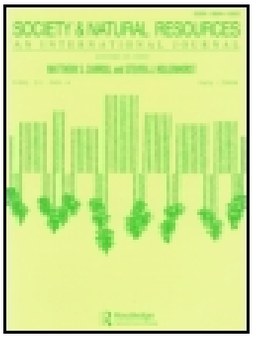

Society & Natural Resources
An International Journal

ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/usnr20

“Ordering the Wild”: How Adaptive Management Is Used to Maintain Nature Like a Postcard

Francisco Gelves-Gomez, Jennifer Carter, Ruth Beilin & Shannon Brincat

To cite this article: Francisco Gelves-Gomez, Jennifer Carter, Ruth Beilin & Shannon Brincat (2023): “Ordering the Wild”: How Adaptive Management Is Used to Maintain Nature Like a Postcard, Society & Natural Resources, DOI: 10.1080/08941920.2023.2172241

To link to this article: https://doi.org/10.1080/08941920.2023.2172241

Published online: 02 Feb 2023.

SOCIETY & NATURAL RESOURCES
https://doi.org/10.1080/08941920.2023.2172241

"Ordering the Wild": How Adaptive Management Is Used to Maintain Nature Like a Postcard

Francisco Gelves-Gomez[a,b,c], Jennifer Carter[b], Ruth Beilin[d], and Shannon Brincat[b]

[a]School of Geography, Planning, and Spatial Sciences, University of Tasmania, Hobart, Australia; [b]School of Law and Society, University of the Sunshine Coast, Sippy Downs, Australia; [c]Environmental Social Science Research Group, School of Ecosystem and Forest Sciences, University of Melbourne, Parkville, Australia; [d]School of Ecosystem and Forest Sciences, University of Melbourne, Parkville, Australia

ABSTRACT
In this paper we examine and critique adaptive management (AM) practices for protected areas (PAs), in pursuit of practices that can account for more-than-human relations. Engaging with empirical research from Australian PAs, we reflect on the formation of PAs as "exceptional places" where Nature is implicitly/explicitly to be controlled. We find that AM practices harness the spatial and temporal characteristics of the PAs to deliberatively construct a static and timeless scene, creating a particular vision of Nature. This metaphoric vision is captured "like a postcard." It reinforces and justifies static protectionism as Nature conservation, arraigning a series of material objects that are meant to assist with maintaining that image: that "reality." Using sentipensar as an exemplar, we explore and highlight relational and everchanging human-nonhuman engagements to contest the ontological dimensions of a static Nature and ideas of control and power associated with the binaries of Nature and culture.

ARTICLE HISTORY
Received 31 March 2022
Accepted 16 January 2023

KEYWORDS
Adaptive management; biodiversity conservation; Great Barrier Reef; political ontology; protected areas; sentipensar

Introduction and Literature

Western scientific traditions and histories underpin protected areas (PAs) viewing them as places where a "special" or "true" Nature lives (Lorimer 2012).[1] This is grounded in dualistic ontologies in which Nature remains separated from human society. In these dualistic conceptualisations, Nature is the group of living and non-living elements—animals, plants, rocks, water—in the biophysical world, which are frequently bounded and distanced as a "wild" space, safe from industrial modern society (Lorimer 2012), meaning that biodiversity and "wilderness" are found as "Nature." This expectation is despite the frequent reality that the origin of such spaces was largely as remnants, leftover because they were not suitable for farming, were inaccessible to colonizers or unsuitable for other human-intensive uses (Cronon 1995; Watson et al. 2014). Not wanted for immediate economic development, PAs have morphed into conservation,

CONTACT Francisco Gelves-Gomez francisco.gelvesgomez@utas.edu.au School of Geography, Planning, and Spatial Sciences, University of Tasmania, Hobart, Tasmania, Australia; School of Law and Society, University of the Sunshine Coast, Sippy Downs, Queensland, Australia; Environmental Social Science Research Group, School of Ecosystem and Forest Sciences, University of Melbourne, Parkville, Victoria, Australia.

tourism and recreational spaces (Apostolopoulou et al. 2021; Büscher and Fletcher 2020) that are easily construed as static, and fixed in space and time, like a postcard. Their reality is contrary: one of ongoing social-ecological flux and interconnectedness. The management and governance of conservation values, therefore, grapple with this conundrum.

We argue that the conventional affirmations of Nature and PAs diminish complex relational social-ecological narratives of space and time. We begin with a brief survey of the PA and adaptive management (AM) literature to examine the contested human/Nature divide. Like PAs, we show how AM as normatively practiced, is deeply rooted in capitalist and neoliberal human-Nature disconnects (cf. Berkes et al. 2000). We confront these binaries through a case study of AM in a PA within the Great Barrier Reef (GBR) in Queensland, Australia. As part of our methodology and ethnographic approach, we juxtapose "the" AM portrayed in management plans and legal documents in our study site, alongside practices that the first author witnessed as a volunteer ranger undertaking PA management work (control of invasive plants and animals, fire management, infrastructure maintenance, underwater surveys, and similar). Emerging from our study, we demonstrate how management attempts to order Nature and how in turn, this ordering affirms certain management actions that meet the PAs' objectives. We argue that the postcard metaphor represents the extracted and then iconic distillation of PAs as a single and partial view or reality—it exemplifies how a particular ontology of Nature is manifested, maintained, and reproduced. Managing PAs for the postcard effect reinforces PAs as territories that are "human-designed spaces of [N]ature protection and resource management" (Zimmerer 2006, 65). With this we expose the political ontology of AM; and this resembles the push and pull between the human and more-than-human agencies that are, as Mol (2002) comments, shaping one another.

This postcard requires a commitment to practices reinforced in language and particular spatial and temporal characteristics that make such representation seem optimal. Thus, the view that tourists seek will materialize in the sea and landscape despite change from phenomena like cyclones, for example. By examining the relationships between AM practices and the PAs, we question how these affect "the power-laden negotiations involved in bringing into being" (Blaser 2009a, 2009b, 11; Blaser and de la Cadena 2018) a "postcard Nature." We consider how to disrupt this static protectionism or Nature conservation. We are concerned with the politics of protected area management—how power lies with humans to objectify Nature or reproduce the postcard view—and also with and how they enroll the more-than-human. As Hinchliffe (2010, 306) writes, this is about "more than words and more than representation—it can also be about how things are done in ways that could otherwise be about struggles between different enactments of reality." Therefore, in the second part of the results section, we turn to *sentipensar* as an example and as a form of integrating humans and nonhumans. In our discussions we engage with *sentipensar*, to allow a rethink of what occurs and is undertaken and for whom.

First reported by Fals-Borda in the 1980s after his encounters with people from the Colombian Caribbean Coast, *sentipensar* emerges from worldviews and experiences of people that have a longstanding commitment to the production of space and nature via

reciprocal relationships (Escobar 2014, 2016; Fals-borda 2015). *Sentipensar* describes an affective vocabulary that ties together many facets of the "human" experience such as actions, reasoning, language and feelings, resulting in a different vision and enactment of the world built on relationality between humans and the more-than-human world around us (Escobar 2016). Rethinking PAs AM based on affective and relational knowing, we suggest, requires attention to the complex, and dynamic agencies and positionalities of different actants (humans and non-humans). This contributes to formulating a more explicit project of transformation for the ways in which PA management is practiced. Such a project will embrace the messy, complex and more-than-human realities of the world in which AM takes place, and this will have theoretical, ethical, political and practical implications. For instance, recognizing the agency and active role of non-humans in PAs, AM can elucidate relationships, histories and connections that might be otherwise obscured. These can range from the role that different species have in the creation of affective modalities shaping people's responsibilities, the actions and even the data upon which decisions are made (Atchinson 2019), to the redefinition of management goals and outcomes built on perspectives that entail a revision of practitioners' ideas and practices. With this, we suggest *sentipensar* allows an imaginative rebuke of the postcard as the desired view, and recognizes practitioners' experience and the close relationships between humans and non-humans

People or Nature? The Creation of Exceptional Spaces

Scholarly debates describe the limitations emerging from the ontological monism that positions Nature as detached from sociocultural contexts (Bingham and Hinchliffe, 2008; Leff, 2014; Sullivan, 2017). Central to the production of knowledge and meaning within many sciences is a clear separation between subject (humans) and object (natural elements of the world). PAs are places where knowledge of Nature and meanings are captured within human definitions of space and time. Configuring Nature within the context of instrumental rationalities and the realist, objective ontology (Blaser and de la Cadena 2018) results in management approaches and conservation practices unable to admit more relational ecological and social processes. For instance, PA management amalgamates scientific expectations, that is, acts for ostensibly objective reasons in the interest of scientific information (Mace 2014). As a result, conventional PA management easily omits relational, temporally emergent and reciprocal understandings of humans and Nature (Cooke and Lane 2018). Such processes would be animated by diverse everyday human-nonhuman encounters (West et al. 2019).

Currently, science is meant to provide the guidelines for protecting the "contents" of these excised spaces. Lorimer (2012, 597), for example, describes a Nature "… conceived as pure, singular and in balance, [thus], conservation biology could be guided towards and audited by a set of transcendent archetypes – species, habitats, ecosystems." Categories such as species or habitats provide an "itemisation" of Nature, that allows for its ordering as a "resource" and further, commodification (see Bingham and Hinchliffe, 2008; Cumming and von Cramon-Taubadel 2018; Sullivan 2017). This dominant narrative of protecting the biophysical world affirms Nature from an instrumental and utilitarian perspective (Carter 2010; Celata and Sanna 2012). Whereas it is the

interplay between the ecological and social processes that produce the complexity inherent in places deemed to be worth conserving (Cumming and Allen 2017; Lee 2016). These perspectives also determine who is involved in the management of the areas, and the knowledges that contribute to management practice. This human/Nature binary transforms objective knowledge about Nature into instruments of power via relationships and practices "involved in bringing into being a particular world or ontology" (Escobar 2017, 243).

Some conservation practices in PA management, however, acknowledge the workings of social-ecological systems or Nature-society couplings (Cumming and Allen 2017). Evidence of the intentions to integrate humans and Nature in PAs can be perceived in iterations such as "man and the biosphere," or "parks with people" (Zimmerer 2000). Undoubtedly, there is an ongoing management conundrum in attempting to affirm that management decisions reflect scientific evidence, and are therefore objective, while acknowledging that there is also evidence of the messy more-than-human realities of everyday engagement (West et al. 2019). This is an issue in management documents and guidelines that affirm scientific principles, even as daily practices may also indicate simplified utilitarian or mechanistic realities (Beilin and West 2017) despite confronting complexity.

If the world's conservation ambitions were not failing, PAs as the site for "safe" or conserved Nature, might continue to be imagined as able to lock-in the desired values and maintain them for the rest of humanity. This human-centric project is one in which command and control of space and time is ardently sought but unlikely to be attainable. And as biodiversity loss continues, and is currently exacerbated by climate change and other anthropogenic drivers (Ceballos et al. 2017) we must examine the underlying contradictions inherent in PAs. This is an opportunity to imagine social-ecological relational management requirements and whether as a process they provide an antidote to biodiversity decline.

AM intends ideally to embrace the dynamism of the world, refuting a Nature that is static or time-bound, aspiring to direct change (see Jackson 2021). Theoretically, it also offers ways of addressing the social and biophysical entanglements described here. In the following section, we discuss AM as a management approach in PAs that can contribute to shaping human-nonhuman engagements. This, with the intention of focusing management practices and visitor awareness on the integration of non-human sensibilities as interpreted through human experience.

The theory, the Praxis and the Broken Promise of Adaptive Management

Responding to unpredictable consequences for human and ecological systems that result from failures in linear and deterministic models of environmental and natural resource management (Holling and Meffe 1996), the theory of AM contests reductionist approaches and pretentions of "expert" and complete knowledge (Berkes 2010). Currently, AM is the dominant strategy for PAs management (see e.g., Dudley 2008; Mace 2014). AM popularity originates with ecology, and in attempts to address several critiques of other forms of environmental management. AM, for example, aims to embrace change and uncertainty to reflect the inherent dynamism of Nature (Allen and

Garmestani 2015), to avoid environmental management characterized by command-and-control.

From its original foundations in environmental pragmatism and complexity sciences, early writings on AM advocated for the importance of local and situated knowledges emerging from practice (West et al. 2019), recognizing a human-in-Nature perspective and contesting the human/Nature binary (Berkes 2010; Davidson-Hunt and Berkes 2003). Indeed, in its origin, AM drew its strength from human-nonhuman relational entanglements characterized by feedback loops in the management practice. In the everyday, this is translated to a series of actions framed within experiments and monitoring practices from which learning emerges (West et al. 2019). In this context, practitioner "experience, discretionary judgment and embodied skill" are constitutive elements of technical actions and the development of usable knowledge (West et al. 2019, 4). Nonetheless, AM in practice requires that practitioners gather objective, verifiable and reliable knowledge or data about Nature derived from practitioners' actions, and their cognitive representations based on scientific rationality (West et al. 2021). This continues to undermine the potential of other ways of experiencing and knowing outside those rationalities. It seems that intentions to disrupt the human/Nature binary, more usually contribute to maintaining it. Further, management practices as learning by doing (cornerstones of AM) are easily captured by expectations of command and control (West et al. 2019). This scientific and managerial coupling overtakes the connectivity between humans and Nature, and frequently denies the relevant role that Nature plays in affecting and defining human actions.

Considering the above, it is important to clarify that our argument is not suggesting the erasure of scientific thought from AM practice. We question the privilege given to scientific knowledge and consequently, the inherent separation of humans from Nature in AM practice. We stress the need to question such perspectives. Our aim, with the following sections, is to empirically show the pitfalls of PA AM in practice, exposing the binary conceptualization of humans and Nature through adaptive management. At the same time, we consider how to extend engagement with the nonhuman as PA management practices so that they could account for more-than-human relations.

Methodology and Methods

Our empirical research emerges from PAs[2] in Queensland, Australia and from within the spatial boundaries of the GBR Marine Park and the World Heritage Area. Our ethnographic research offers attention to the way in which AM practices and the PAs are the result of more-than-human "encounter(s) with the world" (Greenhough 2010, 47). Our focus, therefore, is on questioning how AM and the PAs are made and remade, their ontologies, and how these are embedded in relational processes. Qualitative data was collected by the first author during four field seasons, across land and sea and for a total of three months of experiencing management practices in place (April–May, September, October–November and December 2019). As an ethnographic work, the arguments we develop emerge from the first author's "meditated (yet embodied) experiences" (Blaser and de la Cadena 2018, 4), We focus on everyday management practices with park rangers, and with reference to the long-standing and emerging

relationships between humans and nonhumans in the PAs. Our deliberate attention to this relationality challenges the traditional ethnographic approaches that are characterized by an anthropocentric focus (Kiik 2018). Our research is deployed as more-than-representational (Lorimer 2005)[3] ethnography, that as Vannini (2015) argues offers ways of recognizing the relational more-than-human worlding practices—being, doing, knowing—(see also Barad 2007; Blaser 2013). The intention is to "evoke rather than just report" (Vannini 2015, 318), while acknowledging and accounting for the complex and shared encounters between humans and nonhumans. Nonrepresentational ethnography intends to challenge ontological and epistemological assumptions of everyday existence and has an orientation toward sensuous and embodied science. That is, the methodology is an ethnographic proposal that requires the weaving of theory and empirical materials, offering attention to affective states in embodied ways, during the everyday of human and nonhuman encounters (Vannini 2015; Whatmore 2003). The research methods and strategies need to be able to cope with such dynamism.

Researching the relational worlds emerging from human-nonhuman encounters, Whatmore (2006: 607) argues, requires research practices that acknowledge the human body and all its senses: "affective registers and extend[ing] the company and modality of what constitutes a research subject." The bulk of the research materials are the result of "participant observations" (by the first author) amplified to generate research materials through hearing, seeing, and feeling while drawing from past experiences, affordances and the theoretical ideas (see Pink 2015; Vannini 2015). During fieldwork, the first author also asked rangers about their activities as they were doing them—ethnographic interviewing (Anderson 2004; Harrison 2018)—prompting conversations that were rich in knowledge that was contextually and spatially situated, and when, for example, a whale passing in front of the boat—seemingly permitted nonhumans to trigger the discussion (Pitt 2015). This qualitative data was collected through rudimentary fieldnotes that were the building blocks of elaborated journals describing events as facts, and as moments that involved reflection, interpretation, and sense-making. Also, a series of eight dedicated semi-structured interviews (all recorded and later transcribed verbatim) with rangers and managers at different organizational levels were undertaken. The interviews included questions related to participants' everyday experiences in their work, or about their perspective regarding management processes. These accounts were about AM practice, or descriptive oral narrations of a particular/their AM reality.

All data (the field journal and interview transcripts and recordings) were observed, read, listened to, thematized and coded. This also included the critical reading of policies and management documents. We read the primary and secondary data individually, but also with the academic literature. Barad (2007, 30) suggests that this process can help with insights in terms of highlighting differences and how they are made, "what gets excluded and how those exclusions matter." Core to our reading and analysis of official management documents is an interrogation about how AM is represented through the texts. In this sense, we thought about the ways in which AM is contested, or its lack of contestation, in the documents, while also thinking about what these features "do" or how they are connected, in rendering the "postcard." This task included tracing key phrases or particular uses of words (threads and patterns), through various documents, to then analyze how they are understood in multiple or uniform ways in

one document but not another. This analytical approach was used for other forms of data such as the interview transcripts, to better understand how management, its intentions, and subsequent actions, are deployed to act as drivers of certain kinds of practices.

Like Cook and Crang (2007) we consider the intersubjective characteristics of this ethnographic work a strength and an opportunity to generate ethnographic compositions that experiment and explore the many diverse ways in which the accepted worldview emerges through more-than-human interplays (de la Cadena and Blaser 2018; Greenhough 2010). The sections to follow present empirical vignettes that are evocative accounts of shared experiences, as well as interpretations regarding the practices and ontological tensions of AM in PAs.

Results and Discussion

Adaptive Management, the Politics of "Managing" and the Making of the "Postcard"

The studied PAs are characterized by picturesque features that as Vannini and Vannini (2016, 2019) say connect to our contemporary psyche related to "wilderness." Here is the presence of white beaches with sand so fine that at each step, feet are submerged, turquoise bright waters are decorated at the surface by breaking waves, transient maritime life such as whales and turtles (Journal extract A from May 1, 2019) provide the echo of the wild, and together or alone resonate the promise of exceptionality. Conversely, Bennett (2010), would describe these characteristics as comprising the interwoven fabric of vibrant materialities—something that cannot be excerpted from the uniqueness of the world—and that constitute this space and place.

These protected areas are mostly managed via partnerships between federal and state governments, represented by The Great Barrier Reef Marine Park Authority (GBRMPA) and Queensland Parks and Wildlife Service (QPWS). While QPWS is the institution directly responsible for planning and managing field operations in our study sites—the boots on the ground—GBRMPA acts as the regulatory and management body for the Great Barrier Reef area. Amongst the most important regulatory and management documents is The Great Barrier Reef Marine Park Act 1975 (the Act, Australian Government 1975). The Act emerged out of public concerns regarding resource extraction such as oil drilling and mining, and Crown of Thorns Starfish (*Acanthaster planci)* outbreaks that threaten the condition of the Great Barrier Reef (Olsson et al. 2008). The Act promoted a typical approach (see for example: Arkema et al. 2006; Douvere et al. 2007) to protecting the reef, the marine ecology and the marine space, by emphasizing management actions related to spatial planning through a zoning system and the creation of a mosaic of marine and terrestrial PAs (Australian Government 1975; Day 2002). Although the Act only defined the external boundary of the PA, through zoning and spatial planning, the Act approached the management and "protection" of the GBR area permitting different degrees of human use, in different locations, in an attempt to reduce the human impacts on the ecological health of the reef in other places (Commonwealth of Australia 2015; Day 2019). According to Day et al. (2000, 1), in its first iterations, management through spatial organization of the area reflected a "focus

on coral reefs and remote 'pristine' areas." This zoning is arguably the result of logistical considerations, but also exemplifies a reductionist approach to management. It makes the vast area manageable by composing limits and sections, but ones that do not necessarily recognize interactions amongst different areas, nor facilitate a systems approach. The most recent zoning program (Representative Areas Program—RAP) released in the early 2000s, emphasizes the importance of preservation zones but stresses the tight relations between the reef and non-reef areas (Day 2019). The RAP is underlined by an ecosystem approach in an attempt to reconnect different zones and to acknowledge their interdependence. The approach is applied at a regional scale and affirms the use of scientific knowledge, engagement of high levels of public participation, social and political support, and the need for ongoing partnerships between the federal and Queensland state governments (Day 2019).

As Latour (1993) would argue, the "styles" and cultures embodied by these sorts of documents, create structures, impose rules, invisible and tangible expectations of how to imagine the space and how to act. For instance, in our study sites, AM moves out of the sphere of scientific objectivity or AM for ecological effect; to rather align with generalist management instruments as a "systematic approach for improving resource management by learning from management outcomes" (Melzer 2015, 1). Our analysis indicates these documents reinforce the material construction of the PAs, inform their ongoing contestable boundaries, and reaffirm the manageability of the biophysical world, even as the nonhuman (for instance storms, fires or "unruly" animals) provides evidence to the contrary.

To summarize, governments and institutions select which nature to protect, and consequently ignore or resist aspects of its dynamism (see e.g., van Riper et al. 2016). Further, we can assume, PAs make no sense to the more-than-human. As territories, therefore, the spaces within PAs' borders are uncertain, and limited by our knowing—and not by their physical and affective presence. These findings are manifested in practice:

> One of the first things Daniel shows me is a big map that is edited as a mosaic from specific sections of many maps. It is hanging behind the desk of the senior ranger as a significant guide to daily operations and to interpreting the limits of the PA. It collects these fragments of space and time, as a desktop ordering. It is a particular transferring of ideas and experience that maps another reality—here clearly composed of cut-outs and multiple pieces of paper. The map shows the boundaries of the protected area, highlighting key areas where rangers conduct their work. The map also contains boundaries in the waters. These are part of the zoning plan for the GBR Marine Park. The space needed to put this map together is considerable—about $2m^2$. I am impressed by the sheer size of the management area here. It is 2-D, massive and I can barely imagine the challenge of looking after all this space. In a moment I realise that, unconsciously, I have accepted this representation: I see in the fragments of the maps an impression of the whole. I am trying to create order in the quadrants, apply logic, accept the management perspective that these documents encapsulate the PA at some basic level. (Journal B, April, 2019)

The above account illustrates the interactions between management descriptions, and how these have power to influence practical actions. These processes are enrolled and manifested in management actions by our human ability to rationally make sense of the world—like in the affective response of marveling at the map's size, to then realize the challenges associated with protecting the massive space. These understandings are then

institutionalized. For example, as an IUCN category II protected area—National Park—the PAs have as an objective: the protection of biodiversity and ecological processes while promoting activities such as education and recreation. This process of listing and classifying space through protected area typologies, is only possible when an imagined archetype of what that space should look and feel like is shared. This territorialization and categorization of the PAs, as West et al. (2006, 256) argue, "takes an externally imagined set of categories and restructures the world to fit these categories." In designating categories, management generates expectations that these mapping documents make PAs as spatial units where certain practices are permitted or possible. In turn, these practices contribute to its making and comprise spaces (Ingold 2000; Massey 2005)—that are affirmed as more factual, become more real. From a management perspective these practices (e.g., constructing the map, attributing its meanings, standardizing an understanding among staff of its relationship to governing documents) provide a basis for operating management actions. These constitute the proclaimed physical and political boundaries of the protected area.

In the PAs, the main drivers for management actions are tourism and recreation (as per the IUCN category National Park). These key areas of management guide the on-the-ground activities performed by field officers and rangers with the support of other partners such as tourism operators. These include practical conservation actions (e.g., ecological surveys or weed control to maintain the pristine image) and the monitoring of different management practices (e.g., quality of mooring infrastructure—to facilitate tourism access and maintain the pristine image) and are described in documents and plans as a part of a generalized AM. Management becomes an assemblage of actions that emphasize performances of human-nonhuman relations and mobilisations with the particular purpose of enacting the postcard.

Yet, there is an intricate interplay between the practical, highly-localised work rangers do, and a collective of nonhuman actants shaping rangers' actions. This means that the PAs are produced, at one level, by the influence and expectations of management plans resulting in the legal and managerial partitioning of entities called "protected areas." These are produced and imagined as wholes by institutions such as governments, corporations or maps (see de Certau 1984). And yet, everyday work is necessarily very much about "joining up" the elements of interest in the AM tasks. Rangers explained that plans provide them with a standard framework for action and monitoring, but sometimes it is difficult to act following these prescriptions. One ranger mentioned that she thinks the "…plans are two-dimensional, and they do not recognise that the world is actually three-dimensional: it is messy here" (personal communication, 2019). This "three-dimensionality" in their work is the result of the ever-changing environment, the unpredictability of the many complex relations, the agency of the world, and the emergent characteristics of the protected area. Rangers develop skills relevant to "the" management practice, and this is legitimized via reporting of AM approaches. Although rangers discuss the complexity of the work, their actions are codified, guided by the park management plan/statement, and in combination with other frameworks and strategies, these are aligned with various levels of service. These "levels of service" underline the "values-based management framework" which according to State of Queensland (2019) *is* how AM is incorporated within PAs management. Rangers too, then, become

used to the way in which the guidelines are enacted. This allows them to fulfill their jobs without having to make difficult decisions (such as questioning the impacts of new infrastructure). Yet, the management values being affirmed are those that reify the protected area as a separate area requiring this kind of management. Its connectedness to external systems like the sea and weather, are isolated from management documents. This thinking allows management to focus on the "well-being" of the "postcard," therefore emphasizing the need to reinforce the separation between humans and Nature.

Nature, is standardized, not just its image in the postcard, but where it is to be found (the PAs) and how it is to be maintained (through AM). This Nature protype is part of a globally recognized system, that of the science of conservation biodiversity and its institutions like IUCN. These act to protect and allow care of species and places, with the requirement that these "wild" places be tamed for management. This ordering further facilitates the commercialization or human use of the same places that are being protected/conserved. This is something we discuss in more detail in the following section.

Enacting the "Postcard" Nature

The "postcard" is abstracted by AM practices—as a collage of meanings and images intended to evoke an accessible wilderness among its viewers; or, a safe place for conservation values to be preserved. This plethora of meanings signal multiple relational possibilities and spatial imaginaries. Indeed, there are many pathways or ripples—albeit normatively excluded—, that with local specificity, are part of encounters between humans and nonhumans, including plants, artifacts like boats or moorings, coral reefs, sharks, and the sea. Therefore, the multiple ways of engaging as humans with the nonhuman opens PAs management to the possibilities of different ways of working. The pretense of the timelessness, permanently on offer in the postcard requires the reification of management capacity to maintain and reconstruct Nature in the required image (Escobar 2020). For example, manager Don said that they "recognize [the need to provide different opportunities to experience the protected area] and then we go away and work up on-island opportunities, which they previously didn't need because the reef was in a better condition … It provides greater resilience, in the face of climate change and loss of more reef" (interview, manager Don 2019). Here, management acts to control and overcome nonhuman agency and Nature's dynamism.

> Many rangers recall a cyclone that passed through the area, and how the storm water levels and winds reclaimed beaches. Their sands returned to the ocean. The storm literally changed the physical reality of the existing 'postcard'. For rangers Daniel and Samuel, this loss of beaches and the sense of disorder post cyclone has meant significant changes in their work. Now it is associated with remaking the postcard, rather than just maintaining it. Rangers attempt to reconstruct the same thing, but the discussion as we work, is that we know it is different. The beach had to be regenerated. It was 'renourished' as the American Army Corps of Engineers would say! Land was extended with recaptured sand to imitate the lost postcard view. In addition, new walkways were triggered post cyclone, so the recreated postcard could be experienced by tourists from 'safe' vantage points. This infrastructure signifies the protection of people and place as tangible manifestations of management interventions for the general good of the PA and the people. Nothing/everything is interrupted. Nothing/everything is really destroyed. These are signals

> from managers to visitors, about the business commitment to 'taking care of nature'. This becomes an ironic moment for me, thinking of protecting infrastructure as a way of demonstrating protected nature. (Journal B, April, 2019)

Therefore, the management of the PAs, through their ontological and political enactments, have reinforced the borders between the human and the nonhuman. This ongoing separation of humans from nonhumans in practice, masks the possibilities for affective understandings. The nonhumans are subsumed within management layers, elevating expected tourism demands as priority. Ecological adaptation, and re-creation of place are unintentionally but consequently re-constructed by dictating the acceptable colors, shapes, sounds, and nonhuman presences required to fulfill the desired images. Therefore, in the postcard of Nature, the role of human and nonhuman actors becomes (over) determined, and fixed.

The efforts to constantly create a static Nature through reifying the same postcard, limits affective and embodied knowing. Here, the actions and presence of the wind and the sea, for example, might be understood as active contributors to both order and mess as perceived by management. As such, rangers or managers could be regarded as "spokespersons" capable of saying what the postcard Nature might "want and need," as Callon (1986, 212) would argue. But even with the imaginary of the postcard Nature, the tension between place and ontology troubles the politics of the postcard Nature image. This matters for management actions, and human-nonhuman relations in the PAs, as the management task is no longer to work and learn from new formulations of sand and sea to foster the protection of all ecologies. Management deliberately resists learning from the cyclone experience because it has already decided (through the postcard) which "certain" ecologies to protect. The task is about maintaining affective characteristics of Nature that will only permit a particular set of experiences. As a result, management, and the PAs (Nature) become ontologically and practically entangled with each other.

Taking ecological AM as a world-making practice, means considering the politics and power relationships that are working in the enactment of AM as manifest in how management documents describe its practices; practices that further position humans outside of Nature. Arguably, the mostly unacknowledged more-than-human characteristics of the PAs—like the sea—can overwhelm management objectives just by existing, because they infuse everything in a relational and dynamic world. The AM tendency, however, is to organize the territory through standardizing work practices, on land and sea.The postcard Nature is, therefore, further caught in economic imperatives that construct, perform, and legitimize the PAs from the perspective of tourism as encapsulated in neoliberal conservation (Apostolopoulou et al. 2021).

The ontological occupation of the PAs by the postcard Nature, therefore, points to multiple intentions: tourism, recreation and conservation science; and these point toward the dominant narratives for PAs. Here, we argue for the need for a different sensitivity in terms of how human-nonhuman relationships are performed in—and beyond—the contexts of PAs (Büscher and Fletcher 2020; Jepson et al. 2011) and their management. Escobar (2020, XXVI) argues that we need to reframe and even deconstruct the dominant narratives in order to acknowledge human-in-Nature co-dependencies. Considering our arguments as a critique of how PA management is

insufficient for the 21st century and echoing the calls by scholars such as de la Cadena and Blaser (2018), or Escobar (2020), we draw on the conceptual proposal of "*sentipensar*" (feeling-thinking). This is an approach to conscientisation (Freire 1972, 2007)—creating awareness of the need to disrupt the dominant way of thinking and acting in regard to an identified issue.

> Sea mixes with the saltiness of the air. Diving and surfacing. Diving and surfacing. This repeated action that allows me to perform the reef surveys in the space and time created between two breaths. The cyclone swept away the side of the coral I am seeing. Rubble remains of what were once living creatures. Newly exposed broken structures peer up into the swirling current, opening the calcareous surfaces to functional exposure. Hundred years of beginning… The reef is the result of the endless and intimate connections of the always moving ocean, the moon, the air, sea life, time, and us. Taking a deep breath, once again, I dive across the boundaries of different coral. Being submerged on single breaths, brings me to the present, embracing all signals, responding to possibilities. I offer attention to the constantly unfolding process, in the present time. I see evidence of coral bleaching, crown of thorns predation, but also healthy colourful coral animated by vibrant fish life. Expanding numbers of fish come near me with curiosity. They seem wary of my presence, and I am wary of theirs, but we accept being there. In this moment I reimagine Nature as part of self, and me as part of Nature — the unbounding of space and time — subverting norms about perceived natural or constructed boundaries where change is continuous. Uncertainty always in motion. No hierarchy here (Journal C, October, 2019).

Being underwater brings an awareness of the limitations of being human, emphasizing human vulnerabilities, and a consciousness of the nonhuman. Affective knowing is not limited to the sea, but in the journal excerpt there is some evidence of the dynamics associated with *sentipensar*. First, from this experience *sentipensar* contributes to rethinking AM from simplistic target management (counting coral) to acknowledging the complexity of the reef—multiple reef lives. Their complexities are always in the making via human-nonhuman relationships, creating an overwhelming change in power dynamics from stasis, to embracing connectedness, in an unfolding time, and with a more-than-human-world. This is clearly shown in the moments when the reef complexity (the connectivity of reef bleaching: life and death) is realized, and in accepting nonhuman agency (fish, in a connected ocean: in or out of PA zones). Second, *sentipensar* opens the possibilities of embodied and affective knowledge contributing to recognizing our codependency with nonhumans. These, we believe, can be triggers for different experiences and learnings, allowing practices to be and be acted on as part of relational being. These embody and provide available energy and impetus to re-imagine management and Nature outside the language and performance of the postcard. *Sentipensar* generates what Barad (2007: 185) would call an "ethico-onto-epistemology" (Barad 2007, 185) capable of shaping management practice and "learning by doing" if it is brought to the forefront of management practices. From this relational perspective, new processes that recognize nonhuman agency can take place, that acknowledge the power of humans to accept science and reason do not preclude the ways humans can reengage with everyday AM practices. This is not to say that *sentipensar* is the only "best practice." Indeed, there are/will be many ways in which affective and experiential learning can be located within AM (West et al. 2019). The *sentipensar* provides an example of how to transition into a less dualistic consciousness that can transform management practice (e.g., what can be learnt from grieving ecosystem decline [see for example

Marshall et al. 2019] what is lost after a storm, and the hope for the possibilities of caring for what could become).

Conclusions

In this paper we have argued that there is a conflation of administrative needs with ecological AM creating a certain way of experiencing the PAs that reinforces the binaries of human/Nature. This continues capitalist and colonial acts and themes of domination and possession. Postcard Nature is a material representation of social expectations—it is the Nature that some "humans" are trained to want, a Nature that is manageable and accessible. This imaginary and its representations lay the groundwork to legitimate certain management regimes which further reinforce the isolation of living and nonhuman entities from their connected or immersed belonging.

This paper constitutes a critique of the way in which AM is practically and ontologically enacted. We have emphasized how PAs are the particular outcome of deeply entangled relationships between humans and nonhumans, encountering each other at different spatial and temporal scales (as in a regional cyclone and a local beach). Despite this multiplicity of potential engagements, the vision for the PAs is constantly propped up and remade to conform to the simplified meaning of the postcard Nature described in management guidelines. Postcard Nature is caught in political and economic imperatives that construct, perform, and legitimize the PA from the perspective of neoliberal conservation tourism. Relational, temporally emergent and reciprocal understandings of humans as part of Nature (Cooke and Lane 2018) are ignored in these guidelines. Nature as a whole is diminished.

Disrupting the postcard metaphor, as a material and discursive subject through deliberately constructing spaces for positioning the nonhuman in the decision making process, allows for an expansion of relationships and pathways related to management. These relationships are not fixed but imagined as dynamic, discursive and material, and performative (Barad 2007). Drawing on *sentipensar,* we have shown how existing practices are ineffective in reflecting the local experience and expose the flaws that are evidenced, for instance, in the mapping project. But changes, could, as Whatmore (2013) writes, subscribe to relational and *affective* conditions to reconnect the human to the nonhuman. It is in this potential for reconnection intrinsic to *sentipensar*—that allows the imagining of different management alternatives, based on experiential and complex knowledge. For instance, by expanding a sense and understating of self in relation to the world around us, *sentipensar* can contribute to transforming conservation values beyond neoliberal market values (IPBES 2022 emphasize the need to move beyond market values for biodiversity). Further, *sentipensar* could make intuitive decision making more transparent and accepted. In this way, rangers could be more open and flexible when it comes to facing the everyday challenges of managing the protected areas—like prioritizing where the go each day depending on the weather, or recognizing the human limits and impacts on the data of an underwater survey.

Emphasizing the need to change management processes could begin by recognizing affective understandings, through for example, *sentipensar*. S*entipensar* for PAs management practice is not about humans possessing insights into how the world around us

"feels and thinks," but about allowing us to be self-conscious about ours and "others" assumptions of our worldview, actions and impact. In reexamining AM in PAs we expose the need to overcome the origin stories underpinning site management.

Notes

1. We use the capital "N" in the singular form of Nature following Latour (1993) and Lorimer (2012) to refer to the understanding of the nonhuman world that manifests through the human/Nature binary.
2. The names of all locations and individuals have been changed to ensure anonymity. Contextual information has also been omitted in order to ensure anonymity of location and participants.
3. Although a common term within the academic literature is non-representational theory, Lorimer (2005) explains the need to frame these bodies of work as more-than-representational to better acknowledge the importance of representation, the affective, the embodied, the experiential, and the discursive.

Acknowledgements

We are grateful with Dr Riccarda Flemmer who provided insights and advice on how to improve this manuscript. We are also grateful to the three anonymous reviewers who with their input and advice made the paper stronger. Thanks to Dr Jonathan Raikes for the time offered to proofread early versions of the manuscript. Queensland Parks and Wildlife Service provided financial and in-kind support for Francisco's fieldwork.

Ethics approval

This research counts with ethics approval by the Human Research Ethics Committee from the University of the Sunshine Coast. Approval number: S191281.

Funding

The Australian Government Research Training Program (RTP) Scholarship supported Francisco's research.

ORCID

Francisco Gelves-Gomez http://orcid.org/0000-0003-2266-2948
Jennifer Carter http://orcid.org/0000-0002-9585-0627
Ruth Beilin http://orcid.org/0000-0001-8117-5766
Shannon Brincat http://orcid.org/0000-0002-1426-5793

Reference List

Allen, C., and A. Garmestani. 2015. Adaptive management. In *Adaptive management of socio-ecological systems*, ed. C. Allen and A. Garmestani. Dordretch: Springer.

Anderson, J. 2004. Talking whilst walking: A geographical archaeology of knowledge. *Area* 36 (3):254–61. doi:10.1111/j.0004-0894.2004.00222.x.

Apostolopoulou, E., A. Chatzimentor, S. MAestre-Andres, M. Requena-I-Mora, A. Pizarro, and D. Bormpoudakis. 2021. Reviewing 15 years of research on neoliberal conservation: Towards a

decolonial, interdisciplinary, intersectional and community-engaged research agenda. *Geoforum* 124:236–56. doi:10.1016/j.geoforum.2021.05.006.

Arkema, K. K., S. C. Abramson, and B. M. Dewsbury. 2006. Marine ecosystem-based management: From Characterization to implementation. *Frontiers in Ecology and the Environment* 4 (10):525–32. doi:10.1890/1540-9295(2006)4[525:MEMFCT.2.0.CO;2]

Atchinson, J. 2019. Between disgust and indifference: Affective and emotional relations with carp (*Cyprinus carpio*) in Australia. *Transactions of the Institute of British Geographers* 44 (4):735–748.

Australian Government. 1975. *Great Barrier Reef Marine Park Act 1975*. Canberra: Commonwealth of Australia.

Barad, K. 2007. *Meeting the universe halfway: Quantum physics and the entanglement of matter and meaning*. Durham & London: Duke University Press.

Beilin, R., and S. West. 2017. Performing natures: Adaptive management practice in the eternally unfolding present. In *Nature, temporality and environmental management: Scandinavian and Australian perspectives on people and landscape*, ed. L. Head, K. Saltzman, G. Setten and M. Stenseke. Abingdon, Oxon; New York, NY: Routledge.

Bennett, J. 2010. *Vibrant matter: A political ecology of things*. Durham, NC: Duke University Press Books.

Berkes, F. 2010. Shifting perspectives on resource management: Resilience and the reconceptualization of 'natural resources' and 'management. *Maritime Studies* 9:13–40.

Berkes, F., J. Colding, and C. Folke. 2000. Rediscovery of traditional ecological knowledge as adaptive management. *Ecological applications* 10 (5):1251–62. doi:10.1890/1051-0761(2000)010[1251:ROTEKA.2.0.CO;2]

Bingham, N., and S. Hinchliffe. 2008. Reconstituting natures: Articulating other modes of living together. *Geoforum* 39 (1):83–7. doi:10.1016/j.geoforum.2007.03.008.

Blaser, M. 2009a. Political ontology. *Cultural Studies* 23 (5–6):873–96. doi:10.1080/09502380903208023.

Blaser, M. 2009b. The threat of the Yrmo: The political ontology of a sustainable hunting program. *American Anthropologist* 111 (1):10–20. doi:10.1111/j.1548-1433.2009.01073.x.

Blaser, M. 2013. Ontological conflicts and the stories of people in spite Europe: Toward a conversation on political ontology. *Current Anthropology* 54 (5):547–68. doi:10.1086/672270.

Blaser, M., and M. de la Cadena. 2018. Introduction: Pluriverse. In *A world of many worlds*, ed. M. de la Cadena and M. Blaser. Durham and London: Duke University Press.

Büscher, B., and R. Fletcher. 2020. *The conservation revolution: Radical ideas for saving nature beyond the Anthropocene*. London & New York: Verso.

Callon, M. 1986. Some elements of a sociology of translation: Domestication of the scallop and the fishermen of St Brieuc Bay. In *Power, action and belief: A new sociology of knowledge?*, ed. J. Law. London: Routledge.

Carter, J. 2010. Displacing Indigenous cultural landscapes: The naturalistic gaze at Fraser Island World Heritage Area. *Geographical Research* 48 (4):398–410. doi:10.1111/j.1745-5871.2010.00644.x.

Ceballos, G., P. Ehrlich, and R. Dirzo. 2017. Biological annihilation via the ongoing sixth mass extinction signalled by vertebrate population losses and declines. *Proceedings of the National Academy of Sciences* 114 (30):E6089–96. doi:10.1073/pnas.1704949114.

Celata, F., and V. Sanna. 2012. The post-political ecology of protected areas: Nature, social justice and political conflicts in the Galápagos Islands. *Local Environment* 17 (9):977–90. doi:10.1080/13549839.2012.688731.

Commonwealth of Australia2015. *Reef 2050 long-term sustainability plan*. Canberra: Commonwealth of Australia.

Cook, I., and M. Crang. 2007. *Doing ethnographies*. London: Sage.

Cooke, B., and R. Lane. 2018. Plant-human commoning: Navigate enclosure, neoliberal conservation and plant mobility in exurban landscapes. *Annals of the Association of American Geographers* 108 (6):1715–31. doi:10.1080/24694452.2018.1453776.

Cronon, W. 1995. The trouble with Wilderness; or, getting back to the wrong nature. In *Uncommon ground: Rethinking the human place in nature*, ed. W. Cronon. New York: W. W. Norton & Co.

Cumming, G., and C. Allen. 2017. Protected areas as social-ecological systems: Perspectives from resilience and social-ecological systems theory. *Ecological Applications: A Publication of the Ecological Society of America* 27 (6):1709–17. doi:10.1002/eap.1584.

Cumming, G., and S. von Cramon-Taubadel. 2018. Linking economic growth pathways and environmental sustainability by understanding development as alternate socio-ecological regimes. *Proceedings of the National Academy of Sciences* 115 (38):9533–8. doi:10.1073/pnas.1807026115.

davidson-Hunt, I., and F. Berkes. 2003. Nature and society through the lens of resilience: Toward a human-in-ecosystem perspective. In *Navigating social-ecological systems: Building resilience for complexity and change*, eds. F. Berkes, J. Colding, and C. Folke. New York: Cambridge University Press.

Day, J. 2002. Zoning: Lessons from the Great Barrier Reef Marine Park. *Ocean Coastal Management* 45 (2-3):139–56. doi:10.1016/S0964-5691(02)00052-2.

Day, J. 2019. Planning and managing the Great Barrier Reef Marine Park. In *The Great Barrier Reef: Biology, environment and Management*, ed. P. Hutchins, M. Kingsford and O. Hoegh-Guldberg. Australia: CSIRO Publishing.

Day, J., L. Fernandes, A. Lewis, G. De'ath, S. Slegers, B. Barnett, B. Kerrigan, D. Breen, J. Innes, J. Oliver, et al. 2000. The Representative Areas Program for protecting biodiversity in the Great Barrier Reef World Heritage Area. *Paper read at International Coral Reef Symposium, at* Bali, Indonesia.

de Certau, M. 1984. *The practice of everyday life*. Berkeley, CA; Los Angeles, CA: University of California Press.

de la Cadena, M., and M. Blaser, eds. 2018. *A world of many worlds*. Durham and London: Duke University Press.

Douvere, F., F. Maes, A. Vanhulle, and J. Schrijvers. 2007. The role of marine spatial planning in sea use management: The Belgian case. *Marine Policy* 31 (2):182–91. doi:10.1016/j.marpol.2006.07.003.

Dudley, N., ed. 2008. *Guidelines for applying protected area management categories*. Gland, Switzerland: IUCN.

Escobar, A. 2014. *Sentipensar con la tierra: Nuevas lecturas sobre desarrollo, territorio y diferencia* [Feeling-thinking with the earth: New readings on development, territory and difference]. Medellin, Colombia: Ediciones UNAULA.

Escobar, A. 2016. Thinking-Feeling with the Earth: Territorial struggles and the ontological dimensions of the Epistemologies of the South. *Revista de antropología Iberoamericana* 11 (1): 11–32.

Escobar, A. 2017. Sustaining the Pluriverse: The political ontology of territorial struggles in Latin America. In *The anthropology of sustainability*, eds. M. Brightman and J. Lewis. New York: Macmillan.

Escobar, A. 2020. *Pluriversal politics: The real and the possible*. Durham: Duke University Press.

Fals-Borda, O. 2015. *Una sociología sentipensante para America Latina* [A feeling-thinking sociology for Latin America]. Buenos Aires: Grupo Editorial Siglo Ventiuno.

Freire, P. 1972. *Pedagogy of the oppressed*. New York: Penguin Books.

Freire, P. 2007. *Education for critical consciousness*. London; New York: Continuum

Greenhough, B. 2010. Vitalist geographies: Life and the more-than-human. In *Taking-place: Non-representational theories and geography*, eds. B. Anderson and P. Harrison, pp. 37–54. Burlington, VT, Ashgate.

Harrison, A. 2018. *Ethnography*. New York, NY: Oxford University Press.

Hinchliffe, S. 2010. Working with multiples: A non-representational approach to environmental issues. In *Taking place: Non-representational theories and geography*, eds. B. Anderson and P. Harrison. Farnham: Ashgate.

Holling, C., and G. Meffe. 1996. Command and control and the pathology of natural resource management. *Conservation Biology* 10 (2):328–37. doi:10.1046/j.1523-1739.1996.10020328.x.

Ingold, T. 2000. *The perception of the environment: Essays in livelihood, dwelling and skill*. New York: Routledge.

IPBES. 2022. *Summary for policymakers of the methodological assessment of the diverse values and valuation of nature of the intergovernmental science-policy platform on biodiversity and ecosystem services,* eds. U. Pascual, P. Balvanera, M. Baptiste, D. González-Jiménez, C. Anderson, S. Athayde, R. Chaplin-Kramer, S. Jacobs, E. Kelemen, R. Kumar, E. Lazos, A. Martinm, T. Mwampamba, B. Nagakangu, P. O'Farrell, C. Raymond, S. Subramanian, M. Termansen, M. Van Noordwijk, and A. Vatn. IPBES secretariat. Bonn, Germany. doi: 10.5281/zenodo.6522392.

Jackson, S. T. 2021. Transformational ecology and climate change: Management of imminent ecosystem shifts demands adaptive, translational approaches. *Science (New York, N.Y.)* 373 (6559): 1085–6. doi:10.1126/science.abj6777.

Jepson, P., M. Barua, and K. Buckingham. 2011. What is a conservation actor? *Conservation and Society* 9 (3):229–35. doi:10.4103/0972-4923.86993.

Kiik, L. 2018. Wild-ing the ethnography of conservation: Writing Nature's value and agency. *Anthropological forum* 28 (3):1–19.

Latour, B. 1993. *We have never been modern*. Cambridge, MA: Harvard University Press.

Lee, E. 2016. Protected areas, country and value: The nature-culture tyranny of IUCN's protected area guidelines for Indigenous Australians. *Antipode* 48 (2):355–74. doi:10.1111/anti.12180.

Leff, E. 2014. Environmental rationality: The social re-appropriation of Nature. *Alternautas* 1 (1): 88–99.

Lorimer, H. 2005. Cultural geography: The busyness of being 'more-than-representational'. *Progress in Human Geography* 29 (1):83–94. doi:10.1191/0309132505ph531pr.

Lorimer, J. 2012. Multinatural geographies for the Anthropocene. *Progress in Human Geography* 36 (5):593–612. doi:10.1177/0309132511435352.

Mace, G. 2014. Whose conservation? *Science (New York, N.Y.)* 345 (6204):1558–60. doi:10.1126/science.1254704.

Marshall, N., N. Adger, C. Benham, K. Brown, M. Curnock, G. Gurney, P. Marshall, P. Pert, and L. Thiault. 2019. Reef grief: Investigating the relationships between place meanings and place change on the Great Barrier Reef, Australia. *Sustainability Science* 14 (3):579–87. doi:10.1007/s11625-019-00666-z.

Massey, D. 2005. *For space*. London: Sage.

Melzer, R. 2015. *An overview of the Queensland Parks and Wildlife Service adaptive management framework. Incorporating management effectiveness evaluation*. Department of National Parks, Sport and Racing, Queensland Government, Brisbane.

Mol, A. 2002. *The body multiple: Ontology in medical practice*. Durham and London: Duke University Press.

Olsson, P., C. Folke, and T. Hughes. 2008. Navigating the transition to ecosystem-based management of the Great Barrier Reef, Australia. *Proceedings of the National Academy of Sciences* 105(28):9489–94. doi:10.1073/pnas.0706905105.

Pink, S. 2015. *Doing sensory ethnography*. Los Angeles: SAGE.

Pitt, H. 2015. On showing and being shown plants - a guide to methods for more-than-human geography. *Area* 47 (1):48–55. doi:10.1111/area.12145.

State of Queensland. 2019. *Planning user guide: Values-based management framework*. Queensland Government, Brisbane.

Sullivan, S. 2017. What's ontology got to do with it? On nature and knowledge in a political ecology of the green economy. *Journal of Political Ecology* 24 (1):216–42. doi:10.2458/v24i1.20802.

van Riper, C., S. Sutton, G. Kyle, S. Stewart, and R. Tobin. 2016. Bridging managers' place meanings and environmental governance of the Great Barrier Reef Marine Park. *Society and Natural Resources* 29 (11):1342–58. doi:10.1080/08941920.2016.1144840.

Vannini, P. 2015. Non-representational ethnography: New ways of animating lifeworlds. *Cultural Geographies* 22 (2):317–27. doi:10.1177/1474474014555657.

Vannini, P., and A. Vannini. 2016. *Wilderness*. London; New York: Routledge.

Vannini, P., and A. Vannini. 2019. Wildness as vitality: A relational approach. *Nature and Space* 2 (2):252–73.

Watson, J. E. M., N. Dudley, D. B. Segan, and M. Hockings. 2014. The performance and potential of protected areas. *Nature* 515 (7525):67–73. doi:10.1038/nature13947.

West, S., R. Beilin, and H. Wagenaar. 2019. Introducing a practice perspective on monitoring for adaptive management. *People and Nature* 1 (3):387–405.

West, S., J. Haider, S. Stålhammar, and S. Woroniecki. 2021. Putting relational thinking to work in sustainability science - reply to Raymond et al. *Ecosystems and People* 17 (1):108–13. doi:10.1080/26395916.2021.1898477.

West, P., J. Igoe, and D. Brockington. 2006. Parks and people: The social impact of protected areas. *Annual Review of Anthropology* 35 (1):251–77. doi:10.1146/annurev.anthro.35.081705.123308.

Whatmore, S. 2003. Generating materials. In *Using social theory: Thinking through research*, eds. M. Pryke, G. Rose, and S. Whatmore. London: SAGE.

Whatmore, S. 2006. Materialist returns: Practising cultural geography in and for a more-than-human world. *Cultural Geographies* 13 (4):600–9. doi:10.1191/1474474006cgj377oa.

Whatmore, S. 2013. Earthly powers and affective environments: An ontological politics of flood risk. *Theory, Culture & Society* 30 (7–8):33–50. doi:10.1177/0263276413480949.

Zimmerer, K. 2006. Cultural ecology: At the interface with political ecology - the new geographies of environmental conservation and globalization. *Progress in Human Geography* 30 (1):63–78. doi:10.1191/0309132506ph591pr.

Zimmerer, K. 2000. The reworking of conservation geographies: Nonequilibrium landscapes and nature-society hybrids. *Annals of the Association of American Geographers* 90 (2):356–69. doi:10.1111/0004-5608.00199.