

The Environmental State: A Partial Theory

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Abstract: Sociological accounts of the state’s role in environmental protection and regulation remain fragmented and incomplete. To help fill the gap, we define the environmental state and offer a partial theory of its origins, historical development, and internal heterogeneity. The theory rests on three central claims: First, that environmental states are networked structures focused on the provision of environmental welfare. Second, that their development and evolution is shaped by the politics that emerge from the variable ways that different agencies and ministries embed in the field of society-environment relations. Third, that the environmental politics that stem from those embeddings grow principally out of any given agency’s culturally and historically specific relations to different “kinds” of biophysical nature, its developmental legacy, and the role of regulatory and techno-scientific institutions in shaping its governance mandate. As specified, the theory provides a concise explanation of cross-national variation in environmental states, their internal heterogeneity, and sources of their relative strength in some areas of environmental protection and their wholesale inadequacy in others. We discuss implications and suggest avenues for extending and refining the theory in future research.

Acknowledgements: For their constructive feedback and engagement with earlier iterations of this work, we owe special thanks to Christof Brandtner, Ian Gray, Russell Hassan, Dan Honig, Greg Hooks, Bob Gibbons, Stéphane Lavertu, Michael Mann, Leslie MacColman, Stephanie Mudge, Davon Norris, Nicole Pangborn, Woody Powell, Eric Schoon, Martin Williams, and Jonathan Zeitlin, along with the participants of SocPIE workshop at Ohio State, the Summer Institute for Organizations and their Effectiveness at the Center for Advanced Study in the Behavioral Sciences at Stanford, the Department of Sociology at the University of Connecticut, the Graduate Student Colloquium at the John Glenn College of Public Affairs at Ohio State, and the students in Scott’s graduate environmental sociology seminar in Spring 2021.

Introduction

Many major ecological problems, including climate change (Dunlap and Brulle 2015; Hoegh-Guldberg et al. 2018), mass extinction (Ceballos, Ehrlich, and Raven 2020), and persistent and unjust toxic exposures (Pellow 2017) demand, as the United Nations recently put it, “transformative” political responses (Brondizio et al. 2019). Activists and leaders have long called for global efforts to address these challenges, but the world remains largely governed by fractious and provincial nation-states. Indeed, domestic politics are increasingly deferred to in international climate agreements (Falkner 2016). Global environmental governance institutions are threatened by nationalist and authoritarian political currents (McCarthy 2019). Even leading scholars of transnational private regulation, which aims to push past the limits of national sovereignty, suggest that international rules and standards schemes may work best by re-centering states in questions of regulation and control (Bartley 2018). For better or for worse, the nation-state seems destined to play a central role in addressing—or failing to address—today’s most pressing ecological challenges.

Yet, sociological accounts of the state’s role in environmental protection and regulation remain fragmented and incomplete. Many scholars implicitly theorize the bulk of state-led environmental governance as flowing from more fundamental processes related to capital accumulation and its negative ecological effects (Foster and Clark 2020; Moore 2015; York, Rosa, and Dietz 2003). Others conceptualize states, in collaboration with market and civil society actors, as legitimating and tempering capitalism’s more egregious ecological abuses (Fisher, Fritsch, and Andersen 2009; Frickel and Davidson 2004; Mol 2016; Mol and Spaargaren 2000). With few exceptions (Buttel 2000; Downey 2015; Fisher et al. 2021; Frank, Hironaka, and Schofer 2000; Frickel and Davidson 2004; Goldman 1998; Hironaka 2014; Hooks and Smith 2004; Mol and Buttel 2002; Rudel 2019; Schnaiberg 1980), environmental sociology often treats the state as a secondary concern. Other state research—on the welfare state, the developmental state, the carceral state—tends not to focus on environmental governance and fully ignores societal relationships with nature. Efforts to theorize the environmental state directly—almost exclusively outside of sociology—tend to focus on the normative potential of a “green” or “eco-” state, rather than the concrete, political-historical development of the state’s actual attempts at environmental governance (Bäckstrand and Kronsell 2015; Duit, Feindt, and Meadowcroft 2016; Eckersley 2004; Hausknost and Hammond 2020).

The stakes of this knowledge gap could not be higher. As academic scholars across disciplines, but also movements, organizations and governments increasingly appreciate, transforming environmental protection and regulation demands a thorough understanding of the state’s role in structuring society-environment relations.

This paper begins to plug the gap by outlining a partial theory of environmental states, with special emphasis on the U.S. case and supporting evidence drawn from a wide variety of other national examples. As with other state theorizations, ours aims to help scholars explain the origins of the environmental state, identify sources of intra- and international variation, and reveal the long-term causes of change to those state structures, with direct implications, in this case, for environmental governance and sustainability. In part, we advance theory by narrowing the definition of the environmental state to focus on environmental protection and regulation – what we label the provision of environmental welfare. This makes it possible to conceptually differentiate the environmental state from the state as a whole and thus to identify the specific social processes that are key for explaining the evolution of the environmental state across contexts and through time.

The theorization’s biggest contribution, though, is to place human relationships with nature – which is to say, ecological embeddedness (Kaup 2015) or society-environment relations (Fisher and Jorgenson 2019) – at the center of sociological state theory. Beyond capital accumulation, war-making, and projects of ethno-nationalist consolidation – all well-studied origin points of nation-states (Mann 1993; Rueschemeyer, Stephens, and Stephens 1992; Tilly 1992; Wimmer 2012) – states also make and are made by distinctive human relationships with nature. Scholars have already theorized the ways that distributions of natural resources (e.g. fossil fuel deposits) and geographic features (e.g. mountain ranges, navigable rivers) shape the ways that states develop and change, including the governance challenges they face and the politics that unfold within and across their boundaries. Examples include the ‘curse of oil’ as it relates to inequality and authoritarian regimes, or the importance of coal and abundant staple crops for theorizing the development of the early U.S. welfare state (Mitchell 2009; Prasad 2012; Ross 2012). But states are equally shaped by historically and culturally specific constructions of nature, which reconfigure politics and statecraft through time. These range from romantic notions of “wild” and “sublime” wilderness that have played key roles in shaping settler-colonial states like the United States, Australia, and Brazil (Cronon 1996; De Andrade Franco and Augusto Drummond 2008; Lines and Lines 1991; Taylor 2016), to the more recent green nationalism that may increasingly characterize German nationhood (Uekotter 2017), to the steadily growing formalization of the “rights on nature” around the world, which are reshaping state relationships with the natural environment in countries as diverse as New Zealand, India, Bolivia, and the United States (Borràs 2016).

Theorizing environmental states thus requires taking nature seriously as a constitutive and constituting element of state structure, politics, and change. On one level, this is simply a matter of bringing nature into well-established field-theoretic and social-institutional accounts of states, politics, and organizational change (e.g. Evans 1995; Fligstein and McAdam 2012; Hacker et al. 2021; Martin 2003). But the real explanatory payoff comes from weaving social constructions of nature and environmental politics into administrative history to explain why some elements of the environmental state are comparatively robust while others are anemic, why some environmental governance mandates are prioritized while others languish, and what obstacles likely lie ahead in efforts to “transform” environmental protection and regulation.

This approach puts nature as both biophysical stuff and sociohistorical construction at the center of state theory. At every conceptual step, human and organizational relationships with the natural world factor prominently, shaping politics and environmental statecraft. We begin our elaboration of these dynamics by reviewing existing scholarship on states and environmental politics. From there, the argument develops in four main parts. In part one, we define the environmental state and justify our characterization. Part two lays out an argument for the distinctive politics of nature as a central feature of modern environmental statecraft. Part three describes the emergent character of the environmental state as anchored in early 20th century efforts to manage natural resources, boost agricultural productivity, and build public infrastructure. Part four theorizes internal differentiation as a function of the ways that environmental state structures embed in civil society, including the ways that contemporary regulatory roles and dependence upon techno-scientific expertise shape environmental politics and the evolution of state structures moving forward. We conclude with discussion of the implications of the theory for the sociological study of states and suggest avenues for future research.

Theoretical Context

The Environmental State’s Relative Absence in Sociology

Compared to its rich research traditions focused on the “welfare state” (Amenta 1998; Esping-Andersen

1990; Orloff 1993; Prasad 2012; Skocpol 1992), the “developmental state” (Block 2008; Evans 1995), and the “carceral state” (Wacquant 2009; Western 2006), sociology has struggled to develop a sustained research program focused on the environmental state. The institutional preconditions and reasons for cross-national variation in the provision of “environmental welfare” or “environmental rights,” for example, have largely escaped the attention of political and historical sociologists long-focused on the analogous provision of social welfare and social rights (partial exceptions, mostly outside sociology, include Dale 2020; Gough 2016; Kaup 2015; Meadowcroft 2005). Likewise, intensive study of the bureaucratic structures and networks that facilitate economic development and industrialization in “developmental states” has not, for the most part, spilled over into analogous investigations of the state structures and bureaucratic arrangements that support robust environmental regulation and protection (partial exceptions, again mostly outside sociology, include Dryzek et al. 2003; Kitschelt 1986; Vogel 2012, 2018). A burst of sociological attention trained on the environmental state in the early 2000s reiterated the centrality of states to understanding environmental protection (Buttel 2000; Davidson and Frickel 2004; Fisher 2004; Frickel and Davidson 2004) and also highlighted the state’s contradictory role in facilitating economic growth (Mol and Buttel 2002), but this line of research stopped short of explaining, for example, environmental state strength or weakness within states or in a cross-national comparative framework.

Still, the state looms large in any sociological account of environmental protection and degradation and as a result, environmental sociologists have provided a number of important insights into environmental states. World polity theorists have charted the rapid diffusion during the late 20th century of western environmental values into state administrative units across the globe (Frank et al. 2000; Hironaka 2014). Others have examined the ways that western and especially U.S. national politics have structured global environmental governance, often to the world’s ecological detriment (Ciplet, Roberts, and Khan 2015; Fisher 2004; Gareau 2013; Goldman 1998; McCright and Dunlap 2003). A handful of scholars have interrogated the ways that the state’s broad military prerogatives exact both socially unjust and ecologically destructive outcomes (Downey 2015; Hooks and Smith 2004; Lengefeld, Hooks, and Smith 2021). Fisher and colleagues (Fisher et al. 2021, 2009; Fisher and Svendsen 2013) have shown how networks of nonprofit and civil society groups are increasingly central to the environmental state’s provision of environmental “goods” (see also Brandtner 2022). And most recently, researchers have begun to identify the ways that structural political-economic conflicts embed environmental decision making in the risk sciences (Demortain 2019) and constrain the uptake of environmental justice policies (Harrison 2019) in the U.S. Environmental Protection Agency.

A related body of environmental sociological research links state actions to measurable impacts on nature. States play a central role in organizing economic activity, and a large literature connects capitalist economic growth – and carbon emissions in particular – to planetary ecological harm (Foster and Clark 2020; Jorgenson 2014; Rudel, Roberts, and Carmin 2011; York et al. 2003). Bunker and Ciccantell (2005:106) emphasize how historically, “the state – through subsidies, direct investments, and regulation – contributed to the material, technical and organizational bases” of economic globalization that drives ever-deepening ecological degradation. Others have begun to identify the factors that seem to facilitate or limit large-scale industrial pollution, including state policies (Grant, Jorgenson, and Longhofer 2020; Perrow and Pulver 2015). Rudel (2019) sees the state as central to translating exogenous social-ecological “shocks” into positive ecological reforms, while Mol (2001; Mol and Buttel 2002) describes states as key contributors to the ecological modernization of highly developed economies (see also Fisher et al. 2021). However, none of these studies or related bodies of sociological research develop a research program focused specifically on the environmental state, per se.

The lack of sustained focus on the environmental state does not stem from a lack of awareness of the state's importance to understanding either capitalism or environmental degradation and protection. As environmental sociology developed in the early 1980s, sociologists and political scientists famously called for scholars to “bring the state back in” to analyses of political economy (Evans, Rueschemeyer, and Skocpol 1985). More-or-less concomitantly, founding environmental sociologist Allan Schnaiberg (1980) retained the state as a central element of his now canonical treadmill of production theory, emphasizing that the state plays a central role in supporting economic growth and ecological degradation (pp. 125-131), but also reiterating that “if the treadmill is to be slowed and reversed, the central social agency that will have to bring this about is the state,” by way of its redistributive and regulatory functions (p. 249; see also pp. 241-247) and as mediated by the external pressure of environmental movements (pp. 387-393). Even so, treadmill researchers since have not developed this aspect of the theory. As a result, the state often remains conspicuously secondary or missing entirely, especially in Marxian-inflected environmental sociological accounts (e.g. Moore 2015). Where the state is explicitly brought into the analysis, focus tends to be on its role in facilitating economic growth and ecological harm (e.g., Downey 2015; Lengefeld et al. 2021). The parallel and somewhat contradictory role of the state in facilitating environmental protection and regulation, as originally emphasized by Schnaiberg (1980), has been largely overlooked (but see, e.g., Mol 2016; Mol and Buttel 2002; Rudel 2019; Fisher et al. 2021; for an eloquent call to study these dynamics see, Buttel 2000). The result is a rich cannon of empirical and theoretical scholarship linking economic growth to ecological change (whether tending toward system collapse or sustainability), but an overall neglect of the environmental state itself: its historical development, internal structure, and the political-ecological dynamics that shape its interventions into the natural world remain open questions.

Sociology's Contributions to Environmental Politics

A crucial first step for resurfacing the environmental state in environmental sociological theory is simply recognizing that like all politics, environmental politics is, as Fisher and Jorgenson (2019) put it, “multidirectional.” Rather than irrevocably yoked to ecologically destructive growth dynamics or assuredly moving towards the transcendence of serious environmental problems, we emphasize that state-led environmental protection and regulation is basically political and therefore historically contingent, capable of moving *towards or away* from indefinitely sustainable social-environmental relationships, depending upon the distribution of power across loosely pro- and anti-environmental factions and the institutional structures they embed within. Theorized this way, instead of growing out of the structural features of capitalism or social-functional “needs” for ecological transformation, “...the society-environment relationship is determined by the configuration of social actors [in specific institutional contexts] and the degree to which those actors prioritize environmental issues (through the regulation of environmental bads and the protection of environmental goods)” (Fisher and Jorgenson 2019:350). The state is central to these dynamics, not least because it controls vast amounts of land, coastlines, waterways and territorial waters. Within those boundaries, the state plays a key role in structuring the relationships between groups that moderate society-environment relationships, has unique claims to authority for regulating those relationships, and can call upon unmatched fiscal and administrative resources for realizing the ends it seeks.

Basic as these insights may seem, until environmental politics is conceptually freed from assumptions about the necessarily harmful or assuredly sustainable dynamics of creative destruction in capitalism, sociological theories of the environmental state will continue to be subsumed by theories of capitalism itself. To theorize the environmental state as we do here is thus to assert its relative political and technological autonomy, not so much constrained by its structural relations to capitalism as by its much more malleable embeddedness in historically specific society-environment relationships and fields of

political contention (Brechtin and Fenner 2017; Evans 1995; Fisher and Jorgenson 2019; Fligstein and McAdam 2012; Kaup 2015; Polanyi 2001; Rueschemeyer et al. 1992).

A large empirical literature supports this theoretical position. In parallel with environmental sociological accounts of state-supported ecological degradation, for example, environmental historians have carefully documented the ways that environmental movements have helped embed resource extraction and production processes into new state-led regulatory infrastructures around the world (Gottlieb 2005; Hays 1989; Shabecoff 2003; Uekotter 2009; for a sociological account, see Mol 2001). The result has been a dramatic improvement in air and water quality where regulation and enforcement are robust, even as other problems, like plastic pollution and greenhouse gas emissions, worsen unevenly around the world (Currie and Walker 2019; Fenger 2009; Keiser and Shapiro 2019; MacLeod et al. 2021). Historical researchers, including sociologists, have also shown how environmental movements have – often at the expense of subsistence users and indigenous groups – facilitated the state-led protection of large swaths of land and habitat, including everything from green space in urbanizing and industrial contexts (Angelo 2021; Walker 2007) to the creation of vast national parks and reserves (Brockington 2002; Taylor 2016) to the dramatic reduction – and recent resurgence – of deforestation in the Amazon (Hecht and Cockburn 2011; Junior et al. 2021). Political scientists, meanwhile, have shown how state structures moderate the effectiveness of environmental movements in the first place, helping to determine where state-led environmental protections are comparatively weak and where they are comparatively robust (Dryzek et al. 2003; Kitschelt 1986), and the ways that interest groups can support or thwart a transition to a renewable energy economy (Mildenberger 2020; Stokes 2020). A separate group of scholars have used cross-sectional comparisons of environmental states to identify nationally distinctive policy repertoires (Jordan, Wurzel, and Zito 2013; Meckling and Jenner 2016; Sommerer and Lim 2016) and to develop typologies of environmental state strength across national contexts (Death 2016; Duit 2016).

Available evidence suggests that many of the same dynamics also operate *inside* environmental states. Students of bureaucracy, for example, have documented the ways that creative bureaucrats in specific departments and ministries muster capacities to act autonomously from elected officials and industry groups, including in ways that helped make forestry somewhat more sustainable in the United States (Carpenter 2001) and Brazil (Abers 2019). In the U.S., this kind of insider activism supported the development of novel approaches to regulating air pollution (Cook 1988) and was central to the emergence of entirely new paradigms for managing environmental risk (Demortain 2019). Sociologists have likewise shown how environmental movement groups are able to gain disproportionate influence in U.S. congressional hearings, influence the passage of environmental statutes, and use courts to “thicken” environmental regulations enforced by environmental agencies (Ganz and Soule 2019; Olzak et al. 2016; Rea 2019). State-led governance also interfaces with non-profit and business groups, which play prominent roles in shaping the development of state-led environmental protection (Bartley 2018; Fisher et al. 2021; Fisher and Svendsen 2013; Meckling 2011; Mol 2016).

In all cases, the key insight is the same: state-led environmental protection is politically and historically contingent. Studying its development and effectiveness is thus less a matter of identifying the structural features of capitalism or technological innovation, from which environmental politics are supposed to flow, than it is a concrete historical project of identifying the definite relations between specific groups and organizations who contend over the nature and form of society-environmental relations in specific times and places. We turn next to more clearly defining the object of much of this political contention: the environmental state itself.

What is the Environmental State?

Most existing definitions of the environmental state are overly broad, for example, the “set of institutions and practices dedicated to the management of the environment and societal–environmental interactions” (Duit et al. 2016:6; see also Hausknost and Hammond 2020; Mol 2016). Defining the environmental state in a way that captures *all* state interventions into biophysical nature, however, poses serious conceptual and methodological problems. Fundamentally, because states have always played a central role in managing social and economic relations with the natural world (Downey 2015; Hausknost and Hammond 2020; Holleman 2018; Mol and Buttel 2002; Schnaiberg 1980; Scott 1998), and because the biophysical environment has always provided the material foundation for economic life (Foster 2000; Foster and Clark 2020; Polanyi 1957)¹, this move collapses the environmental state into “the state” in general, leaving no conceptual means of distinguishing more recent state-centric efforts to regulate and moderate ecological harm from the state’s originating role in organizing society–environmental relationships, which date to the earliest state structures dedicated to accumulating wealth and making war (Mann 1993; Scott 2017; Tilly 1992). The move also, if unintentionally, conflates the environmental state’s distinct politics of nature (developed below) with social politics in general, relegating the central feature of environmental states to the background. And overly broad definitions of the environmental state also fail to establish clear scope conditions, making anything like a comprehensive study of environmental states empirically impractical if not impossible.

To avoid these traps, we take inspiration from canonical theorizations of the welfare state and define the environmental state more narrowly, in relation to generally expanding efforts to organize society–environment relationships with an eye towards “sustainability”—that is, the indefinite reproduction of ecological systems to support human and non-human wellbeing (Kuhlman and Farrington 2010). Thus, if the social welfare state is the territorially-bounded constellation of institutions, organizations, and policies that “permit people to make their living standards independent of pure market forces” (Esping-Andersen 1990:3), then *the environmental state is the territorially bounded constellation of institutions, organizations, and policies that provide and protect the biophysical foundations of human and non-human life and livelihoods, independent of market forces alone.*² Environmental welfare, then, encompasses the biophysical and social conditions required to indefinitely support life and livelihoods; the environmental state is that set of empirically identifiable governmental organizations that attempt to provide and support environmental welfare, although, to reiterate, always imperfectly and often in tension with other state prerogatives like promoting economic growth or national security (Downey 2015; Mol and Buttel 2002).

By this definition, the environmental state encompasses all of the various units and subunits of the national and subnational government focused in different ways on providing environmental welfare. Straightforward examples include ministries and agencies that limit and regulate toxic pollution or that

¹ The Marxian roots of this point are well-developed in environmental sociology. Karl Polanyi’s environmental sociology is less well-appreciated (important exceptions include Brechin and Fenner 2017; Kaup 2015), but Polanyi, too, began his (quite different) analysis with a grounding discussion of human relationships with nature. As Polanyi (1957:243) begins his essay on *The Economy as Instituted Process*, “The substantive meaning of economic derives from man’s dependence for his living upon nature and his fellows. It refers to the interchange with his natural and social environment, in so far as this results in supplying him with the means of material want satisfaction.”

² Territorial boundedness here refers to the defining territorial sovereignty of environmental states (and nation-states more generally), not to the boundedness of their impacts on nature. As is regularly noted, environmental harm’s transcendence of territorial (national) boundaries is a central dilemma for environmental governance – a point we return to in the discussion.

regulate and protect species, habitat, and open space for social and ecological ends. More nuanced and hybrid examples may spill over into economic and developmental domains. In the United States, proposed Green New Deal initiatives (Dale 2020) and elements of the U.S. Department of Energy focused on nurturing renewable energy innovation exemplify this dynamic (Veers et al. 2019), as do recurrent pushes for green space in cities around the world (Angelo 2021). State-led German and Chinese support for a renewable “energy revolution,” widely discussed in environmental policy circles (Mathews 2015; Renn and Marshall 2016), offer similar examples in other national contexts. Importantly, our definition of the environmental state does not include the intricate networks of organizations that interface with and influence the much larger project of environmental governance, like environmental non-profit organizations that work closely with the state (cf. Fisher et al. 2021). Neither does it include state agencies that have far reaching impacts on nature but that provide no or minimal environmental welfare, such as agricultural and war-related ministries that partake in developmental and military activities with global ecological impacts (e.g. supporting industrial agriculture or the construction and testing of nuclear weapons), but that do little-to-nothing to provide or support environmental welfare. Specifying these conceptual bounds is essential for distinguishing the environmental state from other parts of the state and closely related civil society organizations, and thus for setting out testable claims about historical origin points and causes of change to the environmental state specifically (Walker and Cohen 1985).

Several presuppositions follow from this definition. First, while we specify no formal temporal bounds on the existence of environmental states, the provision of environmental welfare is a generally recent addition to the regulatory and protective prerogatives of nation-states. As we show below, early state-led efforts to sustainably manage natural resources, dating to late 19th and early 20th century, were largely developmental and only minimally ‘environmental’ in a contemporary sense. The attachment of external legitimacy to institutions for national environmental protection and regulation only began to work with force around the globe in the last third of the 20th century (Frank et al. 2000; Hironaka 2014). Environmental states, then, are generally young; their oldest administrative precursors in Western nation-states tend to date little more than a century before present and serious national governmental efforts to provide environmental welfare mostly began after about 1970, when social-environmental scholars have identified the precipitous rise of a heightened ecological reflexivity among elites and in national politics around the world (Mol and Spaargaren 2000).

Second, it also follows that, like states more broadly, environmental states are diverse, internally inconsistent networks of power rather than unitary, functionally coherent systems of governance (Mann 1993; Morgan and Orloff 2017). Close empirical studies of states over the past several decades have revealed the “many hands of the state” (Morgan and Orloff 2017), confirming the fundamental disunity, multivalent, and networked character of states long discussed by political and historical sociologists (Evans et al. 1985; Fligstein and McAdam 2012; Mann 1993; Rueschemeyer et al. 1992; Tilly 1992). Contemporary nation-states are thus best understood as “sprawling, complex concatenations of governing institutions” (Morgan and Orloff 2017:7) characterized by “patch-worked composites of fractious subunits” (McDonnell 2017:503) that, rather than working in rationalized unity, often work at cross-purposes and with highly varied levels of excellence and efficacy. Even subunits and field offices within the *same* ministries and departments can break into factions or enforce policies differently across time and space, as organizational demographics shift or as new interpretations of rules and regulations are pushed by insider or outsider activists (Abers 2019; Banaszak 2010; Tilcsik 2010). Environmental sociologists have implicitly identified many of these dynamics in environmental states, which help explain intra-agency conflicts over the incorporation of environmental justice policy at the U.S. Environmental Protection Agency (Harrison 2019), the uneven spread of new forms of market-oriented

environmental protection across the United States (Rea 2017), and which are captured in the ways that the state’s military prerogatives often come into conflict with its environmental ones (Hooks and Smith 2004).

Third, the organizational disunity of the environmental state points to the disunity and complexity of the politics that shape it. Since the many elements of the environmental state have diverse governance mandates and often work independently and even at cross-purposes, the social ‘forces’ that push and pull on any given element of the environmental state will tend to be more closely related to that element’s specific governance mandates, institutional features, and embeddedness in the broader political economy than to any overarching logic or unitary politics of the environmental state as a whole. In explicitly field theoretic terms (Martin 2003), the (non-fixed) position of any given element of the environmental state in the field of society-environment relations – not its structural-functional relation to other parts of the state or economy – is among the most critical determinants of the social and political dynamics that shape it.

Fourth and finally, the conceptual starting position of any given unit of the environmental state in a trajectory of change over time is also contingent on its distinctive administrative history. This means that understanding how environmental politics shape a particular unit of the environmental state is a matter of understanding not only what it does now, but what it once did, including in relation to culturally specific understandings of different kinds of nature. As we discuss below, forests, rivers, urban green space, the atmosphere, specific species, and distinct landscapes are all understood and managed in different ways by different groups at different historical moments, and thus evoke distinctive patterns of environmental politics at different times and in relation to the specific ministries, offices, and bureaus that govern them.

Taken together, these presuppositions lead to our first formal theoretical proposition. Because different elements of the environmental state do different things and embed differently into the field of society-environment relations:

Proposition 1: Different agencies with different governance mandates, institutional features, and administrative histories will hang together with distinctive and empirically-identifiable patterns of political contention and conflict, which will in turn produce characteristic patterns of administrative change through time.

While simple, this founding proposition is essential for moving past implicitly structural-functionalist theorizations of environmental states and for theorizing the social and political dynamics that shape diverse and internally heterogeneous environmental states around the world. Empirically, it follows that clusters of agencies that embed similarly in the field of society-environment relations will experience similar patterns of contentious politics and will change in similar ways (e.g. strengthen or weaken over time), and that we can expect different embeddings across diverse agencies to account for the uneven development of the environmental state as a whole. It also follows that blanket statements about “the environmental state” are, at best, broad claims about average properties of what is, in fact, a diverse organizational ensemble. And, it follows that there is not a single politics of the environmental state but a wide variety of politics that likely work differently not only in different national contexts, but differently on different agencies, ministries, and bureaus *within* any given environmental state – that explain, for example, the global prominence and widespread diffusion of ministries for governing national parks (and parks themselves) (Frank et al. 2000; Hironaka 2014) as contrasted with the highly uneven institutionalization of state responses to climate change (Aamodt 2018; Harring, Jagers, and

Matti 2019) and the regulation of carbon emissions (Grant et al. 2020). In particular, the ways that different elements of the environmental state intervene into and construct culturally distinctive understandings of nature, how they support or inhibit economic development and extraction, who or what they regulate or protect, and the ways that techno-scientific expertise enter into their work are likely to be critical determinants of the politics that shape the development and evolution of any given agency or ministry of the environmental state. We turn next to these very dynamics.

The Distinctive Politics of Nature

Nature plays a unique role in the environmental state as both the source of material sustenance necessary to sustain life and as a critical cultural and symbolic resource that shapes politics and nation building. The forest and the “cultural landscape” (*Kulturlandschaft*) of Germany, for example, have long been central to German nationalism and environmental protection—so much so that strands of the early German environmental state born out of the homeland protection (*Heimatschutz*) movement, which focused heavily on protecting the cultural landscape, were eagerly incorporated into National Socialism in the 1930s and folded into elements of Nazi “blood and spoil” (*Blut und Boden*) ideology (Lekan and Zeller 2005; Wilson 2016). Less forebodingly, Angelo (2021) shows how distinctive beliefs about nature conditioned several economic and biophysical transformations in the Ruhr valley in northwestern Germany over the past 150 years, including the cultural embrace of nature as a “universal benefit” that was central to incorporating green space into urban planning in the region. Outside Europe, in the United States and other settler-colonial nations like Brazil, Australia, and Tanzania, scholars have extensively documented the ways that culturally distinctive understandings of “wild” and “sublime” nature were integral to nation building and imperialism, providing key supports for the expropriation of indigenous lands, the intentional removal and killing of indigenous people, and the closely related formation of national parks, forests, and large-scale wildlife preserves (Brockington 2002; Cronon 1996; De Andrade Franco and Augusto Drummond 2008; Lines and Lines 1991; Taylor 2016). The culturally constructed and historically specific embrace of charismatic megafauna, like bears, elephants, and whales, remains widely discussed as a central element of conservation politics world-wide (e.g. Lindsey et al. 2007). Similar dynamics work at subnational scales, too. Present day conflicts over conservation and land use in the American West can be traced to culturally distinctive understandings of nature in that place (Farrell 2015; Scoville 2019), and the oft-noted robustness of the environmental state in California is likely linked to the cultural celebration of particular forms of nature found there, like Yosemite Valley and giant redwood trees (Vogel 2018).

These culturally distinctive understandings of nature are woven into the legal doctrines and administrative structures of different environmental states around the world. Bargheer (2018), for example, shows how culturally distinctive understandings of birds in Germany and Britain led, historically, to different protection regimes in each country that have only recently converged towards a common ecological model. In a similar way, Fourcade (2011) shows how old socio-legal conceptions of nature in France, where many natural resources are legally held in common but overseen by no one in particular (the doctrine of *res nullius*), can lead to low pecuniary valuations of nature in cases of liability for environmental harm. In the United States, by contrast, where nature is understood as being held in trust for the public by the state (the *public trust doctrine*), ecological systems are assigned much higher monetary values. The contemporary global movement for the “rights of nature” reveals just how deep these legal-cultural institutions reach. In attempting to codify what are often indigenous understandings of nature into legal systems with mostly Western and imperial roots, that movement reveals the dominion-based legal-cultural foundations of the Western state’s relationship with the natural world – so much so that granting rights to inanimate rivers, grasses, and mountains seems almost unthinkable and is, in any case, legally difficult (Borràs 2016; Norgaard 2019).

Within any given environmental state, distinctive understandings of nature are, in turn, refracted through the organizational structure and governance mandates of various ministries and agencies. Given timber's centrality to early economic development, for instance, forestry departments have tended to understand forests as large stocks of natural resources and as critical inputs into production systems (Fernow 1911; Scott 1998). But forests can also be understood as dynamic ecosystems, sacred wilderness, and, most recently, as large carbon sinks (Cronon 1996; Gundersen et al. 2021). As a result, forestry departments are especially prone to political and environmental conflicts that challenge the dominant natural resource framing in favor alternative interpretations and approaches to forest management (Gottlieb 2005; Hays 2009). Ministries and bureaus that oversee national parks, by contrast, govern biophysically very similar forms of nature that are, by virtue of their "park" designations, understood in strikingly different terms. Indeed, the formation of the first national parks in the United States was predicated in part on understandings of the sulphury caldera of Yellowstone and the soaring monoliths of Yosemite as economically worthless but symbolically priceless national treasures – not basic natural resources (Taylor 2016). As a result, the central conflicts of national park ministries (especially post-park formation) are much more likely to be focused on, for example, tensions between management for tourism and for ecology, and the "authentic" and appropriate use and management of the land, including disputes over the inclusion of indigenous groups with long histories of using lands in ways generally prohibited by settler-colonial governments (Brockington 2002; Farrell 2015; Johnston and Mason 2020). And so on across the various units of the environmental state: the politics of regulating industrial pollution in all its various forms and sources (e.g. Demortain 2019) are distinct from those of creating urban green space (e.g. Angelo 2021) or protecting uncharismatic species (e.g. Scoville 2019), which are in turn distinct from the politics of protecting their charismatic counterparts, like eagles, bison, and wolves – sympathetic creatures that Petersen (1999) shows were central to the nearly unanimous passage of the Endangered Species Act in the United States in 1973.

To be sure, part of this cross-domain variation in environmental politics is linked to biophysical differences in ecological systems. In the U.S. context, for example, the work of managing more-or-less stationary trees in vast western spaces (the purview of the U.S. Forest Service) presents a different set of challenges than managing reclusive and highly mobile wolves that move within and between these forests (the purview of the U.S. Fish and Wildlife Service), which are in turn different from the challenges of regulating industrial and agricultural pollution that affect these and many other ecosystems (the purview of the U.S. Environmental Protection Agency). The materiality of nature cannot be ignored in a full account of environment politics and governance.

But biophysical differences also cannot be divorced from the institutional and, more basically, cultural prisms they filter through. Conflicts over logging (Widick 2009), wolves (Wilson 1997), "stupid little fish" (Scoville 2019), iconic landscapes (Farrell 2015), industrial pollution (Demortain 2019), and even the concept of environmental justice (Harrison 2019) are imbued with their own distinctive and evolving social understandings of different biophysical systems and human relationships to them. Stated bluntly, redwood trees, delta smelt, and nitrogen oxides all move through the field of society-environment relations in distinctive ways, depending not just on their physical properties, but also on culturally constructed and historically specific understandings thereof. As a result, patterns of political contention and related patterns of change within the environmental state will vary in relation to cultural constructions of nature, and thus in relation to the different "kinds" of nature managed, regulated, and protected by different elements of the environmental state. This leads to our second proposition:

Proposition 2: All else equal, the strength and capacity of environmental state agencies to provide environmental welfare will change in proportion to their affinities with culturally dominant conceptions of nature, with governance of widely revered forms of nature linking agencies to reservoirs of political support and governance of culturally marginal or reviled forms of nature acting as a political liability.

This proposition sets the environmental state apart from other areas of national governance by explicitly embedding the bureaucratic infrastructure of environmental governance into the field of society-environment relations. Concretely, it follows that elements of the environmental state will be more likely to grow and gain administrative strength when they have access to the symbolic resources provided by managing and regulating popular and culturally celebrated forms of nature, like ‘sublime’ wilderness in the U.S. context (Cronon 1996; Farrell 2015) or ‘universally beneficial’ urban greenspace in Germany (Angelo 2021).

On the other hand, elements of the environmental state that lack access to culturally celebrated forms of nature, and that instead focus on providing or protecting more ordinary, less visible, or more easily taken for granted forms of nature, like toxin-free indoor air or clean drinking water, may struggle to garner wider-ranging political and popular support. In such cases, advocates for a specific agency’s work are more likely to be restricted to the people and groups directly impacted by toxic exposures or other harm to their life and livelihoods, but are less likely to include unaffected groups that might otherwise mobilize to support culturally celebrated landscapes or species. Indeed, struggles over environmental (in)justice often seem to work along these lines, with most advocacy rooted in poorly resourced “communities of color, indigenous communities, and working-class communities” (Pellow 2017:2; Szasz 1994), who are all more likely to be impacted by toxic releases than richer and whiter ones (Pellow and Brulle 2005; Taylor 2014). Elements of the environmental state like the U.S. EPA, which sit astride these conflicts and are charged with providing related forms of environmental welfare, such as enforcing the Clean Air Act, thus enjoy a very different set of political resources in the field of society-environment relations than other environmental state agencies, like the U.S. Fish and Wildlife Service (USFWS) or National Park Service, who can count on political support stemming from their role in providing culturally resonant forms of nature – or, as we discuss below, forms of nature connected to economic development and extraction.

Developmental Legacies of Environmental States

Despite the newness of environmental welfare provision, the modern environmental state is largely an outgrowth of the early developmental state, with its administrative and structural roots reaching back to resource management projects intended to make nature “legible” to the state and to support economic productivity (Scott 1998).³ One among many available examples across national contexts is the modern-day U.S. Fish and Wildlife Service in the United States, which now provides environmental welfare by protecting and managing hundreds of millions of acres of wildlife preserves and enforcing the Endangered Species Act, a law that protects species at risk of extinction even when such protections are at odds with economic growth. But USFWS did not always focus so directly on environmental welfare. The modern Fish and Wildlife Service was created in 1940 by combining the U.S. Commission on Fish and Fisheries (est. 1871) and the Bureau of Biological Survey (est. 1905). The Commission focused for

³ Alternatively stated, the early history of the developmental state is also the early history of the environmental state. This is an under-investigated piece of state history central to understanding both the origins of the state’s developmental prerogatives, which we do not discuss here (see Block [2008] and Evans [1995]) for essential conceptual statements), as well as its growing environmental ones, which we do discuss.

decades not on the protection of piscine ecosystems, but instead on the artificial “propagation of food-fishes in the waters of the United States” through partnership with groups like the American Fish Culturists Association (est. 1872) and by creating a network of state-run fish hatcheries used to prop up ailing commercial and recreational fisheries (Baird 1874). Tellingly, the Commission was integrated into the U.S. Department of Commerce when that department was created in 1903. The Bureau of Biological Survey, meanwhile, grew out of the Department of Agriculture’s Office of Economic Ornithology (est. 1885) and focused on managing birds and mammals, as one ranking official put it in 1899, “from the standpoint of dollars and cents” (Palmer 1899:259). Throughout its history, the Survey focused heavily on illuminating the economically beneficial or destructive effects of various animal species and developing policy accordingly. One summary report cataloged the results of tens-of-thousands of bird stomach dissections, which were used to ascertain whether specific species ate crops or, instead, consumed agriculturally harmful insects (Palmer 1899:265). Species revealed to be economically beneficial were, in turn, afforded protections (like owls and hawks, previously understood as agriculturally harmful “vermin”), and those understood as genuine pests were destroyed. Another report from 1908 celebrated the killing of 1,800 wolves and 24,000 coyotes, a massacre estimated to avert \$2 million (about \$57 million in 2020) in livestock losses (Merriam 1908:4).

The developmental origins of environmental state ministries holds around the world. As with the U.S. case, German state involvement in managing bird populations stems from late-nineteenth-century efforts to cultivate beneficial species and destroy economically harmful ones (Bargheer 2018). Also in Germany, as in many nation-states, the forestry department remains embedded within the fundamentally developmental Federal Ministry of Food and Agriculture. Indeed, forest management, often in support of ‘maximum sustainable yield,’ may be among the most influential and enduring exports of the German state, having influenced forest policy – and forestry science itself – around the world for well over a century (Bennett 2015; Carpenter 2001; Fernow 1911). In Brazil, the earliest environmental ministries also focused on forest management and economic production, to the chagrin of early conservationists (De Andrade Franco and Augusto Drummond 2008). In Japan, pollution control laws were embedded in, among others, the Ministry of Trade and Industry (Sumikura and Osborn 1998). In post-revolutionary France, keystone species like wild boar and wolves were targeted for eradication because of perceived threats to the health of forests, and the earliest seedlings of a nascent environmental state embodied in the 1827 Forest Code were focused on, as elsewhere, the rational management of timber resources for national development – including preferential selection of trees by the navy for use in ship building (Matteson 2020).

There are two reasons why recognizing the developmental roots of many environmental state agencies is essential for theorizing the emergence and evolution of the environmental states around the world. First, developmental legacies help explain the composition of contemporary political coalitions that support and resist specific environmental state agencies and ministries. The 1970s represents a key moment of historical inflection in the development of the environmental state as social movements in Europe and North America pushed for more robust environmental protections and the ecologically destructive nature of industrial development began to be more widely appreciated by elites (Gottlieb 2005; Hays 1989). As a result, many formerly developmental agencies, particularly those focused on natural resource management, were repurposed, in part, as chief providers of environmental welfare. In the U.S., as noted above, the USFWS became the chief enforcer of the Endangered Species Act of 1973, charged with protecting many of the very species, like wolves, that its administrative precursors had once championed exterminating. The U.S. Army Corps of Engineers (est. 1802), long practiced at destroying wetland and riverine ecosystems in advancing developmental priorities, became a central steward of the Clean Water Act of 1972, the legislation protecting rivers and wetlands from pollution

and dumping (Hays 1989; Lifset 2014). Similar administrative reconfigurations played out around the world in, for example, France, Germany, and Japan (Bess 2003; Sumikura and Osborn 1998; Uekotter 2017).

New mandates to provide environmental welfare, however, did not erase old developmental legacies, their institutional underpinnings, or their constituencies of political support, which were carried forward into a new era of environmental protection focused more centrally on environmental welfare provision. For example, the U.S. Fish and Wildlife Service remains heavily focused on supporting game populations and recreationally pursued fish species, and New Deal-era fiscal institutions linking conservation funding to gun sales (ostensibly by way of hunting) remain a central source of agency revenue (Casellas Connors and Rea 2022). As a result, USFWS retains strong political support from conservative-leaning fishing organizations like Trout Unlimited, hunting organizations like Ducks Unlimited, and shooting and gun advocacy groups like the National Sport Shooting Federation and National Rifle Association (Duda et al. 2021). This right-leaning political support, in turn, intersects with support won from newer agency mandates focused more squarely on environmental welfare. Enforcement of the Endangered Species Act, for example, wins the critical support of a wide variety of modern environmental movement organizations like the Sierra Club and Natural Resources Defense Council – largely left-leaning constituencies in contemporary U.S. politics. Old developmental legacies are central to understanding these modern – and sometimes surprising – coalitions that continue to shape specific elements of the environmental state.

Second, developmental legacies also help explain the modern environmental state’s internal heterogeneity, including the contradictions and conflicts that emerge from folding together what are often incongruous institutions and values. Old ministries and bureaus with deep developmental roots may be especially prone to these internally conflicting governance mandates. For example, the U.S. Bureau of Land Management, which has administrative roots dating to 1812, is charged with managing land for “multiple uses,” including “maximiz[ing] opportunities for commercial, recreational, and conservation activities” simultaneously (BLM, 2021) – even when these uses directly conflict. The much newer U.S. EPA, by contrast, is one prominent exception to the environmental state’s generally developmental history. Created by executive order by President Nixon in 1970, the new Agency consolidated duties related to pollution regulation and public health that had emerged across the federal government in the 1950s and 60s into a single administrative unit responsible for pesticide regulation, air quality control, hazardous waste, and toxics regulation (Demortain 2019; Hays 1989; Moe 1989). As a result, EPA’s governance mandate is much more internally consistent, focused on regulating major polluters. But clearer focus on environmental welfare comes at a cost: EPA’s regulatory actions are regularly perceived to inhibit economic growth, making it a perpetual target for political attack (Demortain 2019) and relegating its base of popular political to advocates for environmental health – a narrower political constituency than that enjoyed by, for example, USFWS. These patterns may help explain the agency’s declining reputation (Bellodi 2022).

More generally, the historical development of different elements of the environmental state helps reveal the origins of the politics that continue to shape it. Popular and scholarly focus on exceptional environmental ministries like EPA, formed in the 1970s and later, obscures the developmental legacies of most other environmental state agencies, which often have much older origin points. These developmental pasts, in turn, help carry old constituencies of support (or resistance) onto new political and institutional ground, and reveal the historical sources of the convoluted and often internally contradictory governance mandates endemic to many environmental state agencies. These observations lead to our third proposition:

Proposition 3: All else equal, developmental legacies in the environmental state will tend to cultivate cross-cutting political coalitions but will yield internally contradictory governance mandates, while a lack of developmental past will narrow coalitions of political support but yield a more coherent focus on environmental welfare.

It follows empirically that developmentalism is likely to have competing effects on the evolution and effectiveness of the agencies and ministries that make up the environmental state. Units that interweave developmental and environmental welfare prerogatives may be more likely to develop cross-cutting coalitions of popular political support, including both supported industries and environmental advocates, but their provision of environmental welfare may also be hampered by internally conflicting governance mandates linked to their developmental pasts. Agencies and ministries with a more coherent focus on environmental welfare may be less prone to undermining their own regulation and protection of the environment by way of direct support for, for example, extractive industries, but may also be more likely to be perceived as anti-developmental obstacles to economic prosperity. More broadly, the third proposition positions our theory as a project of explaining the multidirectional character of environmental politics and the internal heterogeneity of the environmental state in terms of not just cultural constructions of nature, but the political and institutional contradictions and conflicts that emerge from the states' earlier – and ongoing – developmental prerogatives and economic uses of biophysical nature.

Civil Society and the Provision of Environmental Welfare

The foregoing discussion hints at the ways that the dynamism of the environmental state depends upon the specific ways that it embeds into civil society and political economy. Elsewhere, historical institutionalists and scholars comparative political economy have elegantly elaborated the ways that nationally particular institutional features shape regulation and social welfare provision in advanced capitalist democracies (e.g. Hacker et al. 2021; for a review, see Starke 2006). Here, we focus more narrowly on two interrelated dimensions of institutional variation that are especially important to the provision of environmental welfare: an agency's or ministry's regulatory role, and the role of techno-scientific expertise in supporting environmental regulation and governance.

Regulatory Role as Political and Organizational Resource

An agency or ministry's regulatory role determines its structural embeddedness in political-economic and political-ecological conflict. Even in its earliest developmental incarnations, when environmental regulation was weak, conflicts were endemic to state-led efforts to regulate natural resource use, for example, between fish mongers and the U.S. Commission on Fish and Fisheries (Baird 1873) or between the timber industry and the early U.S. Forest Service (Hays 2009). As environmental protections began to thicken in 1960s and 70s, a handful of newly created and recently reformed environmental ministries often took on a disproportionate share of new regulatory responsibilities, concentrating political-ecological conflicts in particular elements of the environmental state. As we note above, for example, the U.S. EPA's regulatory responsibilities⁴ put the Agency at the center of all major environmental conflicts involving air pollution, water pollution, and toxic waste, and thus structurally embed EPA in disputes between major polluters (and major industries) and environmentalists (Demortain 2019). Responsibility for enforcing the Endangered Species Act of 1973 puts the USFWS in a similar structural

⁴ Among other statutes, EPA is charged with enforcing the Clean Air Act (1970), the Clean Water Act (1972), the Toxic Substances Control Act (1976), the Resource Conservation and Recovery Act (1976), and the Comprehensive Environmental Response, Compensation, and Liability Act (1980).

position, embedded in conflicts between land developers and conservationists. And so on for any given environmental state agency or ministry charged with directly regulating society-environment relationships.

On the other hand, many environmental state agencies have little-to-no regulatory role. Again turning to the United States, the U.S. Forest Service and Bureau of Land Management, which collectively oversee over 1.7 million square kilometers of territory – the area of France, Spain, Germany, and Italy combined – are instead principally land *managers*: they have to follow EPA guidelines for compliance with the Clean Water Act, for example, or USFWS guidelines for compliance with the Endangered Species Act, but the Forest Service and Bureau of Land Management are not directly responsible for promulgating the regulations under these laws as they apply to waterways and species within their jurisdictional boundaries. The U.S. Geological Survey (USGS) has even less regulatory responsibility. That agency has evolved into an environmental research organization, focused on producing not only maps and surveys of mineral resources used for developmental ends, but a wide variety of basic research on climate change, ecosystem health, and natural hazards. The result is that USGS and similar non-regulatory agencies largely escape the structurally induced conflicts and courtroom battles endemic to other environmental state agencies focused on regulating industrial pollution and extractive industries.

Regulatory-induced conflict, however, does not imply bureaucratic weakness nor long-term administrative decay, just as eliding regulatory conflict does not imply growth nor ensure administrative stability or strength. To the extent that regulations are shaped by regulated industries themselves (i.e. in cases of capture), or when regulations serve as barriers to entry for would-be competition in established industries, elements of the environmental state with prominent regulatory roles may actually enjoy some level of *support* from regulated entities (Carpenter and Moss 2014). Regulations, and thus agencies with regulatory roles, also provide an important source of external legitimacy for the state and its representatives even when enforcement is weak and compliance is largely symbolic (Edelman 2016; Schneiberg and Bartley 2001). As a result, agencies with regulatory responsibilities are likely to enjoy some level of support from elected officials, who often have an interest in at least *appearing* to enforce popular rules and standards. Especially in nation-states with relatively open political systems, regulations also provide a critical legal foothold for advocacy organizations who seek to expand the reach of environmental laws, which many environmental groups in the United States have done very successfully over the past several decades (Lifset 2014; Turner and Isenberg 2018).

Elements of the environmental state without such regulatory roles are robbed of many of these political and institutional resources. Because it lacks a direct regulatory role, an agency like the USGS is less threatened by direct industry capture, but neither can it count on the sustained attention of regulated parties concerned about competitors or interested in using regulations to buttress their legitimacy in the face of public scrutiny or changing attitudes about environmental harms. Nor might such an agency as easily count on even symbolic support from elected officials who publicly state an interest in maintaining or ramping up environmental protections. And especially in common law systems where legal precedent can directly remake policy, environmental state units lacking prominent regulatory roles are also robbed of the opportunity for external movement groups to bring suit and force them to shift and often expand their provision of environmental welfare.⁵

⁵ In principle, a lack of regulatory role also shields ministries and agencies from litigation that might weaken them. At least in the U.S. case, however, most environmental litigation is brought by environmental movement groups pushing for more robust enforcement of environmental protections, not industry associations or firms seeking to weaken environmental safeguards. For example, in a separate analysis of 3,267 federal district court cases from

Technoscientific Expertise as Political and Organizational Resource

Regulating and protecting nature's inherent diversity and ecological complexity also requires a large, professionally diverse network of civil servants and researchers located outside the bureaucracy, all with deep expertise in a wide range of natural sciences like biology, toxicology, ecology, atmospheric chemistry and physics, hydrology, and so on—areas of scientific research that have flourished and professionalized in parallel with the environmental state's own development (Bocking 2004; Frickel 2004; Hays 1989; Nash 2007). Like regulatory mandates and related support from social movement organizations, scientific networks and expertise also function as political and organizational resources for the environmental state: environmental movement organizations rely on expertise to gain disproportionate access to congressional hearings (Ganz and Soule 2019) and advocate for environmental justice (Ottinger and Cohen 2011); bureaucrats and agency leaders marshal expertise to assess environmental impact, moderate conflict, build reputation, and establish legitimacy (Carpenter 2010; Demortain 2019; Oppenheimer et al. 2019); and industry builds counter-expertise to slow regulatory momentum on everything from greenhouse gas emissions (Lahsen 2008) to endangered species (Scoville 2019) to chemicals (Creager 2021).

As with healthcare and medicine, then, environmental regulation and welfare provision is irrevocably linked to the politics of scientific knowledge, expertise, and professional authority (Hays 1989). Indeed, as human impacts on the biophysical world are increasingly understood through the lenses of natural science, the authority and legitimacy of agencies and ministries inside the environmental state hinges ever more on complex, techno-scientific rationale for regulatory actions and policy decisions, which also become central points of political and legal dispute (Strauss 1996; Turner and Isenberg 2018). The ability of agencies to call upon expert knowledge for understanding nature is thus doubly important for theorizing the politics of the environmental state: science is a central source of policymaking itself (Jasanoff 1990), as well as agency reputation, authority, and autonomy (Carpenter 2010). It is also a focal point of political contention that offers entrepreneurial bureaucrats, movement organizations, and industry groups a scientific foothold for expanding or challenging state regulatory authority and control over society-environment relations (Jasanoff 2006; Moore et al. 2011).

Expertise and related regulatory authority, however, work in different ways across national contexts, and likely within them. For example, expertise may carry far more legitimacy-enhancing weight in corporatist and technocratic environmental states, like Norway or Germany, than in more adversarial and common law systems like the United States (Dryzek et al. 2003). Likewise, legal provisions that allow citizen groups to sue on the behalf of the public interest also moderate the ability of civil society groups to challenge or alter regulatory standards and their techno-scientific justifications (Rose-Ackerman 1995). More broadly, the production of environmental policy is likely moderated by the different knowledge production regimes linked to any given environmental state, which may help explain persistent cross-national differences in environmental welfare provision around the world (Campbell and Pedersen 2014). Collectively, these observations lead to our fourth and final proposition:

Proposition 4: All else equal, prominent regulatory roles and high levels of technoscientific expertise should support robustness and growth in the environmental state agencies and ministries over time, even while they also invoke conflict and political-ecological contention.

1969 to 2019 involving the Clean Water Act and Endangered Species Act that name federal agencies as defendants, 57% of cases were brought by non-profit organizations. The next highest categories of plaintiffs were individuals (13%), industry (10%), and trade associations (5%).

Empirically, it follows that a full accounting of the role and influence of the environmental state in providing environmental welfare requires careful attention to the regulatory responsibilities of different ministries and agencies, which are in turn linked to the distinctive developmental histories and culturally specific relationships to nature of those administrative units, discussed above, and to the institutional features of particular nation-states and sub-national units (e.g. Hacker et al. 2021; Starke 2006). It also follows that much of the conflict over regulatory power and capacity to provide environmental welfare will turn on the concepts, knowledge, and authority of technoscientific expertise, which is itself historically contingent and contested. A genealogy of state-centered avian (Bargheer 2018) or piscine (Scoville 2019) expertise, for example, offers more than a social and political history of ornithology or ichthyology; it offers a lens into the sources of authority and power that undergird the environmental state's protection of birds or fish, as mediated by evolving developmental prerogatives and distinctive understandings of these species as objects of state control, economic productivity, and environmental protection. Similar claims apply to any number of other types of nature, whether mundane urban air or iconic mountain landscapes: regulatory roles and expert knowledge are central dimensions of the politics of environmental welfare provision, and thus play a critical role in shaping the environmental state's evolution, internal differentiation, and relative strength or weakness.

Conclusion

This paper offers a modest but important course correction to sociology's lack of sustained focus on environmental states by introducing a partial theory of the same. The theory holds that environmental states are rooted in the contested and historically dynamic provision of environmental welfare, and that their administrative trajectories and robustness through time are shaped recursively by conflicts organized around the ways that different elements of the environmental state embed into the field of society-environment relations. Our aim has been to lay some of the groundwork for what we hope will become an empirically robust, historical-sociological accounting of environmental states and to invite others interested in studying states and the politics of nature to join this larger and longer-term comparative project.

As elaborated, the theory owes much to prior scholarship. It is substantively informed by the field-theoretic and network approaches of institutional and organizational scholars, political and historical theories of social welfare and state development, and theorizations of socially constructed nature and environmental political economy pioneered by sociologists of culture and environment. Beyond whatever value such synthesis holds, we believe the theory also offers at least three novel and substantively important contributions. The first contribution is definitional. We define the environmental state more narrowly than most extant studies in terms of the provision of environmental welfare. This refinement has three pragmatic functions. Conceptually, it frees environmental states and environmental welfare provision from a structural-functional dependence on capitalist growth imperatives or the dynamics of technoscientific innovation. This creates analytical space for investigating states' embedded autonomy to pursue interventions in nature that are contingent, indeterminate and multi-directional (that is, tending toward or away from sustainability). Methodologically, it allows researchers to more cleanly demarcate environmental states from national bureaucracies and thus to pursue the study of environmental states as apart from the state as a whole. This move makes it possible to systematically investigate the state's distinctive efforts to provide environmental welfare and to set those efforts in explicit theoretical relation to other state activities, like war making and social welfare provision. Empirically, it offers a starting point for standardized measure of the environmental state's action toward nature, vis-à-vis environmental welfare provision –

an important first step if one's ultimate goal is to understand the environmental state's material impacts on nature.

The theory's second contribution is to center nature within sociological state theory. What we call environmental politics weaves nature (as social construction) into administrative history and equally embeds biophysical nature (forests, bird populations) within the state's continuously evolving and contested efforts to differentiate, organize and regulate society-environment relations. Framed thus, the features and dynamism of environmental states are yoked to the cultural specificity and diversity of nature as much as to conflicts over material resources or ecological sustainability. The theory's four propositions posit more specifically how we expect state-led environmental protection and regulation to emerge historically in relation to culturally specific constructions of nature, political-economic legacies of natural resource extraction, and to the contentions dynamics of agency-specific regulatory mandates and access to techno-scientific expertise. In the abstract, these grounding arguments position nature as a constitutive and constituting element of state structure, conflict, and change. More concretely, they can guide future positive accounts of environmental state formation and development, including state actors' visions for ecological transformation and the limits on their capacity for change. In time, we hope investigations of these dynamics will lead to a more fully articulated theory.

Finally, the theory eschews the methodological holism that often creeps into theoretical discussions and empirical investigations of "the state" while, at the same time, also resisting the impulse to extrapolate a theory of the environmental state from studies of single agencies or ministries. We appreciate the value of top-down and bottom-up approaches and have drawn liberally on them in making our theoretical case. Even so, we contend that a full accounting of the environmental state – and perhaps any sub-domain of the state as a whole – demands careful study of the way diverse and heterogenous administrative units embed into – and ultimately remake – the field of society-environment relations.

Our approach affords a number of opportunities to pursue research that extends, refines, and clarifies the arguments developed thus far. Seen through a Marxian-tinted theoretical lens, the framework we offer here provides a way of specifying the concrete and observable relations of power between individuals, groups, and organizations – including firms, workers, and state agencies – that structure state interventions into nature and that may well help explain the social-institutional origins of the largest and most stubborn obstacles to meaningful environmental reform. Viewed instead through the more politically and economically optimistic lens of ecological modernization theory, our framework provides a means of identifying the constellations of factors and political process that might support more robust and effective state-led environmental protection and regulation. In either case, the account we offer here would be greatly enriched by moving beyond our heavy reliance on the U.S. case. Future research set in other national and sub-national contexts is crucial if the theory is to accommodate the vast empirical differences in geopolitical history, territorial size and ecology, political-institutional organization, and economic, military and cultural specificity that characterize modern nation states and their efforts – however variable – to provide environmental welfare.

Another necessary extension is the study of the relations between the environmental state and other parts of the nation state, such as those providing military defense or social welfare. States like the United States, Britain, and France all aggressively pursue military and geopolitical ends with both ecologically destructive and socially unjust consequences (Coates et al. 2011; Lengefeld et al. 2021). Formally, however, military actions are often still accountable to rules and standards set by environmental statutes, setting the state's military and environmental bureaucracies in tension and leading to complex constellations of, for example, "military environmentalism" that environmental

historians have pointed out are neither robustly ecological nor entirely “green washing” (Coates et al. 2011). These intra-state tensions raise questions about the internal complexity and disunity of the state and the impacts of military policy (and other national policy domains) on the biophysical world. Studying how different state prerogatives intersect, conflict, and entwine is critical for assessing states’ prospects for providing environmental welfare in the long-term.

A third avenue for future research is to refine, rather than extend, our partial theorization through investigations of the mechanisms and processes structuring environmental politics within different nation states. As we have argued, the environmental politics shaping the development and robustness of environmental states are principally a function of the distinctive governance mandates of specific state agencies and ministries as they embed in the larger field of society-environment relations. While we gesture towards specific processes (e.g. the role of civil society in shaping the environmental state via the courts, particularly in common law systems the United States), we leave it to future researchers to fill out our account with the precise mechanisms at work in specific national and sub-national contexts.

Consensus grows by the day that planet Earth has entered an era of cascading ecological crises. For better or worse, nation-states remain the primary organizational unit of environmental governance around the world. The stakes for sociology and cognate fields are urgent and clear. If scholars of society-environment relations are to play a meaningful role in addressing these compounding crises, we require a far richer understanding of environmental states. Our modest hope is that the framework and supporting arguments presented here will inspire others to help illuminate persistent obstacles to the robust provision of environmental welfare and sharpen diagnosis of environmental politics, the better to turn them toward more ecologically sustainable and environmentally just ends.

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