

**Perramond, Eric P. 2019. *Unsettled waters: rights, law, and identity in the American West*. Berkeley, CA: University of California Press. ISBN 978-0-52029-936-8. US\$34.95 (paperback and e-book); US\$85 (hardcover)**

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Any political ecologist embarking on a campaign to analyze the socio-natural relations of power and environmental struggle in the American West does so in the wake of the seminal works of the late twentieth century by authors like Donald Worster (1985), Marc Reisner (1986), and Wallace Stegner (1992), just to name a few. However, Eric Perramond's work, the result of a decade of historical and ethnographic study on the question of water rights in New Mexico, has managed to not only make the laborious subject of water rights interesting, but also to provide a fresh and humanizing take on some of the key problems that authors before him have engaged. *Unsettled waters: rights, law, and identity in the American West* is a versatile work that manages to open up a set of legal and administrative processes that have for too long been the sole purview of experts and legal scholars. It will allow serious critical study for students in advanced environmental, indigenous, or water law courses, just as it offers insights for political ecologists, geographers, anthropologists, and sociologists interested in the American Southwest, resource sovereignty issues, identity, and the slow march of bureaucratic rationality.

Perramond calls his work a "geographic ethnography" (p. x), as it pursues a regional research agenda that weaves data from upwards of 300 interviews alongside a voluminous collection of historical and legal archives, as well as observations from meetings and conferences pertinent to water management in New Mexico. His methodology should be an example for students of political ecology, because the "regional" approach forced him to engage in multi-sited ethnography. The relations of water politics in just a single U.S. state allowed him to visit and maintain connections in multiple areas, ranging from the offices of water administrators in Santa Fe, to farmers, and various Native American communities. Such a comprehensive way of organizing ethnographic study informed his ability to capture the multiple perspectives involved in complex resource issues.

The core of the book traces New Mexico's adjudication process through the narratives of its participants. Adjudication refers to a set of accounting practices aimed at identifying, mapping, and documenting the uses of water in various watersheds. The stakes are high, because the state is determining who has old rights, and therefore highest priority to use water, versus recently established rights with lower priority use. This affects how people utilize land to grow crops, what water goes to cities, etc. Importantly, it creates tension and animosity within communities, as well as between citizens and the government. Perramond asserts that little attention has been given to how implementing private water rights systems disrupts not only the use of water locally because of the imposition of external actors, but the *relationships* between people who are bound to this system. This perspective, he argues, should serve as a balance to the better-known literature on the American West that deals with the transformation of nature into a kind of "machine," (White 1995) in which problems of provision are solved through technical rationality (p. 178).

Beginning with a focus on adjudication rather than the built environment allows for an exploration into what Perramond calls "the cultures of water" (p. 25; 107) that are competing in the American West. They exist between Native Americans, Hispanics, farmers, the cities, the government, and the intersection between these groups, in terms of how water is used, but importantly, about how water and its relationship to society are understood. The competing conceptions of water that Perramond describes may be predictable for those well versed in the literature. Local knowledge is shown to be more adaptable to water scarcity and climate change than the state's etic view, which is dependent on a rather "byzantine" legal paradigm (p. 175).

The story begins with a historical discussion of *acequias*, gravity fed-irrigation ditches, that were brought to New Mexico when Spain was ruled by the Moors. Perramond details the history of settler colonialism by which the *acequias* moved with the Spanish over the period 1598-1821. He argues the *acequias* are important institutions, because they involve a form of "microdemocracy" by which a "water boss" or *mayordomo*, commissioners, and irrigators from the ditch *govern the water available* to them (p. 12). This

"traditional" model of water management has a fundamentally different logic to the "modern" method of storing flows behind dams. Thus, the *acequia* system, as Perramond argues throughout the book, holds lessons in water management that involve *understanding what water exists*, rather than the more well-known bureaucratic method involving state planning in the American Southwest that all too often deals in "abstract" forms of *paper water, rather than actual flows* (p. 74).

The empirical content of the book is in three parts. Part One describes various key legal battles and the history of adjudication in New Mexico. It is replete with graphics and maps to illustrate the nuances of these negotiations. Chapter One sets out the theoretical framework of the book that appears very inspired by Scott's (1998) *Seeing like a state*. As Perramond explains, the state inserts itself into local communities to quantify their water rights and local governance of *acequias* become disrupted, in numerous ways. Locals are concerned that ultimately the individualization of water will lead to the creation of markets, a topic dealt with explicitly in Chapter Five. These suspicions deepen a distrust of the state that is linked to settler colonialism. In addition, Perramond shows that the state's view of identity is problematic, because "water identities" are bifurcated into "Indian" and "non-Indian", an artifact of federal policy that can have the unintended consequence of tearing families apart based on "water sovereignty" (p. 2). Chapter Two picks up the identity question by analyzing the *Aamodt* legal case in the Pojoaque River Valley. The case study is an exemplar of how wasteful of time and money adjudication really is. For example, the book explains that after several decades, more money was spent on legal processes than the actual water was worth in the Valley. Furthermore, the chapter gives an excellent account of the legal issues of Indian and non-Indian claims to water that exacerbated cultural wounds. Chapter Three deals with the Taos Valley adjudication. This case is a corrective to the *Aamodt* case. The parties involved recognized the shortcomings of adjudication in failing to deal with issues of "Indian" water rights and proceeded with a settlement process, whereby *acequias*, the Taos *Pueblo*, sanitation districts, and the city of Taos could have their needs met. And yet, the state, in its attempt to make water "legible", is still unable to resolve the tangled web of socio-natural relations around water. Chapter Four continues with the settlement process, with Perramond concluding that, surprisingly, the old paradigm of state and federal funding for infrastructure has remained. Local parties have regained some rights via settlement, but the state – alongside a legion of experts – tries to provide water in any way possible.

Part Two deals explicitly with the consequences of "expert" management. Chapter Five explores the importance of hydrological science and how flow metering became a tool to measure water. This allowed adjudication to develop alongside a cadre of expert scientists and bureaucrats. It also brings the discussion up to the present, with an exploration of New Mexico's Active Water Resource Management Areas, a state program designed in 2002 (during a severe drought) to install meters and "special masters" to control flows and disputes, even in non-adjudicated basins. One of the more interesting parts of the chapter deals with a live auction test program for water markets, a technique that was met with suspicion. Although Perramond notes that markets have the potential to produce water for non-human nature via seasonal lease programs, so far, they seem to have only created consternation, because citizens view them as yet another imposition by the state.

Chapter Six develops the notion of an "adjudication-industrial complex." Perramond's thesis is that the state adjudication process, because it is so laborious, has facilitated the emergence of a "complex" of professionals – lawyers, historians, engineers, cartographers, and economists – that continue to wield great influence, because these issues are so specialized. This chapter is sociologically interesting because it shows the development of a diverse but coherent social group, resulting from institutional mechanisms. Unfortunately for citizens, the result has been the treatment of water as an abstraction through complex computer modelling, as well as legal procedures that are distant from the grassroots. Chapter Seven elaborates emergent civil society organizations that aim to show citizens how they can access state funding and resources. This chapter is valuable, because Perramond is able to engage in the topic of gender identity. This involves a description of female *mayordomas*, who have facilitated partnerships among local and regional organizations. The chapter also shows some of the behind-the-scenes difficulties of organizing, as well as the reticence of some citizens to become deeply involved in water issues. Perramond uses examples that show how adjudication, as a state led process, has largely failed, spawning surprising new social agents and organizations at multiple scales of action.

In Part three of *Unsettled waters*, issues surrounding urban water, nature, and climate change are discussed, and some prescriptions are offered. Chapter Eight explains the adjudication of the Santa Fe basin, discussed as "dispossession through urbanization" (p. 146). Perramond argues this is a parable for the Southwest, because desert cities often become "hooked" on groundwater after surface sources run dry. As farmers around Santa Fe have used *acequias* less and less, and as an interest in agriculture wanes among younger generations, rural areas suffer at the hands of a growing urban center. The conclusions are especially interesting for those well versed in the history of water politics. For example, contrary to the claims of the U.S. Federal Bureau of Reclamation that the era of building big dams had come to a close in the 1980s due to funding constraints and the environmental movement, Perramond asserts that infrastructure projects have continued as cities need to supply water, although not always through dams. Cities are implementing basin interconnections and groundwater storage technology, which are much less visible compared to the megaprojects of the mid-twentieth century. Chapter Nine's subtitle is "nature's share of water" and leads with issues of the "Anthropocene", the concern over changing climate due to human influence, deep droughts, and extremely hot temperatures. Cities often claim priority water rights, and water for nature and species remains an afterthought. This is not only a problem for New Mexico, and the chapter elaborates in a general way on how water can be used for nature, such as using wastewater for natural flows, which, Perramond writes, is a creative application on the part of environmentally concerned water managers.

In the final chapter, there is a shift in tone towards some policy prescriptions, which are more suggestive than prescriptive or critical of state bureaucracy. Much of this dimension of the work is derived from interviews. At various points, Perramond argues for focusing less on water users, because this can so often split communities, and more on *actual volumes of water*. Additionally, the state should learn from *acequias* as a communal system of water sharing. As he writes, "the state might do well to explicitly enact proportional shortage sharing instead of the 'nuclear option' of prior appropriation" (p. 184) – the legal accounting system based on water right "priority."

Although the book is often critical of the state, Perramond achieves a balance by exploring the testimony of the water experts who, sometimes begrudgingly, must carry on the work of water rights adjudication. His methodological approach has another advantage that will make the book informative for academics and water management practitioners alike. Studies of water management, especially in the U.S., are sometimes subject to a mode of analysis that unduly emphasizes its formal aspect – analyzing "water plans", "water law", or other types of information and documentation that if handled only as an "authoritative" sources of information, threaten to obscure the struggles involved in water policy. Thus, *Unsettled waters* has taken no point of view for granted, and the basis of the analysis does not rely on government brochures, but on the lived experience of all those imbricated in New Mexico's water rights adjudication process. This shows an important diversity of actors and perspectives. In this way, *Unsettled waters* sets itself apart in important ways from much of the more well-known twentieth century works on water conflicts.

However, one dimension of the book that may leave the academic community wanting has to do with Perramond's agenda as a "public political ecologist" (p. 6). He explains that the book was written with as little "jargon" as possible, and it emphasizes the experiences, especially of irrigators, because the academy and policy makers need to take their perspectives seriously. For those practitioners, or those reading out of general interest, this book will have a clear vernacular advantage, representing a much deeper engagement with water issues than some journalistic accounts have provided in recent years such as Charles Fishman's *The big thirst* (2012), or John Fleck's *Water is for fighting over* (2016). From an academic perspective though, Perramond might have provided more detailed theoretical discussions to help flesh out his arguments. Where necessary he defines abstract terminology such as "water sovereignty", "settler colonialism", "dispossession", "state visioning", etc. However, the reader will need to consult the endnotes in order to appreciate the nuances of Perramond's handling of social theory in more depth. Public political ecology is contested by political ecologists. For example, sociology has developed hotly debated notions of what it means to be a public intellectual (e.g. Burawoy 2005), and some political ecologists have responded (e.g. Osborne 2017). *Unsettled waters* might provide a useful starting point for scholars to explore how to conduct public engagement beyond more common ideas about "scholar activism."

The significance of *Unsettled waters* is two-fold. First, Perramond draws attention to a context in the Global North where the state disrupts local social relations around a resource via specific legal instruments. The state's vision of water as a resource has created a tense and conflictual arrangement that has "no end in sight" (p. 177). Second, on a methodological level, the book is a unique contribution for scholars of water. The agency of local water users to push back against the state and socio-political elites is not overstated, and the analysis is even-handed. The book does not fall prey to the allure of macro-theoretical understandings for analyzing forms of domination that are overly abstract and lacking in specificity. On this point, Perramond's discussions and empirical research on water experts, sometimes called "professionals" (p. 4), are useful because they show the increasing heterogeneity of the water sector in terms of its skills and strategies for resource management. This also signals a stage of rationalization of the water sector in which those in power may be gaining more autonomy and seeking to assert their authority in new ways.

*Unsettled waters* should be of interest to political ecologists, because Eric Perramond has attempted to make his work "public." Some may already avow such an agenda as being an inherent part of an interdisciplinary political ecological practice. Perramond shows what this looks like, but also that political ecology continues to be a voice for critique and improvement of political processes. His analysis is written in an engaging and accessible way such that the lay person or the expert can benefit from it. For scholars, a close reading of the book should open up discussions about methodology, but also about theory for political ecologists and social scientists from a range of disciplines.

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