphasising impersonal, objective, mechanistic (cartesian) and legalistic accounts of wetlands and their components that are, or are in danger of, being threatened or becoming degraded. Although important, framing wetlands in this way, with such a singular and monodirectional rationale, has significant repercussions and may even perpetuate these problems.

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One is that it frames the discussion about wetlands negatively. An extension is where the problems can seem so insurmountable that the situation either drives people away from a positive engagement, or produces a form of responsive paralysis, a sense of helplessness (which has been described as ecological grief; Cunsolo and Ellis 2018). Working with communities experiencing wetland loss and damage and transformed livelihoods, Eakin *et al.* (2019) suggested that peoples' cognitive and emotional responses will need to be understood and accepted, along with the values they still hold for wetlands, so as to find a sustainable pathway forward. The multiple accounts of the ways in which people relate to wetland ecosystems include the emotive and subjective expressions essential for a holistic knowledge.

Another consequence of framing wetland policy in this way is that it perpetuates a pervasive and subliminal argument that degradation continues under current administrative and social directions, and that humanity *in toto* is the cause. This cause (humanity) and effect (wetland degradation) linear equation is supported by a reductionistic scientific treatment that permeates policy development; in the words of Colloff and Pittock (2019):

> The inherent biases of discipline-based scientific framings become embedded in policy and can shape unforeseen outcomes [p. 88].

The alternative perspective of social ecological systems presented here stories wetlands and people as intimately related and responding to one another in rich and complex ways.

The cultural context of wetland management

The problematique starts whenever wetlands are described as essentially disconnected 'non-human' entities. This is complemented by an erroneous policy assumption that wetlands can be managed as discrete spatial and temporal objects in an ecological landscape, and in socio-political contexts. It is naïve about the ways in which people interact with, organise themselves around, depend on, and influence, wetland ecosystems as a construction of human culture. Cultures, as an amalgam of beliefs, behaviours, ideas, customs, language, and so on, are themselves a reflection of the ecosystems of which humans are a part, and from which they derive suites of values and services.

Innumerable examples exist in the literature of where this ecosystem–culture reciprocity exists. Linguistic–cultural diversity and biological diversity co-occur (Gorenflo *et al.* 2012). Spiritual and religious values are derived from wetland ecosystems or their components, which can be regarded as sacred, with healing and purifying capacities (see Agoramoorthy 2015). Wetland ecosystems and their components and processes provide the basis for both formal and informal education in many societies (see McInnes 2014), and wetland ecosystems provide a rich source of inspiration for art, folklore, national symbols, architecture, and advertising. People often choose where to live, spend their leisure time, or pursue a particular lifestyle, on the basis of the characteristics of waterscapes. In making these choices, they also commit to maintaining or enhancing aspects they value. The beauty or aesthetic value in aspects of wetland ecosystems is reflected in support for parks, scenic drives, and the selection of housing locations; for example, a relationship between proximity to wetlands and residential property values depend on the aesthetics of type of wetlands (Gardner 2021).

Wetland ecosystems also influence the types of social relations that are established in particular cultures. Pascua *et al.* (2017) described the place-based nature of cultural ecosystem services and reciprocal relationships between people and place, sense of security, traditional values, and cultural subsistence. Many people value the 'sense of place' that is associated with recognised features of their environment. Many societies place high value on the maintenance of culturally (and politically) important waterscapes (Acharya 2015). And 'Cultural keystone species' influence the identity of a community via the species' role in subsistence, economies or spirituality (Garibaldi and Turner 2004).

Indeed, we can adapt the four bridges of Pretty *et al.* (2009) for the reciprocity of nature and culture, for wetland ecosystems, as follows: (1) beliefs, meanings and worldviews that underpin the way humans see their place in the context of wetlands; (2) livelihoods, practices and resource-management systems, where wetland ecosystems are managed; (3) knowledge bases and languages, how people know the world, and how that governs behaviours, understanding and values that shape human interactions with wetland ecosystems; and (4) socially embedded norms and institutions, where normative rule systems govern human interactions and behaviours towards wetland ecosystems. They described the natural environment as 'the *setting* for cultural processes, activities and belief systems to develop', all of which feedback to shape the local environment and its diversity (Pretty *et al.* 2009, p. 102, emphasis added).

Wetlands as 'settings' for health and well-being

Framing wetlands as 'settings' resonates with a social ecological systems approach, and sidesteps an onus currently accepted for wetland management. Instead of working to categorise wetlands and delimit their boundaries and riparian buffers, with all the conceptual difficulties associated with spatially and temporally dynamic relationships between

land and water, wetlands are considered in their landscape context, in the relationships that people have with them, and particularly how societies are organised around them.

Wetlands as settings draws on the healthy-settings approach to health promotion, where people actively use and shape the environment and, thus, create or solve problems relating to health. There have been suggestions that watersheds or water catchments (Parkes and Horwitz 2009) and wetland ecosystems (Horwitz and Finlayson 2011) can be considered settings on the basis that doing so reconnects public health (through the language of health promotion) with the ecosystem context, in this case, where water and its quality and quantity are foregrounded. As social ecological 'settings', people interact in interdependent ways with wetland ecosystems. Some of these interactions in wetland settings can be detrimental, particularly where ecosystem services are eroded, where infectious diseases and contamination are concerned (Horwitz and Roiko 2015). Interactions can also benefit health and well-being, through, for example, the microbial priming of the developing immunological system by early life exposures (see for example, Prescott *et al.* 2016, although the specific contributions of wetland ecosystems are not yet known in this regard). The mental health benefits of blue space interactions such as reducing stress and restoring attention, being more contemplative and mindful of our surroundings, and mood change (improved energy and tranquillity and decreased anger and fatigue; Britton *et al.* 2020), have led to suggestions for engagement with wetland ecosystems as an intervention to treat anxiety and depression (Maund *et al.* 2019).

Beyond these interactions, wetlands provide the settings for human health and well-being through the contributions they make to livelihoods, lifestyles, and cultural expressions outlined above. None of these interactions should be seen as a one-way relationship. Health outcomes depend on the effects that our activities themselves have on wetlands.

Wetland relationality

Recognising our interactions with wetland ecosystems as culturally determined, and as settings for health and well-being, contributes to what Ioris (2012) referred to as 'an explanatory framework that comprehensively captures the multidimensionality of the relations between nature and society' (p. 124).

However, the degree to which these relations can be mediated by the state in wetland policy is currently complicated by, and dominated by, colonial viewpoints that distinguish and measure abiotic and biotic (non-living and living) components of ecosystems and manage them according to sets of values and principles built around instrumental mandates and land ownership. Linear realisations about wetlands use technical and mechanistic ways of acquiring knowledge, and these forms of scientific understandings are harnessed to the same type of economic and philosophical reasoning that accepts that resources can be extracted. The rationale extends to measuring environmental impacts in the same way, with mixed success in terms of the sustainability of wetland ecosystems. Part of its failure is the denial of other forms of relationships that exist between people and wetland ecosystems.

A foundational relational understanding is that people are a part of ecosystems, not apart from them. In a relational model, there are links of continuity between the biophysical, human, and supernatural worlds (Fabiano *et al.* 2021). This includes perspectives that recognise the interdependence and reciprocity between wetlands and people, where systemic properties are often best expressed as narratives, or stories, embodying socio-cultural norms of behaviour and stewardship (see Fabiano *et al.* 2021). Considering stories as complementary and supplementary ways of knowing wetland ecosystems acknowledges embedded, lived, place-based and time-honoured experiences and expectations of Indigenous and local communities.

Once storying is accepted as legitimate knowledge, other forms of relationality are emphasised. When personal and community stories depict wetlands or their components as totems, and as kin (Rose 2002) and spirits (from beneficial to aggressive, see Fabiano *et al.* 2021) as in Indigenous cultures, familial or equivalent obligations toward them are evident and expressed. Responsibilities prescribe appropriate behaviours and actions, such as more sharing and caring, and less possessing and extracting. When people feel so connected to home and land ('Country' as per Bawaka Country *et al.* 2022), and Country is responsive and has a voice (and stories), and has evidence of creation, and a spirit, and a memory of past events, colonial and scientific distinctions between abiotic and biotic, living and non-living, dissolve (or at least are non-sensical).

Australian Aboriginal, Cedric Jacobs (RIP, from the Noongar peoples of south-western Australia), referring to the Waugal, a snake or rainbow serpent recognised by Noongar as the giver of life, maintaining all fresh water sources, described it this way:

> It is through the lake system. There is a water serpent down there below which is extremely important and the water on the surface is really the marks where the waugle wither wound his way through and came up after making the streams and the water ways. It's all part of the ecological system to purify the land and the family. Once it was surrounded by waterways and if they fill them up with rubbish then the land begins to die [Cedric Jacobs, cited in Saraswati 2012, p. 1].

These perspectives have been classed as belonging to Chthonic law by Glenn (2010), a worldview with a sense of rootedness in nature, tradition, and a commitment to

maintaining balance and harmony, with symbiotic relationships, where Country is held in common. The extension here is that Country is indivisible, and the 'health' of the Country reflects the health of the people, and vice versa.

Implications for wetland policy

Together, these forms of relationality demand a different logic for wetland policy, one that regards separation of humans from wetlands, fragmentation of wetlands from the landwaterscape, and (over)extraction of 'natural resources', as counter to universal well-being.

Relational values are drawn from relationships themselves, from which understandings and obligations stem. They are most commonly expressed for Indigenous cultures and in local communities. In a cross-cultural project in Aotearoa, New Zealand, of relational values held by landowners and Maori environmental guardians, long-standing occupation of and connection to place, and attachment to place, were expressed by both groups, highlighting possible common ground for wetland management (Bataille *et al.* 2021; see also Pascua *et al.* 2017).

Parkes (2022) provided an application of these relationalities when contemplating the voice of a wetland, in this case a river, and then the river conversations one might have. In doing so, she referred to rivers, with a posture of humility, as 'eco-social elders' from whom unlearning and re-learning about the nature of being occurred. Her perspective is respectful, storied *and* critical, guiding principles for policy.

It is difficult to see these value-based principles adequately addressed in wetland policy unless the standpoint of Chthonic law is given administrative legitimacy by national governments, suggestive of constitutional recognition. Further delivery of this legitimacy might be through the recognition of the recently proposed Universal Declaration of the Rights of Wetlands as argued by Davies *et al.* (2021):

> Legal personhood and rights for wetlands ... can be seen as an expression of the recognition of the living beingness of Nature in legal language and practice, thereby weaving a more respectful and reciprocal relationship with wetlands and Nature into existing approaches for wetland conservation and management [p. 1403].

O'Donnell *et al.* (2020, p. 405) argued that assigning such rights indeed contributes to a shift away from a western construct of nature and, in doing so, 'creates space for a more pluralist legal paradigm that re-centres Indigenous worldviews'. The authors went on to state that the most significant challenge to the emergence of an ecological jurisprudence is to reconceptualise law's nature so as to overturn the disjunction between nature and culture (O'Donnell *et al.* 2020), which permeates all facets of contemporary governance. This is meaningful to all ecosystems, not just wetlands, and again suggests that the changes in policy required are paradigmatic in scope.

Together these legal and administrative reforms and supports allow for Indigenous and local communities, using local efforts and initiatives guided by their wetland champions with skills in integration and cooperation, to co-design wetland policies and practices. Co-design facilitates the inclusion of relational values, as the following wetland examples show.

Fabiano *et al.* (2021) wrote that the material and symbolic relationships of Indigenous peoples with their land were most likely to be expressed when land titling for Indigenous communities in Peru was non-fragmentary and capable of supporting a 'holistic cosmovision'. They regarded the inclusion of knowledge of elders (in this case stories of wetland spirits) into formal educational curricula an important policy intervention. Bawaka Country *et al.* (2022) carefully explained respectful ways that such stories can be told, and how Non-Indigenous (and Indigenous) people could listen.

Russell *et al.* (2020, p. 9) called for a 'radical overhaul' of the ecosystem services paradigm to adequately encapsulate relational values for natural-resource management policy and decision-making. To do this, they said, required 'a conceptual reorientation to ecosystem valuation and a methodological reorientation towards collaborative ways of documenting relational values'. Furthermore, economic approaches that allow for local communities to regulate their own resources are more likely to include these types of place-based and intangible values (see Kumar *et al.* 2020 for traditional fisher communities and cooperatives in Lake Chilika, India).

Finally, wetlands as social ecological systems imply a policy approach that draws (equally) on many governance sectors, requiring public-sector reform (e.g. Advisory Group on the Reform of Australian Government Administration, 2010) to recognise the need for integration and cooperation (including whole-of-government approaches, intergovernmental operatives, cross-sectoral initiatives, meaningful coordination and collaboration across agencies with relevant responsibilities and expertise and skill sets). This reform mirrors the (long-running) discourse on integrated water-resource management, and policy packaging that includes the enabling environment (policies, legislative frameworks and financing), institutional roles (structures and capacity building), and management instruments (Saravanan *et al.* 2009). For wetlands and their catchments, integrative approaches that recognise and respect local place-based interests and involvement will increase the likelihood that relational values are built into policy initiatives.

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Author affiliation
[A]Centre for People Place and Planet, Edith Cowan University, 270 Joondalup Drive, Joondalup, WA 6160, Australia.