Environmental Governance:
Broadening Ontological Spaces for a More Livable World

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1. Introduction

The current era is characterized by large-scale, seemingly intractable environmental challenges, from coral bleaching and toxic contaminants to mass extinctions and global climate change. Attempts to mitigate such issues involve a suite of interventions commonly captured under the broad rubric of "environmental governance," which may be defined as "the set of regulatory processes, mechanisms, and organizations through which political actors influence environmental actions and outcomes," by targeting "incentives, knowledge, institutions, decision-making, and behavior" (Lemos and Agrawal, 2006, p. 298). No longer the sole purview of the state, environmental governance today involves a wide range of state and nonstate actors often operating across scales. Although its scope, premises, and implementation have been constructively (and deconstructively) interrogated from multiple perspectives, in practice environmental governance tends to be framed in apolitical, ahistorical, and technocratic-scientific terms and carries a host of embedded normative assumptions. This can perhaps be seen most clearly in the neoliberal ideology underlying dominant ideas and practices, as manifested in market-based logics; narrowly conceived concepts of participation, rights, and property; and circumscribed sets of actors, knowledges, and practices that are recognized or deemed legitimate (McCarthy and Prudham, 2004; Harvey, 2005).

In this paper, we use an ontological approach to more closely examine contemporary environmental governance – its assumptions, practices, and limitations – in order to broaden our understanding of what environmental governance is and could be. Focusing on *ontology*, or understandings of reality, helps us better see how certain underlying values, norms, and beliefs guide actions, shape relationships, and potentially introduce tensions in cross-cultural interactions. Employing ontology as a heuristic, à la Pauwelussen and Verschoor (2017, p. 298), in order to study "how 'reality' is continuously enacted and transformed in practice," we ask what concepts are rendered *visible* and *invisible* in current governance pursuits, and in what ways these concepts might advance or hinder our ability to envision and enact a world otherwise. Building on a long history of critical environmental scholarship, thinking *about* and *with* ontology reveals aspects of environmental governance that might otherwise remain hidden. We argue that an ontological approach to environmental governance promotes both political awareness and methodological humility. By being open to ontological alternatives and the previously-unseen, such an approach enables us to break open concepts such as property and legitimacy, animal and human, aquatic and terrestrial, and others, and explore how plural ontological engagements can open spaces for new ways of relating with and amidst the living and nonliving world.

We begin with a historical sketch of the environmental governance concept before presenting a literature review illustrating the value of an ontological lens. We then present three case studies

of prominent environmental governance domains: land, water, and biodiversity. For each case, we start by drawing on academic and grey literatures to identify key concepts used to frame governance aims and distill their underlying ontological assumptions, or "visibilities," by examining how they have been conceived and deployed throughout modern governance history. We then contrast these visibilities with the ethnographic literature to profile each domain's corresponding ontological "invisibilities," and highlight both how land, water, and biodiversity are and could be thought of "otherwise," and the implications of doing so. We reflect on how the concepts we think with shape our ontological orientation and ways of engaging with the world – how, "[it] matters which stories tell stories, which concepts think concepts" (Haraway, 2015, p. 160). The paper concludes not with answers, but with further questions – about what worlds might be possible if "land," "water," and "biodiversity" were instead thought through the alternative ontologies profiled herein, and about the prospects for an "ontologically plural" approach to environmental governance.

2. Environmental Governance

As cultivators, consumers, and niche constructors, humans have always influenced their surroundings. While environmental governance broadly can refer to diverse ways humans manage their environments, we use the term to refer to a historically particular form of intervention that emerged near the end of the 20th century. In this section, we argue that the contemporary era of environmental governance has been part of a wider shift from public-sector administration, or govern*ment*, to a more multi-scalar, multi-actor form of govern*ance* grounded in technocratic solutions and a neoliberal political economy.

A "governance" discourse emerged within the last 30 to 40 years to describe the shift from traditional top-down, state-centered development interventions to more decentralized and globalized multi-actor modes of administrative control (World Bank, 2000; Ferguson and Gupta, 2002; Ribot, 2004; Lobao et al., 2009; Hilgers, 2010). Early renderings of "governance" in development reports place countries along a spectrum of "good" and "poor" governance using clearly delineated criteria linked to economic policy and market logics[1] (e.g. World Bank, 1992). Those countries which fail to meet these criteria are characterized as being in a "crisis of governance" (World Bank, 1992), echoing wider scholarship linking crisis narratives to the legitimation of interventions by the state or outside actors (Hay, 2008; Sullivan, 2009; Schuetze, 2015). "Environmental governance" subsequently emerged in development and academic circles in parallel with the wider discourse on governance[2]. The move to embrace non-state actors in the environmental governance arena has been a key contributing factor to the institutional hybridity (state-market-community) which characterizes this shift, generating both shared and conflicting interests between actors (Lemos and Agrawal, 2006; Newell, 2008).

One crucial question this transition raises is whether environmental governance offers potential for positive social and ecological change, however defined (see, e.g. Batterbury and Fernando, 2006; Chaffin et al., 2016; Ciplet and Roberts, 2017). While the discourse has arguably engendered broader public recognition of the importance of institutions, decision-making processes, and incentives in the environmental domain, critiques highlight a host of concerns about contemporary governance and how it is translated in practice. Among these are its continued emphasis on prescriptive and technocratic solutions imposed by outside or higher-level actors (Mol, 2001; Bäckstrand, 2004), its location within and reproduction of a global

neoliberal political economy focused on aggregate economic growth (Newell, 2008), and the radical simplification and commodification inherent in market-based regulatory mechanisms (Robertson, 2007; Smith, 2007). It has also been argued that undergirding good governance discourse, with its language of participation and shared responsibility, lies a pervasive teleology that places Europeans at the top of a global hierarchy (Gruffydd Jones, 2013)[3], obscuring or ignoring colonial histories and power dynamics (see, e.g., Gadgil and Guha, 1992; Sivaramakrishnan, 1999). In this sense, Western technocratic ideals have become hegemonic in global environmental governance.

In the following section, we introduce ontological approaches to social inquiry and three basic tenets that guide our own analysis. We argue that ontological anthropology may be used both to better understand what the concept of "environmental governance" does in the world, and also to envision potential alternatives.

3. Knowledge, Power, and the Ontological Turn

The intimate relationship between knowledge, power, and governance is by now well established in the social sciences. Foucault's (1980) insight that social and scientific institutions, discourses, and practices help determine what claims are taken to be authoritative has contributed to a broader understanding of the "politics of knowledge" (Brosius, 2010; Goldman and Turner, 2011). Showcasing how all knowledge, including Western science, is partial in scope and situated in particular contexts (Haraway, 1988), scales (Scott, 1998), and worldviews (Atran, 1990; West, 2005), this work builds on subaltern and postcolonial studies to show how discourses, through their social dominance, can prioritize and make visible certain ways of knowing while obscuring others (Said, 1978; Escobar, 1988; Chakrabarty, 2000). Out of such work, we see how knowledge systems and their underlying ideologies help conceive, order, and govern the world (Escobar, 1988; West, 2005; Velásquez Runk, 2009).

Building on these lessons, scholars today point not only to the politics of knowledge but increasingly to the politics of *ontology*, asking the arguably more fundamental questions of, "What exists in the world? How are worlds created through assumed ontological underpinnings? And how might diverse ontologies, indigenous or otherwise, enable creative reimaginings of those same worlds?" Through such questions we see how an ontological emphasis contributes not only a deconstructive eye to Western, modernist ontologies[4], but also a constructive one that opens up alternative ways of worldmaking. While ontological scholarship in the humanities and social sciences is diverse (Viveiros de Castro, 1998, 2015; Blaser, 2009, 2014; Mol, 2002; Descola, 2013; Kohn, 2013; Latour, 2013; Scott, 2013, 2017; de la Cadena, 2015; Povinelli, 2016; Jensen, 2017), we focus this paper on three tenets that resonate across emerging fields. These include the need to challenge: 1) modernist dualisms; 2) anthropocentric representations of the world; and 3) the dominant categories of cultural definition and comparison.

Ontological anthropology argues that the nature/culture dualism, what Latour (2004) has called "the great divide," has created the modern world and its attendant dichotomies. Ontological anthropology challenges this dualism, arguing that other cultures do not necessarily engage the world through human-nonhuman (Ingold, 2006; Descola, 2013; Kohn, 2013; Latour, 2013; Viveiros de Castro, 2015), living-nonliving (Cruikshank, 2005; de la Cadena, 2010, 2015), or subject-object (Viveiros de Castro, 2004) categories. Indeed, Science and Technology Studies

(STS) scholars point out that in everyday life supposedly modern societies do not abide by these binaries either (*e.g.* Latour, 1993; Jasanoff, 2004). Thinking outside of binaries can help reframe how the world is understood and its challenges formulated. It can decenter humans from problem spaces, highlight the role of nonhuman interconnections and assemblages, and make space for new ontological concepts (Blaser, 2014; Blaser and de la Cadena, 2018). Grappling with new ontological categories can in turn make visible previously unseen dominant ones, showcase all that is lost in efforts to make radically different ontologies commensurable, and illuminate other ways of potentially organizing the world (Holbraad and Pedersen, 2017).

As it has gained momentum in recent years, ontological anthropology has been subject to an array of valuable critiques. It has been criticized for not being sufficiently political (Bessire and Bond, 2014) and for essentializing or overgeneralizing indigenous ontologies (Ramos, 2012). Indigenous scholars have accused it of repeating patterns of colonization and exploitation, as it often fails to give due credit to the indigenous actors themselves who have been integral to its development (Todd, 2016). Others have questioned the claim of ontological anthropology that it is a radical approach that takes "difference" seriously (Heywood, 2012; Laidlaw, 2012), arguing that this is just good old cultural relativism (Graeber, 2015). While acknowledging these critiques and the caution they urge, we believe ontological anthropology still offers a potent tool for interrogating environmental governance thought and practice and for considering alternatives.

Ultimately, the questions ontological anthropology asks make it both an *ontological project* – highlighting what other world-making possibilities exist – and a *methodological tool* – demonstrating both how to explore other world-making outside modernist concepts and what new anthropological questions can be asked through other ontologies (Holbraad et al., 2014; Charbonnier et al., 2016; Jensen, 2017). Breaking apart the modernist nature/culture dichotomy, decentering the human subject, and confronting ontological assumptions and the dominance of particular cultural categories have profound implications for the conception and pursuit of environmental governance. This paper seeks to combine the tradition of deconstruction seen in the politics of knowledge with the emerging constructive potential of ontological scholarship to identify and provincialize dominant conceptions of environmental governance (as well as the conditions these concepts sustain), and to explore and imagine worlds otherwise. The next section does this for three prominent arenas of environmental governance: land governance; water governance; and biodiversity conservation.

4. Environmental Visibilities and Invisibilities

This section presents three case studies to explore what dimensions are rendered visible and invisible within current governance framings and practices. The case studies begin with a "visibilities" section that includes a brief historical introduction to each domain; a description of key concepts and instruments through which those concepts are deployed; and an identification of the conditions to which they give rise. Concepts and instruments are identified through an analysis of scholarly and grey literature, which include reports and websites from prominent actors in each domain (e.g. non-governmental organizations, multilateral financial institutions). The purpose of this analysis is not to provide an exhaustive description of each domain, but to focus on the prevailing ways that ontological assumptions embedded within dominant discourses enact and sustain particular ways of engaging with the world – i.e. what is rendered "visible" by

these ontologies. What is "invisible" is drawn from ethnographies to demonstrate how each domain is conceptualized "otherwise" in diverse world regions and cultural traditions. This is also not intended to be an exhaustive exercise, and it is important to acknowledge the limitations inherent in deriving ontologies from the ethnographic record (including the translational politics of writing culture, Clifford and Marcus 1986, and the collapsed temporality that characterizes many ethnographies). Still, our analysis of "invisibilities" is intended to serve as a starting point in providing contrasting perspectives to the visibilities rendered in dominant environmental governance frameworks, and to open space for alternative modes of engaging with the "living" and "nonliving" worlds.

Before proceeding, it is necessary to briefly comment on our own positionality as researchers. We are an interdisciplinary group, with training in both the social and natural sciences, situated within a Western educational system and knowledge production regime. Our interest in indigenous and subjugated ontologies stems from our experiences as researchers, but is not integral to our own identities or ways of knowing the world. Our approach is thus necessarily partial and situated in the very ontological spaces we aim to interrogate (see Haraway, 1988). This paper should thus be read as the beginning of a conversation that we hope others will join, push forward, and challenge.

4.1. Case Study 1: Land Governance

4.1.1. Land Governance "Visibilities"

"Land governance" is a concept that has proliferated in international development circles in recent decades. It has been defined as "the rules, processes, and structures through which decisions are made about access to land and its use, the manner in which the decisions are implemented and enforced, [and] the way that competing interests in land are managed" (Palmer et al., 2009, p. 9). Though its usage was at first relatively limited, the concept quickly gained prominence with rising food prices, a rising agrofuel sector hungry for land, and the growing demand for agrarian reform from transnational peasant movements (Borras and Franco, 2010). The post-2008 land rush has only intensified this trend, with growing commercial pressures on agricultural land and the outcry surrounding the "global land grab" met by a turn to "land governance" as a means of both mitigating the adverse impacts of land investments in the global south and facilitating the growth of private investment through tenure formalization (i.e., state-recognized land titling) and land markets (Borras and Franco, 2010; Deininger et al., 2012; FAO, 2012). An April 2019 search for "land governance" on Google illustrates this, with the number of mentions increasing 42-fold from before 2007 (923 hits) to the period after (38,500 hits).

Land governance discourse has focused strongly on the concepts of *rights* and *tenure security*. The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security, or VGGTs, considered to be *the* globally negotiated and agreed upon standard for land governance (Hall et al., 2016), aims to establish "internationally accepted practices for systems that deal with the rights to use, manage and control land, fisheries and forests" (CFS and FAO, 2012, p. 1). Although conceptions of rights are typically framed as inclusive of both customary and statutory dimensions, independent, individualized, and exclusive rights are often emphasized, and collective or joint claims often seen as a threat to individual rights and tenure security (World Bank et al., 2008, p. 127, 130).

The *Gender in Agriculture Sourcebook*, for example, suggests that co-ownership between husband and wife undermines women's tenure security because "when land is acquired by a couple, the husband assumes sole ownership, excluding his wife from any ownership rights" (World Bank et al., 2008, p. 126). Customary tenure is similarly framed as undermining tenure security for women (World Bank et al., 2008, p. 127, 130). Landesa has sought to quantify the problem, drawing on dubious evidence to declare there are 90 countries where "customs inhibit women's access to land."[5]

Discourses also center strongly on *community participation and multi-stakeholder collaboration* and *land markets*. "Consultation and participation" are identified as guiding Principles of Implementation for the VGGTs, and measures for "the making of transactions with" rights are identified as a key responsibility of states (CFS and FAO, 2012, p. 3). While land markets are unevenly endorsed by government and non-governmental actors, key proponents claim that land markets alleviate poverty and lead to rural development by allowing productive but landless users to access land and enabling land to be transferred to the most efficient uses and users (Binswanger et al., 1993; Deininger and Binswanger, 1999, p. 247, 250; Deininger, 2003). Tenure security is also said to improve the allocation of land by facilitating its low-cost transfer (Deininger, 2003, p. xix).

It is not just the concepts themselves, but the instruments through which they are deployed, that provide crucial insights into the ontological assumptions embedded in land rights discourses. Here, two key instruments are identified: tenure formalization, and international voluntary standards embodying diverse forms of participation and multi-stakeholder engagement. Formalized titles recognized by the state are offered as the best way to enhance tenure security (USAID, 2016; FAO, n.d.). The argument that land titling provides tenure security, and that this serves as a necessary incentive for farmers to make on-farm investments, has been made by the World Bank for at least 30 years (World Bank, 1989). Titling is said to lead to livelihood benefits by creating incentives to invest, enhancing access to credit, increasing productivity, reducing conflict, and contributing to women's social and economic empowerment (World Bank, 1989; Feder and Feeny, 1991; Deininger and Binswanger, 1999; de Soto, 2000; Deininger, 2003; World Bank et al., 2008; USAID, 2013, 2018). The persuasiveness of these arguments has shaped multilateral and bilateral aid programs, with the World Bank, the G8, and many bilateral donors supporting national land titling programs across Africa, Asia, and Latin America (Maganga et al., 2016). It has also led to the recent codification of "legally recognized documentation" as a key indicator of tenure security in the Sustainable Development Goals.

A host of international voluntary standards on land and investment governance have also been advanced in recent years for "minimising governance and reputational risks, preventing land conflict, and securing a social license to operate" (Hall et al., 2015, p. 2). These instruments often advance a suite of participatory processes which focus on the inclusion of vulnerable populations in land governance guidelines (FAO et al., 2010; CFS and FAO, 2012; Interlaken Group and RRI, 2015; USAID, 2015; Landesa, 2019). Many take the form of codes of conduct for "responsible" land transactions, emphasizing mechanisms for investors to negotiate long-term, exclusive rights to customary land via consultations and contracts with local land users or their presumed representatives (FAO et al., 2010; FAO, 2015; Interlaken Group and RRI, 2015; NAFSNA, 2015; USAID, 2015). It is through the latter that community engagement and participation are placed within and circumscribed (conceptually and temporally) by land

transactions (Landesa, 2015, p. 1; Hall et al., 2016, p. 4). Roles outlined for civil society actors include holding companies accountable to agreed terms (Hall et al., 2016, p. 4) and mitigating risks to smallholders and activists (Cotula et al., 2018).

It is important to take stock of the ontological assumptions embedded within core concepts ("rights," "tenure security"), and the conditions that these concepts and related techniques sustain. Within this paradigmatic global land governance framework, "land" is conceived of as a *commodity abstracted from its social and ecological context* – owned independently by individuals, and transferrable on the open market[6]. Another ontological assumption concerns the *nature of the state,* conceived as a neutral arbiter of rights and superior to "custom" in guaranteeing security. Individual interests and "security" are conceived as best advanced through *severing, rather than cementing, social relationships*. A final suite of ontological assumptions relates to the nature of interactions among diverse societal actors. At the local level, women are perceived as embedded in nuclear families and customary relationships that systematically and evenly disempower them. At the wider societal level, however, *local communities and marginalized actors are seen as fully empowered agents*, placed on par with state representatives and corporations as capable of defending their (homogeneous) interests vis-à-vis outsiders. All that is needed is a set of voluntary norms to guide transactions and "processes" of interaction to give marginalized actors an equal voice.

The critical agrarian studies literature highlights many of the conditions that these concepts and practices sustain: processes which free land from the web of social, material, and ecological relations in which it is embedded (Bromley, 2008; Fairhead et al., 2012); a rapid increase in land transactions involving a host of new actors (foreign and domestic, public and private) (Anseeuw et al., 2012; Cotula, 2012; Nolte et al., 2016); and the redistribution of rights and entitlements in ways that exacerbate existing social divides (see, e.g., Lastarria-Cornhiel, 1997; Peters, 2013) – creating newly landless classes without access to secure employment (Li, 2011). They also perpetuate the Lockean notion that "inefficient" users can be legitimately dispossessed to make land available to actors who will use it efficiently (Li, 2014a). Ultimately, the ontological assumptions underlying land governance enact certain social and material possibilities, some of which deepen inequality and reflect neocolonial relationships. Yet, there are other possibilities for land and its "governance," and for human-land relations, in the human cultural repertoire.

4.1.2. Land "Invisibilities:" Thinking Land Otherwise

In striving to conceive of land and its governance "otherwise," the most obvious point of departure is to *conceive of land within a web of social, spiritual, historical, and ecological relations*. Yup'ik scholar Angayuqaq Oscar Kawagley states that Yup'ik "wisdom transcended the quantification of things to recognize a qualitative level whereby the spiritual, natural, and human worlds were inextricably interconnected" (Kawagley, 2010, p. 90). Such notions are antagonistic to the rigid system of state conceptions of land as an entity that is spatially discrete, quantitatively knowable, disembodied, and purely material (see, e.g., Giminiani, 2015). Similarly, attempts to translate Mapuche conceptions of land, described as "fluid spatialities," into a conception compatible with the law in the process of reclaiming ancestral territories, have fundamentally transformed land itself – "from a qualitative, topological, and agential subject into a quantitative and standardized object" (Giminiani, 2015, p. 491).

Making an ontological shift from disembodied to relational conceptions of land would have a number of implications. One implication would be to *enable recognition of the multiple affordances or dimensions of land beyond the economic*, thereby placing its enmeshment with diverse social, psychological, and ecological processes center stage. This is perhaps best illustrated by the frequent inseparability of land, community, history, and identity. In many societies, land is neither fully separable from the human realm nor homogeneous, but full of site-specific meaning, with history written onto the landscape, and land and place bound up with individual and collective identity (Sather, 1990; Fairhead and Leach, 1996; Takano, 2005; Heatherington, 2010; Coggeshall, 2018). Landscapes and their features can signify relationships to land spirits and serve as an archive of past social relations (Sather, 1990; Fairhead and Leach, 1996; Giminiani, 2015). In the Mapuche concept of *tuwün* ("to come from"), land is intimately bound up with identity and permanent components of personhood – shaping the "physical and behavioral tendencies of people from the same place of origin" (Course, 2011, p. 66). These connections between people, land, collective history, and identity contribute to a sense of emotional loss when the relationship to land is severed. An embodied attachment to the land through daily sensory engagement with land and its products makes its loss particularly emotional for Sardinian pastoralists (Heatherington, 2010). Metaphors of kinship and interdependence with, and affection towards, the land are used in relation to forced land alienation, with a resident experiencing this loss "as if someone dear to [her] had died" (Heatherington, 2010, p. 85). Thus land – and all of its social, historical, and personal significance – is something that can be grieved, as if it were kin (Lentz, 2006; Heatherington, 2010; Coggeshall, 2018).

Moving beyond individualized and disembodied to socially embedded concepts of rights and security would also help *foster greater humility of humans vis-à-vis land*, by de-centering human needs and interests in relation to the other-than-human realm. In many societies, this is achieved through ontologies imbuing the land itself with agency: animate, agential, and engaged in social relations with humans (Giminiani, 2015; Coggeshall, 2018). Thus, for some Appalachian African American communities, as family land and people merge through the life process, the land becomes anthropomorphized and animated – with land and ancestors watching over descendants, trees animated ("peeping out at you"), and mountains interacting with individuals (Coggeshall, 2018, p. 207). In other ontologies, land is variously known to stalk people, both looking after them and making them live right (Basso, 1996), or to directly influence "the potentialities and predispositions of any individual with genealogical links to it" (Giminiani, 2015, p. 494). For Kuranko and Kissi horticulturalists from the Republic of Guinea, land spirits have a parallel society to that of humans, including their own villages that are associated with certain landscape features (large rocks, pools, forest patches). These spirits can help or hinder human activities on the landscape, and a contractual relationship with these spirits must be established by human first-comers and ritually maintained by their descendants to maintain legitimate access and ensure the land's productivity (Fairhead and Leach, 1996).

Seeing land "otherwise" in these ways would also *elevate duties over rights*, to enable worlds in which each human action is not thought of in terms of individual utility, but in terms of the web of consequences it carries for other being and things. Such an ontological orientation would force us to enter into respectful and reciprocal relations with others, muting the perceived boundaries between us, such that the well-being of others is intimately associated with our own. For many societies, the agential qualities of land and other beings and things are not random or

outside the realm of human influence, but shaped in interaction with humans – a relationship commonly framed in terms of reciprocity. Among people as widely dispersed as Maori gardeners and hunter-gatherers of New Zealand, Kantu horticulturalists of Borneo, West African horticulturalists, and the Tukano of Brazil, the fecundity of land, forest, and fisheries are ontologically linked to human behaviors, such as whether gratitude is duly expressed, reciprocal relations of exchange with the land are respected, or individuals refrain from harvesting in restricted areas (Best, 1909; Dove, 1988; Jorgenson, 1989; Clay, 1991; Fairhead and Leach, 1996; Lentz, 2006). Humans who violate these practices are punished, with the hills in Mapuche territory capable of purposely acting to "disorientate humans who do not conduct themselves properly" (Giminiani, 2015, p. 494), or ancestors of fish taking Tukano infants from those who fish in restricted areas (Clay, 1991). For contemporary Inuit, having a proper relationship to the land is thought to contribute to human well-being, a concept encompassing health, happiness, freedom, beauty, and quietness (Takano, 2005). In many of these ontological orientations, the material and spiritual are inseparable (Fairhead and Leach, 1996; Lentz, 2006; Heatherington, 2010; Li, 2014a).

Certain ontologies of land and property also support duties in ways that are *supportive of collective rather than individual interests and "security."* Some societies lack Western notions of land ownership altogether. This is seen most clearly with pastoralists and hunter-gatherers, who tend to have fluid and flexible conceptions of land and systems of access uniquely suited to their livelihood systems (Shostak, 1981; Spear and Waller, 1993). Among Maasai pastoralists, spatial and temporal variability in water and forage makes fluid access to vast territories essential to livestock survival and range rehabilitation, which has long been supported through notions of land as "communal territory containing resources rather than as a resource which could be appropriated by individuals" (Spear and Waller, 1993, p. 258). Societies having concepts of ownership may also conceive of it in different terms, not as absolute rights, but part of the representation and constitution of social relationships. Such entwinement of the social and material in property relations is widely documented in the ethnographic literature (Evans Pritchard, 1940; Gluckman, 1965), and points to the crucial importance of duty (as contrasted with "rights") in shaping property relations. In other societies, ownership may ultimately reside with, or be mediated by, spirits – thereby extending the relational elements of property beyond the human realm (Fairhead and Leach, 1996; Lentz, 2006; Li, 2014b). For Lauje highlanders of Sulawesi, for example, primary forest was considered to be owned by spirits of the earth and water and its use mediated by ritual specialists who were able to seek the spirits' blessings (Li, 2014b). Even where exclusive residence and cultivation rights are held by households, land may customarily be inherited according to rules that guarantee its perpetual control and access by a social group or lineage (Schapera, 1970; Lentz, 2006) – thereby cementing responsibilities towards, and security for, others.

With land being a more multidimensional (material-relational-agential-spiritual) and multifunctional (economic-social-ecological-emotional) entity than modernist ontologies would have us think, the imperative for *continuity in human-nonhuman-territorial relations* becomes clear. Land as a medium for connecting people with their past and constituting their very identity, and as agential and animate in its own right – whose kin-like relations sustain human emotional and physical well-being – makes it inconceivable to think of alienating people from place or treating land as a disembodied commodity available for the taking. It thus helps to place people in their rightful place within the landscape, enabling them to affect land outcomes in

positive ways – as widely documented in the literature on anthropogenic and sacred forests (Balée, 1989; Irvine, 1989; Fairhead and Leach, 1996); patch modification (Stocks, 1983); and soil enrichment (Hecht and Posey, 1989; Frausin et al., 2014). This continuity in human-land-ancestor-spirit relations also induces an orientation towards sustaining the productivity of land and its products, and in so doing, the very health, well-being, and continuity of society.

4.2. Case Study 2: Water Governance

4.2.1. Water Governance "Visibilities"

Water governance has been defined as the "political, social, economic, and administrative systems that are in place to develop and manage water resources, and the delivery of water services, at different levels of society" (Rogers and Hall, 2003, p. 7). Essentially this means, "who gets what water, when, and how, and who has the right to water and related services, and their benefits" (WGF, n.d.). Historically, state water management in most countries has been based on large-scale hydraulic works for irrigation and municipal water supply, and closely tied to colonial and state bureaucratic development (Wittfogel, 1957; Mehta, 2005; Hassan, 2010; Benson et al., 2015). In 1977, the United Nations Water Conference in Mar de Plata, Argentina signaled a shift towards a new global and multi-level approach to water, aimed at addressing problems of water scarcity in the developing world. This included a focus on drinking water and sanitation and the application of scientific knowledge and technology (Hassan, 2010). In the late 1980s, this focus expanded to include pollution and ecosystem-based objectives, setting the primary unit of analysis and management at the watershed or river basin scale (Hassan, 2010; Benson et al., 2015). The principles of Integrated Water Resources Management (IWRM) became enshrined at the Dublin Conference on Water and Environment in 1992, establishing the dominant approach to water governance in the years to follow (Rogers and Hall, 2003; Hassan, 2010; Mehta et al., 2016)[7]. IWRM is a general framework that promotes a coordinated multi-level approach to water management in order to maximize economic and social welfare while fostering environmental sustainability (UN, 1992; Rogers and Hall, 2003).

From a survey of the major water governance organizations, we identify three of the most widespread framings or discourses: *water as resource* or *economic good*; *water as scarce*; and *water as threat*. Following the Dublin Principles, water governance organizations define *water as both a valuable resource and an economic good*. The Organization for Economic Cooperation and Development (OECD) urges the proper management of this resource for "drinking water supply, sanitation, flood protection, water quality, water quantity, rainwater, and storm-water," dividing water into distinct uses and management sectors, including domestic, industry, agriculture, energy, and environment (OECD, 2015). With growing perceptions and experiences of water scarcity and increasing conflict over water resources, discourses have shifted to emphasize water ownership. Water governance organizations stress the need to clearly define the rights, roles, and responsibilities of various state and nonstate actors over water resources (Turner et al., 2009; WGF, n.d.). The Dublin Conference assigned to the state the role of defining property rights and responsibilities related to water. Despite declaring water an economic good as well as a human right, the Conference encouraged privatization of the water sector, especially in developing countries, and decentralization of water governance (Rogers and Hall, 2003; Hassan, 2010; Benson et al., 2015).

By declaring water to be both finite and vulnerable, the Dublin Principles also reinforced a *discourse of water scarcity*. Indeed, many organizations today consider there to be a water scarcity "crisis," with the Water Governance Facility asserting that "increasing water scarcity is one of the globe's greatest challenges" (WGF, n.d.). These assumptions lead directly to discourses of "water security" and "water conflict," which, when combined with population growth, are envisioned as creating an urgent need for intervention (Turner et al., 2009; Hassan, 2010; World Bank, 2016; IWMI, 2018). The framing of water as both economic good and scarce resource means that its effective governance is seen to entail "achieving water security, fairly allocating water resources and settling related disputes" (WGF, n.d.).

Water governance discourses also define *water as a threat* when it is alternately abundant (i.e. floods), scarce (i.e. drought), or polluted. The OECD bases its water governance principles, for example, on managing "too much," "too little," and "too polluted" water (OECD, 2015). Along with water scarcity, flooding and water pollution are key contributors to discourses of urgency around water governance.

These discourses are premised on the fundamental modernist ontological division between humans and nature, relegating water to the natural realm to be harnessed and controlled, rather than as something integral to human life and culture (Mehta, 2005; D'Souza, 2006; Bhattacharyya, 2018). Locating water in this way allows it to be defined as a resource or economic good that is eternally scarce, justifying its management by water bureaucrats and dam builders, and legitimizing the drought relief industry (Mehta, 2005). Mehta (2005) describes how, with neo-classical economic thought, "scarcity" went from being a spatially and temporally bounded *cyclical* phenomenon to an omnipresent myth. Discourses of water scarcity and those positing water as potentially destructive – whether by flood, drought, or pollution – are "crisis narratives," positing a constant state of danger or threat. These discourses function to justify the governance of water and open up spaces for outside intervention (Lebel et al., 2005), paving the way for the increasing privatization and internationalization of water governance (Biswas, 2004; Mehta et al., 2016).

Dominant approaches to water governance have further relied on the deployment of techno-scientific means to assess, harness, and control the flow of water, including through techniques of measurement and large-scale engineering. Linton (2010) describes how the modern science of hydrology gave rise to "modern water," a fundamental understanding of water as abstracted from social, cultural, and economic relations for purposes of hydrological modeling. Describing water in terms of the hydrological cycle helps to obscure its social reality while simultaneously enrolling it in human projects of exploitation, management, and control. At the same time, techniques of scientific measurement produce quantitative data about water to inform decision-making processes, a common objective of governance organizations (*e.g.* Turner et al., 2009; GWP, 2017; IWMI, 2018). For example, the International Water Management Institute (IWMI) employs global hydrological models and remote sensing datasets to analyze water "flows, fluxes, stocks, consumption, and services," as part of what they call "water accounting." Bigger and better data are thought to improve predictability and efficiency in water management, which in turn present new and improved opportunities for investment, often for the development of large-scale hydraulic infrastructure projects.

A set of historically contingent ontological divisions abstract water from social processes (Linton, 2010) and separate water from land (Lahiri-Dutt, 2014; Da Cunha, 2018), irrigation

water from "environmental" water (Lavau, 2013), and "good" water from "bad" water (Zegwaard, 2016)[8]. These ontological separations uphold technological efforts to manage water for human uses: tubewells, pipes, canals, dams and dikes for capturing, controlling, channeling, transporting and diverting water. These technologies, large-scale hydraulic infrastructures most clearly, reflect an underlying modernist assumption of human domination over nature (Mehta, 2005).

Dominant trends in water management and the ontological assumptions upon which they rest have in many cases created unintended consequences, undermining social-ecological resilience and exacerbating the very problems they seek to address. For instance, large-scale hydraulic infrastructures create environmental problems downstream and often lead to technological lock-in effects that reduce adaptive capacity in a time of increasing floods, droughts, and sea level rise (Wesselink et al., 2007; Biggs et al., 2009; Giosan et al., 2014; van Staveren and van Tatenhove, 2016; Morita and Jensen, 2017). Global trends in water governance since the 1990s have increased space for private sector involvement and expanded the role of international initiatives and partnerships (Rogers and Hall, 2003; Hassan, 2010; World Bank, 2016). Those promoting IWRM emphasize decentralization, multi-level governance, and multi-stakeholder participation (Turner et al., 2009; GWP, 2017; WGF, n.d.), principles which remain ambiguous in practice (Biswas, 2004) yet allow for easy cooptation by powerful actors, often in effect re-centralizing power (Mehta et al., 2016). While trends in access to "improved" water sources have been favorable[9], inequality of water and sanitation coverage among countries has not been addressed effectively during the past decade (Cha et al., 2017). In many cases, water governance efforts have been met with local grassroots resistance or produced conflict. Many countries arrest people for protesting water development projects (Rose Johnston, 2010), and local water "mafias" have emerged in some places to provide water supply outside the bounds of formal institutions (Gandy, 2006; Ranganathan, 2014). Such informal practices demonstrate that water problems have not been adequately solved by new institutional mechanisms or technological fixes, pointing to local engagements with water beyond what is captured in dominant discourses.

4.2.2. Water "Invisibilities:" Thinking Water Otherwise

In striving to see water "otherwise," we can turn to ontological frameworks that do not make the same arbitrary divisions, abstracting and separating water from the rest of the world. This may enable alternative approaches to water management that better care for the many interdependencies between people, water, land, and ecosystems. The following examples bring water back into the picture as a vital agent in relational human-nonhuman worlds.

Across the globe, numerous cultural and spiritual traditions conceive of water as something *sacred*, an essential element of ecosystems, and hence human health. This contrasts sharply with dominant modernist ontologies in which water is conceived primarily as a resource for human exploitation. Examples are found in Judeo-Christian, Muslim, Hindu, Shinto, Chinese, Buddhist, Greek, Roman, Celtic, Zulu, and Indigenous North and South American cosmologies, among others (Bryan, 2017). One of the forms in which this sacredness is expressed is in the notion of water as "lifeblood" common among indigenous communities across Canada (Yates et al., 2017), which rests on an understanding of water as a living entity, connecting human and nonhuman beings across space. In this understanding, the health and vitality of water is intimately and

relationally linked to the health of human bodies. According to a Cree elder cited by Yates et al. (2017, p. 6), "there is no separation between the water and human beings… We are the water, and the water is us." Such ontologies lead directly to assertions of not just rights but, crucially, *responsibilities* to water and the ecosystems from and through which it flows. Emphasizing the inherent connectivity of water and its relationality with humans and other living things encourages societal responsibility for the protection of water and healthy watersheds.

Another way in which water is seen as sacred is in it being the material manifestation of a deity. This conception is pervasive across southern Asia (Coomaraswamy, 1970; Walker and Uysal, 1973), where in the Hindu tradition water is often represented in the form of a goddess (Mehta, 2005). Mehta (2005) describes how in Gujarat, major drinking water sources are associated with female deities who are asked to watch over village waters each time a new well is dug. Here God and Nature are one, and people earn symbolic capital for ecologically positive behaviors. To obtain reward in the afterlife, villagers feed animals or beggars, or make financial contributions to public works such as water tanks and wells. Each person pays according to his or her ability, so the rich are expected to give more, earning them greater symbolic capital in the afterlife (and reinforcing social differentiation tied to honor and prestige). Yet there are no sanctions or punishments for non-participation, and the poor benefit equally from improved facilities and services, a form of social welfare. In this way, conservation actions are highly individualized: "the driving axiom is 'you reap what you sow'" (Mehta, 2005, p. 153). Here water management is driven by notions of individual duty in exchange for symbolic and spiritual reward, instead of purely material gain. This again contrasts with dominant rights-based discourses by promoting not just rights but duties, and not only collective but also individual responsibility for water protection.

A third way in which this sacredness of water may be expressed is through cosmological systems that imbue particular sites with symbolic and spiritual meaning. In Bali, for example, holy water temples and seasonal rituals dedicated to agricultural deities play a key role in managing the sustainability of complex rice production landscapes (Lansing, 1991). The integration of cosmological and agro-ecological systems enables the coordinated distribution of irrigation water and drainage for optimal pest control, stabilization of soil nutrients, and collectively orchestrated cropping patterns. For the indigenous Mapuche people of southern Chile, rivers, lakes, and wetlands are sacred places home not only to diverse flora and fauna but also spirits, called *ngen*. Every nook and eddy of a river has its own *ngen*, which must be asked for permission before someone can enter in search of food, medicine, or water. An entire watershed and its people might be protected by hundreds of such spirits. But if the water is dammed or contaminated, the *ngen* will abandon it, leaving behind people and place without spiritual protection, and leading to suffering in the form of depression, alcoholism, and other social ills. Environmental conservation is thus also a matter of spiritual and physical health. Some now propose following in the footsteps of places like New Zealand, Colombia, and India in granting legal rights to rivers in order to more formally recognize the claims of these spiritual beings (Benöhr and Lynch, 2018). These examples demonstrate that traditional management practices rooted in relational ontologies connecting water to people via symbolic or spiritual meanings may in fact provide more effective and sustainable approaches than those premised on techno-scientific or economistic principles alone. By explicitly linking the fates of humans, nonhumans, and water

together, they can foster responsibility, care, and coordinated management of an entire ecosystem.

The ethnographic literature also highlights settings in which water-based or *aquatic ontologies* are foregrounded instead of the land-based or terrestrial ones characteristic of dominant modernist ontologies. In deltas, floodplains, and other landscapes at the confluence of land and water, modernity imposes an arbitrary division that privileges the terrestrial at the expense of the aquatic (Lahiri-Dutt, 2014; da Cunha, 2018), but examples suggest a focus on the latter may better promote adaptation to dynamic hydro-ecologies. In monsoon-affected and flood-prone areas, colonial and modern efforts to justify dam-building decried floods as destructive or wasteful, yet for local people accustomed to these naturally occurring cycles, the swelling river and "rain-driven wetness" (da Cunha, 2018, p. iv) that precedes it are instead seen as life-giving and productive forces (Mehta, 2005; D'Souza, 2006; Ehlert, 2012). Velásquez Runk (2009) documents how the river-dominated "rhizomic" cosmos of the Wounaan of Panama contrasts with the binary "arborescent" and terrestrial framings of Western conservationists. Wounaan's networked, riverine ontology not only urges greater attention to aquatic environments but also presents a better model of ecological complexity and dynamism, accounting for interdependent relationships between humans and nonhumans across the physical landscape. By foregrounding water in ontologies of wet environments, these examples help to illustrate the mutual constitution of society, water, and landscape, highlighting the importance of natural hydrological dynamics (Gagne and Borg Rasmussen, 2016; Krause, 2017).

Such approaches may be especially useful for promoting adaptation to changing hydrologies in the context of contemporary climate change. In Thailand's Chao Phraya Delta, for example, traditional states viewed the area as an extension of the sea into land, rather than the other way around. As society grew, infrastructure developed around this aquatic orientation, with transportation canals extending watercourses inland, houses built on stilts, and agricultural and urban designs adapted to seasonal floods (Morita, 2016). With Western-inspired modernization, however, land-based infrastructures such as roads and bridges became predominant, and modern irrigation and land reclamation projects enacted an increasingly terrestrial ontology. However, this profoundly increased vulnerability to flooding. Today, both forms of infrastructure and the ontologies of which they are part exist in overlapping tension. But increasing floods due to climate change suggest that a return to the aquatic ontology of earlier amphibious infrastructures might be needed (Morita, 2016; Morita and Jensen, 2017).

4.3. Case Study 3: Biodiversity Governance

4.3.1. Biodiversity Governance "Visibilities"

Within a decade of its emergence as a scientific concept in the 1980s (Soulé and Wilcox, 1980; Tangley, 1985; Wilson, 1988), "biodiversity" became globally known and a governable object through the publication of the *Global Biodiversity Strategy* (WRI/IUCN/UNEP, 1992) and the 1992 Convention on Biological Diversity (CBD) (Escobar, 1998; Lowe, 2006). The CBD defines biological diversity as "the variability among living organisms from all sources including, inter alia, terrestrial, marine, and other aquatic ecosystems and the ecological complexes of which they are part: this includes diversity within species, between species, and of

ecosystems" (CBD, 1992). While definitions vary, this framing is often cited in global environmental governance literatures and highlights how biodiversity is a multi-scalar concept, covering genetic, organismal, and ecosystemic levels (Harper and Hawksworth, 1994). The concept of biodiversity, and its governance, is largely framed within a narrative of loss, crisis, and extinction, ultimately birthing the discipline of conservation biology and leading to the growth of international conservation policy and programs (CBD, 1992; Escobar, 1998; Lowe, 2006; USAID, 2014). With the legitimization that came from global governance institutions like the CBD, rapid financial and geographic expansion followed for conservation NGOs whose missions became increasingly oriented around biodiversity and geographically sited in the global south (Chapin, 2004; Lowe, 2006; Brosius and Hitchner, 2010). The mission statements of groups like Conservation International, The Nature Conservancy, Wildlife Conservation Society, and the World Wildlife Fund showcase this centrality, referring to a need to conserve, save, and care for species and habitats around the world[10].

The governance of biodiversity has shifted in framing, scale, and stated goals over time. From a national-level emphasis and focus on exclusionary protected areas for much of its history (Adams and Hulme, 2001; Walley, 2004) to more community-based, local-level endeavors beginning in the 1980s (Agrawal and Gibson, 1999; Brosius et al., 2005; Agrawal and Angelsen, 2009; Blom et al., 2010), efforts today are more focused on landscape-level action and cross-sectoral attempts to achieve multiple, simultaneous goals, with biodiversity conservation co-existing alongside social, economic, and climate mitigation co-benefits (Scherr et al., 2012; Sayer et al., 2013). Throughout these efforts, different values have likewise been espoused for biodiversity. While conservation NGOs' past work, and much of the current work, emphasized biodiversity's intrinsic value and beauty – often focused on charismatic, keystone, umbrella, or flagship species (WWF 2008 Annual Review; WCS 2020 Strategy) – multilateral organizations from the beginning conceptualized biodiversity in more instrumental terms. Examples include the focus on genetic resources within international agreements such as the CBD, the Law of the Sea and the 2010 Nagoya Protocol, and the emphasis on "the provision of ecosystem services essential for human well-being" in CBD's Strategic Plan for Biodiversity 2011-2020 (CBD, 2010, p. 6). USAID mirrors these arguments in its Biodiversity Policy aimed at "conserving biodiversity for sustainable, resilient development" (USAID, 2014, p. 1) and the provision of "goods and services critical to human well-being (clean water, food, reduced natural disaster risk) and ... development outcomes" (p. 6).

Despite continued, visible use of charismatic species as emblematic of their work, conservation NGOs in recent years have largely shifted their missions towards these emphases as well. This can be seen in their choice to focus on categories such as "living landscapes" (WCS, 2002), re-oriented priorities to include "human well-being through ecosystem and biodiversity conservation" (CI 2008 Annual Report), and connecting biodiversity and their larger integrated social and ecological goals to the language of ecosystem services. The World Wildlife Fund's 2016 Annual Report connects biodiversity with ecosystem services and economic development, arguing for "conserving the stunning diversity of life that makes Earth a living planet and ensuring the environmental services that underpin social and economic development" (p. 4). Such shifted discourses point, some scholars suggest, to how biodiversity governance has largely united with global and national economic priorities to become "conservation-as-development" (West, 2006).

Taken together, these examples show how biodiversity today is largely framed around two concepts. The first conceives biodiversity as a *resource* to be discovered, measured, and alternatively protected, utilized, or even capitalized. This is captured in conceptions of biodiversity as genes, species, or ecosystems to be conserved (CBD, 1992; CBD, 2010), credits to be traded through mitigation banking (Bonds and Pompe, 2003), or genetic material to be uncovered and mined for science or profit (Helmreich, 2009). The second articulates biodiversity as ecosystem *assets* and *services* essential for human well-being and sustainable development (Daily and Matson, 2008; Daily et al., 2009; Lélé et al., 2013). Whether an ecosystem service itself or a fundamental requisite for greater ecosystem service functioning (Lélé et al., 2013), this framing is found throughout the governance sphere (CBD, 2010; FSC, 2012; Secretariat of the Convention on Biological Diversity, 2014; USAID, 2014; Diaz et al., 2015) and defines the natural world in terms of its diverse instrumental value to human societies.

These conceptualizations have propelled a diverse range of strategies for biodiversity conservation and governance, whether centered around the protection of individual "units," such as particular species or genes, or increasingly larger, multiple-use landscapes. Specific instruments include nationally-designated protected areas and work on conservation genomics at zoos. However, the majority increasingly fall under the realm of market-based mechanisms, including the direct purchasing of land for protection, voluntary tax-deductible conservation easements, and myriad conservation finance schemes, from mitigation banking to payments for ecosystem services (PES) arrangements or bilateral debt-for-nature swaps. Building off earlier models of community-based conservation (CBC) and integrated conservation and development projects (ICDPs), biodiversity governance instruments increasingly also focus on the inclusion of indigenous communities and other stakeholders for more effective and equitable outcomes (Agrawal and Angelsen, 2009; Blom et al., 2010; Holmes and Potvin, 2014). This has been codified in certain cases in rights-based approaches focused on participatory methods, formal consent guidelines, and policies enabling increasing tenure clarity and security (Campese et al., 2009; Hickey and Mitlin, 2009; Hitchner, 2010). Examples can be seen in resource certification schemes (FSC, 2002, 2012), as well as safeguard mechanisms developed from international finance and increasingly applied to conservation and development projects (UNFCCC, 2010; FCMC, 2013; Aicher, 2014; Krause and Nielsen, 2014; FAO, 2015).

While on its face biodiversity governance is diverse across focal scales (genes, species, landscapes), levels of engagement (local, national, global), and priority objectives (habitat conservation, economic development, community rights recognition), when viewed ontologically, certain underlying assumptions, and the conditions they advance, become visible. Perhaps the most fundamental is a *human-nature dichotomy*. This can be seen in the very definition of biodiversity, which separates people from the rest of creation (Lowe, 2006; Kohn, 2013). Despite the increasing attention to communities and larger integration of human well-being and development concerns within conservation, this assumed binary is maintained, as seen in instrument names that separate conservation and development (i.e. ICDPs), social and environmental co-benefits (i.e. safeguards), or trade-offs between well-being and conservation goals. However, it is most visible in the critiques so often leveled against people – and more often than not local communities – regarding drivers of biodiversity degradation and loss. Dominant biodiversity governance and conservation discourse and practice is largely organized

around people not as a part of biodiversity but rather as a threat to it (Lowe, 2006; West, 2006; WWF-US 2017 Annual Report). Following from this assumption is a second increasingly visible one, the *commodification* of the natural world seen in trading schemes, easement contracts, and debt swaps, and the related, *anthropocentric focus* of so much biodiversity governance today – whether cast in terms of resources to be mined for human health, commodities to be traded for economic development, or services to be conserved to protect human well-being.

The economization of ecology (Lélé, 2013) and positioning of biodiversity as secondary and subordinate to human societies' needs has enabled a pointed change in mission and valuation for non-governmental organizations that more closely aligns with governmental economic agendas and multilateral agencies like the IMF and World Bank. A non-profit business model predicated on the intrinsic value of species has given way to one grounded in investment value and its accompanying reductions, mechanisms, and culture (Brosius and Hitchner, 2010). This shift has promoted the proliferation of hybrid and networked forms of governance (Lemos and Agrawal, 2006; Bäckstrand, 2008), including public-private partnships between private firms and NGOs (CI 2008 Annual Report; TNC 2017 Annual Report), and the financialization and neoliberalization of conservation (Castree, 2008a, 2008b; Fletcher, 2010; Hagerman et al., 2012). Such market-oriented approaches are also largely voluntary, signaling to many a lack of recognition of the larger political-economic forces shaping societies and landscapes (Auld, 2010; see also Climate Focus, 2016). By advancing an idea of biodiversity whose value is abstractable and fungible, place-based ecological, cultural, and other values are at risk of being obscured and erased, with the value of one metricized unit of biodiversity or ecosystem service being substitutable for any other (Bonds and Pompe, 2003; Robertson, 2007; Silva-Castañeda, 2012; Brown et al., 2013).

Fletcher (2012) notes that "systematic evaluation of the costs and benefits of neoliberal conservation mechanisms is almost entirely absent anywhere in the world," leaving us with little understanding of either their effectiveness or their outcomes (p. 313). In the case of biodiversity conservation, their effectiveness is inconsistent, difficult to ascertain, and largely context dependent (Ward, 2008; Auld, 2010; Elbakidze et al., 2011; Dias et al., 2015; Hardt et al., 2015). Scholars also point to the potential for such approaches to elide questions of justice and equity (Melo, et al. 2014), elevate Western and "expert" knowledges over more local and indigenous ways of knowing (Gupta et al., 2012; Melo et al., 2014), and have uneven and potentially deleterious effects on smallholder livelihoods and non-market-based cultural practices and relationships (Auld, 2010).

4.3.2. Biodiversity "Invisibilities:" Thinking Biodiversity Otherwise

In striving to think of biodiversity "otherwise," there is benefit in seeking to *break out of the modernist dichotomy of humans and nature* and instead welcome a perspective of relationality. The lack of clear boundaries between the natural and the social is made clear in the Dayak Meratus' forests of South Kalimantan, where Tsing (2005) notes that "forests are not wild places," but rather "they are populated and managed" (p. 256). The landscape is "a site of memory" (p. 257), a reservoir and keeper of individual and community history (p. xi). "The forested landscape is not just managed by social networks or a model for them; it is simultaneously the shaper of social networks and the material through which they are shaped" (p.

257). Embracing such intertwined relationality would enable conservationists to see people not as threats but rather part of landscapes and together with biodiversity inseparable from senses of place (Basso, 1996; Feld and Basso, 1996) and dwelling (Ingold, 2000).

Including humans within the realm of biodiversity could enable us to more clearly see mutualistic relationships between particular human livelihoods and landscapes and the attendant benefits to ecological function or species richness. For the Kenyan Maasai, examples range from species-rich glades and trophic cascades that result from livestock corral mobility (Donihue et al., 2013) to potentially facilitative relationships between domesticated cattle and wild ungulate species (Odadi et al., 2011). In seeing such relationships outside dominant ontologies, we are allowed to question and reflect on other dichotomies as well, such as the categories of domesticated versus wild. For Dayak Iban in Malaysia Borneo, rehabilitating endangered orangutans for reintroduction involves learned skill, place-based and species-based knowledge, and navigating complex relations of care across human and non-human actors alike (Salazar Parreñas, 2018). In breaking down the ontological barrier between people and biodiversity, we are also able to see migrant Dayak Iban individuals and enclosed orangutans as residents of a shared landscape whose histories and lived daily experiences are shaped by processes of colonial and postcolonial exploitation and dispossession. Bringing such shared histories and lived experiences more clearly into view helps interrogate the larger project and consequences of environmental governance itself (Salazar Parreñas, 2018).

Breaking down this dichotomy would also complicate our understanding of degradation. Environmental degradation has long been erroneously tied to local communities' mobile livelihoods in the eyes of many conservation and development scientists and practitioners (Dove, 1983; Geist and Lambin, 2002; Ziegler et al., 2012). However, widening the concept of biodiversity lets in a different perspective on degradation. Rather than prioritizing pristine landscapes over degraded ones, anthropogenic mosaic landscapes can be seen as fostering and creating biodiversity (Angelsen and Rudel, 2013), as seen in Panamanian agroforests among Wounaan (Velásquez Runk et al., 2010) and the "cultural forests" of Amazonia (Balée, 1989; Rival, 2000). This is also found in particular national forest landscapes in the American Pacific Northwest, as well as myriad hillsides of Japan, that enable the emergence and flourishing of the matsutake mushroom (Tsing, 2015). As Tsing documents, it is human "disturbance" that encourages and indeed enables the most expensive mushroom in the world to mutualistically nestle in, spread throughout, and strengthen pine forests. How does degradation look differently when human/nature binaries are lessened? What flourishing is allowed in? And what would a sense of biodiversity look like that respected relationalities such as care between humans and nonhumans?

In thinking about biodiversity "otherwise," there is also benefit in seeking to *break apart the idea of biodiversity as a resource or a service* and instead ask what other myriad forms of relationality that support and sustain the world are obscured by this dominant ontological category. This is perhaps most visible in Kohn's (2013) "ecology of selves" found among the Avila Runa of Amazonia. This ecology, "firmly rooted in a forest realm that reaches well beyond the human" (p. 23), envisions nonhuman beings "as soul-possessing, signifying, intentional selves" (p. 93). It is an ontology grounded in a relationality in which living nonhumans are not simply *represented* and projected onto by humans, but rather are understood

to *represent* someone or something outside of human engagement. Kohn notes that this ecology "is grounded in an ontological fact: there exist other kinds of thinking selves beyond the human" (p. 94) that the Avila Runa "try to make sense of" (p. 96). Such a recognition is in many ways at odds with a conception of species as mere resources or services for human use. Thinking about similar concerns amongst orangutans in Malaysia, Salazar Parreñas argues, "entails questioning deep-seated assumptions about life and ecology: who is living, in what ways are we in relation with them, what constitutes selves in these relations, and to what obligations are we committed (de la Cadena, 2010; Kohn, 2013)?" (Salazar Parreñas, 2018, p. 7).

Nonhuman species are seen throughout the world as agents possessing different forms and meanings. Birds in West Kalimantan, Indonesia, act as auguries for selecting swidden sites (Dove, 1993). Honey bees for the Dayak Meratus of South Kalimantan, Indonesia, are rights-holders who must be sung to so as individuals' tree tenure is upheld and legitimated through the bees' approval (Tsing, 2003). Spruce trees, fish, birds, and myriad mammals all possess powers and spirits distinct and unique from each other for the Koyukon of the Yukon (Nelson, 1983). The raven for the Koyukon is ancestor, buffoon, deity, and creator of the ancient world when there was no separation between animals and people (Nelson, 1983). There is also the question of nonhuman spirits residing outside animals that interact with and influence both people and animals. This is seen amongst the Koyukon (Nelson, 1983), as well as many other groups – from the Lamalera of Eastern Indonesia who must respect the spirits that reside within whale sharks to ensure safe journeys home (Stacey et al., 2012), to the Bajau communities of West Sulawesi, Indonesia, who must ask permission of spirits and present offerings before seaweed may grow in that spirit's land (Lowe, 2006).

What we see from these ontological lessons of thinking otherwise regarding biodiversity is a simple recognition that "*we have never been only human*" (Howard, 2018, p. 145; emphasis in original). Given talk of the current age of extinction (Salazar Parreñas, 2018), the Anthropocene, and shifting ecosystems and habitats as climate change progresses, perhaps it actually makes sense – from a conservation governance standpoint – to think outside the box regarding biodiversity and ask what might be possible beyond dichotomies of wild/domestic, pristine/degraded, and even human/nature. Taking seriously nonhumans as actors, agents, and selves means asking not only what obligations do we have to such beings, but what can be learned from their perspectives and the relations between and with them.

5. Discussion and Conclusions

This paper draws on insights from the politics of knowledge and ontological anthropology to explore what contemporary environmental governance concepts render visible and invisible, and in what ways these concepts hinder our ability to envision worlds otherwise. The paper uses case studies from three governance domains (biodiversity, land, and water) to explore this question, identifying for each domain the central organizing concepts and the instruments through which those concepts are deployed ("visibilities") and then drawing on ethnographic examples as starting points from which to explore "what could be" within these domains ("invisibilities"). A look within each case study highlights radically distinctive ontological assumptions populating differently situated understandings of "what is," in turn helping provincialize and situate (culturally, historically, and politically) the underlying modernist ontologies.

Yet if we take this a step further and look across the three case studies at what separates the visibilities from the invisibilities within each, two sets of contrasting ontological orientations emerge. Firstly, whereas dominant approaches to environmental governance are premised on a fundamental divide between nature and culture, the "invisibilities" profiled here provide numerous examples of alternative ontologies in which land, water, and biodiversity are conceived and enacted otherwise. The abstraction of land, water, and biodiversity from the social world in modern discourse and practice allows them to be viewed as something out there, capable of being managed, governed, and subjugated to human needs and desires – typically by defining them in terms of their economic value as resources (land as commodity, water as an economic good, ecosystems as services). As the ethnographic examples in our case studies show, other ontologies that have been rendered "invisible" by modernity often challenge this divide as well as the separation of land, water, and biodiversity into distinct realms.

The other contrast that emerges between "visibilities" and "invisibilities" across cases is the distinction between ontologies of severance and relational ontologies. Whether by drawing material boundaries around discrete units of property, legal boundaries around discrete (ideally, individual) rights holders, or conceptual boundaries around unitary goods and services, modern ontologies remove humans, land, water, and biodiversity from the web of social and ecological relations in which they are embedded and which they help sustain. In contrast, the ethnographic evidence reviewed here suggests that relational ontologies proliferate in human conceptions of reality. This is seen in how land, water, and biodiversity are "thought" in ways that extend to them a sociality and agency that modernist ontologies restrict to the human realm, or in how human security is conceived of not as something achieved by severing relations with others, but through that very relationality, whether with humans, spirits, or nonhuman beings and things.

These two contrasts (the nature/culture divide and the severing of relational webs) go hand in hand, being conceived and enacted almost seamlessly. Seeing nature and culture as separate domains enables them to be imbued with characteristics that reinforce this divide. Where the nature/culture divide breaks down, land, water, and biodiversity are not just inseparable, but may be recognized as having agential qualities, populated by natural and spiritual entities whose interests and fates are tied to human wellbeing. Whereas the first lends itself to control and commodification through increasingly technocratic and managerial means, the latter fosters an understanding of mutualistic relationships between humans and nature, encouraging respect, humility, and responsibility towards this very *more-than-human* world.

What would environmental governance look like *in practice* if we were to place such ontological invisibilities front and center? We are not the first ones to ask this question; environmental activists provide numerous examples of efforts to engage with the environment in ways that respect the relationality, agency, and inseparability of humans and their other-than-human counterparts. For example, the Rights of Nature movement attempts to incorporate indigenous ontologies into state legal norms by bestowing legal personhood status to formalize rights of, and duties and responsibilities toward, natural entities – from rivers and lakes to national parks, edible plants, glaciers, ecosystems, biomes, the entire animal kingdom, and Mother Earth (Naffine, 2003; O'Donnell and Talbot-Jones, 2018; Chapron et al., 2019). By allowing a person or organization to speak on behalf of the entity endowed with legal personhood (Croley, 1998; Stone, 2010) and lawsuits to be taken up against those who fail to respect these rights (Naffine, 2009; O'Donnell and Talbot-Jones, 2018), the movement aims to redress environmental ills by

placing the rights of nature on par with those of individuals and corporations[11]. In a similar vein, the philosophy of *Sumak Kawsay* or *Buen Vivir* (Quechua/Spanish for "full life" or "living well") encourages actions which benefit the wider natural and human community over individual gains to promote harmonious, reciprocal, and enduring human/environment relationships, providing a counterweight to neoliberal conceptions of development by valuing other qualities beyond the economic (Gudynas, 2011; Williford, 2018). The One Health movement promoted by the World Health Organization also challenges the distinction between nature and society to some extent by recognizing the inseparability between human, animal, and environmental health[12] (Verweij and Bovenkerk, 2016).

While these examples offer clear steps toward enhancing ontological pluralism and challenging epistemological compartmentalization, they are fraught with issues and inconsistencies in practice. For instance, Rights of Nature laws have encountered difficulties with implementation and enforcement (Croley, 1998; Stone, 2010), limitations of funding, decision-making authority, and political independence (O'Donnell, 2012), and unclear organizational boundaries, particularly when the entity in question crosses national borders (O'Donnell, 2017; O'Donnell and Garrick, 2017). Broadly speaking, each of these programs lacks a clear pathway toward fulfilling their goals and insufficiently addresses the inevitable trade-offs of conflicting needs and value systems (Verweij and Bovenkerk, 2016). And while the philosophy of *Sumak Kawsay* is critical of neoliberal governance regimes, One Health and the Rights of Nature movement tend to operate within existing governance structures, doing little to confront the power dynamics these systems perpetuate.

This points to the profound challenges inherent to any project aiming to broaden the ontological problem space of environmental governance. While (deeply deliberative) *process* is an obvious point of departure for achieving this broadening (Hendriks, 2009), histories of engagement across difference that lack an explicitly ontological intentionality already demonstrate the challenges of bringing subjugated knowledges and agency to the fore. A long history of critiques of participatory process highlight the potential for participation to constitute more "tyranny" than empowerment (Cooke and Kothari, 2001), whether due to manipulation by outside actors and interests, failure to address substantive legitimacy surrounding such things as changing entitlements, or the role of process in producing obedient knowledge and subjectivities (Gibson and Marks, 1995; Agrawal, 2005; Igoe et al., 2009). As this paper suggests and others have shown, trends towards participation and decentralized, multi-actor governance must also be understood as shifts with deep ties to the neoliberal project itself – not just as a way to make governance more responsible to people in response to popular uprisings against structural adjustment (World Bank, 2000; Hilgers, 2010), but also to "accommodate potentially explosive political forces" (World Bank, 2000, p. 107) and bolster popular legitimacy for undemocratic policies through discourses of procedural legitimacy (Ferguson, 1995).

Process must thus be seen not just as a way to enhance downward accountability and local control, but "as a tool with the potential for complex and contradictory roles – ones which depend deeply on the context, how methodological tools are deployed, and the capacities and ideological alignments of outside actors" (German, 2018, p. 8). These challenges do not go away when engaging across difference at the ontological level, but are instead compounded by the hard facts of ontological incommensurability and its likely effects on the politics of instrumentalization of indigenous ontologies. While there is no magic bullet for how to advance

such a project, inspiration may be drawn from the dynamic conversations that ensue within spaces intentionally created for diverse voices. It may also be drawn from processes of social change and knowledge production not just "*with* rather than *for*" (Freire, 1970; see also Kirsch, 2006), but also *led by* (CRC, 1977; *Mabo and others vs. Queensland*, 1992[13]; Tuhiwai Smith, 2012; see also Hale, 2006) those whose modes of living have been rendered invisible by the modernist project.

In this time of what's called the Anthropocene, the "age of extinction" (Salazar Parreñas, 2018), and even the "end of the world" (Tsing, 2015), ontologically re-envisioning environmental governance seems more important than ever. Grappling with the world as it is today and future challenges resulting from historical legacies and path dependencies will require us to recognize new actors and profoundly reconceptualize our relationships. It requires the ability to "see" human and nonhuman actors and relationships across a diverse range of spatial and temporal scales, whether the fluvial, amphibious worlds of deltas or the timescapes of nuclear radiation and climate change. It requires that we see and come to terms with what Anna Tsing and colleagues call "ghosts" and "monsters" – "the vestiges and signs of past ways of life" that help us "get back to the pasts we need to see the present more clearly," and the emerging "wonders and terrors of symbiotic entanglement in the Anthropocene" (Tsing et al., 2017, p. G1, G2, M2).

Such work also raises critical questions for the future, including how ontological pluralism can be respected across not only diverse and contested actor groups but diverse and contested spatial and temporal scales. And how might the concept of governance itself be ontologically reimagined? Through such questions we see the need to develop not only new "arts of living" within these changing times but new "arts of noticing" as well – noticing previously invisible ontological actors, relationships, and spatiotemporal scales (Tsing et al., 2017). This is captured poetically in Donna Haraway's call to reorient our worldly relations not around domination but instead "making kin" (2015). It likewise reminds us to be reflexive and collaborative in the pursuit of such arts and world imaginings. That myriad indigenous and other peoples have advanced and embodied such efforts for generations demonstrates that they should be openly sought after as not just sources of knowledge and inspiration for the work of others, but as leaders and collaborators in this ongoing and ever-evolving work.

Footnotes

[1] Specifically, a decentralized and transparent government limited to the role of enabling economic development through markets, property rights, and contract enforcement; limited regulations and licensing requirements; and a robust private sector (World Bank, 1992).

[2] Given its prominence in academic discourse, we find it notable that among policy and development actors, use of the term "environmental governance" is uneven. Of those that do use the term, they deploy it in different ways that align with their respective broader agendas. For example, conservation NGOs define environmental governance as both the institutional forms needed for conservation success (WWF, 2011, 2012) and as a means by which to achieve conservation goals or to mitigate adverse impacts of commercial activities (WWF, 2012; Meijaard et al., 2018). The World Bank identifies environmental governance as part of "good overall governance" and as a necessary condition for "sustainable development" (including positive development and market outcomes, poverty alleviation, price and product sustainability, and a fair playing field for compliant corporate actors) (see: http://web.worldbank.org/archive/website01007/WEB/0__C-102.HTM?contentMDK=20288671&contTypePK=64154033&folderPK=570373&sitePK=460957&callCR=true (Accessed: 17 April 2019).

[3] Evidence of this in the environmental arena are texts outlining key principles of environmental governance such as participation, accountability, transparency, and predictability, which must be learned and taught to those involved in its realization (WWF, 2011).

[4] Escobar has defined the modern as an "ongoing struggle to define the real" (Escobar, 2008, p. 131). When placed within the dominant framework of a "universal process of European origin," modernism is a highly critiqued project (Scott, 1998; Escobar, 2008). A key ontological critique focuses on "purification" or dualisms (most notably, human/culture-nonhuman/nature) (Latour, 1993), and their effect in foreclosing the "hybridity" of the world. In this article we use the term modernism to refer to dominant Western, scientific, and rational modes of knowing the world.

[5] They draw on an OECD database of countries exhibiting "some customary, traditional or religious practices that discriminate against women," and use this evidence to declare that there are 90 countries where "customs inhibit women's access to land". Available at: https://www.landesa.org/resources/property-not-poverty/ (Accessed: 15 October 2018).

[6] See: http://www.worldbank.org/en/topic/land (Accessed: 07 June 2018).

[7] The IWRM approach was later reaffirmed through several major international water agreements, and most recently in the United Nations Sustainable Development Goals (SDGs) (UN, 2015; Mehta et al., 2016).

[8] "Good" water is typically that used for irrigation or drinking water, while "bad" water includes floods, saltwater, and wastewater (Zegwaard, 2016).

[9] Available at: https://ourworldindata.org/water-use-sanitation (Accessed: 17 April 2019).

[10] CI's mission statement: https://www.conservation.org/about/Pages/default.aspx#mission
WWF's "Global Goals:" https://wwf.panda.org/our_ambition/our_global_goals/
TNC's mission statement: https://www.nature.org/en-us/
WCS's mission statement: https://www.wcs.org/about-us

[11] For key milestones in efforts to advance the legal rights of nature, see: https://celdf.org/rights/rights-of-nature/rights-nature-timeline/ (Accessed: 18 April 2019).

[12] See: http://www.onehealthinitiative.com/about.php (Accessed: 18 April 2019).

[13] See: https://www.atns.net.au/agreement.asp?EntityID=741 (Accessed: 24 April 2019).

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