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The Communicative Constitution of Environment: Land, Weather, Climate

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The Communicative Constitution of Environment: Land, Weather, Climate

by

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DEDICATION

For the cats. Earth is worth saving because you live here.

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ABSTRACT

My project examines the communicative constitution of environment: how we mediate environment in discursive practice, and arrange chaotic and complex timeplaces into organized relationships of agents and objects which act and are acted upon. Climate scholars across disciplines are calling for a paradigm shift in how we understand, study, inhabit, and relate to Earth's varied environments. In this dissertation, I demonstrate how communication practices do the work of constituting the environment as we know it, and therefore conclude with the hopeful suggestion that these same practices can be used to do the work of a paradigm shift — that is, we can (re)arrange our relationships and ways of relating in ways that generate genuine transformation in the world.

This project weaves together transdisciplinary threads of scholarship to contextualize our understanding of environment within institutionalized practices which authorize particular means of mediating experience, including critical legal geography, sociolegal studies, science and technology studies, organizational studies, climate science, and meteorology, to name a few. I connect these varied fields through the application of a meta-constitutive framework of communication (e.g., Craig, 1999; Cooren, 2014) in which I understand communication to be the means by which we mediate our experiences in the world. I employ a multimodal, mediated approach to discourse analysis to analyze what strategies and resources participants use in interaction to mediate and make sense of their environment and to consider the implications of various actions for the beings, objects, and environments involved. I adopt a critical stance from

which I pursue a critical agenda I have chosen to call the Terrestrial project: the need to generate new ways of arranging and relating within our environment to better account for the agency, materiality, and needs of those other beings and materials trying to inhabit the Earth alongside us. The Terrestrial project does not call for a paradigm shift, but rather it makes space for us as scholars and Earth-bound beings to do the messy, conflicting, frustrating, and promising work of changing our practices.

In my analytical chapters, I offer three case demonstrations of what scholarship in the Terrestrial project might look like, making a point to examine a variety of data types (mediational modes) across contexts. Because there is already considerable research on human-animal relationships, I focus on three broad, non-living (in the organic sense of carbon-based life) environmental phenomena: land, weather, and climate. In the chapter on land, I examine legal texts and consider how legal discourse shapes and is shaped by the material conditions of our environment; the chapter on weather considers how a hurricane is constituted through social media posts and images; the climate chapter analyzes spoken discourse, attending to the ways in which speakers at a professional conference give meaning to the term "climate change" through practices of identification and categorization.

INTRODUCTION

When I visit my family in Southern West Virginia, I am always reminded of the contingent relationship of humans to their environment — for every house clinging to the side of a mountain, there is another that has washed away. In the hollers of West Virginia, people must contend with a geography of steep mountains, crumbling sedimentary rock faces, and the constant leaking of water downward into streams which rapidly transform into swift rivers after even moderate rains. Roads curve across mountainsides, with fallen rocks often scattered along narrow shoulders and orange cones or patched-up asphalt marking where the road has quite literally crumbled away. Along creek banks are the moldering remains of entire towns washed away after repeated flooding. Human existence here is tenuous, and it is tempting to fall back upon folk sayings about the power of nature compared to our own foolhardiness.

What the environment of Southern West Virginia makes abundantly clear is the mutually constitutive relationship between humans and their environments. Once one of the most prosperous regions in the United States — Bramwell, a town in Mercer County West Virginia was once home to the most millionaires per capita in the country — Southern West Virginia owes its boom, and more recent decline, of human occupancy to the coal industry. In this way, coal made human civilization even as people remade the environment to suit the needs of coal mining. Coal camps, settlements clustered around coal mines, developed into towns with businesses, schools, and municipal governments. More recently, legislation and local ordinances have prohibited new construction along creek sides due to severe and repeated flooding. The precarious and contingent

nature of life in Southern West Virginia illustrates how both the built and "natural" environment bears upon the lives of its human occupants, exercising what I argue is nothing less than its own *agency*.

Still, there has been a tendency to investigate the human impact upon the environment rather than the environment's impact on humans. Rogers (1998) elaborates:

> We are very willing to talk about how discourse affects nature, but what about how nature affects discourse, and therefore, us? The importance of humans' material existence — our existence as both political and natural beings — is mystified when nature is positioned as passive or irrelevant in critical communication theory. (p. 247)

In the more than twenty years since Rogers' call for a transhuman, materialist theory of communication, I argue that we have not yet empirically examined the agency of the material environment, to dismantle dichotomies such as subject/object, symbolic/material, and human/nature which scholars have shown to be anthropocentric and harmful to all inhabitants within a given environment (Barnett, 2018).

Rogers' (1998) critique of constitutive theories of communication seems misplaced — the problem is not constitutive theories, but their confusion with social construction. Constitutive theories of communication go further than social construction claims that humans create their world in relations of discourse (e.g., Berger & Luckmann, 1966; Gergen, 1999). They do so by taking an orientation which decenters humans as the origin of action and meaning (Deetz, 2003), by acknowledging the mutually constitutive nature of our existence; we make and are made by the multitude of forces and entities with which we are entangled (Barad, 2007; Condit, 2005; Kuhn et al., 2017). Constitutive theories carry new interpretations of agency, materiality, relationality, and

authority, and may be the key to radically transforming our understanding of environmental phenomena. However, there are few empirical studies to illustrate what this might look like.

A Constitutive Communication Orientation

This project contributes to the transdisciplinary literature on environment, such as critical legal geography, science and technology studies, and climate science. I examine data from environmental phenomena by way of a constitutive theory of communication. Drawing on the sociocultural tradition of communication theory (Craig, 1999), I understand communication as discursive practice. Though discourse is traditionally defined as "language used in social interaction" (Scollon & Scollon, 2004, p. 2), I consider a broader definition which accommodates analysis of hybrid agency and sociomateriality. I am drawn to the possibilities enabled by Hajer and Versteeg's (2005) definition of discourse "as an ensemble of ideas, concepts and categories through which meaning is given to social and physical phenomena, and which is produced and reproduced through an identifiable set of practices" (p. 175). By this definition, participants in discourse are not limited to humans, and discursive resources are not limited to symbol systems, though humans and linguistic communication feature prominently in discursive practice (Norris & Jones, 2005). A theory of communication as discursive practice accounts for the ways in which agents mobilize material and semiotic resources (Cooren, 2004; Jones, 2016). It does not assume that all things are of discursive origin, but rather that things are *realized* — they are made real, as matter made *to* matter — through discursive practice.

In orienting to communication as discursive practice, I draw from the transdisciplinary work on practice theory (Hui et al., 2017). Ortner (1984) was among the first to identify an emerging "practice theory," noticing a growing interest in the scholarly literature of the 1970s and '80s concerned with "practice, praxis, action, interaction, activity, experience, and performance"

(p. 144). Practice theory approaches developed out of the philosophical work of Wittgenstein and Heidegger (Hui et al., 2017), as well as interpretations of Marxist ideology which reconcile its compatibility with that of Weber, challenging the materialist/idealist divide. Early influential contributions include Wittgenstein's description of the social as a complex of practices (Schatzki, 2000), and Gidden's (1984) assertion that "social practices ordered across space and time" are the primary concern of the social sciences (p. 2). A practice orientation is one which acknowledges that any event is a bundle of doings, and practice theorists are interested in the embodiment, embeddedness, transformation, constellation, and political implications of identifiable patterns of doings.

Practice theorists have made a number of observations about the social and the material which are particularly relevant to my orientation to communication as discursive practice. The centrality of humans varies from the more traditional human-centered practice theories to what Gherardi (2017) considers "posthumanist practice theory" (p. 39). Posthumanist practice theory sets aside the classic definition of practices as arrays of (largely) human activities (Schatzki, 2005), in favor of an understanding of practices as "a mode, relatively stable in time and socially recognized, of ordering heterogenous items into a coherent set" (Gherardi, 2006, p. 35). Gherardi (2017) summarizes the difference thusly:

> While a humanist approach to practice assumes the centrality of humans as sites of embodied understandings and then proceeds to analysis of humans and their practices, a posthumanist approach instead interrogates how all the elements within a practice hold together and acquire agency in being entangled. (p. 50)

Sociomateriality recognizes the inseparability of meaning and matter within a practice (Barad, 2007; Gherardi, 2017; Kuhn et al., 2017), as well as the enmeshment of matter in social life (Shove,

2017). For environmental phenomena, sociomateriality suggests the artificiality of the boundary between nature and culture. Gherardi (2017) identifies the challenge of generating "appropriate methodologies for the empirical study" of sociomateriality in practice (p. 41).

Communication is uniquely positioned to weave together these discipline-bounded threads, demonstrating the "viscous porosity" (Gherardi, 2017, p. 47) of an entangled, relational ontology: though disciplines may vary in their tolerance of transdisciplinary interactions, enacting various degrees of resistance, the boundaries of disciplines are indeed permeable, and theoretical concepts fluid. The disciplinary narrative of communication being inherently transdisciplinary, as informed by a multitude of diverse theoretical trajectories (Craig, 1999), provides a firm foundation for communication studies which weave together various theories and analytical methodologies for examining communication phenomena. I weave together the transdisciplinary theoretical influences on this study in the following sections, but for now the important point is this: discursive practices constitute sociomaterial phenomena (patterns, structures, environments, cultures, etc.), and in turn, sociomaterial phenomena constitute discursive practices.

Environment is a sociomaterial phenomenon — a meshwork[1] of various social and material relationships. In addition to being a discursive accomplishment, *environment* is a hybrid achievement; its meaning and apparent stability is performed by a multitude of agents, not all of them human (Coole & Frost, 2010; Cooren et al., 2005). I focus on three environmental phenomena — land, weather, and climate — to empirically demonstrate how they are, in both their micro (interactionally situated) and macro (institutionally authorized) discursive manifestations, hybrid

[1] I use the term "meshwork" rather than "network" because of Ingold's (2008) argument that "the network metaphor logically entails that the elements connected (whether people or objects) are distinguished from the lines of their connection" (p. 1805). Instead, he discusses experience as "a trail of movement or growth" which is tangled and wound with other trails which "constitute the texture of the land." In this way, life is performed in a "relational field"; "it is a field not of connectable points but of interwoven lines, not a network but a *meshwork*."

practices. Most basically, "land" refers to Earth's solid surface. "Weather," according to the National Snow and Ice Data Center (2019), is "the day-to-day state of the atmosphere (temperature, humidity, precipitation, cloudiness, visibility, and wind) and its short-term variation in minutes to weeks." In other words, weather is what is happening *now*, whereas climate is "the weather of a place averaged over a period of time, often 30 years." Land, weather, and climate are each sociomaterial phenomena. They are constituted in discourse through a hybrid agency in which bodies, identities, texts, organizations, institutions, or other sociomaterial presences simultaneously act and react, obscuring the process and implications of their constitution as such. To guide my research, I ask the following questions:

RQ1: How might communication theory account for agency beyond that of human actors?

RQ2: What sort of empirical analyses might illuminate the ways in which land, weather, and climate are hybrid practices?

RQ3: What are the implications of our current practices of constituting environment?

Positioning

To position this project firmly within the field of communication, I draw upon Craig's (1999, 2007, 2015) constitutive metamodel of communication[2]. Craig's (1999) constitutive metamodel of communication presents a coherent field of communication informed by seven theoretical traditions: rhetorical, semiotic, phenomenological, cybernetic, sociopsychological, sociocultural, and critical. The constitutive metamodel is informed by several principles of first-

[2] See also Cooren's (2014) application of the ventriloqual metaphor to Craig's constitutive meta-model. A ventriloqual interpretation of the metamodel brings attention to the way in which people, ideas, and things are both *made to act* and *make us react*. What is more, the speaking through and for to which the ventriloqual metaphor attends is consequential — what is done will be to the benefit of some and the detriment of others. Though this dissertation is not a project within the scope of ventriloqual theory, the notions of mobilizing resources in interaction to negotiate authority has much to offer the empirical analysis of communication data.

order constitutive models[3] including the recognition that "communication itself is the primary, constitutive social process" that explains other phenomena, the mutually constitutive relationship between communication and culture, and the practical and political implications of communication (p. 126). Craig argues for a pragmatic interpretation of the constitutive metamodel, which understands "models of communication as different ways of constituting the communication process symbolically for particular purposes" (p. 127). In other words, no model of communication can be dismissed *a priori.*

In response to Craig's (1999) recommendation that communication scholars "should show an awareness of relevant traditions of communication theory" (p. 153), I locate my own research as stemming from the rhetorical, sociocultural, and critical traditions. From the rhetorical tradition, I understand communication as strategic action; from the sociocultural tradition, I recognize that social order is "created, realized, sustained, and transformed in microlevel interaction processes" (p. 144); from the critical tradition, I am drawn to reflexively investigate the political aspects of communication, or how communication processes are necessarily tied to dynamics of authority, access, and power. Since, as Craig points out, "any mode of communication theory can take a reflexive, critical turn and so produce a hybrid variety" (p. 148) such as critical rhetoric or critical discourse analysis, I will now discuss what I see as the two most important theoretical trajectories to my orientation as a communication researcher: rhetorical theory and discourse studies.

Rhetoric, said to have originated in Ancient Greece, is concerned with persuasion, or the ability to change one's circumstances or achieve a desired goal through communication (Herrick, 2015). Karen Tracy (2016) describes a rhetorical worldview as one which assumes the contingency

[3] A first-order model of communication is "a perspective on communication that highlights certain aspects of the process," whereas a second-order model, or metamodel, is "a perspective on models that highlights certain aspects of models" (Craig, 1999, p. 127). Craig cautions against conflating the two, since not all of the theoretical traditions share a first-order constitutive orientation.

and strategy of social life. In other words, experience is not fixed or predetermined; it is realized through the strategic actions of social actors who seek to "advance aims…they value and thwart those with whom they disagree" (p. 361). A rhetorical research agenda, then, is one that identifies the consequences of particular communicative choices.

Early studies and treatises of rhetoric were concerned principally with oration and formal public address, but over time scholars have broadened considerably what counts as rhetoric and rhetorical texts (Lucaites & Condit, 1999). In addition to public address, scholars have used rhetorical theories and methods to analyze landscapes (Clarke, 2004), architecture (Blair et al., 1991; Hattenhauer, 1984), visual images (Foss, 2004), musical structure (Cloud & Feyh, 2015), maps (Senda-Cook, 2013), roads (Wood, 2010), and urban spaces (Topinka, 2012). Recently, scholars have pushed the boundaries of where rhetorical analysis is located, developing rhetorical field methods which examine everyday life in situ (Middleton et al., 2011; Pezzullo & Onís, 2018). Most importantly, rhetorical perspectives share an understanding of communication as action, which is to say that rhetorical utterances alter reality as it is known and experienced (Bitzer, 1968; Burke, 1966; Peeples, 2015).

A rhetorical worldview is compatible with discursive, constitutive understandings of experience and meaning making (Jones, 2016; Tracy, 2016). For example, the Greek Sophist Gorgias is known for his three-part argument on existence, knowledge, and communication, which is as follows: "(1) Nothing exists; (2) If anything did exist, we could not know it; (3) If we could know that something existed, we would not be able to communicate it to anyone else" (Herrick, 2015, p. 38). Though many scholars have interpreted this as skeptical philosophy or nihilism, it can also be read as an argument about communication and its centrality to experience and sense-making — in other words, *everything resides in communication.*

This is a helpful perspective for a communication scholar because it dismisses any search for "ontological origins that explain social action" (Kuhn et al., 2017, p. 33) and instead guides attention to action itself, as this is where sociomaterial life is *real*ized (Norris & Jones, 2005). That action can be conceptualized as discursive practice. Discourse is the synthesis of the various resources that agents use in interaction to organize, perform, and materialize their worlds. Spanning disciplinary boundaries, scholars in fields such as sociolinguistics, applied linguistics, ethnography of communication, education, English and rhetorical composition, social psychology, anthropology, and sociology have contributed significantly to discourse studies (Jones, 2016). More recently, communication scholars have made significant theoretical and practical contributions to the field, especially in advancing discourse as making matter *matter,* as well as how power and authority are discursive, hybrid accomplishments (Bartesaghi, 2014; Bencherki, Bourgoin, et al., 2019; Bencherki, Cooren, et al., 2019; Cooren et al., 2013).

Chapter Overview

I begin this project by explaining how I orient to communication and communication research. After firmly positioning this project as a communication project, I move to a discussion of the historical and ongoing discursive traditions we use to characterize environments and position ourselves within (or apart from) them; this discussion moves from a general overview to specific discussions of the historical practices of constituting land, weather, and climate to prepare for the three analytical chapters which follow. I conclude this dissertation with a discussion of the contributions this project makes to the communication and transdisciplinary literature on environment.

In Chapter One, I provide my theoretical positioning and explain what I mean by a constitutive theory of communication as discursive practice. I discuss the characteristics of

communication which are most important to the analytical project of this dissertation. These characteristics — sociomaterial, relational, situated, a hybrid accomplishment, bound up with authority — describe what communication is and what communication does. After this theoretical positioning, I give an overview of my chosen method, discourse analysis, and introduce and explain the significance of the data I have chosen.

In Chapter Two, I turn to the literature on environmental discourse. This discussion attends to environment generally at first, touching on important themes in the transdisciplinary literature. I present the prominent positions relating to environment — wilderness, the sublime, preservation, conservation, ecology, environmental justice, and climate — with consideration of how each of these positions remains relevant to our current practices. I then present important critiques of these positions and define what I mean by environment. Following this, I present specific discussions of historical practices regarding land, weather, and climate to provide context for the analytical chapters which follow. I conclude the chapter with a discussion of what I call the Terrestrial project — my nickname for the type of research we need to pursue in order to generate new ways of arranging and relating within our environment that account for the agency and materiality of those other beings and materials trying to inhabit the Earth alongside us.

Chapter Three is the first of the three analytical chapters and considers how legal texts are important agents in the constitution of land as manageable property. I attend to the case of Bears Ears National Monument to demonstrate how legal language and intertextual relationships among legal texts perpetuate the view of land as a commodity. Though President Obama's proclamation establishing Bears Ears National Monument gives some glimpses of what a less anthropocentric, capitalist orientation to land might look like, it is ultimately bound by the practices of legal discourse and the necessity of demonstrating its authority and legitimacy as an active textual agent.

I argue that each time land is designated anew in legal discourse, it is materialized as such, drastically changing how we might relate to and interact with that land.

In Chapter Four, I turn from land to sky, examining how we constitute weather in communication. Taking a relational stance which acknowledges the agency of the physical hurricane itself, I consider what might be gained from understanding the practices of hurricane prediction as an interaction, a conversation so to speak, with the hurricane. I analyze the case of Hurricane Dorian and Sharpiegate — the incident that occurred in early September, 2019 and sparked public debate over the production of weather when President Trump displayed a forecast map altered with Sharpie — to demonstrate how practices of observation are used to materialize the storm as a participant in discourse, therefore facilitating our interactions with it.

In Chapter 5, I consider the constitution of climate. Unlike land and weather which each have a definite physicality which can be seen and felt, climate is an abstract phenomenon which can only be experienced in discourse. I analyze transcripts from a one-day public climate conference, "Science, Strategies and Solutions: Addressing Climate Change in Tampa Bay," held in downtown Tampa and featuring a variety of speakers representing scientific, political, and practical orientations. I demonstrate how "climate change" functioned as a shell term for the participants and show how participants provided the meaning of "climate change" through membership categorization. I propose that climate is still a valuable concept, but as an organizing term which is used by participants to traverse social boundaries and align in the pursuit of a common interest. To conclude, I consider how the shell function of climate may be useful in generating novel relationships and further the Terrestrial project.

The final chapter considers the Terrestrial project, drawing insights from my empirical analyses to define that project and consider what future contributions to it might entail. I especially

consider my findings in light of my goal of demonstrating the Earth's sociomaterial agency and resisting anthropocentric tendencies. If we truly wish to resist anthropocentrism and account for materiality in our analyses of environmental phenomena, we must reject the tendency to privilege nature-made materiality over human-made materiality — in fact, we must reject that there is a difference between nature-made and human-made materiality entirely. Instead, we must acknowledge that everything is sociomaterial and every experience is mediated, and that untangling the relational meshwork to identify causation or origin is not only a hopeless task, but a vain one. Identifying relational entanglements is an important task, but the goal should be to understand how something unfolds in interaction, rather than trying to retroactively construct a sequence of causation.

CHAPTER ONE:

COMMUNICATION AS DISCURSIVE PRACTICE

The multidisciplinary origins of discourse studies provide a rich theoretical foundation for understanding how everyday interaction accomplishes the social organizing and ordering of an increasingly neoliberal[4], globalized world. Recent research has helped situate the work of discourse studies firmly within the communication discipline (e.g., Tracy & Mirivel, 2009). To elaborate on what it means to conceptualize communication as discursive practice, I have identified five characteristics of discourse which explain how it functions and why it is significant. Discourse can be characterized as constitutive, relational, situated, a hybrid accomplishment, and tied to the politics of authority. In the following sections, I describe the significance and implications of each of these features and functions of discourse. I then discuss how a multimodal, mediated approach to discourse analysis provides a means for analyzing my data.

Discourse as Constitutive

The first feature of discourse I will discuss is that discourse constitutes the sociomaterial world as it is experienced. To clarify, saying discourse is constitutive is not synonymous with saying discourse *constructs* social reality. While constitutive discourse was able to grow out of

[4] Mumby and Kuhn (2019) describe neoliberalism as a "hegemonic discourse," meaning it "is a dominant way of thinking and talking about the world and our relationship to it" (p. 151). Neoliberalism began as an economic philosophy which called for the maximization of individual freedoms, the protection of private ownership, and a free market unencumbered by government regulation. This economic philosophy is reflected in the policies developed in the 1980s under the leadership of Ronald Reagan in the United States and Margaret Thatcher in the United Kingdom. Since then, neoliberalism has worked itself into nearly all areas of social life, applying the logic of the market as "the principle through which human beings are both governed and govern themselves" (p. 152).

social construction with the linguistic turn of the 1930s, it does more to de-center the human subject as the "origin of perspective (Deetz, 2003, p. 422). As Coole and Frost (2010) caution, social construction often re-centers human agency, perhaps due to the metaphor of "construction" which implies the presence of an agent doing the construction. Since construction is an organized, intentional, and highly planned activity, it implies cognitively aware human subjects who think before they act upon an environment — reinforcing the subject/object dualism. Since it is this very dualism which has allowed for much of humanity's exploitation of its environment, it is important for critical scholars to resolve this false dichotomy.

Matter, and an analytical focus on materializing "forces, energies, and intensities," is a more fruitful approach to addressing the problem of the subject/object dualism (Coole & Frost, 2010, p. 13). Collectively, the scholarship considering matter and materialization is called *new materialism*, and its proponents seek to reconfigure our understanding of matter, experience, and existence. New materialist scholars adopt an ontology in which matter possesses "its own modes of self-transformation, self-organization, and directedness," rather than Cartesian or Newtonian accounts of matter as "passive or inert" (p. 10). In other words, it is an ontology of *becoming* rather than being (Coole, 2013). Advances in physics, biology, and ecology make it impossible to see matter as organized, stable, and predictable — instead, theories of complexity and randomness blur the boundaries of existence and non-existence, natural and unnatural, and indeed, subject and object.

In order to address the subject/object dualism, it is necessary to blur the distinction between the social and the material (Coole & Frost, 2010; Kuhn et al., 2017). The material and the social are co-occurrent in the constitution of experience (Barad, 2007; Gherardi, 2017) — it is impossible to distinguish between them because everything, even social phenomena and abstractions, "must

be materialized to matter" (Kuhn et al., 2017, p. 35). For anything to exist, it must take on a material dimension. This is to say that it must be performed by bodies, which are always in relation to other bodies, material presences, and spatiotemporal contexts. To be real is to be matter with significance; not social *or* material, but *sociomaterial*.

If everything must be materialized to matter, and nothing exists outside of communication, then discourse is not just the study of symbolic interaction — it is the study of how a world becomes in interaction. The modes we use to communicate experience actually constitute that experience (Mehan, 1996). To adapt Burke's (1966) metaphor of the terministic screen, any given mode of representation is a reflection, selection, and deflection of particular discursive worlds. Since each mode of representation necessarily deflects alternatives, it is inevitable that conflicts "waged in and through discourse attempt to capture or dominate modes of representation" (Mehan, 1996, p. 253). Mehan refers to this "competition over the meaning of ambiguous events, people, and objects in the world" as the "politics of representation" (p. 253). How we represent a particular discursive event has consequences for how we act toward it and relate to the world. In this next section, I discuss the relational characteristic of discourse and its implications for sociomateriality.

Discourse as Relational

Discourse constitutes the world as we know it, materializing sociomaterial phenomena in communication, but it is also *constituted by* the sociomaterial phenomena. In this sense, discourse is relational, because discursive practice is always *in relation to* some other discourse, agent, social context, material presence, or history. An emphasis on relationality requires redefining existence, reality, and causality (Kuhn et al., 2017). In this section I expand upon my discussion of discourse as constitutive, explaining a relational ontology and its implications for discursive theory.

Ontologically and epistemologically relationality, like new materialism, offers a way of repairing the divide between the social and the material, making radical claims about the very nature of existence. Existence becomes through interaction, or rather, entities come to exist through "ever-unfolding contact" (Kuhn et al., 2017, p. 31). Here again, the theory is influenced by advances in physics, since even "solid" matter becomes such through the energetic arrangement of and exchange between particles and energy fields, and the observer effect shows how interaction with matter produces observable changes that cannot be explained by human perception alone (Barad, 2007). To be in existence, then, is to be in relation, where relationality is contingent, dynamic, and nonlinear.

Communication, most concisely, is a process of relating, the product of which is a dynamic web of relationships (Condit, 2005). Relationality suggests that this web of relationships is the very nature of existence: "every thing that exists is in itself nothing more than a particularly…constituted set of relationships," and "there are no clear boundaries, no thing that has a discrete existence separate from the web of relationships of all to all" (p. 5). Condit describes sociomaterial phenomena as "aggregations of matter/energy," seeking to avoid the human tendency to draw discrete boundaries of thing-ness (p. 5). Ingold (2008) uses the term "entanglement" to make a similar point, saying "every organism — indeed, every thing — is itself an entanglement, a tissue of knots whose constituent strands, as they become tied up with other strands, in other bundles, make up the meshwork" of existence (p. 1806). Whether aggregate or entanglement, relationality acknowledges the dynamic, fluid, and inherently related characteristic of all sociomaterial phenomena.

An understanding of existence as relational suggests that reality is the realization of one or more possibilities out of infinite others (Kuhn et al., 2017). Existence is contingent upon

relationality, and relationality indicates a complex assemblage of ongoing performances by sociomaterial agents that range from microscopic waves and particles, to mesoscopic bodies, to macroscopic organizations, planets, solar systems, and so on. As Condit (2005) notes, "within each level of relationship is embedded another" (p. 6). With such complex assemblages of agents in relation, it is necessary to adopt an understanding of the real as multiple, both in the sense of plural realities, which are co-occurrent, and multiple possible realities, some of which may or may not be realized.

If reality is always already multiple rather than singular, it follows that relationality challenges linear notions of causality, in which actions are preceded by causes and followed by consequences (Kuhn et al., 2017). Instead, a relational ontology presents causality as simultaneous, indeterminate, and organic. It also removes any concern of intentionality from causality, since intention as a theoretical concept is decidedly anthropocentric (cognitive) and irrelevant in a sensibility concerned with action, constitution, and materialization. Rather than consciously aware agents who think before they act, relationality presents an assemblage of agents, actions, and relations which are co-occurrent. The distinction between cause and effect is blurred and revealed to be a human-imposed order upon a chaotic and complex universe. A relational ontology does not present causality as happening *because of* something else, but as happening *in relation with* something else. A rethinking of causality is ultimately a rethinking of time and space, which I discuss in more detail as it applies to the situated characteristic of discourse.

Discourse as Situated

The implications of relationality are that discursive practice is always situated within relational assemblages of agency and action which can never be reduced to their component parts or reproduced in exactly the same way. Discursive practice cannot be uprooted from the

sociomaterial contexts, spatiotemporal orientations, bodies, and performances through which it comes to exist (Norris & Jones, 2005). In the earlier section on relationality, I discussed the need for a nonlinear orientation to causality, which is ultimately a reorientation to time. In this section, I discuss the second aspect of what I refer to as *spatiotemporal orientation*: the need for new orientations to space.

According to Latour (2018), the instability of our situation on the planet necessitates a new understanding of space. The Paris Climate Agreement marked a collective understanding that the earth cannot play host to every county's unlimited development, and that loss of land to climate change is inevitable, meaning we are "all in migration toward territories yet to be rediscovered and reoccupied" (p. 5). Latour terms the new reality ushered in by COP 21 the New Climatic Regime, and it includes a new political entity, Earth, which has the power to act, and more importantly *react*, to human action. Faced with the inevitability of land loss and the emergent strength of Earth's reactions to human occupation, Latour asks the poignant question, "how do we occupy a land if it is this land itself that is occupying us?" (p. 41). In other words, space is more than context or location — it is dynamic, agential, and entrained[5] within cycles of action spanning the cellular level to the cosmic level.

I understand space as a "product of interrelations," the multiplicity (and simultaneity) of possible spatial orientations, and a necessarily unfinished process (Massey, 2005, p. 9). Massey states that "space is the dimension that presents us with the existence of 'the other'…And it presents us with the most fundamental of political questions, which is, how are we going to live

[5] I draw upon Scollon's (2005) use of *entrainment* to explain the relationship between actions (mediated discourse) and cycles (particular orientations to time and materiality; the rhythms imposed by various biological, geo-semiotic, and material "pace-makers" (p. 24)). The "periodicity of the cycle sets constraints on actions that can be taken within that cycle," and any moment is further complicated by which cycle the analyst is orienting, as they exist in layered simultaneity (p. 25). This is similar to Lefebvre's (2004) pronouncement that the analyst's body serves as a sort of metronome, or a rhythmic marker which we use to orient to time and space. Space, as well as time, is relational.

together?" (as cited in Edmonds & Warburton, 2016/2017). Agents orient to space in particular ways according to the affordances and constraints of the discursive resources they are able to access and mobilize in interaction (Jones, 2005). Scollon (2005) describes three types of spatial considerations which constrain action: bounded spaces, permeable spaces, and unbounded spaces. Bounded spaces are those which enclose the field of action completely; permeable spaces are those which allow the field of action somewhat outside the space; and unbounded spaces are those which lack boundaries or are "functionally unbounded," meaning action may "take place without undue consideration of boundaries" (p. 27). To say that space constrains action is to say space itself has agency — it constitutes, and is constituted in, discourse.

We must always negotiate an orientation, or a particular way of relating, toward/with space. The resources agents use to orient spatially are material as well as discursive, including linguistic resources, such as deixis (i.e., "here," "far"), pronouns which distinguish bodies from other material presences, socio-linguistic resources, such as spatial metaphors (i.e., "chat*rooms*," "cyber*space*"), and political resources, such as channels of access (i.e., Internet speed, data caps). In positioning themselves, participants perform repetitions of past interactions that are always unique (Warren, 2008), "for each another next first time" (Garfinkel, 1996, p. 10). Below, I elaborate on discourse as a hybrid accomplishment, and then discuss the connection of discourse to authorship.

Discourse as Hybrid Accomplishment

So far, I have considered how communication is the becoming of a particular world out of infinite co-occurent possible worlds through a reconfiguration of matter, causality, and space. I drew upon Latour (2018) and Massey (2005) to suggest that space is not only dynamic, multiple,

simultaneous, and entrained with spatiotemporal rhythms, but agential. In this section, I further develop agency as a hybrid accomplishment, rather than a purely human or material characteristic.

As Norris and Jones (2005) suggest, the first question to ask is: "What are the actions that are being taken here?" (p. 9). The next question to ask is: Which agents are related to that action? In other words, which sociomaterial presences are constituting, constituted by, or implicated through discourse? Just as I have complicated materiality, causality, and space, I now seek to complicate agency. Agency, too, is multiple and co-occurrent, and not limited to human actors (Parish & Hall, 2020). The capacity to act is also the capacity to interpret, and as Parish and Hall point out, "we interpret salient details of actions as indexical of certain sorts of agents" just as we interpret the salient details of agents as indexical of the actions we can expect, demand, or request of them[6] (p. 2). Agency in practice, then, is not only concerned with action but also with the meanings assigned to actions.

I capture the multiplicity of agency with the phrase hybrid accomplishment; other scholars have developed different terms such as hybridity and ventriloquism (Cooren, 2004; Cooren et al., 2013). Everyday interactions involved various sociomaterial actors performing a hybrid agency that itself becomes the origin of action (Cooren, 2004). A starting place of action-with-agency highlights how actors perform stability by standardizing and repeating practices over time and in relation with other agents. One way of conceiving the relationship between agents-in-action is by a ventriloqual approach.

A ventriloqual approach uses the metaphor of the ventriloquist to explain how nonhumans can act with agency without threatening the agency of human actors (Cooren et al., 2013). Cooren (2012) observes how agency oscillates between a ventriloquist and his dummy, sometimes leading

[6] This same sentiment is expressed through the notion of category-bound activity (see Schegloff, 2007).

an audience to "wonder who is the ventriloquist and who is the dummy" (p. 5). The ventriloquist manipulates and animates the dummy, and the dummy in turn animates the ventriloquist as he responds to the dummy's actions. Ventriloquism as an approach to interaction accounts for how humans and nonhumans act through and upon each other, maintaining individual agency as well as contributing to the hybrid agency mentioned above. Take, for example, the role of written texts within an organization. Texts and human agents are relational participants in organizing; human agents are needed to create texts, which then act upon those human agents by constraining or allowing for particular future actions (Smith, 2001). We create and animate texts, just as texts create and animate us (Cooren, 2004).

I hesitate to adopt the ventriloqual approach entirely because its human-centric metaphor risks reifying the human-nonhuman dichotomy, simultaneously privileging speaking and language. Opposing "human" and "nonhuman" is most simply a problem of equivalency — "human" is a much more discrete category than "nonhuman" (Kuhn et al., 2017). "Nonhuman" is far more expansive. Is it animals, rocks, planets, universes, elements? If the latter, a new problem arises: How can the matter which constitutes the human body be reduced, through scientific observation and theorizing, to nonhuman matter? Within environmental discourses, this dualism is even more troubling because of the historical ways in which it has allowed humans to exploit those grouped into the nonhuman category. If humanness is the standard by which all matter is categorized, then anything that fails to meet the requirements of humanness is inherently inferior and deemed unable (or undeserving) to act (Coole & Frost, 2010). As I have already argued, in order to fully include the range of agents and actions which comprise discursive practice, we must adopt a broader understanding of discourse which moves beyond simply spoken or written

language. Gestures, sounds, landscapes, buildings, and objects are also communicative, contributing meaning to discursive events (Burke, 1966; Norris & Jones, 2005).

Orienting toward action and agency as originating with humans leaves one blind to the sociomaterial complexity of any event. Latour (2018) argues it has blinded us to the presence of Earth itself as a stakeholder and political actor, preventing meaningful political transformation. When discourse is seen as a hybrid accomplishment, a relational convergence of agency and action, the criteria for agency is not humanness, intention, or materiality. Agency is simply the ability to mobilize, or be mobilized by, sociomaterial resources in any given situation. First, one must identify the action (what is being accomplished) and then one may begin to interrogate what agential resources are being synthesized in order to do the accomplishing. Further complicating agency is the notion of authority, which I discuss in the next section.

Discourse and Authority

If agency concerns who or what is doing the everyday, authority concerns who or what determines how the everyday should be interpreted. In orienting to authority, I find it helpful to acknowledge that "authority" and "author" share the same Latin root (*auctor*) (Taylor & Van Every, 2000). This is significant because "it means that whoever or whatever is explicitly or implicitly positioned as a figure of authority will also be staged as authoring what is asserted or put forward" (Cooren, 2010, p. 108, emphases in original). In other words, when discussing authority, I am discussing authorship and the politics of representation (Mehan, 1996). Accepting the premise that to be involved in discourse is to be involved in the competition for authorship necessitates an understanding of authority as an asymmetry — dynamic and uneven. Though authority is often treated as an abstraction, interaction scholars have shown authority can be

analyzed as an observable, interactional accomplishment (e.g., Bartesaghi, 2009; Bencherki, Cooren, et al., 2019; Fairclough, 2010; Krippendorff, 1995).

Bencherki and Bourgoin et al. (2019) define authority as concerning "the ability of things to act and the meaning of those actions," and propose what they call a "transductive approach" to account for the way in which "action is carried around through people, artefacts, and other entities" (p. 85). In other words, a transductive approach to authority is one that is oriented to action, so that meaning is not dependent upon human or linguistic action alone. Rather, to enact authority, something need only "contribute to a more complex system of action that provides them with meaning by forming their context" (p. 85). This is similar to Latour's (2018) call to shift from a system of production to a system of engendering. The system of production gave rise to globalization, modernization, and a preoccupation with individual human freedoms. In contrast, the system of engendering is one that first assumes dependence, and from this starting point sets out to engender (become; constitute) all terrestrials[7], and then cultivate attachments among them. Authority, within a transductive approach, can be enacted by a multiplicity of sociomaterial agents, and is dependent upon complex systems of action in which meaning is observable as *what is done.*

Bartesaghi et al. (2019) call attention to the sociomateriality of authority by attending to the way in which participants in spoken discourse mobilize contexts in order to determine what is at stake. Authority here refers to who determines the context — or the moral stakes, set of normative practices, present objects and bodies, or presentified absences[8] — of a given

[7] Latour (2018) presents terrestrials as an alternative way of referring to the agents who populate, constitute, and are constituted by the Critical Zone. He says, "It is perhaps time, in order to stress this point, to stop speaking about humans and to refer instead to *terrestrials* (the Earthbound) …Saying "We are earthbound, we are terrestrials amid terrestrials," *does not lead to the same politics as saying* "We are humans in nature"" (p. 86).

[8] Presentification refers to the way in which extra-local, or *dislocal*, agents are made present by texts and participants in interaction, and come to act upon the situation (Benoit-Barné & Cooren, 2009). By presentified absences I also mean those elements which are "supposedly *absent,* non-apparent, implicit, or transient — such as ideologies, cultural background, or past experiences" (Bartesaghi et al., 2019, p. 18).

interactional episode. Drawing upon my earlier argument about discourse as constituting experience, in authorizing context, agents determine in which world the discourse is operating. For example, in denying climate change, Latour (2018) argues Trump is declaring the United States as belonging to a world in which humans are the ultimate and only agents. Given Earth's ability to react — an ability which we have termed climate change — belonging to such a world is risky, because without acknowledging the agency of Earth, there is no possibility of forging new attachments to it. The world occupied by climate deniers is not the same world occupied by ecologists, but we all must find somewhere to land on the planet we physically occupy. Competition for authority over the broader context, for the very world in which we find ourselves, inevitably ensues.

Earlier, I have called this the politics of representation (Mehan, 1996). Perhaps more fitting, though, would be to refer to the politics of authorization, or the competition to author what counts as real out of the multitude of possible realizations. If discourse is not only linguistic interaction perpetuated by human agents, then it is not really a matter of representing experience, as much as authoring, and authorizing, experience. Authority is always in flux, but through apparent repetitions a given representation of experience is (re)authorized, and therefore solidified, making it more and more difficult to refute. Consider, the opposing poles of Global and Local which Latour (2018) presents as opposing worlds, each moving farther and farther from the other, so that proponents of either world are increasingly unable to interact due to the incommensurability of these two authorizations of experience. To say that discourse is bound up in the politics of authorization is to arrive at what I argue should be the fundamental concern of communication: who gets to decide (out of the many possibilities) the world in which we are operating, and how are those decisions made and enacted? Latour's (2018) New Climatic Regime can now be

understood as the urgent need to constitute a new world, a new authorization of experience oriented not to the Global or Local, but toward a new pole, the Terrestrial. Any representation of experience that constitutes most of its inhabitants as objects rather than agents will not be able to generate lasting transformation; it is only by acknowledging the agency of Earth that there is any potential for growth and change.

Method and Data: A Multimodal, Mediated Approach to Discourse Analysis

Broadly, discourse analysis assumes that language can be analyzed at varying levels of detail, from the "level of the phoneme/morpheme, the word, the clause, or the sentence" to the level of the text, and that language "ought to be analyzed not as an abstract set or rules, but as a tool for social action" (Bhatia et al., 2008, p. 1). These two assumptions are often described as the "language as text" and "language in use" orientations to discourse. More recently, discourse analysis has come to acknowledge language as but one mode out of many possible discursive modes — what Iedema (2003) calls the "multi-semiotic nature" of communication (p. 50; see also, Blommaert, 2013; Ledin & Machin, 2019; Kress, 2012; Norris, 2004; Van Leeuwen, 2011).

Discourse analysis emerged out of linguistics in the mid-20th century, but quickly crossed disciplinary boundaries and gained followings in psychology, sociology, anthropology, communication, philosophy, organizational studies, education, socio-political studies, legal studies, marketing and advertising, and more (Bhatia et al., 2008). These transdisciplinary trajectories have led to the development of several approaches to discourse analysis which guide analysts' focus in particular ways. This study employs discourse analysis in the broader sense, but I do draw from and synthesize multimodal discourse analysis (MMDA) and Mediated Discourse Analysis (MDA). In this section, I explicate my synthetic approach.

First, MMDA and MDA decenter the linguistic mode (Bhatia et al., 2008; Iedema, 2003). By orienting to discourse in this way, I argue that any one mode of communication — such as speech, written texts, nonverbal behaviors, spatial arrangement, non-linguistic sounds, smells, or other means of conveying meaning — is but a part of the complex of interactions that make up discourse (Kress, 2012; van Leeuwen, 2011). While linguistic communication is often a good indication that something is happening and therefore a productive place to begin analysis, analysis must not stop there. The second useful concept of multimodality is the idea of "logics and affordances of modes" (Kress, 2012, p. 38). Certain modes offer particular affordances to interaction, as well as constrain the possibilities of interaction due to their very natures. For example, written texts offer authors an aesthetic capacity for spatial arrangement that spoken communication does not. As such, it is always important to interrogate the implications of our choices, asking what participants make salient by drawing upon particular modes. As van Leeuwen (2011) astutely observes, "even when two modes can realize the same meaning, each will add its own overtones and resonances" (p. 673). Communication is inherently multimodal (Iedema, 2003), which is to say that within any communicative event there are multiple modes simultaneously contributing to the texture of the discourse; a discourse analysis concerned with multimodality should attend to how they are related in the realization of meaning.

Any one mode specifically, and discourse more broadly, is significant because of what it *does* and what is *done through* it; in other words, discourse is significant because it is mediational. Broadening what counts as discursive practice and who counts as participants in discourse calls for a unit of analysis other than language (as text and/or in use). I draw on MDA to reorient to action as the starting point of analysis (Norris & Jones, 2005). In other words, I use MDA's focus on action as the unit of analysis to develop a set of (somewhat sequential) questions to guide my

analysis: (1) What is being done here? (2) Who or what is involved in this doing? (3) How are they accomplishing this doing (or not)? MDA holds that there is no unmediated access to the world; to understand how something is mediated and by what means is to understand how something is constituted in the moment of interaction.

Below, I introduce the data I have chosen for analysis, and explain why I chose these data. The data analyzed in this dissertation were not considered human subjects research by the University of South Florida Institutional Review Board (IRB) since all of the data chosen are publicly available. Therefore, this project did not require IRB oversight. Per the IRB's instruction, however, any identifying information in the spoken data transcripts (e.g., names, exact titles) was omitted or changed to protect privacy.

Land: Analyzing Legal Texts

My interest in the legal constitution of public land in the United States was what first inspired this project. I was especially interested in the historical practices of constituting land as property, and the ways in which legal texts remain relevant and perpetuate 19th century ideas about land, dwelling, and property. At the time I was beginning to write the proposal for this project in early 2019, the federal government was undergoing a shutdown — during the shutdown, federal public lands remained accessible to the public, but were unstaffed, leading to vandalism and pollution and causing irreversible damage to historically and scientifically important environments (Wernick, 2019). As a result, there were many public conversations in the news media, on social media, and among environmental advocacy groups about the role of public lands, acceptable behavior within them, and how we ought to negotiate accountability in relation to accessing and maintaining public lands. From these conversations I began to notice that public land is a very particular type of institutionally authorized land, mediated significantly by legal texts which define

what counts as "public land," how a given area may become "public land," and who is responsible for participating in the making and managing of an area designated to be "public land."

Legal texts are highly intertextual, linking back to texts from the earliest days of this nation, recontextualizing the 19th century ideologies which those early texts espouse into our 21st century texts and practices. This intertextuality is most clear in the practices of designating a national monument via presidential proclamation, as established by the Antiquities Act of 1906. When designating a national monument, accountability and authority are made explicit through an enacting clause which names both the source of authority authorizing the action and the agent accountable for it. Because of this, the process transforms an environment, and thus our relationship to it, with relatively little justification beyond this explicit statement of authority and accountability. As such, the legal status of an environment is subject to rapid change depending on the agenda of the acting president.

In recent years, this rapid creation and transformation of land has been most evident (and most contentious) in the case of Bears Ears National Monument in Southern Utah. Bears Ears National Monument is a result of "the first successful Native American-led campaign for a national monument in U.S. history" (Grand Canyon Trust, n.d.), and Obama's proclamation establishing Bears Ears is the first to mandate collaborative management of a national monument with tribal nations (Wilkinson, 2018). Bears Ears is also significant because Trump's proclamation modifying Bears Ears National Monument (along with his proclamation modifying Grand Staircase Escalante National Monument, signed and announced at the same time) is the largest reversal of national monument protections in U.S. history (Gonzales et al., 2017). I chose to look at the three texts responsible for authorizing, creating, and transforming an area of federally owned and managed land in Southern Utah into Bears Ears National Monument: The Antiquities Act of 1906, Barack

Obama's Presidential Proclamation Establishing Bears Ears National Monument, and Donald Trump's Presidential Proclamation Modifying Bears Ears National Monument. Obama's and Trump's proclamations both concern the same land and were issued only one year apart, indicating that the transformation of Bears Ears, and our possibilities for relating to it, are fundamentally discursive. In my analysis, I focus on moments of intertextuality to understand how authority and accountability are negotiated by mobilizing (speaking for and/or through) voices in the text, to recontextualize Ravotas and Berkenkotter's (1998) phrase. In addition to demonstrating how legal texts mediate our encounters with environments, I also consider the critical implications of legal texts to shape (and be shaped by) our relationships and actions with/in an environment.

Weather: Analyzing a Hurricane's Presence on Twitter

Later in 2019, the U.S. experienced another environmental controversy which brought explicit attention to our practices of representing (mediating, constituting) the weather — in particular, a hurricane. The case of Hurricane Dorian and Sharpiegate provide an opportunity to understand how visuality is integral to the constitution of a hurricane on social media. Visual texts paired with linguistic accounts of viewing draw upon accepted practices of looking and seeing which authorize a particular account of what is seen as a claim to what is real (Jones, 2020; Mirzoeff, 2011). Our interaction with Dorian is mediated by our visual representations of Dorian which we interpret as directly corresponding to the physical storm actually out there — accepted practices such as the two-dimensional, birds-eye-view logic of cartography (Hsu, 2014), trusted viewers such as satellites (Parks, 2001), and assumptions about the objectivity of the material world (Sontag, 2001) mediate our interaction with Dorian by lending authority to these visual materializations — and thus we position our responses to these visual iterations of Dorian as being in response to Dorian, the storm itself.

Though Sharpiegate was discussed widely in the media and in public discourse, I have chosen to focus on the three tweets which were most often cited as being the core events of the controversy, as well as two relevant tweets from Trump before the start of the controversy and responding to its emergence. The five tweets are as follows:

1. Donald Trump's August 31, 2019 tweet (Figure 4) which begins, "I am monitoring Hurricane Dorian and receiving frequent briefings and updates."
2. Donald Trump's September 1, 2019 tweet (Figure 5) which started the controversy and begins, "In addition to Florida – South Carolina, North Carolina, Georgia, and Alabama, will most likely be hit (much) harder than anticipated."
3. National Weather Service Birmingham's September 1, 2019 tweet (Figure 6) which begins, "Alabama will NOT see any impacts from #Dorian."
4. The White House's September 4, 2019 tweet (Figure 7) of a clip from an Oval Office press briefing captioned "President @realDonaldTrump gives an update on Hurricane #Dorian."
5. Donald Trump's September 4, 2019 tweet (Figure 8) of a spaghetti model which begins "This was the originally projected path of the Hurricane in its early stages."

Twitter offers multimodal means of mediating an utterance which are not available in, say, legal texts or spoken discourse (Squires, 2015); retweets, @mentions, hashtags, and the inclusion of images in addition to text offer significant opportunities for recontextualization — quite literally linking readers via a hyperlink function to other speakers, contexts, or discourses. My analysis considers how these varied mediational means enable speakers to constitute collective viewing experiences across spatiotemporal boundaries by authorizing an account of what is seen as the account of what is.

Climate: Analyzing the Spoken Discourse of a Professional Conference

In addition to being interested in how we constitute environmental phenomena at the national level, I wanted to examine how we do so in localized settings. One such opportunity arose as I was preparing my proposal, the "Science, Strategies, and Solutions: Addressing Climate Change in Tampa Bay" public conference, sponsored by the USF STEM Collaborative and held in downtown Tampa November 1, 2019. The data from that conference were rich enough to have inspired their own dissertation, so I made the decision to initially focus on those moments when participants explicitly mentioned "climate change" in an effort to understand what that term meant to them. My analysis attends closely to speakers' utterances to identify the discursive strategies they use to construct coherent, professional narratives of climate change.

I argue that the phrase "climate change" is functionally a shell (e.g., Schmid, 2018; Smith, 2005) — a semantically empty vehicle for mediating action which must itself be mediated by some other discursive resource which provides meaning and context. For the participants, practices of membership categorization (see Schegloff, 2007) fill in the meaning of climate change by positioning participants as members of professional identity categories concerned with climate change. In addition to the mediational means employed in spoken discourse, I also consider how the format of the conference itself mediates what climate change comes to mean, both in the broader sense of a professional conference and in the more specific sense of imposing three predetermined identity categories: elected officials, scientist researchers, and government and private practitioners.

Conclusion

In this chapter, I have described my understanding of communication as discursive practice, what discourse does, and why an understanding of communication as discursive practice

productively explains the plurality and simultaneity of agency and action. I explained my approach to the analysis of discursive data as informed by multimodality and mediation and previewed the data I analyze and my rationale for selecting them. As a study on the communicative constitution of environment, it is important to contextualize my research not only within the communication literature as I have in this initial chapter, but also within the vast literature on environment and environmental studies. In the following chapter I review scholarly approaches to studying and constituting the environment. I then consider what might be gained through an inclusive theory of environmental phenomena as hybrid accomplishments in empirical analysis.

CHAPTER TWO:

ENVIRONMENTAL DISCOURSE

Since the 1960s, "the environment" has become an increasingly prominent subject of scholarly research, social organizing, news coverage, and political debate (Hansen, 2011). In the Western world, "the environment" is the dominant term for what is often considered "the natural world" (Milstein, 2009), and as Hochman (1997) points out, it has "increasingly come to mean a nature tangibly important only to human health or livelihood" (p. 88). Within the field of communication, environmental critiques first emerged from the rhetorical tradition in the 1980s (Milstein, 2009; Oravec, 1984), and environmental communication has since developed into its own subfield with divisions in the National and International Communication Associations, and the creation of the *Environmental Communication* journal in 2007. Most importantly, to adapt a phrase of Hulme's (2017), *there can be no unmediated access to environment.* There is not a distinct physical and social environment, but rather a sociomaterial environment that comes to matter through discursive practice. Environment, in short, is constituted in communication. In this chapter, I discuss our historical relationship with and popular ways of constituting environment in the United States. I then provide discussions specific to the environmental phenomena I consider in the analytical chapters: land, weather, and climate.

Constituting Environment

Most environmental communication scholars agree that environmental communication is foremost concerned with the relational dynamic between humans and their environments

(Milstein, 2009). Pezzullo and Cox (2018), in their introductory text to environmental communication, define it as "the pragmatic and constitutive modes of expression — the naming, shaping, orienting, and negotiating — of our ecological relationships in the world, including those with nonhuman systems, elements, and species" (p. 13). Emerging in the 1980s, environmental communication is part of an ongoing struggle (because we make it one) to position ourselves relationally in a coherent and structured universe. I say that we make it a struggle because it is through discourse that we materialize relationships and more consequentially, evaluate the meaning and moral quality of particular relationships. Several identifiable traditions of relating to the Earth include wilderness, the sublime, preservation, conservation, ecology, environmental justice, and climate.

Wilderness

The concept of wilderness originates from the Judaeo-Christian and Greco-Roman traditions. The term itself developed from the Anglo-Saxon "wilddeoren," which referred to places "where 'deoren' or beasts existed beyond the boundaries of cultivation" (Garrard, 2012, p.67). After eating the apple, Adam and Eve are banished from Eden into the wilderness. Wilderness, then, represented all that is evil, untamed, violent, unpredictable, inhospitable, and uncivilized. The wilderness was, quite literally, the dark, and civilization, the light. This is not to suggest, however, that interactions with wilderness were not desirable or valuable — as Garrard points out, "early Christian hermits went to the deserts" where they experienced spiritual revelation, so "the Judaeo-Christian conception of wilderness, then, combines connotations of trial and danger with freedom, redemption, and purity, meanings that, in varying degrees, it still has" (p. 68). Importantly, this orientation positions humans in opposition with wilderness — humans are

morally called to tame, and therefore make useful, the wilderness, but the wilderness resists relentlessly. This struggle, of course, relies on the differentiation of humans from wilderness.

The Sublime

By the mid-19th century, humans had tamed much of the wilderness and the majority of Americans lived in urban settings. Thus "removed from the day-to-day hardships of living in rural areas" (Pezzullo & Cox, 2017, p. 31), people were more inclined to view the wilderness as a place of retreat. The writings of Henry David Thoreau championed the sublime quality of wild nature, equating the awe that some experienced in wild spaces to a spiritual encounter; to be in the wilderness was to be in the presence of God. At the same time, the growth of mass production and construction of large-scale infrastructure, such as telegraph lines and railroads, was leading to the widespread destruction of forests, mountains, and waterways. After being elevated by Thoreau and the romantic movement for its aesthetic and spiritual value, the wilderness became something we might lose, and that loss would be to our detriment (Moscovici et al., 2015).

More unique to the United States' environmental origin story was the sense that the American wildernesses were our national treasures (Pezzullo & Cox, 2017), the equivalent of what ancient ruins, castles, monuments, and cathedrals were for Europe. This nationalistic orientation to the American landscape found expression in the art of the Hudson River School and the writings of Thomas Cole. It was revived with the "See America First" tourism campaign, initiated by the railroads and later appropriated by the automobile industry in the early twentieth century. This nationalistic relationship to wilderness, as not only reflective but formative of the very character of America, along with the impact of the 19th century philosophy of transcendentalism, made the environment matter intrinsically, worthy of protection not only for the sake of its monetary value, but for its own sake.

Preservation

Inspired by the writings of Thoreau, John Muir is often credited as beginning the preservation movement in the United States, leading some of the first environmental campaigns to preserve the Yosemite Valley. Preservation sought to protect environments like "national museums that attempt to keep the land as close as possible to the state that existed prior to North America's colonization" (Moscovici et al., 2015), with the key difference between the preserved wildernesses and the wilderness before colonial invasion being the removal of humans. The absence of human inhabitants was a key facet of the Congressional definition of wilderness used in the Wilderness Act of 1964, and though many of the preserved wildernesses in the Midwest and Western states were never settled by colonists or early Americans (and Native populations had been removed from them long ago), national parks and forests along the East coast of the U.S., such as Shenandoah National Park, were often formed using eminent domain in the 1920s and 30s to remove residents (often low-income, minority communities, who had inhabited the rural environments for generations).

Preservationists advocated for the protection of America's wildernesses so that generations of Americans to come could experience the sublimity of them. Movements and organizations dedicated to protecting America's natural spaces quickly formed in the decades surrounding the turn of the 20th century. Women's groups, such as Laura White and the California Federation of Women's Clubs, played an important role in early preservation campaigns (West, 1992). Other groups included the Sierra Club in 1892, the Audubon Society in 1905, the Save the Redwoods League in 1918, the National Parks and Conservation Association in 1919, and later, the Wilderness Society in 1930, and the National Wildlife Federation in 1936. Legislation such as the Forest Reserve Act of 1891 and Antiquities Act of 1906 gave the president power to preserve land

as forests and national monuments. Congress designated the first national park, Yellowstone National Park, in 1872, and by the time the Organic Act forming the National Park Service was passed in 1916, the Department of Interior oversaw 37 national parks, national monuments, and reservations.

Conservation

As environments were set aside for preservation, a competing discourse emerged that "promoted economic gain[9] as the primary value to arbitrate contested environmental decisions": conservation (Pezzullo & Cox, 2017, p. 35). Whereas preservationist movements took their underlying assumptions from the philosophy of transcendentalism, conservationism movements were informed by a utilitarian moral philosophy which sought to manage the environment so as to maximize the greatest good for the greatest number of Americans. The phrase "wise use" is widely associated with the conservation movement, a sentiment which today exists in the multiple use mandate of the Federal Land Policy and Management Act of 1976. Conservationist ideals are most commonly associated with Gifford Pinchot, fourth Chief of Theodore Roosevelt's Division of Forestry and the first head of the United States Forest Service.

The oppositional positioning of preservationism and conservationism is often attributed to the public debate over the building of a dam in Hetch Hetchy Valley in Yosemite National Park. Preservationists argued that damming the river and flooding the valley would result in permanent destruction of a unique environment which, as part of a national park, deserved Congressional protection. Conservationists argued that the need to supply water for residents justified the City of

[9] Though Fourcade (2011) reminds us that "economic valuation processes are eminently contingent — on local politics, time period, or social context" (p. 1724). Economic gain, and what is valuable as an economic resource, is very much done in discourse and therefore entangled in sociomaterial, communicative practices of meaning and mattering.

San Francisco's proposal for the dam. The debate, which began in 1901 with the initial dam proposal, took place in Congress between 1908 and 1913, ending with the approval and construction of the dam.

Ecology

Also emerging at the turn of the twentieth century is the discourse of ecology, a term coined by the German artist and scientist Ernst Haeckel in 1904 to describe "the study of how an organism relates with its exterior world" (Pezzullo & Cox, 2017, p. 35). Ecologists developed a scientific approach to environment grounded in the observation of the relational dynamics of environments. The concepts of adaptation and resilience[10] come from the discourse of ecology, which concerns itself with organisms and life cycles. By studying the relationships within an environment, ecologists claimed to be able to elicit the needs of species and determine their thresholds for adaptation, offering evidence-based approaches to preservation and conservation efforts.

Ecology also implicates humans as just another category of organism fighting to adapt and thrive in their environment. Humans, as well as wildlife and landscapes, then, are vulnerable to ecological degradation and exploitation. Thus, the ecological movement of the 1960s and 70s was mediated by concerns about public health and toxicity was introduced as an important environmental matter. Rachel Carson's (1962) publication of *Silent Spring* sparked concern over the toxicity of pesticides and chemical pollutants, especially the chemical Dichlorodiphenyltrichloroethane, commonly known as DDT. Beginning in the 1940s, DDT was used as an agricultural insecticide to control the mosquito population and lessen the spread of insect-borne illnesses such as malaria and typhus. However, reports of it killing birds, fish, and

[10] In the last decade, the ecological concepts of adaptation, and more significantly, of "resilience," have become a popular metaphor for describing any dynamic complex of relationships (e.g., organizations) not just environmental systems (Aldunce et al., 2015; Fisichelli et al., 2016; Mitra, 2014; Mitra & Buzzanell, 2015).

beneficial insects like pollinators, as well as evidence of the poisonous effect of pesticides on the human body, led Carson to say of pesticides, “Can anyone believe it is possible to lay down such a barrage of poisons on the surface of the earth without making it unfit for all life? They should not be called “insecticides,” but “biocides.”” (p. 8).

Silent Spring alerted Americans to the widespread pollution of water and air, and the poisonous possibilities of chemicals in our food. This triggered the modern environmental movement, as advocates and policymakers moved to clean up the mess we had made of the environment in the first half of the 20th century (Pezzullo & Cox, 2017). The 1970s saw a wave of environmental policies, such as the National Environmental Policy Act and the Clean Air Act, the creation of the Environmental Protection Agency, and the celebration of the first Earth Day. A more radical interpretation of ecology, deep ecology, advocated the intrinsic value of the environment beyond its usefulness to humans and argued the need for long-term global population reduction in order to lessen the burden of humans on the planet (Garrard, 2012).

Another change in the 1960s drastically shifted our view of the environment — space travel, satellites, and the first image of the Earth taken from space (Szerszynski & Urry, 2006). For the first time, we were able to observe the planet as a whole. Seeing the Earth from so far away shifted the scale of human existence to that of the Universe — the vastness of space and the size of planetary objects served as reference points which made humans and our practices seem small. The Earth could no longer be thought of as an endless cornucopia of resources because seeing it against the black backdrop of space gave it clear boundaries. The focus of the environmental movement shifted from protecting particular environments for preservation or conservation to protecting the entire planet. This global orientation crystallized in 1988 when the United Nations General Assembly formed the Intergovernmental Panel on Climate Change (IPCC) (Miller, 2004).

Environmental Justice

The co-occurrence of the environmental movement with the second wave of feminism and the civil rights movement led many to draw connections between the political and social oppression experienced by minority groups and the burden of environmental pollution (Pezzullo & Cox, 2017). For the first time America was confronting its legacy of environmental racism (Bullard, 2000; UCC Commission for Racial Justice, 1987) — the phrase coined to describe how land development decisions routinely located toxic and polluting infrastructure in or near communities of color and low-income communities. This includes everything from landfills and toxic waste sites to the construction of urban highways, and the lifespan of such infrastructure has made this an enduring problem.

Another justice-oriented position, ecofeminism, emerged out of second wave feminism and draws parallels between "the twin dominations of women and nature" (Warren, 1993, p. 253). The term ecofeminism first appeared in 1974 in Françoise d'Eaubonne's work that held patriarchal systems of power responsible for environmental degradation (Howell, 1997; Warren, 1993). In the English-speaking world, Carolyn Merchant's (1980/1990) historical critique is an important ecofeminist text. Ecofeminism finds commonalities between the dualisms of woman/man and nature/human, and an ecofeminist ethic is one that values diversity and connection, since interdependence and interrelatedness are vital to ecological survival (Garrard, 2012; Howell, 1997; Swanson, 2015; Warren, 1993). As Merchant (1980/1990) argues, "If nature and women, Indians and blacks are to be liberated from the strictures of this [androcentric] ideology, a radical critique of the very categories nature and culture, as organizing concepts in all disciplines, must be undertaken" (p. 144). In the effort to replace anthropocentric, androcentric, and racist representations of nature, some ecofeminists — as well as deep ecologists — have presented the

Earth as Gaia, the name of the ancient Greek Earth-goddess "to counter the inflection of the Earth as a technologically and economically enframed globe" (Garrard, 2012, p. 199).

Critiquing Environmental Discourse

Debate about the nature/culture binary is at the heart of environmental communication scholarship. Williams (1980) was among the first to conduct a systematic historical analysis of the nature/culture binary, tracing the separation of humans from nature in philosophical and political traditions in the Western world from ancient to modern times. Williams connects the development of a singular "Nature" with the development of monotheistic, particularly Christian, religion. Once nature was consolidated, abstracted, and personified into the singular Nature, it became easier for humans to objectify and observe it. Williams notes that this was possible, in part, because of the simultaneous abstraction of Man, which led to generalized ideas of Man's ability (and perhaps obligation) to intervene in natural processes. That intervention "depended on seeing nature quite clearly, and even coldly as a set of objects, on which men could operate" (p. 76). Williams makes a Marxist critique of the division of humans from nature, referencing Locke's defense of private property "based on the natural right of a man to that with which he has mixed his own labor," since "the very marks and stains of the mixing were in effect a definition of being propertyless" (p. 76). For Williams, Locke's argument about mixing human labor with the earth demonstrates the danger of considering natural and social histories as being separate — the result is a dangerous concealment of the bodies and environments which bear the burdens of development and progress.

While Williams draws connections with religion to explain the nature/culture divide, Oravec (1984) turns to political ideology to account for the triumph of conservationism over preservationism. According to Oravec's analysis, conservationist arguments were more persuasive because of the dominance of social progressivism in political discourse, an orientation which was

decidedly anthropocentric. Preservationist arguments, in treating nature and humans as equally worthy of protection, were "inherently contrary to the prevailing social system" which privileged human needs. The triumph of conservationism over preservationism reinforces the nature/culture divide by positioning human needs as at odds with and superior to the needs of the environment.

Cronon's (1996) seminal essay "The Trouble with Wilderness" takes up the nature/culture binary through an environmental history lens which exposes "wilderness" as a communicative accomplishment, rather than an innate characteristic of particular environments. He argues:

> There is nothing natural about the concept of wilderness. It is entirely a creation of the culture that holds it dear, a product of the very history it seeks to deny… The flight from history that is very nearly the core of wilderness represents the false hope of an escape from responsibility, the illusion that we can somehow wipe clean the slate of our past and return to the tabula rasa that supposedly existed before we began to leave our marks on the world. (p. 16)

Cronon calls attention to the ways in which "wilderness" is more reflective of a culture's values than it is of that amorphous thing we so often call "nature." The significance of Cronon's argument is to challenge the idea that there is an objective "nature" somewhere out there, free of human intervention[11].

Other scholars have sought to challenge the nature/culture binary by drawing connections to related problematic binaries. As I already mentioned, the ecofeminist project seeks to identify and dismantle harmful woman-nature connections, replacing an ethic of androcentric and anthropocentric domination with one of care, inclusivity, and intrinsic worth (Howell, 1997; Swanson, 2015; Warren, 1993). Another thread of scholarship has used the dichotomies of

[11] See also, Harvey's (1996) argument that "there is nothing *unnatural* about New York City" (p. 186, emphasis in original).

eater/eaten and predator/prey, both of which are particular iterations of the classic subject/object dualism, as a means of getting at the nature/culture issue (e.g., Plumwood, 1995; Schutten, 2008; Barnet, 2018).

Another means of getting at the nature/culture divide is through the notion of boundaries. British anthropologist Tim Ingold (2008) states that most often, "environment" is "that which *surrounds* the organism" (p. 1807). The problem with a definition that makes "environment" synonymous with "surrounding" is that it necessitates boundaries, between the organism doing the inhabiting, and the environment in which that inhabiting takes place. Environment, then, is rendered as no more than setting — a backdrop upon which action takes place — itself devoid of agency until populated by organisms. According to Ingold, the environment-as-surroundings definition is possible because of the logic of inversion that has come to characterize our understanding of the world:

> Life, according to this logic, is reduced to an internal property of things that *occupy* the world but do not properly *inhabit* it. A world that is occupied…is furnished with already-existing things. But one that is inhabited is woven from the strands of their continual coming-into-being. (p. 1797)

So, in drawing boundaries, effectively closing off beings from the entanglements which actually make them, the logic of inversion presents a world where distinctions are not only made, but they are required for the ordering of experience.

Latour (2018) expresses similar concerns, explicitly calling for "a period of unpacking in order to refine the representation of the landscapes in which the geo-social struggles are situated, before recomposing them" (p. 94). He argues that for most of human history, we have been on a trajectory from the Local to the Global, where the Global is characterized by globalization,

externalization, and a system of production. Globalization can refer to both "a tendency toward multiplied viewpoints" and "a contradictory tendency toward a single vision…imposed on everyone and spread everywhere" (p. 13). The single vision, which is not at all representative of the variety of interests in the globe it purports to represent, favors an external view of the world. In other words, "to know is to know from the outside" (p. 68), and preferably, one should seek to know "*from far away*" (p. 66). Such an external understanding of the world gave rise to what Latour calls the *system of production*. Rooted in mechanistic explanations, a division between human actors and their resources, and individual human freedom, the system of production calls for a science which understands the world from farther and farther away, seeing nature-as-universe — a sort of telescopic understanding which can be traced from the subatomic building blocks of matter, to the macroscopic arrangements of matter into solar systems, galaxies, and ultimately, the universe. In this section I have discussed relevant critiques of environmental discourses, most commonly on the basis of their anthropocentrism. In the following sections I provide more detailed context from the literature for the analytical chapters on land, weather, and climate.

Land and the Mediation of Law

In Chapter 3, I consider how legal discourse materializes and mediates environments. The fundamental assumptions underlying our orientation to land in the United States come from a legacy of British governance, Enlightenment ideals, and capitalism (Graham, 2010; Maley, 1994/2013; Platt, 2014). From these traditions, we have inherited two ways of relating to land — as power, and as property. In this section, I describe the historical origins of our relationship to land and the underlying assumptions which continue to characterize our interactions with it.

Land as Power: Feudalism and the Commons

Before the development of a land market in which land was assigned economic value, land was principally valued for its direct connection to political participation (Graham, 2010). During the feudal period, possessing land was an indication of identity and social status — any economic value of the land was secondary, since land was held by and ultimately subject to the sovereign power, the monarch or emperor (Graham, 2010; Platt, 2014). Possessing land meant entrance into those discursive spaces in which governing took place. In other words, land supplied the foundation of claims to authority.

Those who did not possess land in the Middle Ages, the peasants or commoners, benefited from the commons — that land which was not viable for crops or grazing and was publicly accessible (Graham, 2010; Platt, 2014). Under feudalism, there were three designations for land: arable land (for crops), green commons (for grazing), or waste lands (Platt, 2014). Waste lands included woods, wetlands, ponds, heathland, peatbogs, or other environments which were not suited for cultivation (Groenman-Van Waateringe, 1996). Commoners were allowed to gather resources for personal use from these communal spaces, collecting various fuel and fodder such as firewood, peat, and vegetation like straw, fruit, and nuts. Though use of the commons was sometimes governed by laws as to when gathering could take place, how much one could take, and for what uses collection was permitted, the resulting relationship between people and the land on which they dwelled was, in the short term, self-perpetuating and sustainable (Platt, 2014). However, Moore (2002) notes that "the lord-peasant relation was fundamentally antagonistic to long-run ecological sustainability" especially since population growth was encouraged to the detriment of the commons, leading to a "feudal system of production [that] exhausted the soil, which led to malnutrition" and contributed to the spread of disease (p. 304).

Land as Property: Capitalism and Commodification

Feudalism was gradually replaced by the new emerging economic system: capitalism (Graham, 2010). The commons, those public spaces which supplied the resource needs of communities, became private property through legal seizure, enclosure[12], and communal land use practices were deemed illegal. Land became private property, defined by a relationship of owner to object; humans were made distinct from their environments, and environments were reduced to abstract arrangements of *persons* and *things.* Whereas the feudal system of land was locally based, shaped by the particular geographies in which people dwelled, the capitalist system sees land as an abstract commodity, "infinitely tradeable, limited neither spatially nor temporally" (p. 7).

As the value of land became objectified and globalized, so too did the laws which governed the relationship between people and their property (Graham, 2010). This relationship is one of abstract rights, in which an owner "possesses the right to, and over, a thing" (p. 38). The land is all but irrelevant to this arrangement — modern property law is dephysicalized, meaning the value of the land is not located in its materiality, but in its commodification. Property law thus developed to protect "the standardized rights and wealth of the private realm independent of location" (p. 60). The discourse of property law renders land placeless.

Public Lands Law

In the U.S., public land was initially synonymous with "public domain" land, and it included all that land which, in the absence of private ownership, had defaulted to federal control (BLM, 2018; n.d.; Sowards, 2017). In other words, it was that land which had not yet been given over to improvement in the Lockean sense, either through sale, grant, or claim. Early land law fostered improvement by creating processes for dispersing land to those who would improve it,

[12] "Enclosure is the name given to the process of enclosing and appropriating land — hitherto worked and enjoyed by a peasant community in common — usually with a hedge, fence, or other physical boundary" (Graham, 2010, p. 51).

but by the mid-nineteenth century, it became apparent that hunters, squatters, and poachers were taking advantage of public domain lands at the expense of the government (Knowlden, 2018). Toward the end of the nineteenth century, Congress began discussing how to address the issue of land frauds, or "the illegal purchase or deceit in the homesteading of Federal land" (Williams, 2005; p.8). At the same time, resource depletion became a concern for the nation which previously had enjoyed a veritable cornucopia of abundance (Britton-Purdy, 2018). As a result, Congress passed the first piece of legislation with the purpose of protecting land from private improvement: The Forest Reserve Act of 1891, which authorized the president to declare areas of forested public domain land as public reservations. Under the authority of the Forest Reserve Act, presidents designated millions of acres as forest reserves. The need to manage those reserves led to the formation of the National Forest Commission in 1896, the predecessor of the United States Department of Agriculture Forest Service.

The Antiquities Act of 1906 was another piece of public land legislation which sought to address fraudulent land use, though instead of forests, it sought to protect objects of cultural or scientific value (Knowlden, 2018). Pot hunting — the vandalism and theft of Indigenous archeological sites and objects — was widespread. By the beginning of the twentieth century, "large numbers of artifacts, such as pottery and tools, were being taken from prehistoric ruins and sold to museums or private collectors" (p. 595). Those concerned cited the finite number of artifacts and archeologists' preference to study of those artifacts in their original environment to lend the situation urgency and call for legislation which would protect prehistoric and historic sites. After multiple competing bills were debated in the House and the Senate beginning in 1904, the final legislation passed in 1906 and grants the president authority to declare areas of public land

with historical or scientific significance, or upon which are situated objects of historical or scientific value, as national monuments.

Both the Forest Reserve Act and Antiquities Act emerged out of an urgent need to protect environmental resources, and this urgency explains why the Acts authorize the president to designate public lands for protection, rather than Congress (Knowlden, 2018). Congressional action was deemed too slow — lawmakers feared that if action was dependent upon the long process of legislation in the House and the Senate, it would come too late. Historically, executive orders and proclamations have been controversial, in large part because "the Constitution contains no provision stating that the president has power" to issue them (Cooper, 1986, p, 236). Rather, the practice stems from the precedent set by George Washington. Given that an executive order or proclamation is unilaterally issued by the President, it is a much more efficient means of creating and enacting administrative law than the legislative process of Congress. For this reason, executive mandates are most common during times of emergency, when the need for swift action compels the bypassing of legislative practice. Critics of executive mandates, however, fear that the practice has become too widespread, enabling the president to circumvent vital democratic processes (Cooper, 1986; Knowlden, 2018).

Many Western landowners saw these Acts as threats to their private property rights and objected to the large size of reserves and monuments. For instance, after President Franklin D. Roosevelt designated Jackson Hole National Monument in 1943, an amendment was added to the Antiquities Act prohibiting the creation of national monuments in Wyoming except by Congressional action. Presidential power to declare forest reserves was rescinded by the passage of the Fulton Amendment[13], an amendment to the 1907 annual agricultural appropriations bill,

[13] The Fulton Amendment also involved a change in terminology, changing "forest reserves" to "national forests" (Williams, 2005).

which "gave Congress alone the authority to establish reserves" (Williams, 2005, p. 25). Therefore, the Antiquities Act is the only remaining legislation which gives the president unilateral power to protect public lands.

Retaining Public Lands: The Federal Land Policy and Management Act

In the 20th Century, public land expanded from being synonymous with the public domain to indicate land that was held in trust by the government to benefit the American people (Sowards, 2017). Additional legislation between 1916 and 1955 continued to provide for the sale or lease of public land to states or private interests for the purposes of recreation, mineral and natural resource extraction, settlement, and cultivation (BLM, n.d.). It was not until 1976, with the enactment of the Federal Land Policy and Management Act (FLPMA) and the concurrent repeal of the Homestead Act, that the primary purpose of public land shifted from land sales to land preservation. The FLPMA sets the precedent of retaining public lands in federal ownership, to be managed and sustained on behalf of the American people by the Bureau of Land Management (BLM) (BLM, n.d.; BLM & Office of the Solicitor, 2001; PLF, 2014).

In addition to national monuments and national forests, public lands in the U.S. can take the form of national parks, national wildlife refuges, national historic sites, national conservation areas, wilderness areas, national memorials, national battlefields, national recreation areas, wild and scenic rivers, national seashores and national lakeshores, and national trails (U.S. Department of the Interior, 2016). Each designation carries implications for how that land is to be managed or utilized, with some calling for absolute preservation of natural ecosystems, and others allowing responsible conservation and use of natural resources. Management of these public lands fall to the BLM, the United States Fish and Wildlife Service, and the National Park Service under the

Department of the Interior, and the United States Forest Service under the Department of Agriculture.

Weather and the Constitution of Hurricanes

In Chapter 4, I consider how scientific discourse and practices of observation materialize and mediate hurricanes. According to Longshore (2008), "hurricane is the regional term given to those mature tropical cyclones that originate over the North Atlantic Ocean" (p. 59). Tropical cyclones occur elsewhere on the planet, notably over the North Pacific Ocean where they are called typhoons, and over the Arabian Sea, the Bay of Bengal, and the Indian Ocean where they are called cyclones. Though hurricanes tend to occur less frequently than typhoons or cyclones, they can be remarkably powerful and "some of the lowest barometric pressures[14] ever recorded have been observed in hurricanes" (p. 244). In the United States, "hurricane season" lasts from June through November, though the most destructive storms tend to occur in September as this is when ocean temperatures reach their peak. For the last six years, however, "named systems have formed in the Atlantic prior to the official start of the season," leading the National Hurricane Center to announce in late February 2021 that it will issue Tropical Weather Outlooks beginning on May 15 (Allen, 2021).

Hurricanes are organized interactions of materials and forces marked not by their stability, but by their dynamism. How we have understood and engaged with hurricanes has changed as our discursive and technological resources have changed (Arffman, 2019). The term "hurricane" is thought to have originated from indigenous cultures' names for the god of wind or tempests;

[14] Barometric pressure is often referred to as atmospheric pressure, and "is the weight per unit area of the entire mass of air above a certain point of Earth's surface" (Longshore, 2008, p. 42). Barometric pressure is largely responsible for the material processes of exchange and transformation which form and sustain a hurricane. As barometric pressure drops, wind speeds intensify, so barometric pressure is often used to gauge the strength and potential danger of a hurricane.

huracan to the Taino people of Puerto Rico, *hun-raken* to the Mayans, and *hyroacan* to the Galibi people of French Guiana (Longshore, 2008). Though we now consider hurricanes a natural phenomenon, for early civilizations, they were *super*natural, a tool of the gods.

Prior to modernization, humans had little to no way of predicting hurricanes, and so their interaction with them was limited to the moments just before, as well as the experiences during, and after, landfall. The invention of the telegraph in 1840 changed this, as it allowed atmospheric activity to be communicated between locations, so that areas experiencing severe weather could warn those toward which it was moving (Arffman, 2019; Williams, 2013). The instalment of underwater telegraph cables in the 1890s added still more forecasting capabilities, since the continental U.S. could receive weather information from island nations and outposts

Constituting Hurricanes in Scientific Discourse

In the 20th century, as we developed technologies such as radar and satellites for measuring and observing atmospheric phenomena, hurricanes lost the fantastic connection to the supernatural and instead became the domain of the "natural" sciences. A hurricane could now be defined as "a warm core of low barometric pressure surrounded by winds that rotate in a counter-clockwise direction" (Longshore, 2008, p. 243), and could be described using a technical vocabulary. In my presentation of the scientific narrative of a hurricane's development, I have italicized important elements of this technical vocabulary to bring attention to how their reified constructs mediate our encounter with any given storm. Hurricanes often begin as *tropical waves,* areas of *low pressure* formed when dry air is carried westward across the deserts of northern Africa to the Atlantic where it encounters warm ocean water[15] (Longshore, 2008). The difference in temperature and moisture content destabilizes the *air mass*; *evaporation* causes warm water vapor to rise and cool,

[15] "Tropical cyclones form only in tropical regions where the ocean is at least 80 degrees Fahrenheit for at least the top 50 meters (about 165 feet) below the surface" (NOAA, n.d.).

condensing into clouds and releasing heat energy which in turn warms the air, forming a *convection current* that grows the *cloud column* higher and higher into a *convective cell* (Longshore, 2008; NOAA, n.d.). Warm air continues to rise, cool, and fall, and the *Coriolis effect* — a result of the rotation of the Earth on its axis — causes the rising air to curve to the right so that the clouds begin a counter-clockwise rotation. At this point, the resulting thunderstorm is considered a *tropical disturbance,* a status which grants the turbulent air mass increased attention since there is the chance it will develop into a *tropical depression.*

Advection, a result of the uneven heating of air, pulls the cool, dense, descending air horizontally across the bottom of the system, over the warm ocean surface, and to the opposite side, where the now warm, light air is rapidly carried upward by convection currents (Longshore, 2008). As advection and convection continue and *barometric pressure* at the surface drops, the air begins to move more rapidly, increasing wind strength and speed. Once winds reach between 25 and 38 miles-per-hour, the system is labeled a *tropical depression*. The system will continue to grow as long as it remains over warm ocean waters and it does not encounter significant *wind shear*, that is, external winds strong enough to disrupt it. Lighter external winds called *steering currents* are beneficial to the system which "possesses only minimal means for self-propulsion" and must rely on surrounding air masses "to determine what track it will follow during its lifespan" (p. 380).

As wind speeds increase beyond 39 mph, the system becomes more organized and the *eye* — the rotation point at the center of the storm in which barometric pressure is at its lowest, and inside which rain and wind abruptly decrease — takes recognizable shape (NOAA, n.d.). When this happens, the system is upgraded from a tropical depression to a *tropical storm*, and it is given a name. Once wind speeds reach 74 mph, the system is at least 50,000 feet high and 125 miles

across, and the eye is between five and 30 miles wide, the system is given *hurricane* status. The hurricane is further classified using the Saffir-Simpson Hurricane Wind Scale, a method developed in the 1970s to classify the intensity of hurricanes based on their maximum sustained wind speed (Schott et al., 2019).

In short, a hurricane's social and material becoming cannot be separated. Each time the system is re-classified as a tropical disturbance, depression, storm, and hurricane, it is positioned as existing in and through a new set of relationships. This carries over, or recontextualizes (Linell, 1998), the institutions, identities, practices, metaphorical frameworks, and values implicated by those relationships, so that the hurricane does not exist as an anomaly, but as part of established processes we regard as being no more than what we ought to do in this type of situation.

Institutionalizing Hurricanes

By institutionalizing hurricanes, I am referring to the way in which a storm is brought into being through organizational practices which authorize its existence, and it becomes the domain of particular agencies tasked with interpreting and responding to the storm for the greater public. In our talk about responding, it is worth noting the meaning of its related adjective, "responsive." Merriam-Webster (n.d.-b) gives the bland definition of "giving response: constituting a response" as its first entry, but its second entry is evaluative: "quick to respond or react appropriately or sympathetically." To me, it seems that the first entry gives the meaning of the term, and the second gives the rules of its application: To be considered "responsive," one must respond correctly. Responding, therefore, is a morally fraught activity.

In the United States, the Army Signal Corps, the branch of the U.S. Army formed to specifically manage communication activity and technology, was the first agency officially tasked with monitoring hurricane activity (Longshore, 2008). Hurricanes were considered a matter of

defense, constituting them not as mere atmospheric phenomena worthy of scientific study, but as threats to military operations and the American people. During the 20th century, the responsibility for interpreting and monitoring hurricane activity largely shifted from military government organizations to scientific government organizations, with the development of the Weather Bureau. The relationship between military agencies and hurricanes is a continued legacy: the Bureau obtained surplus radar supplies after the end of World War II; the earliest method of systematically naming hurricanes utilized the phonetic alphabet and came about because of the need to refer more precisely to storm activity threatening military operations in the Caribbean and North Atlantic in World War II; and the U.S. Air Force, Navy, and Marines each have their own weather divisions which continue to fund weather prediction research and innovation (Wilson, 2017).

The transfer of the Weather Bureau from the U.S. Department of Agriculture to the Department of Commerce in 1940 indicates another framing of the relationship between hurricanes and the United States (NWS, n.d.) — the economic threat posed by the destruction of infrastructure and disruption of consumer activity. Hurricane controversies in the early to mid-20th century often centered around the accuracy and adequacy of Weather Bureau predictions and warnings, culminating in a 1972 lawsuit between Panama City and the recently renamed National Weather Service over lost tourism revenue due to unnecessary evacuations (Arffman, 2019). Throughout the twentieth century, a variety of organizations, bureaus, and divisions were created to monitor weather activity over the North Atlantic (NWS, n.d.) in order to protect economic capital and infrastructure. For the past 50 years, the primary organizations responsible for hurricane reporting, specifically the National Hurricane Center and National Weather Service, have been grouped

under the National Oceanic and Atmospheric Administration of the U.S. Department of Commerce, a relationship which characterizes hurricanes as ultimately being economic matters.

Meteorologists create the appearance of control over their environment by accounting for a spatiotemporal relationship with storms, claiming to know the how, where, and why of its existence, what it is at any given time, and what it will become days or even weeks before it does so. If those claims are to be treated as fact, scientists must show "that proper procedures have been used to establish it as objectively known" (Smith, 1978, p. 35). They accomplish this by updating forecasts four times a day, every six hours, in order to locate their claims in something we might nickname "real time" — that is, frequent updates offer evidence that the claims made therein are recent enough to still be considered relevant descriptions of the situation. Armed with forecast maps, satellite images, and real-time updates, state officials can act in advance of the hurricane's arrival.

However, any action taken in interaction with a hurricane, even if we make it appear to precede the storm's arrival over a particular location on the planet, is done in response. The hurricane makes the first move, and we respond by crafting an account of action that might generally be called doing hurricane preparedness. In other words, since we cannot control a hurricane, the best we can do is be prepared, and preparedness requires cooperation by scientific experts and state officials: scientific experts must provide the information which state officials will use to make decisions and inform citizens of how they should act. Given how quickly hurricanes can form, shift course, strengthen, and make landfall, preparedness depends on these roles being fulfilled promptly and seamlessly — information must be clear so that decisions can be made, communicated, and enacted quickly. If the production or interpretation of knowledge is delayed

due to contradicting accounts, the appearance of control dissolves, threatening the legitimacy of both scientific and political discourse, as well as the practices which comprise preparedness.

Public Responses to Hurricanes

According to Longshore (2008) our mainstream practices lend hurricanes "a somewhat perverse persona" (p. 249): We refer to them by name, even assigning them gendered pronouns. We can assign them character traits, such as in this headline from *The Atlanta Journal-Constitution*: "Hurricane Dorian: Fickle storm continues to frustrate weather experts" (D'Angelo, 2019). In popular practice, we do not so much orient to hurricanes as scientific phenomena or atmospheric entities, but rather as natural *beings.* We bring them to life by imbuing them with the properties of other living beings, the most fundamental of which (from an American sensibility, at least) is autonomy. We constitute a hurricane as an autonomous being by assigning it the attributes of one. Consider this comment made by a South Florida County Commissioner and quoted in the *Tampa Bay Times*: "Our best hope is that Dorian stays at sea, but hurricanes have minds of their own. This particular one has been a cliffhanger" (Cohen, 2019). Here, introducing the presence of a mind — a consciousness which is capable of deliberate thought and purposeful action — does the discursive work of bringing it to life (in a way that is recognizable to us as being alive).

The advent of Social Networking Sites (SNS) such as Facebook and Twitter have changed the way media content is created, interpreted, and disseminated, as ordinary people are now able to add their own hurricane experiences to the public discourse. This is especially evident on Twitter, where user-generated content circulates alongside official weather forecast information from scientific and emergency management organizations. Given the public availability of Twitter data, a number of studies examine how those data illustrate the real-time development of a hurricane in the public discourse (Senkbeil et al., 2019). Though Hurricane Katrina is the most-

studied hurricane in the literature (Arffman, 2019), many of the studies of hurricanes on SNS use Twitter data from Hurricane Sandy, as this was one of the first major storms to play out on that platform, resulting in nearly 20 million tweets (Shelton et al., 2014).

The majority of this research has the goal of improving how hurricane forecasts and disaster preparedness are communicated to the general public in order to better disaster response (Demuth et al., 2018; Lachlan, Spence, Lin, et al., 2014; Lachlan, Spence, Lin, Najarian, et al., 2014; Shelton et al., 2014; Kryvasheyeu et al., 2016). As Lachlan, Spence, and Lin et al. (2014) point out, SNS provide "both an opportunity and mechanism for members of the public to participate in the crisis discussion" (p. 510), and this literature suggests that much of the constituting of a hurricane takes place on SNS.

Scientific discourse and SNS provide a new vocabulary and variety of modal affordances for mediating our encounters with and responses to hurricanes. To illustrate this shift, consider the *hurricane party.* As Longshore (2008) explains:

> Arising during the early 1900s, when unforecasted hurricane strikes "invited" terrified coastal residents to gather hurriedly into "parties" for mutual defense, aid, and commiseration, the tradition of the hurricane party has over time evolved into an impromptu modern entertainment, a dramatic excuse for those people with ringside seats to drink and dance their way through one of Earth's most awesome meteorological events. (p. 249)

Like most interaction with hurricanes prior to the 1950s, hurricane parties used to refer to those gatherings that took place *after* a hurricane's arrival. Now, they primarily refer to those gatherings taking place *before*, or perhaps during, the hurricane's unfolding. In other words, multimodal developments in science and technology have afforded us new means of mediating hurricanes, and

Figure 1: Hurricane Dorian "Hurri-cake." Photos credited to Jessica Gouin. Tweet reproduced with permission according to The Fair Use Doctrine of the Copyright Act of 1976 (17 U.S. Code §107).

ABC Action News [@abcactionnews]. (2019, August 29). *Publix cake decorator creates Hurricane Dorian cakes to bring smiles to shoppers' faces* [Tweet]. Twitter. https://twitter.com/abcactionnews/status/1167279034025332736

as our relationship to them has transformed, the "hurricane party" has been resemiotized, taking on new meanings and encompassing new creative practices. Additionally, preparation is now a key part of the hurricane party, as individuals must ensure they have the adequate supplies, including plenty of alcohol and a "hurri-cake" (Figure 1). These intricately decorated cakes are possible because our practices make it matter long before we feel the physical forces of its winds and rains, and our means of making it matter are not limited to the resources of scientific convention.

Climate and the Moral Environment

In Chapter 6, I consider how "climate" and "climate change" are discursive resources for organizing and evaluating the moral quality of our experiences in relation to our environment. According to Hulme (2017), climate is "best understood as an idea which mediates the sensory experience of ephemeral weather and the cultural ways of living which humans have developed to

accommodate this experience" (p. 2). In other words, climate is done in and through communication[16]. Most basically, climate can be described as the set of expectations humans have for the weather where they live.

Globalizing Climate

Beginning in the 1960s and culminating with the convening of the IPCC in 1988, the ontological status of climate shifted from a local to a global phenomenon. Miller (2004) summarizes the shift thusly:

> Based on computer models of the general circulation of the atmosphere, climate scientists increasingly represented the Earth's climate as an integrated global system. Conceptually, this system not only represented the atmosphere as a single entity, but also linked atmospheric dynamics and energetics to the world's oceans, vegetation, glaciers, and ice caps. Moreover, it was this entire system that was now viewed as at risk from human emissions of greenhouse gases. The term climate had gone from signifying an aggregation of local weather patterns to signifying an ontologically unitary whole capable of being understood and managed on scales no smaller than the globe itself. (p. 54)

Computer models afford scientists a mediational means for describing environmental phenomena and relationships on a planetary scale. Computer modeling is a modally dense (Norris, 2004) means of mediating environment — a variety of data (e.g., precipitation rates, air and water temperatures, wind patterns, carbon emissions, hospitalizations, etc.) are called upon to cohere together, and scientists use a variety of discursive resources (e.g., charts, maps, graphs, tables, etc.) to assemble those data into meaningful narratives we take to be climate narratives. The result is a

[16] Hulme (2017) locates "climate" in the mental imaginary, but this negates its materiality. Climate is communicatively constituted, and like all communicative acts, takes on material aspects as it is enacted through talk, text, or other means. It exists in its performances, in the talk, text, or other mediational means of communication, and not in some abstract, morally laden mind-space.

means of mediating environment which can only be grasped from far away or by amassing more data than a single human could ever interpret. In other words, our practices of computer modeling are significant because they have made climate a necessarily hybrid accomplishment.

The notion of a global climate warranted corresponding accounts that could be held to the politics of authorization — if climate had remained a localized concept, there would be no need for international oversight or accountability. Once the atmosphere is understood as a unitary whole, however, intergovernmental action becomes necessary. Rather than all having our own pieces of land and sky to govern, it turns out we are all sharing the sky and therefore must negotiate its management.

As such, climate has become highly contested. If we orient to climate as a local concern, a person dwelling in one locality cannot credibly claim to have knowledge about or interest in the climate of another locality to which s/he has never been and does not interact; if we orient to climate as a global concern, then conceivably everyone everywhere can make relevant claims about climate. This is not to say that everyone everywhere has the same degree of competency and access needed to make such a claim credibly. Making credible claims about climate largely depends on whether a person succeeds in performing an identity category which provides the resources for doing so — this is often a matter of degrees of enoughness (Blommaert & Varis, 2013).

Defining Climate

In order for climate to be a useful *scientific* concept, it must have an operational definition which specifies how it is measured (Byers, 2011). The World Meteorological Organization (n.d.) provides the most widely accepted definition, which is also presented verbatim in the IPCC online glossary:

> Climate, sometimes understood as the "average weather," is defined as the measurement of the mean and variability of relevant quantities of certain variables (such as temperature, precipitation or wind) over a period of time, ranging from months to thousands or millions of years. The classical period is 30 years, as defined by the World Meteorological Organization (WMO). Climate in a wider sense is the state, including a statistical description, of the climate system.

Such a definition points to an issue with climate as mediated by the modalities of science — it is a nominalization. According to Smith (2001), nominalization eliminates "the textual presence of people as subjects and agents while preserving the presence of what is done by people" (p. 166). Though traditionally nominalization involves the conversion of verbs into noun phrases (e.g., "organize" to "organization"), the related verbs to climate, "climatize" and "acclimate," do not actually refer to the process of constituting climate, but rather to the process of responding to a climate that is assumed to already be in place. To further paraphrase Smith, when we speak about climate, we ordinarily do so without worrying much about how it exists. This is not true of everyone who speaks about climate; worrying about how climate exists can in fact index a high level of scientific expertise.

In this excerpt from an article in *The Atlantic*, for example, we are presented with the popular usage of climate as an object. Here, climate is an attribute of the Earth, and given that it is the object of a prepositional phrase, it is something to be acted upon, rather than something which acts or *is itself action*.

> During the entire half-billion-year Phanerozoic eon of animal life, CO_2 has been the primary driver of the Earth's climate. And sometimes, when the planet has issued a truly titanic slug of CO_2 into the atmosphere, things have gone horribly wrong. (Brannen, 2021)

It is not only in the popular press and social media that we see climate being nominalized[17]. Consider the definition which Pezzullo and Cox (2018) provide in what is one of the leading environmental communication textbooks: "Average atmosphere changes over a long time" (p. 345). In this definition, climate does not require a subject who makes observations and measurements. Rather, atmosphere changes are assumed to happen of their own accord, and given that they do so "over a long time," human observation and measurement are of questionable importance anyway due to our short lifespan. To put this another way, this definition assumes the existence of meaningful patterns without the presence of a subject who is doing the work of organizing phenomena into patterns and therefore assigning them meaning. From a sociomaterial position, it also obscures the presence of the agents and forces who are doing the work of atmospheric change and providing the subject with data to organize.

Indexical Function

Hulme (2017) refers to this usage of climate as object as the indexical function of climate, because it is used to quickly index the types of beings, materials, and practices which might exist within it. Take, for example, the Köppen Climate Classification System, originally developed at the end of the 19th century, which organizes the world into five climate zones based on temperature, precipitation, and vegetation growth (Arnfield, 2020). The five basic climate zones — A (tropical), B (dry), C (temperate), D (continental), and E (polar) — are further distinguished by a second, lower-case letter indicating the pattern of precipitation for the area. In the Köppen system, Tampa's climate is classified as "Cfa" which denotes a humid subtropical climate (Weatherbase, n.d.).

[17] It is worth acknowledging that, to borrow Goodwin's (1994) wise wording, this chapter "makes extensive use of the very same practices it is studying." I also nominalize climate — in many ways it is so built into our practices of *doing climate* that it cannot be entirely avoided. My goal in identifying climate's nominalization is not to overhaul our common usage of the term, but to point out how we use it to gloss over the practices which sustain it.

Whereas now climate can index things like the probable economy, architecture, and lifestyle of a given region, Hulme (2017) notes that in imperialist nations it was used to index the moral worth of a given area and its inhabitants. The climate of Europe was positioned as the ideal climate for the development of all things good and civilized; the humid tropical climate of the Caribbean, in contrast, was problematic, and thought to foster all things bad in human health and society. For early Americans living in the Eastern states, the desert climate of the American West was lawless and cruel, and its inhabitants, both settlers and indigenous groups, were likewise criminal and coarse. Climate, in addition to indicating the characteristics of an area, its inhabitants, and their practices, was also blamed for them; in this way, climate's indexical function is closely related to its agential function (see also, Blaut, 1993, 1999).

Agential Function

The agential function of climate, in which climate is the source or cause of various physical and cultural occurrences, is especially evident in our contemporary discourse, though it is typically expressed as *climate change*. This is partly because our orientation to climate as a moral index has shifted since the advent of air conditioning, antibiotics and vaccines, and modern irrigation and genetically modified crops have allowed humans to make their climates more comfortable and productive (Hulme, 2017). Because we have used technology to fit our climates to our needs and desires for so long, the climate itself is no longer the problem — rather, it is the climate's refusal to remain constant which troubles us.

In everyday conversations, climate change is blamed for irregularities in day-to-day weather conditions. Articles in popular science publications regularly blame climate change for increases in the number and the severity of physical phenomena like wildfires (Gray, 2019), tornados (Akpan, 2019), and hurricanes (Berardelli, 2019). Climate change is also positioned as a

contributing cause of poverty (Khoday & Ali, 2018), war (O'Loughlin & Hendrix, 2019), and shorter pregnancies (Kluger, 2019). While this is by no means a comprehensive list of the supposed outcomes of climate change, what is significant is that climate, and more specifically climate change, is cast as an agent capable of highly consequential action. These actions are generally in opposition to the existing goals, practices, or values of the humans who must cope with climate. In this sense, climate is not just an actor, but a threat which must be addressed.

Climate as Crisis

Since the early 2000s, the discourse of climate change has undergone what Paglia (2018) refers to as "crisification" (p. 99). Take the following headlines I gathered from the first ten results of a Google News search for "climate" in mid-February, 2021:

"Mountains, Ice and Climate Change: A Recipe for Disasters" (*The New York Times*)

"Five Things Biden Should Do to Tackle the Climate Emergency" (*The Hill*)

"The Scariest Thing about Climate Change Isn't the Weather — It's Us" (*Fast Company*)

"Himalayan Glacier Disaster Highlights Climate Change Risks" (*New York Post*)

Paglia describes the crisification of climate change as a process which "involved the mobilization of scientific evidence and the invocation of climate crisis by advocates of decisive international action against the urgent threat of climate change" (p. 99). Paglia traces the crisification of climate change through the rhetoric of the early 2000s and to the United Nations Framework Convention on Climate Change's (UNFCCC) COP 15 conference in Copenhagen at the end of 2009. Put simply, we have increasingly looked to science, and more specifically climate scientists, to provide proof that temperatures are warming, ice is melting, and sea levels are rising so that we might identify tipping points or critical thresholds — those proverbial straws which will break the camel's back and spark a chain reaction of irreversible catastrophes — and prevent them. Building

upon a legacy of expert elicitation[18], climate scientists have become such trusted voices that Walsh (2015) argues they occupy a prophetic role in society. This is further mediated and amplified by the urgency with which we desire their prophesy, the inaccessibility of the professional language in which it is made, and the expectation that scientists can and must remain objective and dispassionate (Cloud, 2020).

The Terrestrial Project

So far, I have explained what environment has often meant, and how it can no longer carry those meanings. I have set aside the logic of inversion and vocabularies of inclusion or exclusion, in favor of a view of bodies and materials as entangled in a meshwork of relations and practices. Having arrived at the New Climatic Regime, at Earth's agency and political authority, I now consider some alternatives. To begin, I must do some positioning.

Given the logic of inversion, scholars have attempted to delineate our current period of human activity from other spatiotemporal arrangements. Latour (2018) claims the period of modernization is the Holocene, and the current period of Earth's emphatic response is the Anthropocene. Haraway (2016) argues for the Chthulucene, or "a kind of timeplace for learning to stay with the trouble of living and dying in response-ability on a damaged earth" (p. 2). I wish, however, to resist this urge to distinguish our current period within the scientistic terminology of "cenes," as it too confidently constitutes boundaries of exclusion, suggesting that some practices have effectively ended, others have begun, and all of humanity is agreed upon this. I use Latour's (2018) term, the New Climatic Regime, to instead position this analysis within an atmosphere of

[18] Expert elicitation was the predominant approach in the U.S. for ascertaining climate futures in the 1950s, since climate models were still in the early stages of development and could not offer projections for future scenarios (Hulme, 2017). The United States government would consult climate scientists for their opinion on the future of the climate and climate-related issues.

transition — a becoming, in which a "new" authority is emerging and existing authorities must find new ways of relating.

To what does "environment" refer, if not to surroundings? Latour (2018) offers an explanation in which environment refers to the Critical Zone, or the habitable area of the earth, approached from the sciences of nature-as-process which must "confront conflicts for each of the agents that populate the zone and that have neither the privilege nor the possibility of remaining uninterested" (p. 79). The Critical Zone is neither surface nor surrounding, but rather the sociomaterial timeplace wherein terrestrials must generate ways of co-existing that are inherently dependent and entangled. In other words, it is where life is lived, porous and deeply dependent. Ingold (2008) calls this the "zone of entanglement," saying "Within this tangle…beings grow or 'issue forth' along the lines of their relationships. This tangle is the texture of the world" (p. 1807). The Critical Zone, or zone of entanglement, is characterized by the mixture and intermingling of substances — there is not the hard ground as one boundary, and the ephemeral atmosphere on the other, but rather a meshwork of relations, materials, bodies, and movement which are not necessarily distinguishable, and certainly not containable.

If environment-as-surroundings is possible because of the logic of inversion and system of production, then the Critical Zone is enabled by a system of engendering, built upon "the idea of cultivating attachments, operations that are all the more difficult because animate beings…are constantly overlapping, embedding themselves within one another" (Latour, 2018, p. 82). The system of engendering is a system of becoming, interested in ways of binding but not in boundaries, full of generative possibilities for confrontation or alliance. It acknowledges that land and weather and climate are in many ways the same — textured aspects of the "weather world,"

made discrete by a discourse which imagines hard surfaces, gaseous mediums, and conditions independent of human action (Ingold, 2008, p. 1804).

The Critical Zone, the zone of entanglement, the weather world, the open world — these are each entry points into what might be called the Terrestrial project. The Terrestrial project is the most pressing concern for all those occupying the habitable spaces of the Earth. It requires the dissolving of boundaries, the blurring of distinctions, the redistribution of agencies, the intermingling of substances, the knotting of life paths — all of which begin in discourse. The Terrestrial project, then, is a communication project, one in which we must "generate alternative descriptions…from the bottom up, by investigation" (Latour, 2018, p. 94). In other words, the Terrestrial project must begin with careful analysis of discourse to identify ways of representing and constituting environment, unpack the implications of constituting environment in these ways, and refine our ways of representing and constituting environment so that they are more open and less preoccupied with categorization.

I am not alone in pursuing an understanding of environment as a sociomaterial, hybrid accomplishment, but there is still plenty of room for improvement upon theory and empirical analysis. A significant analysis worth mentioning is Dickinson's (2016) study of communicative encounters that took place as part of a K-12 state forest conservation education program. In her analysis, Dickinson accounts for both human and other-than-human interventions which challenge the ordered, submissive presentation of the forest by the forest service guides. Dickinson builds upon Roger's (1998) call for a transhuman materialist theory of environmental communication in a way that generates valuable insight into how environments come to be ordered (and disordered) through discursive encounters she calls interruptions (those interactions which challenge and

disrupt the successful performance of the state forest service's conservationist curriculum[19]). However, there are two ways I think future research could build upon her analysis.

First, I question Dickinson's (2016) choice to divide her analysis into those interruptions made by humans, and those interruptions made by other-than-humans, since in the examples, it is evident that interruptions are hybrid. For example, in her discussion of an interruption made by a bird, the bird's intrusion on the lesson was aided by the children's calling attention to it. Dividing the analysis in this way hindered a more complex unpacking of agential interactions and reinforces the divide between humans and nature, or in Dickinson's words, humans and other-than-humans. To put it another way, bracketing interruptions done by humans from those done by other-than-humans solidifies the difference of those two categories, and imposes an abstractive, constructed distinction between those two processes. This is simply another iteration of the bracketing out of nature to which Rogers (1998) so strongly objects, and I argue that what is needed is an approach to analysis which accounts for the relationality of agents and simultaneity (and multiplicity) of action in environmental phenomena.

Second, I wonder about the pragmatic implications of characterizing other-than-humans' interruptions "as 'speaking'" (p. 44). This argument is not unique to Dickinson's essay and is evident in much of the environmental communication literature which advocates for "listening" to the "voices" of nature (Carbaugh, 1999). The problem, though, with using "speech" as a metaphor for environmental agency is that it is a logocentric argument, in that it repositions language as the central communicative mode, and in doing so it also repositions human means of knowing and

[19] Dickinson (2016) explains interruptions thusly: "Curriculum, field educators, and the forest service reinforce a human-nature binary by depicting nature as organized, rational, and passive. Yet, visitors, students, rangers, and other-than-humans expose, contradict and complicate these tightly constrained framings…"live" enactments of the curriculum and the forests are greatly modified by a host of factors that result in the production of a curriculum and a place that are conflicted. This enactment interrupts and challenges the curriculum's and forest conservationism's framings and ultimately challenges the human-nature binary" (p. 39).

mattering as the definitive means of knowing and mattering. In other words, an environmental ethic which advocates for listening to the voices of nature is anthropocentric and inherently reinforces the human/nature divide by judging nature's communicativeness by human communication standards. What is needed is not a movement from one side of the divide to the other, but a broader understanding of communication which orients to action, or the sociomaterial becoming of agents in relation.

I pursue the Terrestrial project in this dissertation by asking how a constitutive approach to communication as discursive practice might enable empirical analyses which more fully account for the range of relationships, interactions, and agents which do the work of constituting *environment.* I should emphasize, the goal of the Terrestrial project is not to eliminate anthropocentrism, but rather to constantly challenge our inherent anthropocentric bias in order to generate creative approaches to inhabiting the Earth. Challenging our anthropocentric assumptions is not an easy task, and the Terrestrial project is characterized by the radical acceptance of the uncertainty and responsibility that comes with living in a relationally entangled world. It is defined by asking the question "how might it be" rather than "what is," and just as the environment emerges out of infinite possible arrangements, there are a myriad of possible answers, none of them inherently "right" or "wrong." In responding to traditional dichotomies, the Terrestrial project responds with a favorite phrase of my partner's — "Por qué no los dos?" Why not both?

Conclusion

In this chapter, I gave an overview of the most prominent discourses historically used to mediate environment in the U.S. — wilderness, the sublime, preservation, conservation, ecology, environmental justice, and climate — as well as critiques of those discourses. I also gave a more detailed context to prepare for the analyses of land, weather, and climate which follow in the next

three chapters. To conclude, I presented my orientation to environment, which I have nicknamed the Terrestrial project, and positioned this dissertation as emerging from that position. In the following chapters, I analyze the range of agency and actions of Terrestrials as they constitute their environment, beginning with land and a case illustration of how land is materialized and mediated by legal texts.

CHAPTER THREE:

LAND: THE CONSTITUTION OF A NATIONAL MONUMENT

Land is literally the ground under our feet, but how we encounter that land — its cultural significance, historical context, and accompanying social practices — is fundamentally mediated in discursive practice. Legal discourse, in particular, has constituted our relationship to land for centuries. As Graham (2010) astutely observes, "what we see when we look at a landscape is a series of legally prescribed land use practices in action," not so much a landscape as a *lawscape* (p. 1). In this chapter I consider how legal discourse, specifically legal texts, constitute land and our possibilities for relating to and encountering it. I take the Antiquities Act of 1906 and the presidential proclamations creating and modifying Bears Ears National Monument as a case exemplifying the sociomateriality of land and the direct role legal texts have in the communicative constitution of environments.

In this chapter, I argue that legal texts are significant agents in the constitution of environment and land and demonstrate how they materialize landscapes in institutionally sanctioned ways. To begin, I provide a brief discussion of legal language and texts, as well as the recent material turn led by scholars in critical legal studies, sociolegal studies, and legal geography. Following this, I present the history of Bears Ears National Monument before moving into analysis. My analysis considers how the Antiquities Act and two presidential proclamations (re)materialize land in particular ways, demonstrating that the communicative constitution of

environment, even when conducted in the supposedly fixed and frozen legal register (Maley, 1994/2013), is never finished.

Legal Discourse and the Language of Law

Law has always relied on language, spoken and written, to order the social universe, and though legal language is often considered its own distinct genre, it varies greatly depending upon the context in which it is used (Maley, 1994/2013). Gibbons (1994/2013) divides legal discourse into legal code and legal proceedings, echoing the cultural tradition of English common law where law includes legislative texts as well as case law, judicial decisions which provide precedents for interpreting statutes[20]. The great variation in legal discourse has prompted Maley (1994/2013) to claim, "there is not one legal discourse but a set of related legal discourses" (p. 13). Trosborg (1997) provides categories of legal language use, which each function as their own domain with practices specialized for their particular purpose: the language of legal documents; the language of the courtroom; the language of legal studies and textbooks; the language which lawyers use amongst themselves and laypersons; and the language used to talk about the law in the popular discourse. Communication in the courtroom is the most studied area of legal discourse, but a considerable number of studies have considered legal texts, including wills, contracts, judicial decisions, and legal statute (Trosborg, 1997).

Beginning in the mid-twentieth century, influenced by the work of Austin (1962) and Searle (1969), scholars began attending to legal discourse by studying the particularities of legal language (Trosborg, 1997). Work in the 1970s was concerned with identifying and describing the syntactic properties of legal language. In the 1980s there was a shift to the pragmatic aspects of legal discourse and Halliday's (1978; 1985) systemic functional linguistics; the concepts of field,

[20] Cao (2007) defines *statute* as "a document with the highest constitutional authority with legal effect within its jurisdiction" (p. 77).

tenor, and mode, became foundational to the literature theorizing legal discourse (Maley, 1994/2013; Trosborg, 1997). The idea that law is constituted through language was fairly widespread by the 1990s (Gibbons, 1994/2013), and Habermas' (1992/1996) discourse theory of law became highly influential in the study of legal texts as speech acts. In the early twenty-first century scholarship began considering how legal discourse shapes "the essential qualities of individuals, groups, and communities" (Doremus, 2003, p. 300). More recently, studies of legal discourse have taken the material turn (Graham et al., 2017).

Legal language is notorious for its syntactic complexity (Trosborg, 1997), but Maley (1994/2013) claims that it "reached its heights, or depths, of verbosity or prolixity" in the eighteenth century. The complexity of legal language is often attributed to the need for law to be unambiguous (Franklin, 2016; Gellers, 2015; Maley, 1994/2013). Legislative language especially must balance the tension of certainty and flexibility, using language that is specific enough to facilitate clear interpretation, but general enough to remain relevant across particular settings and through time (Maley, 1994/2013).

Beginning in the 1970s, the "plain language" movement has advocated for simplifying the legal register to improve clarity and accessibility (Danet, 1980; plainlanguage.gov, n.d.), but the legal traditions with the oldest origins, such as property, contract, and tort law, have retained the use of archaic terms (Maley, 1994/2013). Revisions to U.S. Code for the purposes of improving readability have been common, including in the case of the Antiquities Act. As Maley (1994/2013) notes, not all revisions have been purely linguistic; the visual format or layout of statute has shifted over the years from one continuous sentence to separate sections for the component clauses, each identified by a number, letter, or title.

Characteristics of the Legal Register

Legal language relies on static and abstract categories in order to apply a universal moral evaluation of local experiences, constituting a social order which operates by the "articulation of specific rules and regulations" across contexts (Gellers, 2015, p. 484). This "translation of everyday categories into legal language" (Mertz, 1994) is constitutive — it materializes these categories, as well as the possibilities for relating to and interacting with them, in discursive practice. Legal debate often takes the form of competing interpretations of legal language, and therefore discursive choices should be understood as highly strategic. Danet (1985) identifies the following lexical and syntactical features which can be found across legal settings: technical terms; common terms with an uncommon meaning; archaic words with Latin, French, and Old English orgins; polysyllabic words; unusual prepositional phrases; doublets; formality; vagueness; over-precision; nominalizations; passives; conditionals; unusual anaphora; whiz deletion; prepositional phrases; sentence length and complexity; unique determiners, like "such" and "shall"; impersonality and the use of third person voice; negatives, especially double negatives; parallel structures.

Though texts can act as powerful agents, they must either be imbued with authority by a human author/reader or derive their authority from interactions with other texts or institutions — as Smith (2005) would say, they must be *activated* in order to act. In the case of legal texts in particular, intertextuality and (re)contextualization are key to preserving the authority of law, and therefore the sovereignty of the state. Intertextuality accounts for the way in which texts carry traces of prior texts, and (re)contextualization has to do with the appropriation of texts across discursive contexts (Bartesaghi, 2015; Fairclough, 2010). Because legal authority must come from some authoritative origin, legal texts are intertextually ordered both explicitly and implicitly, with

all authority ultimately deriving from the supreme legal text — the Constitution — which constitutes a government and prescribes the processes of governing (Cao, 2007). By intertextually referencing a state constitution or earlier legal code, legal texts make claims to author "possible renditions of the social world" (Bartesaghi, 2015, p. 1). In this way, intertextuality can be thought of as "a process of legitimation in the discursive order of a culture" (p. 2).

Speech act theory has been especially important to studies of legal discourse (Shuy, 2015). As Hancher (1976) points out, in developing the notion of performative speech acts, Austin (1962) draws heavily upon examples from English common law. One aspect of legislative texts often analyzed as a performative speech act is the enacting clause (Hancher, 1976; Maley, 1994/2013; Shuy, 2015). This feature of legislative texts is inherited from the British legal tradition, and appears in virtually the same format in the legal systems of the U.S., Canada, Australia, and New Zealand (Maley, 1994/2013). The enacting clause is the operative part of a legal text — it is an explicit performative utterance which "identifies the authoritative agent of the legislative speech act" (Hancher, 1976, p.254). In the United States, the enacting clause is established in 1 U.S. Code §101 which states: "The enacting clause of all Acts of Congress shall be in the following form: "Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled.""

The enacting clause is expressed in "the archaic jussive subjunctive form," giving it a tenseless quality "as if it were a perpetual, speaking command from the sovereign power to its subjects" (Maley, 1994/2013, p. 20). Drawing upon Searle's (1969) notion of illocutionary force, Maley goes on to explain:

> In linguistic terms it has the indirect illocutionary force of certifying that the correct participants and conditions accompany the saying of the speech act, at the same time as its explicit force is a command that the contents of the statute become law. (p. 20)

Hancher positions the enacting clause as the basis of legislation, which must "show on its face the authority by which it is adopted and promulgated" (p. 252). Following this explicit expression of authority, the statute must then say what must be done (mandatory or directory rules) or say what may be done (discretionary or permissive rules), identify the relevant agents to be involved, and authorize particular actions under particular circumstances (Maley, 1994/2013). Deliberate language choices and intertextual claims to authority enable law to realize a moral universe through interrelated texts, providing a means to evaluate past actions and structure future ones. Specifically addressing environmental law, Doremus states "we will never reach an environmental endpoint that allows us to maintain a permanent set of policy choices," so we must think of legal policy as always unfolding, emerging out of what has come before, and shaping what future decisions and actions are possible.

(Re)introducing Materiality into Law

Throughout the twentieth century, legal scholarship and pedagogy taught an abstract interpretation of law, neglecting both the material contributions to and consequences of legal discourse (Graham et al., 2017). In the last two decades, legal scholarship has emerged which deliberately engages with sociomateriality, expanded concepts of agency, and the situatedness of legal action (Delaney, 2015; 2017; Graham et al., 2017). In communication, Karen Tracy (e.g., 2009; 2011a, b; 2016) has made significant contributions to the analysis of legal discourse, though her work primarily considers spoken arguments and judges' decisions. Outside of communication,

new approaches to law, such as critical legal studies, socio-legal studies, and legal geography developed in response to, and critique of, the tradition of legal positivism.

Critiquing Legal Positivism

According to Graham (2010), legal positivism "describes law and legal relations according to the conventions of the genre of objectivity" (p. 15). Broadly speaking, it is an intellectual tradition stemming from the philosophies of Thomas Hobbes, Jeremy Bentham, John Austin, and others (Gardner, 2001). Rather than addressing the local particularities of legal practice, legal positivism is concerned with abstract rules, rights, and doctrines which operate the same across contexts because they are considered apart from them. Legal positivism approaches law as science, and legal discourse and scientific discourse share certain linguistic characteristics such as syntactic complexity and the use of technical terms (Trosborg, 1997). As Graham (2010) puts it, "legal positivism claims that law is science, devised methodically and practiced clinically" (p. 15).

Legal geography[21] takes as its fundamental position the inseparability of law and space, and studies seek "to reveal the ways in which law and geography are mutually constitutive and world-making" (Graham et al., 2017, p. 497). Delaney (2015) summarizes the implication of legal geography for our understanding of legal discourse in the following:

> In short, in our world, there is *nothing* in the world of spaces, places, landscapes, and environments that is not affected by the working of law: the inscription of rules and regulations, the recognition or withholding of rights, and enactments of the privileges of authority at all scales. (p. 99)

[21] The literature on legal geography emerged as part of and in response to the publication of Blomley's (1994) seminal work, and the subsequent publication of the edited volume, *The Legal Geographies Reader* (Blomley et al., 2001). For a more comprehensive review of variations within the emergent literature on legal geography, see Delaney's (2015; 2016; 2017) three-part literature review, and Jeffrey (2020).

A legal geography approach considers the materiality of the environment and the bodies and entities which populate it, and serious interpretations of this approach expand the scope of legal discourse to include participants "throughout relational worlds, human as well as other-than-human" (Delaney, 2015, p. 99). Analyses attempt to account for the co-production of law, space, and place.

Socio-legal studies challenges the anthropocentric legal positivist position by taking as its premise "that law is socially produced" (Graham et al., 2017). Socio-legal studies traces its origins to feminist theories which "brought corporeality into legal theory, in the process questioning the idea of the natural body and the disembodied legal knower" (p. 487). The larger goal of the socio-legal literature is to challenge anthropocentric dualisms and "re-orient human-nonhuman relationships so that the human is interconnected with, and part of, the environment rather than separate from it" (p. 488). Sociomateriality has been a focus of this research, but this has largely concentrated on the materiality of human practices and physical environments rather than attending to the materiality of discourse itself.

A few recent studies have attempted to account for the materiality of legal discourse in terms of texts and textual agency. There are two essays worth mentioning which consider the material agency of legal texts. The first I will discuss is a study by Faulkner (2012) which examines the performative functions of the Advanced Therapy Medicinal Products Regulation of the European Union, drawing heavily on Austin (1962) and actor-network theory. Faulkner's essay includes valuable empirical analysis and discussion but makes a distinction between a legal "text" compared to a legal "document" that betrays a narrow view of materiality and compartmentalizes the performative aspects of legislation rather than presenting a unified account of textual agency. The second essay I will mention is by Doll and Walby (2019); their essay presents Smith's (2005)

method of institutional ethnography as a method of inquiry appropriate for legal texts, providing a review of the literature which has used institutional ethnography to examine various legal texts and their involvement in various socio-legal processes.

The notion of law as communication is not new (see Van Hoecke, 2002), but if we are to believe Delaney (2015) that law is related to virtually all aspects of our lived experiences and environments, then we must provide empirical analyses which not only demonstrate how legal discourse constitutes and is constituted by the sociomaterial world as we experience it, but also critically consider the consequences of particular discursive choices and modes of representation. In this way we can begin to make evidence-based recommendations for discursive choices which might enact justice for all Terrestrials. In this section, I have provided a brief review of the literature theorizing and analyzing legal discourse and text. I now turn to an empirical analysis of the constitution of Bears Ears National Monument. I begin with an overview of the Bears Ears controversy.

Bears Ears

The area of southern Utah within which the Bears Ears buttes are found has a long history of human habitation, and "as many as 30 tribes have called the land their home at some point" (Wilkinson, 2018, p. 321). Native tribes were forced out of the region beginning in the mid-nineteenth century, but five tribes retained their strong ties to the land, with the Diné (Navajo) and Ute people especially frequenting the land "to collect herbs and medicine, forage for food (such as piñon nuts), gather firewood for heating and ceremonial use, and to hunt game" (Bears Ears Inter-Tribal Coalition, n.d.). In the early twenty-first century, the Diné people formed a nonprofit, Utah Diné Bikéyah, to research the Bears Ears region, "developing cultural maps, conducting interviews with elders and other tribal members, bringing in academic experts, and gathering other

information to help them determine what the boundaries of a national monument or other protected area should be" (Wilkinson, 2018, p. 323-324). They released a cultural map of the landscape in 2013, recommending 1.9 million acres for protection, and publicized it in Utah and Washington, D.C.

Obama announced a desire to form national monuments which honored and protected sites important to the history of under-represented and dispossessed peoples. Native groups saw an opportunity to not only protect Bears Ears, but to create the first national monument to be collaboratively managed with tribal entities (Wilkinson, 2018). Members of five tribes — the Hopi, Zuni, Ute Mountain Ute, Diné, and Ute — met in July of 2015, forming the Bears Ears Inter-Tribal Coalition with the goal of writing a comprehensive proposal to President Obama for the proclamation of a Bears Ears National Monument. Throughout both the process and the produced proposal, the Coalition endeavored to enact and impart Native values, a goal evident in the fairly extensive collective drafting process and the poetic language and reverence for the environment in the proposal. Five tribal leaders representing each of the five tribes in the Coalition presented the final proposal at a press conference in Washington, D.C. on October 15, 2015.

The following July, Utah Representative Rob Bishop introduced a bill to the House entitled "Utah Public Lands Initiative Act," which would have protected some of the areas of Bears Ears, designating several small wilderness areas and two national conservation areas, and opened others to fossil fuel development, motorized recreation, and control of resources by the State of Utah (Maffly, 2016). While this Bill was being debated in Congress, President Obama declined to designate a Bears Ears national monument until the outcome of the bill was decided. The Utah Public Lands Initiative Act passed in the House of Representatives, but later failed in the Senate. After this failure of Congress to act, President Obama issued Proclamation 9558, A Proclamation

for Bears Ears National Monument, on December 28, 2016, just before the end of his last term in office. Though celebrated by Native and environmental groups, Bears Ears National Monument was received unfavorably by Utah politicians and those in the fossil fuel industry, especially because of its size. President Obama's proclamation set aside approximately 1.35 million acres as Bears Ears. Within his two terms as president, Obama reserved more land as national monuments — 549 million acres — than any other president (Knowlden, 2018). When Donald Trump took office in 2017, he ordered a review of all of these public lands, after which he began modifying the size of monuments using the "smallest area" directive of the Antiquities Act to justify enormous reductions of acreage; Trump shrunk "Bears Ears National Monument by 85 percent, and Grand Staircase National Monument[22] by almost half" (p. 606).

Following this modification, environmental advocacy organizations and Native groups filed lawsuits against the Trump administration, arguing that the Antiquities Act authorizes the president to create national monuments, but does not give the president authority to modify existing national monuments. While the Antiquities Act does not explicitly provide for the modification of national monuments, Knowlden (2018) points out that presidents have enlarged and diminished the size of national monuments ever since Taft enlarged Natural Bridges National Monument in 1908. Though presidents have at times significantly reduced the acreage of national monuments, no president has ever eliminated a national monument entirely. Though presidential authority under the Antiquities Act has been a subject of dispute since its inception, the Supreme Court has only addressed presidential authority under the Act three times[23], upholding the president's actions in each case. In February of 2020, the Interior Department announced plans to

[22] Designated by President Bill Clinton in Proclamation 6920, Establishment of the Grand Staircase-Escalante National Monument, September 18, 1996.
[23] *Cameron v. United States,* 252 U.S. 450 (1920); *United States v. California,* 436 U.S. 32 (1978); *Cappaert v. United States,* 426 U.S. 128 (1976).

permit drilling, mining, and grazing in areas which had previously belonged to the Bears Ears and Grand Staircase National Monuments (Kaplan & Eilperin, 2020).

The Antiquities Act of 1906

The American Antiquities Act of 1906 (16 U.S.C. 431-433), officially entitled "An Act for the Preservation of American Antiquities," constitutes a category of legally defined land, "national monuments," and provides the rules for applying that designation to materials and their locations. It is relatively short, with only four sections. As legislative statute, it follows many of the conventions identified in my discussion of legal language. The Act is part of the United States Code[24] — "the general and permanent laws of the United States, organized into titles based on subject matter," first published in 1926 "to address the need for an updated, authoritative, and useful consolidation of Federal laws" (OLRC, n.d.). I have included the original Act as Appendix A, and the revised and reenacted Act as Appendix B. For the purposes of analysis, I consider only the first two sections, "Presidential Declaration" and "Reservation of Land," which I have provided in Excerpt 3.01 below:

Excerpt 3.1

(a) Presidential Declaration.-The President may, in the President's discretion, declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated on land owned or controlled by the Federal Government to be national monuments.

(b) Reservation of Land.-The President may reserve parcels of land as a part of the national monuments. The limits of the parcels shall be confined to the smallest

[24] The Code consists of 54 titles and five appendices. Since December of 2014, with the passage of Public Law 113-287, Enactment of title 54-National Park Service and Related Programs, the revised text of the Antiquities Act was repealed from U.S. Code title 16 Conservation, and reenacted in U.S. Code title 54 §320301 — National Monuments ("Changes to the Historic Preservation Laws," n.d.).

area compatible with the proper care and management of the objects to be protected.

Authorship and Authority in the Antiquities Act

As it currently appears in U.S. Code, the Act is a de-authored text (Fairclough, 2010; McLean & Hoskin, 1998). That is, the traces of the Congressional author(s) who wrote the text are erased, so the text seems to speak of its own inherent authority. As Cooren (2004) notes, de-authored texts "reduce the human actor to an intermediary, thereby reaffirming the existence of the organization" or institution (p. 379). As part of U.S. Code, the Act is acting on behalf of the Federal government; it speaks from the authoritative position of being law, and it is from this position that the text is able to issue directives. Its position as U.S. Code also puts it into relationship with the other laws[25] contained therein, and from this relationship we can understand this particular text as part of a series of similarly authoritative texts. Within the Code, especially in its digital form online, the revised and reenacted Act is explicitly linked to its previous iterations. Users can click a hyperlink under the heading "Statutes at Large" which brings up the image of the 1906 Act included in Appendix A. That iteration begins with the standard enacting clause. This intertextual linkage clarifies that, though de-authored in its current rendition in U.S. Code, the Act is imbued with authority by Congress (which is in turn given authority by the Constitution), and once activated as U.S. Code it speaks with its own force of law. In other words, the Act is a textual agent.

[25] "The U.S. Code is divided into two types of law: non-positive law and positive law. Non-positive laws are titles of the U.S. Code where the title is an editorialized compilation of related statutes. These titles of the U.S. Code are not themselves law. The U.S. Code itself says that the non-positive titles are only prima facie evidence of the law and that the Statutes at Large are legal evidence of the law" (Wice, 2018). Notice that the language of "evidence of the law" reinforces the idea of law as dealing in the abstract world of rights, rather than in the material world of texts, in a way that seems determined to deny the agency of the texts which do not just provide evidence of the law, but do the work of law.

Now it is important to note that the method of retrieving this text mediates the authoritative tone in which it is read. This is because, as a declarative speech act, the Act brings about "some alternation in the status or condition of the referred to object or objects solely in virtue of the fact that the declaration has been successfully performed" (Searle, 1975, p. 358). The Act can be retrieved from multiple different institutional sources and exists in several material iterations, two of which I have made available in the appendices of this document. Its presence in so many institutional spaces demonstrates its success; the means by which the Act is mediated do much of the work of imbuing the text with the voice of law.

Thusly imbued with the authority to act, the text uses its agency to confer authority (to author) onto the President, placing the text in relation to that office and the body who occupies it at the time of reading. This allows the Act to function on two levels: in the abstract sense, the reference to the president can be understood as a reference to the office of the president, or rather the Executive Branch of government as established by the Constitution; in the particular sense, the reference to the president can be interpreted by a reader as pertaining to the individual performing the duties of the office of the president at the time of reading. In the abstract sense, the local context of the reading is irrelevant, giving the Act a timeless and placeless quality; in the particular sense, the import of context by a reader authorizes particular actions within particular environments to be done by particular persons.

As a declaration, the Act relies upon the conventions of an extra-linguistic institution, which Searle (1975) defines as "a system of constitutive rules in addition to the constitutive rules of language" (p. 359). That is, legal practice lends more than just an accepted vocabulary — it also provides accepted patterns of interaction and identities which arrange people in asymmetries of authority. Thus, mentioning the President in line 1 in relation to the phrase "declare by public

proclamation" in line 2 indicates an existing, legitimate procedure (presidential proclamation) which must be performed by people who are particularly positioned to do so. There is a degree to which the Act fulfills an expectation we hold of legal texts — to authorize particular behaviors and provide a reference point by which we can evaluate the legitimacy of future acts. As Searle puts it, "Institutions characteristically require illocutionary acts to be issued by authorities of various kinds which have the force of declarations," and this is especially true of the law (p. 360). The Antiquities Act, though an important piece of law, is also encountered as yet another piece of law. Its ordinariness mediates its authority; it is doing exactly what we expect law to do.

The Land as Property Paradigm in the Antiquities Act

Lines 2-4 exhibit a two-dimensional, cartographic approach to land-as-container, listing the types of "objects" (line 3) to which the law can apply, thereby allowing the extension of significance to the land on which they are "situated" (line 3). In other words, the land is a static surface upon which objects of interest are located. It is made to matter merely to establish claims to resources which are distinct from, yet dependent upon, it. The land is not valuable inherently, and it need not be identified in any other way to be transformed into national monument land.

The land as property paradigm is strengthened in Section B of the Act, in lines 5-8. Parcelization, "the fragmentation of land resources among multiple ownership units of diverse size and function" (Platt, 2014, p. 68), is a hallmark of the capitalist land market. Referring to "parcels of land" (line 5) evokes a container metaphor due to the secondary meaning of the term "parcel." Though it is primarily functioning in its commodified sense as some tradable quantity, it can also be used as synonymous with "package," as it is used in mail delivery contexts. In this sense, not only is a "parcel of land" a container of resources, but it is also transferable. A parcel of land, then,

creates the image of a neatly bounded landscape, to use the legal terms, alienable and excludable property.

That the parcels reserved should be "confined to the smallest area possible" (line 6-7) reinforces the value of land as a commodity, while simultaneously providing a guideline by which to evaluate the president's action. That this stipulation needed stating suggests an inherent value in land as property, or rather as a bundle of resources. At the same time, it reinforces the subordinate status of land in relation to landmarks and objects; the preservation of land is only authorized in order to facilitate the protection of landmarks and objects. Read in the context of its authoring, this section clearly echoes the fears of States and private landowners who worried about abuse of the Act following the significant acreage reserved by presidents under the authority of the Forest Reserve Act of 1891 (Knowlden, 2018). The Act does not specify an exact acreage, nor does it provide for a process of determining the "smallest area possible," and this ambiguity has often been used to justify modifications to national monuments, as it was in the case of Bears Ears.

The lack of an author or authorizing body to determine the "proper care and management of the objects to be protected" (lines 6-7) gives the "smallest area" declaration of the Act an objective air — that is, in the absence of a speaker or standards, the proper care and management of the objects is located in the objects themselves. It also assumes that proper care and management can in fact be spatially confined, therefore implying that the objects the Act exists to protect are nonliving and immobile.

Linguistic Fidelity

Because the purpose of the law is to designate "historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest," proclamations establishing national monuments must do so using the same language, therefore rendering the environment as a two-

dimensional container of things. In this way, the Act perpetuates its capitalist, anthropocentric worldview of parcels and resources. Attempts to subvert this worldview could potentially delegitimize national monument designations since the intertextual chain of authority (authorizing particular actors to author) could be said to have been violated. This is because, as Gellers (2015) notes, "the language of the law facilitates a competition over interpretations and discourse in legal settings" (p. 484), so a presidential proclamation which traces its authority to the Antiquities Act is only authoritative to the extent that its fidelity to the law can be defended in court. To put this more simply, actions using the law must follow the law, literally adopting its same language and values. To demonstrate this, I now turn to analysis of President Obama's 2016 Proclamation for the Establishment of the Bears Ears National Monument.

Establishing the Bears Ears National Monument

Presidential proclamations, like U.S. Code, are primarily designed to be read. They are activated through the performative act of signing them — a practice which is sometimes photographed or recorded in a video format to distribute to the public across news and social media. Obama's proclamation was accompanied by an official statement summarizing its purpose and relating it to the Gold Butte National Monument which was signed into being on the same day (Obama, 2016). The attribution of accountability is made clear in a presidential proclamation since it is only one author who is named in the enacting clause and whose signature is required in order to activate the text. Presidential proclamations are not legislative statute[26], so they are not as constrained by the formulaic and frozen style used in statute like the Antiquities Act (Danet, 1985).

[26] Congressional acts are preserved as texts in the U.S. Code, whereas presidential proclamations and executive orders are published in the Code of Federal Regulations, the "codification of the general and permanent rules published in the Federal Register by the departments and agencies of the Federal Government" (govinfo, 2020).

This is evident in the first sentence of the Obama proclamation (3 C.F.R. 9558, 2016), the full text of which is provided in Appendix C.

Excerpt 3.2:

1 Rising from the center of the southeastern Utah landscape and visible from every
2 direction are twin buttes so distinctive that in each of the native languages of the
3 region their name is the same: Hoon'Naqvut, Shash Jáa, Kwiyagatu Nukavachi,
4 Ansh An Lashokdiwe, or "Bears Ears." For hundreds of generations, native
5 peoples lived in the surrounding deep Sandstone canyons, desert mesas, and
6 meadow mountaintops, which constitute one of the densest and most significant
7 cultural landscapes in the United States. Abundant rock art, ancient cliff
8 dwellings, ceremonial sites, and countless other artifacts provide an extraordinary
9 archaeological and cultural record that is important to us all, but most notably the
10 land is profoundly sacred to many Native American tribes, including the Ute
11 Mountain Ute Tribe, Navajo Nation, Ute Indian Tribe of the Uintah Ouray, Hopi
12 Nation, and Zuni Tribe.

Land as Visible

The first sentence echoes preservationist sensibilities which value the environment for its inherent qualities, rather than its acquired worth as capital. In line 1, we are presented with an action before we find out the subject doing that action — we do not find out until line 2 that it is the "twin buttes" doing this "rising." The use of "landscape" in line 1 indicates aesthetic value, as that term derives from the genre of painting and photography of the same name which takes as its subject some environmental scene, artistically composed (Graham, 2010). In lines 1-2, we are also told this landscape features a landmark which is highly "visible" and "distinctive," so much so that

its name seems to be inherent. Most commonly, visibility is a prerequisite of the aesthetic experience of a landscape (Louter, 2009), and an object is aesthetically interesting in large part because it is distinguished from its background.

What is more, the text does not specify a viewer who is participating in doing visibility. There are a few ways to interpret this: (1) the viewer is the speaker, Obama, or (2) the viewer is any agent capable of seeing the twin buttes. The first interpretation is reasonable because the text is a declaration, like the Antiquities Act, and by stating the twin buttes are visible, Obama makes it so. His authority for doing so is mediated by his role as President and the established practices of designating national monuments. The second interpretation is more interesting; by locating visibility in the buttes themselves rather than in an interaction between a viewer and what is viewed, the text constitutes the twin buttes as objectively visible to any agent capable of viewing, not just human viewers. Read in this way, the twin buttes are as visible to humans as they are to animals and satellites. That visibility and distinction are offered as explanations for the singular name seems to constitute the twin buttes as entities with their own identity and existence apart from, and beyond, their interactions with humans and their cultures — they have always been, and will continue to be, Bears Ears.

Presences in the Text

Obama speaks for Americans — and potentially humanity if we accept the cultural narratives of American exceptionalism (Gilmore & Rowling, 2019) — in line 9 when he asserts the importance of the many artifacts "to us all"; this is not out of the ordinary for the President of the United States, though, as we expect the person filling that role to act as "national communicator" (Sparrow, 2008, p. 578). In lines 9-12, without context it seems that Obama is speaking for the Native American tribes, but if we position the proclamation within the sequence

of events in which Native American tribes presented their proposal for the creation of Bears Ears National Monument to Obama, then we could instead interpret this as a moment of the Bears Ears Inter-Tribal Coalition speaking through Obama and the proclamation. As further evidence that the Inter-Tribal Coalition is speaking through the proclamation, there are passages of the proclamation which are taken verbatim from the Inter-Tribal Coalition's (2015) proposal to the president. The longest and most significant of these passages are lines 121-125:

Excerpt 3.3:

121 From earth to sky, the region is unsurpassed in wonders. The star-filled nights and
122 natural quiet of the Bears Ears area transport visitors to an earlier eon. Against an
123 absolutely black night sky, our galaxy and other more distant leap into view. As
124 one of the most intact and least roaded areas in the contiguous United States,
125 Bears Ears has that rare and arresting quality of deafening silence.

There are many voices present in the text (to once again recontextualize Ravotas and Berkenkotter's (1998) wonderfully descriptive phrase), and Obama creates a world in which those voices do not matter equally; what is most notable about the land is that it is "profoundly sacred" to "many" (line 10) Native tribes. This is highly significant since the Antiquities Act was in large part devised to protect Native artifacts for American interests, rather than for Native interests[27]. Obama therefore rearranges the hierarchy of valid claims to the land, prioritizing Native interests for what is arguably the first time since the Antiquities Act was passed (Wilkinson, 2018).

[27] At the time the Antiquities Act was passed in the early 1900s, the U.S. Federal and State governments were still pursuing an assimilationist policy toward relationships with Native groups. That policy, though not marked by the same extent of physical violence which characterized U.S.-Native relations throughout the 19th century, still subscribed to a "kill the Indian, spare the man" mentality (Churchill, 1997, p. 245); as Colwell-Chanthaphonh (2005) noted of early-20th century assimilationist policies, "the underlying principles of cultural extermination remained — the destruction of traditional Native American lifeways and worldviews."

In addition to the metaphorical voices of Americans and Native Americans, the proclamation must maintain its intertextual linkages to statute in order to maintain its authority. In other words, the proclamation must prove it is operating in the same world, reality, or as Latour and Chakrabarty (2020) would say, on the same *planet* as the statute which authorizes the president, and therefore the proclamation, to act. As such, the proclamation must prove Bears Ears is valuable because it contains objects which are historically and scientifically significant. Whereas the Bears Ears Inter-Tribal Coalition's (2015) proposal places objects in scare quotes to problematize the term — "Our discussion here is not intended to catalogue all the many ways that this area holds significant geological, paleontological, archaeological, historical, cultural, and biological "objects" within the meaning of the Antiquities Act" (p. 4-5) — the proclamation cannot take such liberties, and must take seriously the task of naming objects, which it begins in line 5 with a list of types of environments, and continues in lines 7-8 with a list of artifacts. The Antiquities Act first and foremost was designed to protect historical artifacts and sites, and the wording of the Act itself lists objects of prehistoric and historical importance before those of scientific importance. The proclamation therefore mirrors this sequencing, giving the history of the site and listing archeological sites before compiling the ecological features of scientific importance. The opening of the proclamation is dedicated to proving that Bears Ears qualifies for protection under the Antiquities Act.

In the enacting clause (Excerpt 3.4), Obama speaks through U.S. Code and the Code speaks through him. This mutual speaking through is evidenced by the use of verbatim phrases from the Antiquities Act such as "lands owned or controlled by the Federal Government" in lines 233 and the "smallest area compatible" clause in line 240. Obama calls on another textual agent to speak for him in line 239 — an "accompanying map." The accompanying map does not in fact

accompany the proclamation in all of its iterations. When conducting a Google search, the top search results lead to an Obama-era archived website where the proclamation is presented in the body of a webpage as plain text without linking to any other repositories of official presidential documents. It is only by going to the Federal Register webpage that one can access the proclamation as a PDF file including the map (Figure 2).

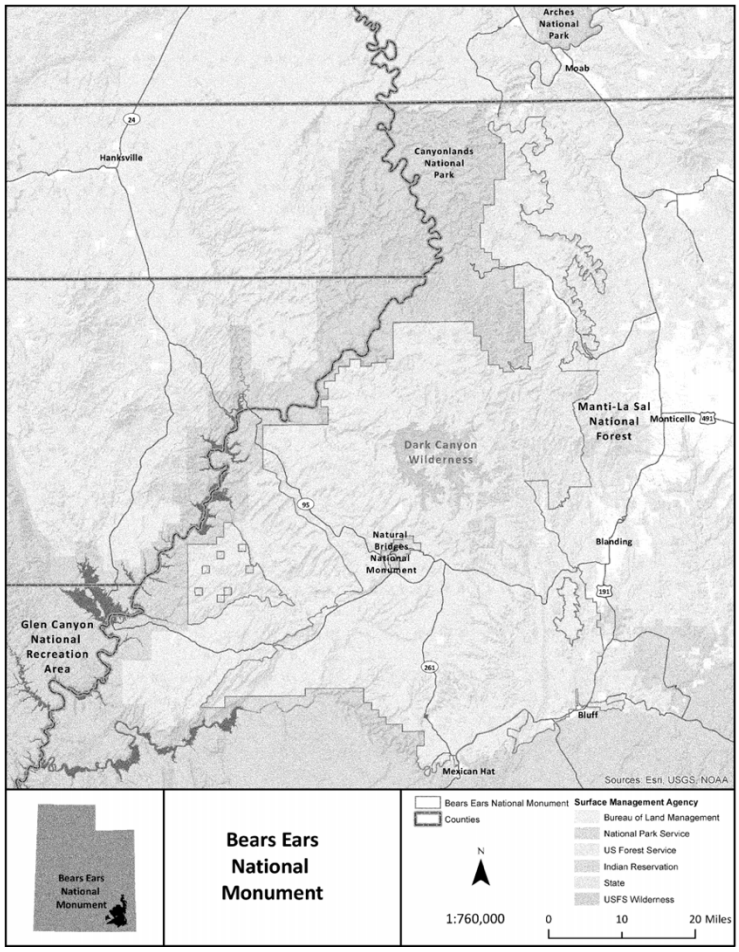

Figure 2: Bears Ears National Monument Obama Proclamation Boundaries

Though the map key suggests the use of colors to demarcate boundaries and the agencies responsible for a given area, it is presented in the Federal Register in black and white, making it difficult to discern the boundaries which the enacting clause references. Interestingly, Obama tells us the boundaries are "described" on the map, but as presented the map actually offers very little description of boundaries because the shades of gray used to mark them are nearly

indistinguishable. The presence of the map brings with it (i.e., recontextualizes) the logic of cartography and its assumptions about the rendering of three-dimensional worlds into two-dimensional texts. In this way, I must use my knowledge of maps to understand that a map is assumed to be the result of complex geological surveying and therefore to correspond with some physical location. The map is positioned to mediate the so-called "real" environment (by which I mean the physical environment we assume is really out there somewhere) with the environment created by the proclamation; the resources needed to interpret it are assumed to be provided by it (e.g., the map's key and scale, place names), and as such we orient to the map as a fact, independent of the particular context in which it is encountered.

Mediating Accountability: Enacting the Proclamation

The enacting clause, the most overtly performative moment of the proclamation, begins at line 230 and explicitly identifies the chain of agency and authority upon which the proclamation's claims rest. Of course, as Searle (1975) points out, all claims are performative, but in the proclamation the claims up to the enacting clause are offered as reasons which support a particular action, so there is a sense of arrival when we reach the moment in which that action is taken.

Excerpt 3.4:

230 NOW, THEREFORE, I, BARACK OBAMA, President of the United States of
231 America, by the authority vested in me by section 320301 of title 54, United
232 States Code, hereby proclaim the objects identified above that are situated upon
233 lands and interests in lands owned or controlled by the Federal Government to be
234 the Bears Ears National Monument (monument) and, for the purpose of protecting
235 those objects, reserve as part thereof all lands and interests in lands owned or
236 controlled by the Federal Government within the boundaries described on the

accompanying map, which is attached to and forms a part of this proclamation. These reserved Federal lands and interests in lands encompass approximately 1.35 million acres. The boundaries described on the accompanying map are confined to the smallest area compatible with the proper care and management of the objects to be protected.

Formality as Mediational. The earlier description of Bears Ears and its attributes, though full of technical terms, is written in a more simple, everyday register, but the enacting clause returns to the high formality of the legal register, exhibiting many of the features identified by Danet (1980; 1985). For example, this section has longer sentences and more clauses, including prepositional phrases strung one after another; this can be seen in lines 230-237 which are one sentence, joined with two semi-colons and spread over three paragraphs. Other lexical and syntactic features include a preference for formal language; archaic expressions like “hereby” (lines 232),“thereof” (line 235), “hereunto” (line 365), and “the year of our Lord” (line 366); doublets such as “lands and interests in lands” (lines 233, 235) and “owned or controlled” (lines 233, 235-236), whiz deletion such as in line 239, “The boundaries [which are] described…”, and passive construction. The beginning of the proclamation seems to resist the abstract, distanced, and objectified register of law, but the enacting clause returns to it. This suggests that the use of the formal legal register is essential to the practice of enacting things through legal texts. The formal style of the enacting clause mediates our encounter with it, so that we hear it as belonging to that class of authoritative, governing documents.

The enacting clause is set apart from the rest of the document using the visual cues of capitalization and paragraph separation. This signifies to the reader that something is happening, catching the eye on pages five and eight of the nine-page document.

Excerpt 3.5:

365 IN WITNESS WHEREOF, I have hereunto set my hand this twenty-eighth day of
366 December, in the year of our Lord two thousand sixteen, and of the Independence
367 of the United States of America the two hundred and forty-first.
368 BARACK OBAMA

The signature, which begins at line 365, completes the enacting clause and activates the text — it is Obama authorizing the action, and the text which carries it out. Without the signature, which is also highly formal and follows an archaic formula, the text's authority would be incomplete. To become law, it must be signed into law. This is also the moment when the text's polyvocal texture is smoothed over. As we are finally in the presence of an identified author ("I, Barack Obama," line 220), we are led to interpret everything we have just read is also attributable to that same speaker/author. Of course, what matters here is not locating the claims' origins, but identifying who is accountable to/for them. The document was likely penned by many hands (as the intertextual moments I have already discussed demonstrate), but what matters is that Obama has set *his* hand to it. In carrying out (or challenging) law, what matters is not who can be said to have penned a document, but rather who can be praised or blamed for it — that is, authorship here functions as an index of accountability.

Clear accountability makes the text subject to legal challenges, since it is easier to challenge the authority of a single, named author than it is to challenge an ambiguous, unnamed body of implied institutional authors. Perhaps this is why lines 212 to 214 in Excerpt 3.6 appeal to other authoritative actors — "members of Congress, Secretaries of the Interior, State and tribal leaders, and local conservationists" — for initiating the preservation of Bears Ears.

Excerpt 3.6:

209 Protection of the Bears Ears area will preserve its cultural, prehistoric, and
210 historic legacy and maintain its diverse array of natural and scientific resources,
211 ensuring that the prehistoric, historic, and scientific values of this area remain for
212 the benefit of all Americans. The Bears Ears area has been proposed for
213 protection by members of Congress, Secretaries of the Interior, State and tribal
214 leaders, and local conservationists for at least 80 years. The area contains
215 numerous objects of historic and of scientific interest, and it provides world class
216 outdoor recreation opportunities, including rock climbing, hunting, hiking,
217 backpacking, canyoneering, whitewater rafting, mountain biking, and horseback
218 riding. Because visitors travel from near and far, these lands support a growing
219 travel and tourism sector that is a source of economic opportunity for the region.

This tempers Obama's accountability: he is responsible for establishing the national monument, but it was not solely his idea. In line 214, it also positions the preservation of Bears Ears as the culmination of "at least 80 years" of political debate.

Accountability is especially significant when considering those claims which are not as well-supported by the document itself, such as that made in lines 239 through 241 in Excerpt 3.4 which state "The boundaries described on the accompanying map are confined to the smallest area compatible with the proper care and management of the objects to be protected." This is arguably the most contentious claim in the document — it is this claim which Trump's proclamation would later use to justify the modification of Bears Ears — and it is also the least supported. The first half of the proclamation establishes the presence of objects and areas worth preserving, proving their worth by stretching "the temporal horizon of our imagination… underscoring the brevity of

human existence in relation to earthly time" (Jasanoff, 2020, p. 343), but it does not explicitly justify the size of the monument. In the next section I discuss how President Trump refutes this claim, modifying the Bears Ears National Monument, and once again transforming that land via legal text.

Modifying the Bears Ears National Monument

Trump's proclamation (3 C.F.R. 9681, 2017) functions in much the same way as Obama's, relying on a formal enacting clause to accomplish its task, and conversing with other voices, groups, materials, practices, and spaces in the legal discourse to ground its authority and reasoning. The full transcript of the proclamation can be found in Appendix D. Since I have already discussed elements of the legal constitution and transformation of land in relation to the Antiquities Act and the Obama proclamation (e.g., formal language, an enacting clause, intertextual references to authority, and the reliance upon a map), I do not discuss the Trump proclamation in as much detail. It is significant because of the controversy of which it is a part; it is unexceptional as an example of presidential proclamation.

Unlike the Obama proclamation, Trump's proclamation is squarely rooted in the legal language of property, objective and distanced. This difference is evident from the first paragraph, which is all business, immediately referencing Proclamation 9558, the Obama proclamation establishing Bears Ears, which it revises. That it is revised is not to suggest Proclamation 9558 has disappeared or is no longer relevant — I only mean that its relevance is now in its relationship to Proclamation 9681, the currently acting document, rather than the land itself. It is an ongoing text-text conversation which goes on whether or not it is read because, like the statutes contained in U.S. Code, its publication in the Code of Federal Regulations activates it and positions it in the

legal discourse as a text which *ought* to be read (that is, interpreted and implemented) under applicable circumstances.

As I have already stated, the Antiquities Act does not provide presidential authority for the modification of a national monument. Therefore, Trump's proclamation must justify its existence and identify the source of its authority. It does so by presenting itself as a correction. This happens beginning in line 28:

Excerpt 3.7:

28 The Antiquities Act requires that any reservation of land as part of a monument be
29 confined to the smallest area compatible with the proper care and management of
30 the objects of historic or scientific interest to be protected. Determining the
31 appropriate protective area involves examination of a number of factors, including
32 the uniqueness and nature of the objects, the nature of the needed protection, and
33 the protection provided by other laws.
34 Some of the objects Proclamation 9558 identifies are not unique to the monument,
35 and some of the particular examples of these objects within the monument are not
36 of significant scientific or historic interest. Moreover, many of the objects
37 Proclamation 9558 identifies were not under threat of damage or destruction
38 before designation such that they required a reservation of land to protect them.
39 In fact, objects described in Proclamation 9558 were then — and still are —
40 subject to Federal protections under existing laws and agency management
41 designations.

Like the Obama proclamation, there is no speaker present in the early sections of the text, so the claims read as being available to everyone and traceable to no one speaker. The first two

paragraphs summarize the actions and purpose of the Obama proclamation and reduce the list of objects of scientific and historic value which took multiple pages in the first iteration to a mere 17 lines. Excerpt 3.7 begins with the third paragraph of the proclamation. Lines 34-36 struck me with how simply and effectively the text dismisses the multitude of detailed claims made by Obama. By stating that the objects are "not unique" or of "scientific or historic interest," Trump makes it so. However, unlike Obama's proclamation which integrated and mobilized voices in the text to support his authority as president, Trump does not name any interests other than himself and the government. Obama's integration of multiple voices contributes to that aspect of credibility which Aristotle called goodwill — that his proclamation appeals to the desires and practices of other groups suggests that the actions which those appeals justify are taken for the benefit of those groups. Trump demonstrates no such goodwill, and it is not clear in the proclamation who is meant to benefit from the modification to Bears Ears.

This does not invalidate Trump's proclamation, for all of the reasons pertaining to the authority of the president, law, and declarative speech acts I have already discussed. Instead, we must accept Trump's rendering of the land (no matter how grudgingly), or risk questioning the practices which enabled its existence and transformation in the first place. In this way, we hear Trump's proclamation as not only in conversation with Obama's proclamation, but with every past and future proclamation modifying an existing executive order. This is especially true of proclamations modifying national monuments, since the Antiquities Act does not specifically authorize modifications of national monuments; that authority comes from legal precedent — literally the historical evaluations of legal practices. Any change in practice is a change in precedence, and therefore in the resources legally available to presidents in the future.

At line 82, the author of the proclamation, President Trump, makes his first appearance with the pronoun "I."

Excerpt 3.8:

79 Given the nature of the objects identified on the lands reserved by Proclamation
80 9558, the lack of a threat of damage or destruction to many of those objects, and
81 the protection for those objects already provided by existing law and governing
82 land-use plans, I find that the area of Federal land reserved in the Bears Ears
83 National Monument established by Proclamation 9558 is not confined to the
84 smallest area compatible with the proper care and management of those objects.

This is an important moment because it suggests that everything that came before might not have been Trump, reinforcing the sense that the claims made in Excerpt 3.7 come from everyone and no one. Beginning the sentence with a "given" clause makes it seem as if what follows is objectively factual, so that Trump does not make his conclusion but discover it, telling us "I find," rather than the more accurate "I have decided." He transforms his account into a factual account by treating the claim made in lines 82-84 as "already there prior to and independently of" its being found by him (Smith, 1978, p. 33). Trump does not have to be accountable for his conclusion because he presents it as a discovery rather than a decision.

The practice of issuing executive orders enables a president to create, transform, and modify environments rapidly and without much justification. Presidents use the Antiquities Act to speak for and through them — Presidential authority is thus mediated by the role they fill and the expectations and allowances of that role according to U.S. Code. It does not matter that Obama's proclamation is more poetic, inspiring, inclusive, or believable. The act of designating or modifying a national monument is not dependent upon persuasion, recruiting support, or gaining

trust; it is dependent only upon "the President's discretion." To exercise presidential discretion, one need only be able to prove he is the president — this means that an environment's legal status as a national monument is as dynamic as the change in presidential administrations. Once an environment's legal status changes, our possibilities for interacting with that environment are also altered.

Mediating Environment via Presidential Proclamation

The case of Bears Ears National Monument is far from over. On January 20, 2021, his first day in office, President Joe Biden issued Executive Order 13990 on "Protecting Public Health and the Environment and Restoring Science to Tackle the Climate Crisis." Section 3 of the order is titled "Restoring National Monuments" (Figure 3). Executive Order 13990 has initiated the process of restoring the national monuments which were modified during the Trump administration, naming those who will be accountable in making the decision and the procedure by which it will be made. It is very likely that Bears Ears will once again be modified through presidential proclamation. We could expect such a proclamation, should it happen, to utilize many of the same resources as I have discussed in this chapter: intertextual chains of authority, the conventional formality of legal language, an enacting clause, and an accompanying map.

Though revised, the Obama proclamation is an exceptional one of its kind. It resists anthropocentrism from the very first sentence which constitutes Bears Ears as an entity without personifying, anthropomorphizing, or commodifying the environment of which it is made to be a part. Constituting Bears Ears on the basis of its visibility is arguably anthropocentric to the extent that looking, pointing, and naming will always be anthropocentric acts because they are mediated by the human body, motivated by human interests, and designed to introduce ease and reduce uncertainty in human practices. It constitutes the land as timeless — or at least, not subject to time

Sec. 3. *Restoring National Monuments.* (a) The Secretary of the Interior, as appropriate and consistent with applicable law, including the Antiquities Act, 54 U.S.C. 320301 *et seq.,* shall, in consultation with the Attorney General, the Secretaries of Agriculture and Commerce, the Chair of the Council on Environmental Quality, and Tribal governments, conduct a review of the monument boundaries and conditions that were established by Proclamation 9681 of December 4, 2017 (Modifying the Bears Ears National Monument); Proclamation 9682 of December 4, 2017 (Modifying the Grand Staircase-Escalante National Monument); and Proclamation 10049 of June 5, 2020 (Modifying the Northeast Canyons and Seamounts Marine National Monument), to determine whether restoration of the monument boundaries and conditions that existed as of January 20, 2017, would be appropriate.

(b) Within 60 days of the date of this order, the Secretary of the Interior shall submit a report to the President summarizing the findings of the review conducted pursuant to subsection (a), which shall include recommendations for such Presidential actions or other actions consistent with law as the Secretary may consider appropriate to carry out the policy set forth in section 1 of this order.

(c) The Attorney General may, as appropriate and consistent with applicable law, provide notice of this order to any court with jurisdiction over pending litigation related to the Grand Staircase-Escalante, Bears Ears, and Northeast Canyons and Seamounts Marine National Monuments, and may, in his discretion, request that the court stay the litigation or otherwise delay further litigation, or seek other appropriate relief consistent with this order, pending the completion of the actions described in subsection (a) of this section.

Figure 3: "Restoring National Monuments" Clause, Executive Order 13990

on the scale of human lives. The twin buttes were, are, and will always be "rising from the center of the southeastern Utah landscape and visible from every direction" (Excerpt 3.2, line 1), regardless of who encounters them. Bears Ears is presented as both part of culture, specifically a part of languages, and apart from it, transcending cultural boundaries and contexts. There is great possibility, in this sentence, for relating to an environment differently — not only by changing its legal status but by subverting the objectification and commodification perpetuated by legal language.

Though there are many moments in which the Obama proclamation resists an anthropocentric orientation, Excerpt 3.3 stands out as another exceptional moment. By quoting the Bears Ears Inter-Tribal Coalition, allowing them to speak through his proclamation, Obama recontextualizes another set of values for being. Those values are not the mainstream American values which favor activity, productivity, access, and self-sufficiency. In mainstream American spaces, silence, when it is even allowed to occur, is an uncomfortable, revealing thing. But in line 122, the "natural quiet of the Bears Ears area," is listed as an attribute of the land right in between

two paragraphs which list objects like “rock records,” “dinosaurs,” “highlands,” and “grasslands,” seemingly placing it as yet another example of a thing which makes the land scientifically and historically significant, and therefore worthy of our protection.

In addition to recontextualizing Native values by quoting the Coalition proposal, lines 121-125 carry some interesting implications for future national monument designations — in particular, the inclusion of the soundscape. Likening “that rare and arresting quality of deafening silence” to “objects of historic or scientific interest” could open the possibility for including more evidence and accounts of listening and hearing experiences. Given advances in technology and file sharing, it is possible to imagine a future presidential proclamation which includes not only an accompanying map but accompanying audio recordings. Imagining this possibility, I am led to wonder whether multi-modal accompaniments of audio, video, or photographic materializations of objects (I continue to use this language because it is the language of the Antiquities Act and the world we have made out of it, and it has made out of us) may make it possible for us to objectify (as in reify it as an object) ephemeral performances such as dances, songs, dialects, and more. Such a development could make land matter differently.

Interrogating the “Smallest Area” Clause

There is a fundamental problem with the “smallest area compatible with the proper care and management of the objects to be protected” provision: such a quantification of the infinite relationships which make up the observable environment is bound to be incomplete and simplistic. When it comes to ecological management, we often do not know about those species and processes of which we are not directly a part; we only learn the extent of ecological entanglement after we have disrupted it. A few cautionary tales include the Dust Bowl (Graham, 2010) and the subsequent planting of kudzu across America (Finch, 2015), the damming, and more recently undamming, of

rivers (Nijhuis, 2015), and the homogenizing of roadside ecology due to the transportation and dispersal of seeds and plant material from vehicle tires (Forman et al., 2003). It is only recently, as a result of the global COVID-19 pandemic and subsequent lockdowns — a period Rutz et al. (2020) have called the *anthropaus*e — that human activity has slowed to such a degree that scientists have been able to quantify the effect of humans on wildlife. The gist of the matter is this: from our vantage point as humans, we can only know what we come to interact with, and our attempts to quantify and define the relationships that perform an ecology will always fall short.

Conclusion

My purpose in this chapter has been to demonstrate how an environment can rapidly exist and transform depending upon how it is materialized in legal texts. Legal texts which are currently acting, meaning they have not yet been repealed or modified and are published in an official compilation such as the U.S. Code or Code of Federal Regulations, are always acting — they are engaged in text-text(-text-text-etc.) conversations which continue to reference, relate, and act regardless of whether they are read because, as part of the institutionalized legal body, there is an understanding that they *ought* to be read under certain circumstances. Though we bring legal texts into being, their materiality rapidly extends beyond the texts and into the environments which they materialize and mediate.

We write the law, the law writes (acts upon, affords and constrains) our possible futures, we write those futures onto the land, the land pushes back (by providing circumstances which challenge the applicability of law), and we write more law. Of course, this metaphor of writing things on land limits land to an inert surface, so it is not ideal, but I have kept the verb the same to try and convey the sentiment that these are not separate acts in a linear sequence; rather, they are simultaneous and ongoing. What I have shown in my analysis of Bears Ears National Monument

is that we are constantly re-orienting to land through the mediator of legal discourse — we materialize and rematerialize environments by defining their component parts and deciding what matters within them.

This legal logic relies on the assumption that environments can be divided into component parts which can be considered abstractly and in principle, isolated from their local settings, and capable of being transferred and owned. What the case of Bears Ears illustrates is how quickly massive changes can be made in how we constitute an environment with comparatively little justification since legal discourse is concerned with the social world, and therefore it primarily considers human needs and motivations, and takes human values at face value, as an adequate justification for action. We are bound to anthropocentrism by centuries old legal texts because of the chain of authority which new texts must establish. Through these intertextual references, texts continue to act, so much so that, though we have transformed environments beyond recognition, our possibilities for relating to land have not changed substantially in centuries.

The Obama proclamation has some interesting moments which resist this anthropocentrism, but ultimately it, too, is constrained by legal practice — especially the formality of the enacting clause which necessitates the explicit authority justifying and taking the action. Because the authority to designate national monuments is provided by the Antiquities Act under particular conditions and for particular purposes, proclamations utilizing this authority must demonstrate that the actions they take meet these conditions and purposes. The clearest way to do this is to use the same language as the Act. Both Proclamation 9558 (Obama's) and 9681 (Trump's) do this, letting the Act continue to speak through them. Eighteenth century ideals continue to shape our present-day actions through the continued quoting of legal language and the legal register. Legal discourse is an important factor in, and probably the most formal means of carrying out, the

communicative constitution of environment, but it is not the only way we constitute our environment through communication. The Antiquities Act and both proclamations reference science, scientific discoveries, and scientific knowledge — topics which I address in the following chapters on weather and climate.

CHAPTER FOUR:

WEATHER: OBSERVING, ENTEXTUALIZING, AND RECONTEXTUALIZING HURRICAN DORIAN

In this chapter, I turn to that topic of conversation which Oscar Wilde called "the last refuge of the unimaginative": the weather. While often disparaged as banal small talk, talk about the weather does more than represent immediate or impending material conditions — it makes atmospheric phenomena *matter* in relation to human lives and infrastructure. In other words, the weather is sociomaterial. Further, the weather is a hybrid accomplishment, meaning a multiplicity of agents and practices are involved in its constitution. Increasingly, scholars have argued for an understanding of environment as the *weather world* — a dynamic intermingling of land, sea, sky, and social practice (Ingold, 2008; see also, Hulme, 2017). As Bartesaghi (2014) argues, weather is "a communicatively constituted problem that deserves a close look at how our very communication practices construct it" (p. 536).

This chapter takes up the case of Hurricane Dorian as a specific example of practices of mediation that make the hurricane present in discourse. These professional practices of meteorology, themselves institutionalized in institutional registers of observation, are facilitated by technology which allows the hurricane to be viewed as a cohesive entity, predicts the hurricane's movement based on atmospheric models and past storms, and generates depictions of the storm which can be shared with those at risk through existing media channels such as television or social networking sites (SNS). Because of the breach that occurred when former President

Donald Trump and the National Weather Service in Birmingham, Alabama presented conflicting accounts of Dorian's predicted path, this case study provides a glimpse into how these practices are accomplished. The ensuing controversy, commonly referred to as Sharpiegate because of a forecast map with an added line in black marker presented by the president during an Oval Office press conference, generated metadiscourse about the practices of hurricane prediction and response among scientists, government officials, and the general public.

Constituting the Storm: An Analysis of Hurricane Dorian

Hurricane Dorian was heavily covered in the U.S. media because its forecast track had it making landfall on the east coast of Florida. It is not surprising that the president added to the public discourse on Dorian, since in the U.S. there is an expectation that the president will acknowledge and respond to major hurricanes (see Arffman, 2019, for more detail). President Trump's tweets about Dorian are significant, though, because his account of Hurricane Dorian's path conflicted with that given by the National Oceanic and Atmospheric Administration (NOAA) and the National Weather Service (NWS). While the discourse surrounding Hurricane Dorian and the conflicting accounts offered by President Trump and U.S. weather agencies encompassed news articles, television segments, light night talk monologues, and social media posts, I have chosen five tweets for analysis which I believe comprise the core of the controversy[28] we have come to call Sharpiegate. The tweets were made by President Trump (@realDonaldTrump), the National Weather Service office in Birmingham, AL (@NWSBirmingham), and the White House (@WhiteHouse) between August 31 and September 4, 2019. Since Demuth et al. (2018) posit that Twitter data about hurricanes is most useful when considered as a narrative which chronologically

[28] I borrow Jassanoff's (2004) explanation of controversy as "the practices and processes by which one set of ideas gains supremacy over competing, possibly better established ones, or fails to do so" (p. 5).

documents a Twitter user's experience of hurricane risk and preparedness, I present the tweets below in chronological order:

Figure 4: Trump's August 31 Tweet

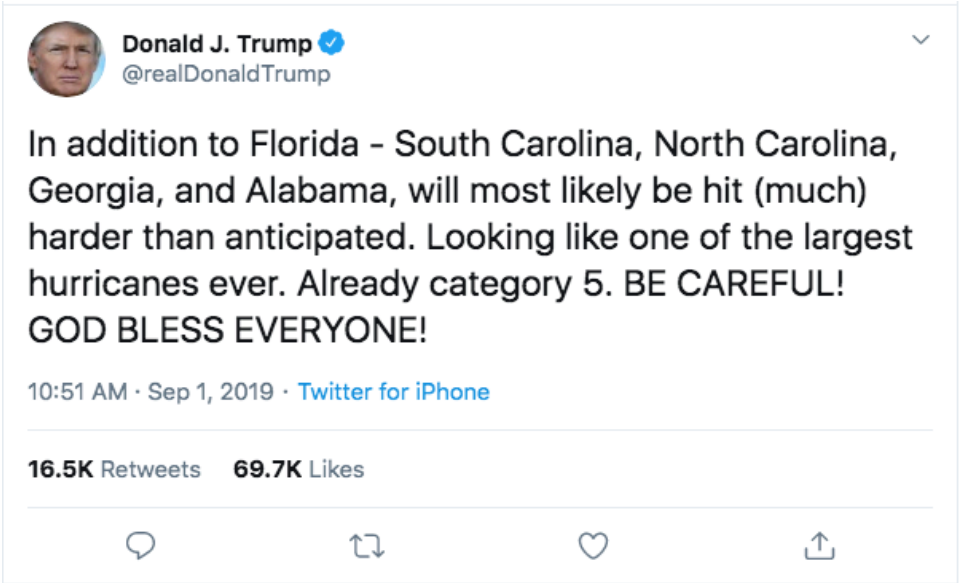

Figure 5: Trump's September 1 Tweet

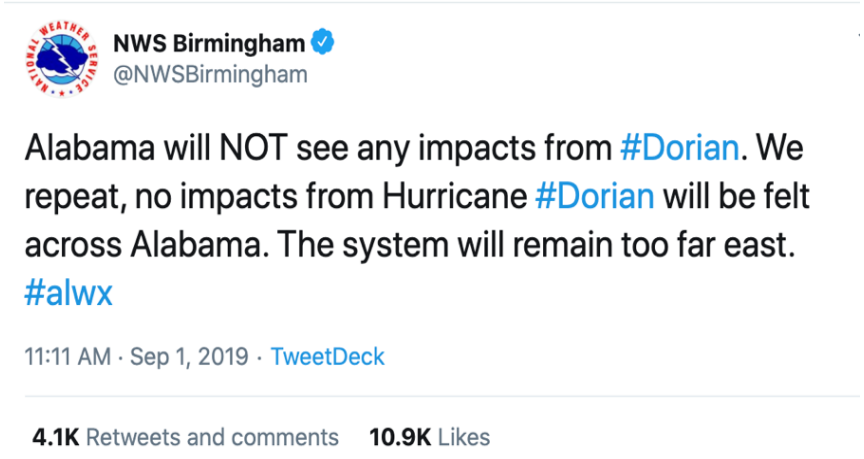

Figure 6: National Weather Service Birmingham Tweet

Figure 7: The White House Tweet

Figure 8: Trump's September 4 Tweet

Within these texts, I have identified two key strategies which contribute to the reification and mobilization of Hurricane Dorian as a discursive entity: observation and entextualization/recontextualization. Observation has to do with constituting Hurricane Dorian as a visible, and therefore real, environmental phenomena. Entextualization is the translation of observations into multimodal texts which can be reproduced or shared (recontextualization), and which exercise their own agency and authority in discourse. Practices of observation and

entextualization mediate our encounter with Hurricane Dorian by providing us with a means of making it present in discourse as texts, transcending spatial and temporal location to facilitate interaction before Dorian is in such physical proximity that it can be felt. For the purpose of analysis, I have given each strategy its own subsection of analysis, but this is not to suggest that they are discrete — they may be enacted simultaneously and in varying combinations, and each is vital to the constitution of (and response to) a hurricane.

Observation

Observation has to do with who looks and what is seen, and therefore who has the right to look, or the right to make claims about what is real (Jones, 2020; Mirzoeff, 2011). When we observe an object or process we are looking for those cues which index its similarity to or difference from what we have seen before (Szerszynski & Urry, 2006). Observing marks its object of attention as significant, and its entanglement with scientific practices and histories of surveillance helps in part to establish observers' right to look, constituting the real within hierarchies of evidence and existence. The real constituted through observation is ordered, rational, explainable, predictable, and reproducible, and it implies a certain degree of control over what is seen and how it is seen.

"Monitoring"

In President Trump's (2019a) first tweet about Hurricane Dorian (Figure 4), he references an even more particular form of observation: monitoring. For the purposes of analysis, I have transcribed the relevant content in the tweet in Excerpt 4.1:

Excerpt 4.1:

1 I am monitoring Hurricane Dorian and receiving frequent briefings and updates. It
2 is important to heed the directions of your State and Local Officials.

Monitoring identifies something as worth looking at because of its potential for transformation. The account in line 1 is given in the present continuous form. As it is used here, "monitoring" functions as a present participle to indicate ongoing activity. We are therefore to interpret Trump's — who self-identifies as the monitor — action as watching for changes. As Parks (2001) puts it, monitoring is conducted from "a tense of latency" in which observations are made and collected, but not yet used (p. 594). It implies the existence of a threshold which, once crossed, justifies immediate and concentrated intervention to return circumstances to their pre-monitoring state.

This tense of latency is evident in line 1 when Trump reports the second action in which he is engaged: "receiving frequent briefings and updates." As actions go, "receiving" is fairly passive — a person engaged in "receiving" does not exert much agency and is not accountable for what it is they receive. In fact, no one is imbued with agency because it does not allow for a subject which is initiating the act of receiving. If Trump had said "I am being given frequent briefings and updates" we would at least have some indication that the briefings and updates are coming from somewhere; "I am being given" implies the presence of something or someone doing the giving. Trump's use of "receiving" suggests that those updates are coming from no one and nowhere. We are meant to interpret those briefings and updates as already existing, objective facts — for all we know, he is receiving these updates from Hurricane Dorian itself.

Line 1 arranges Trump and Hurricane Dorian in relationship to each other — "monitoring" casts Trump as an observer, and Dorian as the observed, and "receiving" casts what is observed as a factual account, existing prior to and independently of Trump's monitoring it. Trump strengthens the factual quality of his account in the next sentence in lines 1-2, issuing a value statement disguised as a declaration of fact. We know to interpret this evaluative statement as a fact because it is so generic — we are not told to whom it is important, why it is important, or even how we

decided it was important, only that it is. Trump constructs it as an imperative, and by doing so it comes across as something we (should) already know. That he bothers to say such an obvious statement suggests that it is not meant to be informative; rather it establishes accountability and demonstrates Trump's competency as president doing leadership.

The "it is important to *x*" construction Trump employs constitutes what follows as mattering regardless of time, space, or cultural context. Trump is merely reporting an established fact, and therefore, he is not accountable for it. That this well-known fact involves "the directions of your State and Local Officials" transfers that particular leadership responsibility away from Trump and onto others more appropriate for the task. Trump's use of "your" implicates the reader as the accountable actor responsible for heeding these directions; unlike Trump, the reader is not allowed to simply "receive" the directions of their state and local officials.

Returning to the image of the tweet in Figure 4, we can consider some of the multimodal affordances of SNS which Trump uses to further diminish his accountability. First, he uses @mentions, a Twitter feature which "establishes addressivity for a tweet, triggers a notification to the @mentioned user that they have been addressed, creates a link to that user's profile, and establishes the conditions for threading multiple tweets together as a 'conversation'" (Squires, 2015, p. 242). Trump's @mentions come across as directing (and directly linking) the reader to the relevant state and local officials. Second, Trump's tweet is itself a retweet of an earlier Ron DeSantis tweet about Dorian. The inclusion of DeSantis' tweet locates Trump's as belonging to an ongoing conversation. The retweet is reported speech which functions as evidence of Trump's claims, especially since it is attributed to a member of that authoritative category, "state official." The retweet, in essence, mediates Trump's authority by positioning a prior speaker before him.

"Looking Like"

Trump's (2019b) second tweet (Figure 7) about Hurricane Dorian again employs observation to make claims about the storm and its relationship to the U.S. Opening his tweet with "In addition to Florida" places what follows as part of the ongoing narrative of Hurricane Dorian. It is already well-known that Florida is bracing for an encounter with Dorian — Trump himself established this in his August 31 tweet (Figure 4) — so there is no need to refer to the storm by name. Trump therefore positions himself as the omniscient narrator of an unfolding factual narrative. That this narrative is unfolding in a way which we have not anticipated introduces an urgency suggestive of a crisis situation. Trump hedges his claim, however, by saying "most likely" and setting "much" apart from the sentence in parentheses; these two choices reduce the certainty of his claim and Trump's accountability to it. This is significant because declaring a state of emergency is an official presidential duty which triggers a sequence of institutionalized practices and activates categories of relevant agents (e.g., distribution of federal resources, presence of FEMA and the National Guard, etc.) to carry out those practices. Trump's hedging here suggests a crisis without fully declaring one, so we interpret this as an update, or perhaps as further evidence of the "frequent briefings and updates" Trump previously told us he was "receiving" (Figure 4).

The observation takes place in the next sentence, "Looking like one of the largest hurricanes ever." Trump makes full use of the authority of observation as an objective means of generating knowledge through the absence of a subject. "Looking like" constitutes the existence of "a community of co-watchers" (Szerszynski & Urry, 2006, p. 118), of which Trump is a part and from which the storm looks the same to everyone. The absence of a subject indicates a "self-absenting" in which one leaves behind one's individual identity and positioning in order to see

"from a vantage point that transcends particular locations and narrow horizons" (Szerszynski & Urry, 2006, p. 120).

"Looking like" constitutes a viewing experience which is omniscient and distanced. However, the limitations of viewing the sky from the ground prevent observations about the hurricane's size; it is only by taking to the sky, or to space, that one can begin to observe the size of a hurricane. So while Trump's claim constitutes a community of co-watchers who are seeing the same thing, that seeing is further mediated by a vantage point other than that of the grounded human body, and what is more capable of transcending particular locations and narrow horizons than the gaze of the satellite? The image of Dorian in Figure 9 was taken September 3 by NOAA's GOES-East satellite (Griggs, 2019), and illustrates the sort of view from above which Trump's claim "looking like one of the largest hurricanes ever" conjures. Analyzing the use of satellite images in Cold War geopolitics, Parks (2011) notes that satellites are treated as omniscient witnesses, and the images they produce are treated as factual evidence of the actual conditions of some actual place at some actual time. Of course, the satellites do not truly produce images, but rather enormous quantities of data which must be interpreted and assembled into images.

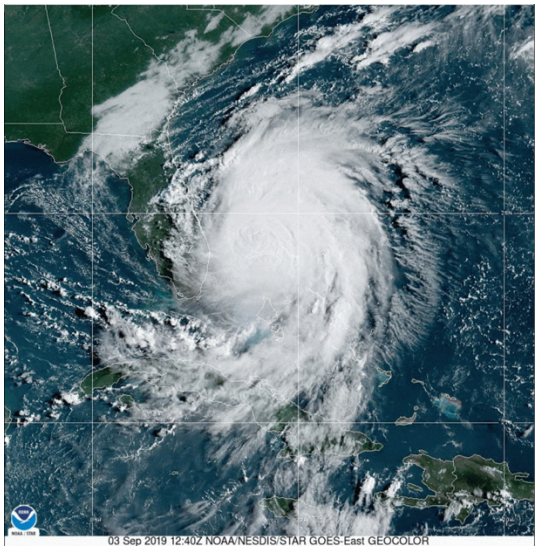

Figure 9: NOAA Satellite Image of Hurricane Dorian

Nevertheless, we regard the satellite as having a more privileged view of a hurricane than we do, since it is only by zooming out, so to speak, that Dorian becomes visible as an entity distinguishable from the atmosphere as a whole.

The second half of this claim, "one of the largest hurricanes ever," is an extreme case formulation (ECF). According to Pomerantz (1986), ECFs are a resource for describing a situation as an exceptional one of its type in order to legitimize the descriptive claim. "One of the largest hurricanes ever" describes Dorian as both innately related to, and also distinct from, all other hurricanes. An ECF (often indexed by the use of terms like "ever," "forever," "never," "really," etc.) locates the significance of something as being within itself — in Pomerantz' words, it proposes "a phenomenon is 'in the object' or 'objective'" (p. 220). This is very similar to Smith's (1978) explanation of factual accounts as being those which are presented as existing independent of the account and the one giving it, so we can consider an ECF a resource for legitimizing factual accounts.

Extreme cases require extreme responses, which Trump demonstrates by giving the next directives, "BE CAREFUL!" and "GOD BLESS EVERYONE!" in all-capitals with exclamation points. Ott (2017) notes that this is a rhetorical strategy often present in Trump's tweets, but it is significant here because the all-capitals visually index just how extreme of a case this is. If Trump's tweet had said something like "Looking like one of the smallest/weakest hurricanes ever," the forcefulness of all-capitals would seem entirely out of place, but because it is one of the largest ever (and because we equate size with impact) such rhetorical force is warranted. "GOD BLESS EVERYONE!" is itself another ECF, which taken together with the omniscient narration of Trump's tweet, seems to allow Trump to speak on God's behalf.

It is significant that it is the president of the U.S. who is speaking for God (or perhaps, calling upon God to speak for the president) because of the tradition of American exceptionalism and the incorporation of American civil religion into the Republican Party to which Trump belongs. Though done ambiguously (the particular God being called upon is not specified), as Americans we are meant to hear it as the God of Protestant Christians and of the founding fathers (Sormunen, 2018). Domke and Coe (2008) call this *the God strategy,* and it has been a popular political strategy since Ronald Reagan's 1980 acceptance speech for the Republican Party's nomination[29]. Trump's use of the God strategy reflects his larger strategy of American exceptionalism, since it is a claim to the "singularity, superiority, or God-favored status" of the United States (Gilmore & Rowling, 2019, p. 395). Through his extreme case formulation, Trump warns America that it is facing an unprecedented threat, however, America is an exceptional nation, morally superior to other nations and the environment alike.

"Will NOT See"

The National Weather Service office in Birmingham, Alabama (2019) tweeted a response to Trump's September 1 update on Dorian (Figure 6). The responsive nature is not evident from the tweet itself, as it does not make use of Twitter's hybridity (e.g., @mentions, retweets, etc.) to link directly to Trump's tweet, instead using the "hashtag" (#) feature to interdiscursively and intertextually link the tweet to the larger conversation about Dorian, by which I mean the larger repository of related utterances on Twitter. It is evident NWS Birmingham is responding to Trump rather than to the larger conversation because of the sequential temporal posting (the NWS Birmingham tweet was made just 20 minutes after Trump's) and because, at the time the events of

[29] Although more typically practiced by the Republican Party, Domke and Coe demonstrate that Democratic politicians have also integrated the God strategy into their approaches ever since Bill Clinton assembled the first all-Southern Baptist presidential ticket in U.S. history and delivered his 1992 Democratic presidential nomination acceptance speech on "The New Covenant.

Dorian were unfolding, it was treated by the media and public as a response (Cullen, 2019). Given the economic risks of unnecessary, or "shadow," evacuations, NWS Birmingham's tweet is also a prudent response. Shadow evacuations are those evacuations made unnecessarily; they occur when residents who are not in life-threatening danger from the storm's path evacuate anyway, due to fear and anxiety or a desire to "avoid non-life-threatening inconveniences," such as power outages (Senkbeil et al., 2019, p. 17). Shadow evacuations contribute to economic loss, traffic congestion, and fuel shortages, and generally impede emergency response efforts. In this regard, NWS Birmingham's tweet was successful; Alabama did not institute a state of emergency, issue evacuation orders, open shelters, or take any other actions which would have been justified by Trump's claim that Alabama would be severely impacted by Dorian.

NWS Birmingham legitimizes their claim through an ECF, but this time it is framed in the negative, "will NOT see any." Because it is countering a claim constructed as a factual account and delivered by the president of the U.S., NWS Birmingham's tweet enhances its credibility and clarity by repeating the same claim in three different ways, each time drawing upon the authority of different means of constituting experience. In addition to drawing on different mediational means (e.g., "see," "felt"), NWS Birmingham uses the phrase "We repeat" to index to the reader that they are, in fact, expressing the same idea even though the words have changed. "We repeat" is also recognizable as a structural feature of an emergency announcement; when the economy, infrastructure, and lives are at stake, repetition is assumed to improve clarity, and therefore increase the likelihood that the correct crisis response will be enacted.

The first claim is made in terms of viewing: "Alabama will NOT see any impacts from #Dorian." Presenting "NOT" in all-capitals enhances the forcefulness (i.e., certainty) of their claim, and this in addition to the ECF strengthens their position as speaking for the state of

Alabama as a unified whole; Alabama is capable of seeing and speaking for itself, and in this sense it is a more specialized (or perhaps localized) community of co-watchers. In a way, Trump's first tweet with its declaration "It is important to heed the directions of your State and Local officials" (Figure 4) authorizes NWS Birmingham to speak for Alabama as a member of the category "state officials." NWS Birmingham, as a representative voice of the state, is therefore more trustworthy than Trump in these matters.

"See" is also a more definitive action than, say, "monitoring" which conveys a certain latency. It is also in the present tense, "see" rather than "be seeing" which would echo Trump's phrasing; the act is not ongoing, and there is no chance the situation will transform in such a way that the claim would be invalidated. The phrasing "will NOT see any" uses the language of vision to determine what will not occur, deciding Alabama's future by positioning Alabama and Hurricane Dorian in a *null* relationship. The use of "see" here is a claim to the real, but it implies what is real (i.e., existing, factual) through a claim which constitutes an absence; it relates Alabama and Dorian by closing off the possibility of any future interactions.

The second claim, "We repeat, no impacts from Hurricane #Dorian will be felt across Alabama," is a claim to non-visual sensory experience through the use of "felt." This constitutes Dorian as an entity capable of exerting force upon other bodies. Within the context of a community of co-watchers, this second claim seems to establish a community of co-feelers poised to share a singular embodied experience. Not only will Dorian be seen the same way, but it will also be encountered the same way (which, in the case of Alabama, is not at all). The final repetition of NWS Birmingham's claim, "The system will remain too far east" positions NWS Birmingham as a speaker belonging to the field of meteorology, and draws upon the authoritative resources of that field, such as specialized language ("system"), to authorize their claim.

"Originally Projected" and "As You Can See"

The last observational claims I will discuss are made in Trump's (2019c) September 4th tweet of an ensemble (Figure 8), better known by the popular term spaghetti model. The spaghetti model is itself an recontextualization of Hurricane Dorian, which I will discuss in the next section of analysis. Trump's first statement, "This was the originally projected path of the Hurricane in its early stages" appropriates the language of "projection" which is often used in hurricane discourse to reference Dorian's anticipated movements according to scientific modeling. "Projection" might be thought of as a synonym of "prediction," which would not carry any explicitly visual implications. However, "projection" can also refer to the display of an image on a surface, in this case the display of Hurricane Dorian's movements across the surface of the Earth. This two-dimensional practice of observation invokes the discursive authority of cartography, which constitutes a world of surfaces and boundaries out of the conventions of fixed scale and commensurable data (Hsu, 2014; Parks, 2001). That Trump claims the spaghetti model illustrates the "originally projected path" indicates that what we are seeing has not been revised or otherwise tampered with — we read its originality as an index of its authenticity, and therefore its authority to describe the situation. In effect, Trump calls upon the spaghetti model as the "originally projected path" to speak for him; the spaghetti model's authenticity bears witness to the soundness of Trump's actions, not only speaking for him, but in defense of him.

By beginning his next claim with "As you can see," Trump does the work of seeing and interpreting for his audience — we are meant to trust the authenticity and authority of the spaghetti model so much so that we do not need to even see it. "As you can see" constitutes a collective viewing experience in which there is one, observable version of the real. In fact, "As you can see" instructs the tweet's audience in what they are seeing so authoritatively that it is not so much an

invitation to look, but a declaration of what is in existence. The authority of Trump's "version — or rather vision — of events" (Jones, 2020, p. 34) is tempered, however, by the very image he is claiming as proof, since, as I will discuss in the next analysis section, the spaghetti model is self-negating.

Entextualization/Recontextualization

I use the term *entextualization* to refer to the processes by which the experience of observing is made into (and commodified as) an observation — a material product (text) that can be *recontextualized* by practices of distribution and consumption. Computer models, satellite images, maps, and spaghetti models are the common "technologies of entextualization" (Jones, 2015, p. 31) we use to mediate hurricanes in discourse — these visual modes of representation feed into and maintain visuality as a primary mode of making claims to the real. Once materialized, these iterations of Dorian exert their own agency as mediators of the situation, and as (fellow) agents we cannot completely control what they do and how they come to do it.

Texts are portable — that is, they can exist across modalities and contexts (e.g., Smith, 2005; Cooren, 2004). A text can be recontextualized (carried into a new situation) or resemiotized (mobilized in a new way); we often interpret recontextualization and resemiotization as replication, and we assume the consumption and interpretation of those images will also be the same. Visual texts offer no response and are indifferent to interactions with them, and this consistency is often interpreted as objectivity or omniscience (Sontag, 2001). Unlike fickle humans, whose observations may be unacceptably biased or flawed, visual texts are treated as more trustworthy observations. This idea is expressed through colloquialisms such as "the camera never lies," or "a picture is worth a thousand words." The trustworthiness of images relies on the assumption that images are faithful representations of some scene, frozen in time. This assumption, however,

obscures the way in which each materialization of Hurricane Dorian is, in fact, constituting it anew according to the relational web in which it is positioned.

The "Original Chart"

On September 4, the White House (2019) Twitter account shared a clip of an Oval Office press briefing in which Trump provides evidence to support his account of the storm given in his September 1 tweet (Figure 5). Specifically, he attempts to prove that his inclusion of Alabama in the September 1 tweet was justified by NOAA forecasts. In the video clip, Trump displays what he claims to be the "original chart" (Figure 10), a NOAA-issued five-day forecast cone dated August 29, 2019. By September 4th, the steering currents carrying Dorian toward a landfall over southeast Florida had collapsed, causing Dorian to take a northwest turn and remain off the coast of Florida (Avila et al., 2020). Since much of the preparedness enacted in Florida was rendered unnecessary when Dorian did not make landfall there, Trump's update must justify those actions. The following is a transcription of the clip:

Excerpt 4.2:

We thought we'd give you a update on the hurricane. We got lucky in Florida, very, very lucky indeed. We had actually our original chart was that it was going to be hit, hitting Florida directly. ((turning around)) Maybe I could just see that, Gavin? ((aid grabs chart from behind the President's seat)) Uh, it was going to be hitting directly, ((sits chart on desk among audible shutter sounds presumably from press taking still photos)) and that would have affected a lot of other states, uh, that was the original, uh, chart and you see it was going to hit, uh, not only

8 Florida but Georgia, it could've uh, was going toward the Gulf that was what was,
9 what was originally projected. And, it took a right turn. And ultimately hopefully
10 we're going to be lucky it depends on what happens with South Carolina, North
11 Carolina. But it's heading up the coast and Florida was, uh, grazed. Mostly wind
12 and we're going to have a report on that.

We can understand Trump's use of the chart as an example of a text-reader conversation which "makes it possible for us to see the text, activated by a reader, as participating and playing a part" in the interactive sequence (Smith, 2005, p. 120). Trump activates the text, to borrow Smith's terminology, when he involves the chart in line 2, and then instructs his aid in line 4 to present the material chart for viewing. Gavin seems unprepared to handle the chart, as he awkwardly attempts to display it while holding on to his notepad, pen, and folio, but the chart's presence behind Trump's desk betrays the preparation that went into its presentation. Trump does not mention Alabama in the clip, but he does not need to do so once he activates the chart, since Alabama is depicted on it. Trump's speech pattern even seems to indicate a reliance on the chart to speak for him, since his own speech is repetitive, ambiguous, and halting.

Trump addresses lines 8-10 to the chart, not to the camera or his press audience, and this reminds me of an observation which Smith (2005) makes of the principal speaker in a group of people sitting around a table with the text at the center:

> Every now and again, he'd pause; his eyes would go down to the text in front of him. The others would wait — it was as if the text had its turn…that displaced others. Then he'd look up and speak again, as if he was reporting or responding to what the text said to him. (p. 168)

Trump's interaction with the chart is similar to that of the man and the text in Smith's observation; he gives the appearance that he is, indeed, reading the chart as he presents it, as if it sets Dorian out in prose. His use of "you see" does the work of interpreting the chart for his audience so that the mere presence of the chart is enough to prove his account. However, despite his narration, by directing his and his audience's attention to the chart, Trump activates the text, giving it a turn in the conversation. This imbues the chart with agency, creating the conditions for the chart to speak for itself despite Trump's attempt to control its interpretation.

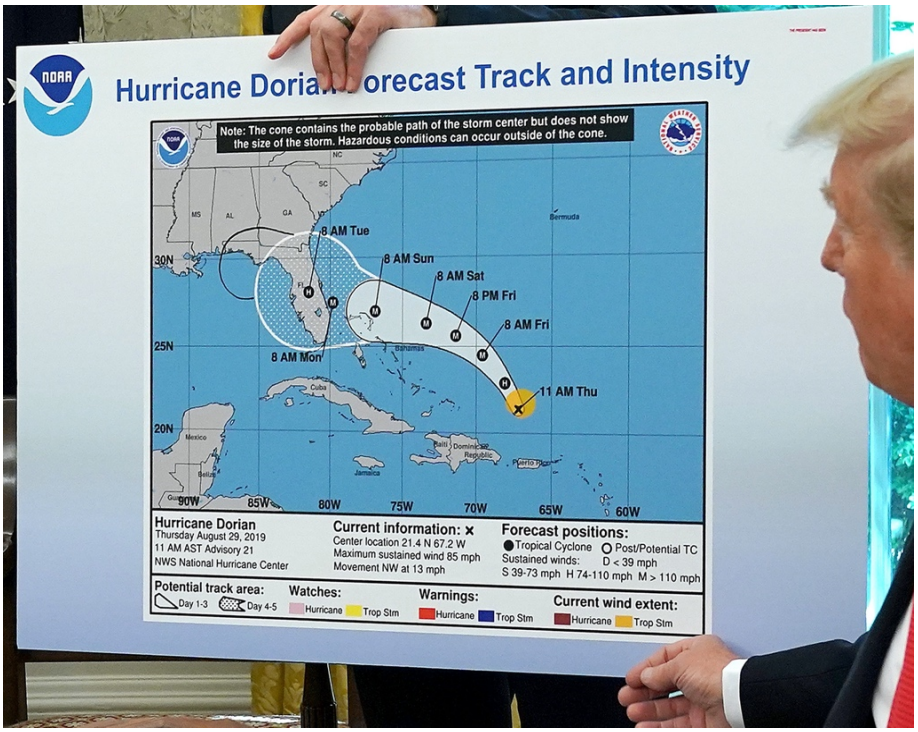

Figure 10: The "Original Chart" from the White House Tweet

Trump exploits the internal temporal structure inherent to texts in order to constitute the chart as relevant evidence (Smith, 2005). As Smith writes, "texts have their own internal temporal structure, but it is not the temporality of the everyday living in which the work of reading is being done" (p. 167). The chart claims to represent scientific knowledge at a particular time, August 29, 2019 at 11AM AST, and that time supposedly corresponds directly to the lived experiences of that day. Trump enhances the claim to temporal representation by claiming the chart he is about to

show is the "original chart" of "what was originally projected." This positions the chart within the temporal order, establishing it as a primary source, imbued with authority because it is the first. However, the chart is constituting a particular arrangement of matter, time, and social relations — it is not a representation of reality, and therefore not a representation of a particular time or space. The chart's ability to matter across temporal contexts suggests that the chart exists in its own temporal narrative. How else to account for its presence in discourse long after Dorian's movements no longer related to those depicted on it? In other words, Trump utilizes the chart to engage in "retrospective validation" (Smith, 2005, p. 116) of the enactment of preparedness, and the chart's properties as a text, such as its representational logic and internal temporal structure, instruct us in its factuality and direct us to interpret it as relevant evidence.

In the clip, we are offered multimodal evidence of the chart's importance in line 5 when we can hear the shutter sounds as the press photographs the chart. If the chart is worth photographing, then it must be significant (though Don DeLillo's (1986) parable of the "MOST PHOTOGRAPHED BARN IN AMERICA" reminds us that the act of photographing confers significance: "We're not here to capture an image, we're here to maintain one. Every photograph reinforces the aura" (p. 12)). The shutter sounds are even more portentous in light of the chart itself (Figure 10), which is an abnormal one of its type.

The chart's abnormality is obvious to us because it is recognizable as a NOAA forecast cone, and as a member of that category it must conform to the rules of that category if it is to be interpreted as legitimate. As an institutionally authored text, the NOAA forecast cone *should* lack any traces of an identifiable, individual author; authentic NOAA forecast cones do this through the application of a standardized format, key, agency logo, computer-generated images and word processing, etc. The chart Trump displays violates our expectations of what a NOAA forecast cone

should be because it carries traces of a past text-reader conversation — the black line, apparently drawn in marker (i.e., "Sharpie"), extending the forecast cone over Alabama.

We can tell the line does not "belong" to an official NOAA forecast because the line is not symmetrical or of an even thickness, and it is a different color than the other lines marking the forecast cone, making it stand out in a surprisingly human way against the rest of the computer-generated image. In this sense, Trump's claim to originality takes on a new meaning — this chart is original in that it is one of a kind. While other replications of the chart may exist, only this chart carries the traces of its past interaction, an interaction which resulted in the addition of a black line over Alabama.

Close inspection of the chart reveals that no additional line was needed to make the forecast apply to Alabama. In a black box at the top of the chart there is a "Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone." Trump could have enacted a much different text-reader conversation, in which he focused not on the path of the storm but the size, and the potential for widespread effects which, though not as strong as those at the center, could cause significant damage. In this way, Trump could have made the case that Alabama could still have experienced "hazardous conditions" despite its being "outside of the cone," since this very narrative is authorized by the text. The chart's own instructions about how to interpret it call attention to the redundancy of the black line, so we interpret Trump's presentation of the "original chart" as a blunder which demonstrates Trump's ineptitude instead of defending the soundness of his tweets.

Trump treats the chart "as a medium through which the reader can connect with what actually happened or was there," (Smith, 2005, p. 107). In other words, Trump employs the chart as an objective representation of Dorian at a particular time; therefore, the chart does not require

much elaboration. But once brought into the interaction, the chart exerts its own control over the situation, initiating new text-text and text-reader conversations which create new arrangements of authority and accountability.

Smith (2005) clarifies that "rather than view institutional discourses as prescribing actions, we might see them as providing the terms under which what people do becomes institutionally accountable" (p. 129). Introducing a NOAA forecast cone into the interaction recontextualizes the institutional discourses of which that text is a part (Linell, 1998); in essence, the chart brings with it other relevant voices and claims. The line drawn on the chart puts it in conversation with another text, a provision in U.S. Code titled "False weather reports." First implemented by Congress in 1894, the code was last amended in 1994 and states:

> Whoever knowingly issues or publishes any counterfeit weather forecast or warning of weather conditions falsely representing such forecast or warning to have been issued or published by the Weather Bureau, United States Signal Service, or other branch of the Government service, shall be fined under this title or imprisoned not more than ninety days, or both. (18 U.S.C. § 2074)

The code is an important piece of the science-state relationship: it helped establish government-funded weather reports as *the* authoritative source of weather information for the nation (Pietruska, 2019). While it saw more action in the early 20th century when meteorology was still an emerging field and advertising was less regulated, the code protects the science-state relationship by protecting state-funded weather reports. The legitimacy of state decisions depends on the authority of scientific weather reports. The "False weather reports" code, as a legal text imbued with its own agency, makes it so that only state-generated (via state-funded scientific agencies) materializations of a hurricane are the only materializations that matter.

The code holds the chart institutionally accountable for its past interactions, but because those interactions were not publicly observed — after all, Trump merely presents the chart, making no reference to the additional line or Alabama — the human reader(s) who interacted with the chart and drew the line cannot be held accountable. Institutional texts "displace and subdue the presence of agents and subjects other than as institutional categories" (Smith, 2005, p. 113), so while we may imagine that an actual human hand moved a marker across the chart's surface, it is impossible to identify the individual beyond his or her supposed role as aid staff to the president.

In this same way, Hurricane Dorian's identity as a unique entity is subdued by the chart — the chart positions Dorian not as an active, individual storm, but as belonging to an institutional category: Atlantic hurricanes. Atlantic hurricanes occasion five-day forecast cones which are then circulated briefly before being replaced by new five-day forecast cones, and this cycle of generating forecast cones and replacing them with updated ones continues until the storm makes landfall. At that point, forecast cones typically stop circulating and are replaced by images of the storm itself — or rather, images which carry traces of the storm itself, since atmospheric forces like wind are only visible when interacting with some other material object, such as rain, trees, or on-location television newscasters. That this forecast cone has remained in circulation long after it was considered a source of "current information" (as the chart itself claims it presents) indicates that it is acting as an institutional witness of how hurricane preparedness was enacted, rather than acting purely as a stand-in for Dorian, the material hurricane. In this way, the chart acts less as a representation of Dorian — though this is how Trump treats it — and more as a re-presentation of organizational knowledge about Dorian at a particular time.

The Spaghetti Model

The second recontextualization of Dorian as a visual text I will discuss is the spaghetti model in Trump's (2019c) September 4 tweet (Figure 8). When it comes to modeling the atmosphere, there are three types of models that weather agencies generate: dynamical, statistical, and ensemble/consensus (Trammell & Jones, 2019). Dynamical models involve using computer technology to solve highly complex physical equations of motion in order to produce a forecast. Statistical models put variables into relation, such as the relationship between historical data of storm behavior and storm-specific details such as location or date. The model Trump shared in his tweet is an ensemble or consensus model since it overlays the projections of multiple models onto one map. Each spaghetti line on the map corresponds to a particular model, but each line is not equally useful. For example, the XTRP, the first model listed in the key at the top of the image, "simply extends the storm's recent motion out to five days and is always a straight line" (Belles, 2019).

An ensemble model like the spaghetti model in Trump's tweet is most useful for depicting how much confidence meteorologists have in their ability to forecast the storm (Bianchi, 2020). A spaghetti model depicts whether the atmosphere is in such a configuration as to be easily modeled, or if the atmosphere is in such a state that it cannot be confidently modeled. If the lines on the spaghetti plot overlap considerably and there are few outlying lines, the spaghetti model indicates that confidence in the models' ability to predict the storm's path is high; if the lines are all over the place, this indicates low confidence in the models' ability to predict the storm's path. Most importantly, the spaghetti model does not represent the storm's actual path at any given time, and the presence of a model on the spaghetti plot does not necessarily mean it is useful for predicting a particular storm.

"As you can see" actually ends up working against Trump, since, as anyone who is capable of reading the image would see, this text exists within a hierarchy of materializations of Dorian, and within that hierarchy it is superseded by "NHC Advisories and County Emergency Management Statements." In other words, the text tells us that it is not the most authoritative source of Dorian information. It further directs the reader to use this graphic to "complement, not replace, NHC discussions." Trump does not put this model into conversation with other NHC data, so presenting the spaghetti model isolated from other iterations of Dorian in discourse is something of a misfire, according to the text. Lastly, a working understanding of spaghetti models would lead one to interpret that what the image is materializing is not an actual storm out there, but an illustration of how confident we are in our ability to predict, and therefore respond, to the storm; and in this case, on the morning of August 28, there was little confidence in the long-term forecast of Dorian's path. Trump's interpretation of the spaghetti model is not consistent with other accounts, including the account the spaghetti model gives of itself, indicating Trump's confusion as to what the text is actually doing. Since the text itself directs, "If anything on this graphic causes confusion, ignore the entire product," Trump should have ignored the image.

Discussion

We mediate hurricanes through practices of observation which manifest primarily through the visual mode. We entextualize a hurricane as visual texts — satellite images, forecast maps, spaghetti models, etc. — which afford us the ability to recontextualize and resemiotize the hurricane into both established and novel discursive occasions. Observation can initially be thought of as emerging from interaction with Hurricane Dorian, the physical storm, though that interaction is mediated by satellites, models, and other technologies which enable people to see what is not in their immediate field of vision. However, because nothing lies outside of

communication, Dorian must be materialized in discursive form if we are to interact with, or rather, respond to it. One way this is done is by generating visual texts and inviting them to speak for us and through us as we constitute our claims. In this way, we are able to make Dorian present as an entity in discourse and facilitate interaction with the hurricane long before it makes itself known through storm surge, winds, rain, and ominous clouds. We tend to treat these texts as representations of the storm and its movements, and it is this logic which gives the appearance that we are engaging directly with the storm.

Conclusion

Using the case of Hurricane Dorian, I have demonstrated the sociomaterial becoming of a hurricane, or to put it another way, how a hurricane is constituted in communication. Using multimodal Twitter data, I have argued that the communicative constitution of a hurricane is bound up with cultural practices of looking and seeing. In the case of Dorian, practices of observation, entextualization, and recontextualization facilitated translocal interaction with that storm. What I mean by this is that, despite Dorian's physical and temporal distance from the U.S., scientists were able to see the storm with the help of technology and generate supposed representations of the storm in the form of visual texts which made Dorian present as an agential entity in discourse. Entextualization and recontextualization are the foundation of our interaction with a hurricane, an interaction which I have called doing hurricane preparedness, and have described as being characterized by a pattern of response, in which the hurricane is always the first to act.

Doing hurricane preparedness begins when the hurricane's actions are observed and materialized so they can be witnessed translocally by the public. We then craft a response to the hurricane by responding to its discursive iterations, which we treat as equivalent to the amalgamation of atmospheric forces which make up the physical storm. The sequence of actions

that comprise doing hurricane preparedness are meant to keep humans in consistent and direct contact with the storm, but my analysis shows that interactions with a hurricane are highly mediated, abstract, and distant. Each time we observe and materialize the hurricane, we draw upon the affordances and constraints made available through a given mode of mediation. For example, a NOAA forecast cone uses the scientific logics of distance, abstraction, and prediction to mediate a hurricane's future path. In the next chapter, I consider how the scientific discourse of "climate" and "climate change" mediates our experience of our environment over time.

CHAPTER FIVE:

CLIMATE: CLIMATE CHANGE AS A MORAL PRACTICE

Since the formation of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988, the construct of climate has become a central concern for governments, researchers, the news media, businesses, and individuals. However, the notion of climate has been important throughout human history as a normalizing idea. As Hulme (2017) puts it, "Climate is the reassuring idea that there is regularity and a normality to which ultimately the weather will conform, even if today it is not doing so" (p. 5). Climate is a sociomaterial practice, a discursive resource that mediates our everyday, historical, and expected encounters with our surroundings; we use it to accomplish, organize, and make sense of our situated interactions.

Though climate has historically functioned to provide stability, this is not to suggest that its meaning has ever been static or that the notion of climate *change* is entirely new (Von Storch & Stehr, 2006). Anthropogenic climate change, or climate change attributed to human activity, is an ancient concern — even Aristotle worried that clearing too many forests caused the climate of Philippi to warm (Hulme, 2017). In Aristotle's time, climate was the domain of philosophy; since the industrial revolution, and more recently the Cold War, climate has been the domain of science (Baker, 2017; Doel, 2003; Miller, 2004). The Cold War led to the development of "an autonomous climate science field…through the capacity for climate science to shape the national security state" (Baker, 2017, p. 874). The relationship between climate and security is still relevant, as former

President Barack Obama demonstrated when unveiling his Clean Power Plan in 2015, declaring "no challenge poses a greater threat to our future and future generations than a change in climate" (as cited in BBC News, 2015).

Extreme and erratic weather events are now "staggeringly" frequent (UN News, 2020), leading Hulme (2017) to conclude "the 'normal' historical function of the idea of climate — to stabilize relationships between weather and culture — is moot" (p. 152). Additionally, the 21st century is arguably characterized by such rapid and persistent change in all areas of life that it has become difficult to distinguish those changes which are *climate* changes from all the other changes taking place at any given time. Taking a sociomaterial orientation makes this distinction even more challenging, since the traditional understanding of climate change as *observable changes in the physical environment* falls apart once physicality and sociality are united. As Margaret Atwood commented, "I think calling it climate change is rather limiting, I would rather call it the *everything* change" (as cited in Science & the Imagination, 2014). If climate change is the everything change, it is worth asking what climate affords us when it no longer describes a particular phenomenon or change, but rather seems to encompass infinite possible changes.

In this chapter I examine how speakers use "climate" and "climate change" to mediate their environment, its inhabitants, and their actions. The data come from a one-day public conference titled "Science, Strategies and Solutions: Addressing Climate Change in Tampa Bay," hosted by the University of South Florida STEM Collaborative and held in downtown Tampa on November 1, 2019. I argue that speakers identify themselves and others as belonging to recognizable categories of people (i.e., scientist, elected official, practitioner), and they use the associated characteristics of those categories to relate to "climate change," their environment, and each other.

In doing so, the conference participants constitute a moral universe in which certain identities and actions are more or less valuable depending upon their relationship to climate change.

To begin, I describe the conference format and speakers. The analysis takes place in two parts: first, I argue that climate change functions as a shell for the participants; second, I analyze the discursive resources which participants use to provide the meaning of climate change. I focus much of my discussion on the moral implications of the identity categories participants deploy and consider how the immediacy of the participant's characterization of climate change — what has been called the "crisification" of climate change discourse (Paglia, 2018; p. 99) — intensifies the moral quality of these identity categories, and thus raises the stakes for everyone involved. I conclude with the hopeful notion of creativity and suggest that the shell aspect of "climate change" might foster new possibilities for relating across boundaries and doing the work of the Terrestrial project.

Data

The "Science, Strategies and Solutions: Addressing Climate Change in Tampa Bay"[30] conference was an all-day public forum where local academics, policymakers, and practitioners discussed various aspects of climate change as they relate to the Tampa Bay area and the greater region of Florida. The regional focus on Tampa Bay is significant since, as Chakraborty and Bosman (2010) point out, the region has been characterized by "aggressive and uneven commercial and residential growth" (p. 4) since the 1990s, and this has led to the proliferation of "urbicidal practices" (p. 10) (Chakraborty and Bosman give the example of the region's obsession with maintaining lush, green lawns through the use of chemicals and fossil-fuel powered equipment) which contribute dramatically to local air and water pollution and in doing so,

[30] From this point on, I refer to the conference as the ACCTB ("Addressing Climate Change in Tampa Bay") conference.

eventually contribute to the ecological death of the city. Like other cities in the Southern U.S., Tampa Bay has a legacy of environmental decisions which have disproportionately benefited White, affluent residents through zoning laws, the inequitable distribution of resources — including tree cover along streets, sidewalks, street crossings, parks, and air-conditioned public spaces (Hirvela, 2011) — to predominantly White neighborhoods, and more recently, a preference for luxury development over quality affordable housing (Chakraborty & Bosman, 2010). As such, environmental justice is a particular concern for the region and the scholars who study it (e.g., Chakraborty, 2009; Chakraborty & Bosman, 2010; Lersch & Hart, 2014; Stretesky & Lynch, 2002).

The ACCTB conference was divided into seven sessions: an elected official's report about a regional "Resiliency Coalition," an opening keynote address by a leading climate researcher in Florida, the "Extreme Events Panel," the "Transportation Panel," "The Built Environment Panel," the "Public Health and Social Justice Panel," and a closing keynote address given by a state representative. Most panels consisted of three individual presentations given in succession, followed by a period of question and answer. The "Extreme Events" panel was the exception to this format, as it was entirely a moderated discussion. The audience was able to ask questions of speakers using an application which allowed them to submit questions from their mobile device, as well as "like" other's questions to prioritize mutually important inquiries. The questions were displayed on the large screen at the front of the hall, and the moderator of a given panel would select which questions to ask the speakers. While these audience data would have added a significant multimodal aspect to the analysis, questions were displayed as a constantly refreshing feed, so they were regularly being replaced without being archived, and the application was not accessible after the conference ended. As such, my analysis focuses on spoken discourse.

I initially collected 345 minutes of audio recordings from the conference. Given the amount of recorded data, I do not present a transcription of the conference, panels, or presentations in their entirety. I used the free mobile application Otter to generate an initial rough transcript of the seven presentations and panels. I then looked for instances in which participants explicitly mentioned "climate" or "climate change" to manually transcribe speakers' utterances verbatim, as my primary interest is in how speakers use the terms to mediate their experiences of, encounters with, and interventions in their local environment. After my initial analysis, I began to wonder if "climate change" really meant anything to the participants — it was used sparingly, and though institutional definitions were sometimes mentioned, the participants used it much more creatively than those definitions described. I selected these more creative moments for close transcription and analysis to better understand what "climate change" meant, or how it was functioning, for the speaker in the immediate context of the utterance as well as the greater context of the conference. Though not considered human subjects research by the USF Institutional Review Board since the data were collected at a public forum, I have taken care to replace participants' names with pseudonyms and have avoided selecting excerpts which included personal information.

The Speakers

The majority of the excerpts I have selected for analysis come from individual presentations, in which one person spoke for 12 to 15 minutes about their work on climate science, policy, and practice. There are 12 speakers present in the excerpts I analyze:

Brenda: a county representative and local politician and advocate

Johnny: a geologist with a political career in municipal leadership and community advocacy

Nicole: a toxicologist and university professor

Theo: the director of research for the regional planning council

David: a state representative

Ellen: an anthropologist and university professor

Rick: a university professor and administrator

Diana: a local floodplain manager

Hank: a university professor and administrator, and active state climate advocate

Steve: a state representative living locally

Mark: a university professor and leading national climate researcher

Recontextualization at Work

It is important to note that the excerpts provided come from a particular discursive situation: the professional conference. In addition to expressing ideas about climate which mediate their actions in and toward their environment, the participants, those speaking as well as those in the audience, are at all times demonstrating their competency in *doing a conference.* Superdiversity complicates this, since each participant brings to the situation their many, often competing, identities and related practices. This bringing over of identities, practices, assumptions, and other things from one context to another is what Linell (1998), building off the work of Fairclough, calls *recontextualization*. Linell goes on to explain:

> We can observe a mixing, blending, or blurring of difference voices and interests (professional and/or lay) in the discourse of particular categories of professionals, in specific genres of discourse, or within particular texts. Elements from different discourses and discourse types often partly merge, partly stay on to compete with each other. This is the phenomenon which Bakhtin terms polyvocality. (p. 150)

Recontextualization and "the blending of voices" in professional discourse is especially relevant to the Addressing Climate Change in Tampa Bay conference since each panel involved an academic, an elected official, and a practitioner, and speakers further identified themselves by their area of expertise or occupation. In other words, among the conference speakers there were ample professional boundaries to blur and vocabularies from which to borrow. The audience was similarly varied, consisting of a range of experts and lay individuals including middle school students. This promoted further recontextualization, since "professionals must accommodate their expertise, knowledge, and messages to meet the needs and expectations of people with other interests and backgrounds" (p. 151).

The conference closely resembled a scientific or academic conference and, as a communication scholar, I found the format comfortably familiar; like our national and regional communication conferences, the ACCTB conference consisted of panels with three speakers who each spoke for 12 to 15 minutes followed by an audience question and answer period. For the most part, participants followed the conventions associated with the genre of conferencing: presentations were about their professional work and not their personal lives; speakers prepared visual aids to accompany their talk, and many made use of graphs, charts, or other means of visualizing data relationally; audience questions were focused on the content of a presentation or about a person's occupation or experience, and were done to elicit information rather than challenge or attack a presenter's credibility; speakers were introduced using their professional titles; presentations were uninterrupted and language choices tended toward the formal register. It is therefore important to remember that the genre of the professional conference is a mediating factor in participant's discursive choices. Even more importantly, as an individual who has already been socialized into the performance of the professional conference, I must remember that my

understanding, and thus analysis, is likewise mediated by the conventions of, as well as my knowledge of, the genre.

Analysis: Constituting Climate in Tampa Bay

In the analysis below, I first argue that "climate change" functions as a shell for the participants: a semantically empty term which is given substance (filled in) by descriptive clauses "that usually follow directly or are part of the same text" (Smith, 2005, p. 112; see also, Bartesaghi, 2014; Schmid, 2018). Second, I analyze the discursive resources participants use to fill in the meaning of climate change.

Climate Change as Shell Term

When I initially worked through the data, what I noticed first was how little participants actually used the words "climate" or "climate change." In those instances when participants did explicitly say "climate change," it was often as part of an array of terms which described some observable phenomenon. The first three excerpts I consider are comments made by Brenda (the county representative) in her presentation during "The Built Environment" panel, Johnny (the geologist with a political career in municipal leadership) during the "Extreme Events" panel discussion, and Nicole (the toxicologist and university professor) in her presentation during the "Public Health and Social Justice" panel.

An extended transcript of Brenda's comments is included in Appendix E as well as in a later discussion as Excerpt 6.11. For convenience, I have included the relevant lines to the current discussion below:

Excerpt 6.1:

31 B: And so, more and more we need to work with natural shorelines, natural wetlands,
32 and our county and our region and our coalition needs to work together to find

33 solutions to live with the challenges of, of climate change, sea level rise, and
34 extreme weather, and other challenges.

Johnny's comment is part of a larger exchange between speakers, so I have provided the complete transcript in Appendix F. The "Extreme Events" panel was the only session conducted entirely as a discussion, with Hank serving as the facilitator, and Johnny, Diana, and Mark as the panelists. For convenience, I have included the excerpt I will discuss in this section below.

Excerpt 6.2:

38 J: I suspect that if we took a poll of the audience
39 here, we'd find, some people are concerned about flooding, some are
40 concerned about health, some are concerned about work days, which is
41 great because that's what we need to address the whole issue of climate
42 change sea level rise.

Nicole's comment comes from her presentation during the "Public Health and Social Justice" panel.

Excerpt 6.3:

1 N: Um, hold up, if you have a plastic water bottle in front of you,
2 good, alright, so, um, aside from the fact that this is a, this is a conference on
3 resiliency and ((audience laughter)) um, climate change, and ((audience begins
4 slow clap)) you guys didn't bring your own water bottles, using water bottles that
5 are made out of plastic and, and, petroleum, uh, so these are persisting compounds
6 that might bio-accumulate and all of the stuff that's in that plastic actually
7 migrates out of plastic and into the water, not technically while you're drinking it,
8 but you know, while it's in the water. So, water is potentially toxic, not right now,

but, you know, potentially. Uh, and so we look at persistent chemicals in action, obviously persistent is a bad thing and we don't tend to like things that are persistent, and this is affected by climate change, we don't tend to see a lot of it in Florida, we might see some of it migrating in terms of benthic exposure, but, this is something that would be more important in, um places that have a lot of ice, is because, increasing climate change, increasing temperatures, it's gonna melt a lot of things that are going to release a lot of persistent chemicals that were previously frozen. However, when that stuff gets released, it will be released into the atmosphere and then technically become available to us, not necessarily a great thing.

In the first two excerpts, "climate change" stands out as the proverbial one-thing-unlike-the-others. In Brenda's comment (Excerpt 6.1), both "sea level rise" and "extreme weather" function descriptively — that is, they can be said to refer to observable environmental phenomena. Sea level rise refers to one phenomenon in particular — that sea level is rising in relation to land. Extreme weather describes a collection of atmospheric phenomena such as hurricanes, tornados, derechos, droughts, flooding, and extreme temperatures. "Climate change" is functioning as what Smith (2005) calls a shell — a term without a clear referent. Shells allow participants to adjust the substance of an utterance to fit their specific and local positioning within a given interaction. In this sense, a shell term's semantic emptiness can also be understood as semantic flexibility. Here, though "climate change" is placed among descriptive terms as if it is also descriptive, its meaning is actually supplied by those terms with which it is listed. What appears to be a list, then, is functioning to provide semantic content to "climate change." The inclusion of "and other

challenges" further opens "climate change" to new and creative arrangements of action and meaning.

This catch-all phrase, however, simultaneously glosses over the many practices and possibilities which do the work of climate change, suggesting that "climate change," just like "climate" as I discussed in Chapter 2, is a nominalization — a complex, relational process turned into a noun. Line 11 of Nicole's presentation, provided in Excerpt 6.3, is another instance where "climate change" functions nominally. In the phrase "affected by climate change," a verb process is collapsed into a noun, in this case in order to constitute a convenient actor to attribute responsibility. This is problematic, however, because climate change is not actually a thing capable of bearing responsibility, let alone a thing which we can hold accountable through our conventional justice system. That "climate change" is a nominalization in these two instances further contributes to the emptiness of its meaning — when conceived as an object, we constrain our access to the practices which brought about its existence. Given the diverse occupational and disciplinary identities represented among the participants, this also potentially masks the polyvocalic character of the conversation, so that participants may appear to be referencing the same phenomenon without actually confirming that is the case.

In Brenda's comment (Excerpt 6.1), the shell content directly follows the use of the shell term, but in Johnny's comment (Excerpt 6.2), the shell content is given both before and after the use of "climate change." In lines 39 and 40, three "concerns" are listed together as related parts of a whole, the "whole issue," of course, being "climate change." This is what Schmid (2018) calls the linking function of shells. It could also be thought of as a moment of interdiscursivity (Fairclough, 2010), since by relating flooding, health, and workdays to climate change, Johnny is relating the greater discourses of which those terms are a part.

What I found most notable about Johnny's comment (Excerpt 6.2), however, was the phrasing in lines 41-42. Johnny does not refer to climate change and sea level rise as two distinct phenomena, as other participants did, but rather collapses them into one: "climate change sea level rise." This is an odd formulation, as without even so much as a pause between them, there is little way to tell what is functioning descriptively here. One interpretation is that "climate change" is denoting a special type of "sea level rise." Another reading is that "sea level rise" offers additional meaning to the type of "climate change" which is being referenced. I find the latter interpretation more probable; "sea level rise" is a less ambiguous phrase than "climate change" given that the former is (supposedly) observable.

What counts as evidence of "sea level rise" is much less contested than what counts as evidence of "climate change" — the submersion of what was previously land generally suffices for evidence that the sea level has risen. Though all practices of observation and measurement are done in discourse, as I demonstrated in the previous chapter on weather, we can say that providing evidence of "sea level rise" requires less mediation. If I live near a shoreline, I might be able to witness the rise in sea level by comparing the height of the water to nearby structures or geological structures, or the distance of my house to the shoreline; in other words, I can reasonably claim the sea level has risen through the mediational means of my body and my common sense understanding of water. To gather evidence of "climate change," however, I would need to access complex statistical models, large quantities of data, and have an advanced understanding of science and mathematics. Both by definition and by conventional practice[31], I cannot witness "climate change" with just my body and knowledge gained through common sense experiences.

[31] As Krauss et al. (2018) point out, "climate" is often described as "an abstract scientific concept that is not accessible to ordinary people, who are imagined as only having immediate access to the 'weather'" (p. 11). This is similar to Cox's (1999) notion of the "indecorous voice"; in environmental discourses, claims mediated by the body's senses

The direct pairing of "climate change" and a descriptor was repeated by Nicole in line 14 of Excerpt 6.3, though this time with a distinct pause between "increasing climate change," and "increasing temperatures" which I have notated in the transcript with a comma. Once again, "climate change" cannot stand on its own and is filled in immediately. Without a conjunction or conjunctive adverb to specify how they are related, "increased temperatures" fills in the meaning which is missing in "increased climate change," so they appear to be one and the same. That "climate change" is semantically empty becomes obvious if we try to actually use the two interchangeably; "increased temperatures" is not given clarity when described as "increased climate change."

Filling in the Meaning of "Climate Change"

In this section I consider how participants use identity and membership categorization to provide the meaning absent in the "climate change" shell. Membership categorization is a term introduced by Harvey Sacks to account for the discursive resources and practices — membership categorization devices (MCD) — speakers utilize to organize (mediate) their world into categories of related (and unrelated) identities and activities (Sacks, 1995; see also, Baker, 2004; Schegloff, 2007). MCDs are "composed of two parts — first, one or more collection(s) of categories, and, second, some rules of application" (Schegloff, 2007, p. 467). As Goffman (1965) reminds us, identity performances are morally laden:

> Society is organized on the principle that any individual who possesses certain social characteristics has a moral right to expect that others will value and treat him in a

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are often dismissed in favor of complicated scientific accounts. In the case of climate change this is compounded by the dominance of global mean temperature as a measurement of climate change, since technically, the mean is a statistical summary of aggregate data, rather than a temperature which can be observed, and more importantly, *felt*. What is more, to determine the global mean temperature, one must have access to enormous quantities of data. Tim, the opening keynote speaker at the conference, spoke to the problem of global mean temperature, saying if "you're worried about your home and sea level rise, you could care less about global mean temperatures. It's irrelevant."

> correspondingly appropriate way. Connected with this principle is a second, namely that an individual who implicitly or explicitly signifies that he has certain social characteristics ought to have this claim honored by others and ought in fact to be what he claims he is. In consequence, when an individual…makes an implicit or explicit claim to be a person of a particular kind, he automatically exerts a moral demand upon the others, obliging them to value and treat him in the manner that persons of his kind have a right to expect. (p. 6)

When a person incorporates some feature of an identity category into their interactions, others form expectations about how that person will, or should, act based on the normative behaviors associated with that category. In this way, MCDs mediate our encounter with an individual as with a particular type of person, therefore mediating my interpretation of that individual's behaviors depending on how well they fit my expectation of appropriate category bound activities.

In the welcome address which began the conference, Rick outlined the importance of three membership categories — scientists, practitioners, and elected officials — to the purpose and structure of the conference:

Excerpt 6.4:

1 R: The structure of the panels is also unique. Rather than have scientists deliver their
2 latest research, each panel consists of a, of a scientist or conte-, content expert,
3 and a government practitioner who needs to put the science into practice, and an
4 elected official who needs to develop consensus necessary to enable action. So the
5 idea here is to have a discussion about what works and what doesn't work, and
6 explore ideas on what each of these groups needs from the others.

In the first panel of the day, the "Extreme Events" discussion panel (Appendix F), Hank's comments in lines 61-65 (Excerpt 6.5) reiterate the importance of these three categories:

Excerpt 6.5:

61 H: Thank you. Um, we're gonna finish up with a, the exercise. One of the
62 themes of doing this is we want to get the three groups of elected officials,
63 scientist experts, the people who have to implement the science and the
64 policy, and we want to have this conversation start, and, what are we
65 doing well, what are we not doing so well.

The structure of the conference generated three collections of categories to which participants could reasonably claim membership: "scientists," "practitioners," and "elected officials." These three categories, which another participant referred to as "all three legs of this problem," are collections of characterizations which participants can claim and assign, such as [oceanographer/physician/toxicologist/etc.], [floodplain manager/engineer/director/etc.], and [state representative/mayor/county commissioner/etc.]. Hank even tells us some of their category-bound activities in lines 63 and 64. Here, Hank asks the panel participants to engage in an "exercise," a specific type of practice which Merriam-Webster (n.d.-a) defines as "the act of bringing into play or realizing in action." By engaging in the "exercise," the categories are reified and fixed to the bodies of the participants, mediating their possible actions, moral worth, and relationships.

Positioning the Climate Change Cast of Characters

Participants constitute what Roulston (2001) calls the "cast of characters" who can reasonably be said to enact the discourse of climate change by claiming some identity, or by assigning category membership to others. By "cast of characters" Roulston refers to the way in which speakers' accounts are described as dramatic scenes and heard as moral tales. Characters "emerge as would roles from a script interpreted by actors" (p. 102); the "cast of characters"

metaphor can be thought of as the stock characterizations which we expect to populate some category of scene or activity. The attributes assigned to characters are morally laden and given that they are assigned, the speaker has the moral high ground — others are characterized through practices of labeling and reported speech, but the speaker is always characterized in their own account.

In this exchange, we see how a claim to be some character is simultaneously a claim to what matters (and by extension, what ought to matter, and how that mattering should come about). During the "Extreme Events" panel discussion (Appendix F), Diana responds to Hank's question "Which climate change issues are the most urgent for Tampa Bay to address now?":

Excerpt 6.6:

11 D: Well, I'm floodplain manager, so I'm gonna go flood. Flood, followed by
12 water quality, but they really do go hand-in-hand, and, and we really do
13 need to address this at, at statewide level. There needs to be that, you
14 know, that statewide stormwater rule. We need to reevaluate what these systems
15 are being designed, to using better data in the models just like I said
16 before, because when we have better rainfall, better flooding data, we can
17 design better for whatever the water quality parameters are that we're
18 trying to meet.

When an MCD is activated, "its categories and the common-sense knowledge that can come with them" are resources which participants can utilize to position themselves in relation to other participants or the topic at hand (Schegloff, 2007, p. 471). Line 11 demonstrates both aspects of an MCD: one or more categories and rules for their application. First, Diana claims membership to a category, which makes relevant other categories assumed to be part of or related to that

collection. Here, "floodplain manager" implies membership to the collection of categories that comprise "practitioner," as well as the related collections of climate actors acknowledged by Rick and Hank in Excerpts 6.4 and 6.5, "scientist" and "elected official." Diana demonstrates her competency in claiming this particular identity by acknowledging, and following, the rules for deploying that MCD: floodplain managers are first and foremost concerned about flooding. Therefore, to credibly claim to be floodplain manager, Diana must, to borrow the cliché, "talk the talk" and "walk the walk" of a floodplain manager. To put this another way, from our common-sense knowledge about floodplain managers we can assert that the category-bound activity minimally associated with being a floodplain manager is managing the floodplain.

There is a blatancy to Diana's response which indexes the expectations we and Hank can reasonably have of her; because the response so obviously fulfills our expectations of her, we might wonder in hindsight whether the question even needed asking. This is evident in the order of her response — she provides her occupational identity before supplying a climate change issue, suggesting that one inevitably leads to the other. In this way, knowing that Diana is floodplain manager should be enough to establish her orientation to climate change. It is not, however, enough to demonstrate that Diana is an *expert* floodplain manager, so she goes on to provide a moral accounting of a floodplain manager's concerns, providing additional practices associated with performing floodplain manager and explicitly providing what she understands as the responsibilities associated with that category. Those responsibilities position Diana, as floodplain manager, within a moral universe of climate actors.

Diana's bureaucratic identity as floodplain manager lends her deontic status (Stevanovic, 2018); that is, making pronouncements about how the floodplain should be managed, and what is needed to do so successfully, is consistent with the expectations of her position. Part of the work

of creating community is materializing, by way of claiming a deontic stance[32], possible futures for that community, but first one must conjure a populace to inhabit said community. Diana accomplishes this with the use of the pronoun "we" which indicates her own accountability as well as the existence of others with comparable accountability. "We" can be thought of as a simple, yet highly efficacious means of identifying with an audience through the use of collective language (Burke, 1966; Cheney, 1983), or of bringing into being — interpellating (Althusser, 2014) — a collective subject of which both the speaker and audience are a part.

When speakers give an account, "each 'actual' scene is selected from an array of 'possible' scenes recognizable as ways in which the world could (or should) be ordered" (Roulston, 2001, p. 103). Category descriptions are unstable in that they are deployed as "an occasioned corpus" rather than a "fixed array" (p. 111). The "we" needed to support the moral agenda of a floodplain manager is described in several different ways just in this short utterance: in line 12-13, "we" are described as being capable of functioning "at statewide level," perhaps referring to Florida state policymakers and practitioners, or even more broadly as all Florida citizens and/or constituents; in lines 14-16, "we" is described in relation to those actions most often associated with scientists, the generation of data and models; in lines 16-18, "we" shifts to refer to those closer to Diana's own characterization, local practitioners like floodplain managers who develop and meet everyday parameters of acceptable practice. The roles and responsibilities of the "we" mentioned in lines 13-17 lead up to the "we're" in line 18 which indicates the responsibility of the practitioner in this deontic account. Each time, this "we" is positioned in relation to Diana, the speaker; when we

[32] Building from Stevanovic (2018), but orienting to the concepts from a constitutive rather than cognitive understanding, I define deontic status as the degree to which claiming a deontic stance is considered consistent with the social expectations of a person's identity or positioning within the social order. When a speaker, regardless of deontic status, expresses a claim about how something ought to be, this is what I consider taking a deontic stance. Deontic authority, the degree to which a participant in discourse may author how the world ought to be, involves the cooperation of other participants, and therefore should not be thought of as the sum of deontic status and stance, but rather the unfolding of deontic status and stance in interaction.

position ourselves, we necessarily position others in relation to us, placing ourselves at the center of the moral narrative.

Diana makes her deontic stance clear through her use of the deontic modality "we need to *x*." As Zinken & Ogiermann (2011) demonstrate, in English, "we need to *x*" is a strategy used "by speakers who are in the process of initiating an action that has to be, or should be, carried out collectively by more than one person" (p. 277). In other words, the "we need to *x*" modality is less about commencing some particular action now, but about recruiting others to support and enact particular values moving forward. In this sense, we may surmise that Diana is not so much advocating for action, but rather attempting to communicate her deontic stance and recruit her audience to adopt both the values she lays out, as well as her hierarchical ordering of them. In short, she is a character with a warrant to constitute a preferred moral universe.

Establishing Enoughness

In his work on identity, Blommaert (2013; see also, Blommaert & Rampton, 2011; Blommaert & Varis, 2013), uses the notion of superdiversity[33] to bring attention to the ways in which social life in the 21st century is variable, mobile, complex, and unpredictable. In other words, superdiversity acknowledges that a person may be many things, in varying combinations, simultaneously or situationally, and points to a logic that individuals use to determine which performances are the most reasonable or appropriate for a given interaction; that logic can be called *enoughness.* Enoughness is a continuum of more or less "authentic" (authoritative) performances of some category; it is a moral evaluation which either corroborates somebody's performance of a

[33] First used by Vertovec (2007) to account for the rapid demographic changes in 21st century London, superdiversity refers to the seemingly endless possibilities for identifying oneself and others. Blommaert (2013) describes superdiversity as arising out of "new and more complex forms of migration, and new and more complex forms of communication and knowledge circulation" which make it increasingly difficult to determine who is "the Other" and who are "We" by using the tidy binaries which characterized identity politics before the Cold War (p. 5).

character or invalidates it. A person may be labeled a "novice," "enthusiast," "professional," or "expert" depending on how many of the associated features of a category they incorporate into their performance and how competently they are incorporated. The stakes are high should the person be found out to be a "wannabe" or "fake," and avoiding such dismissive judgments about one's identity is a primary motivating factor in social interaction (Blommaert & Varis, 2013; Goffman, 1956).

In Excerpt 6.6, Diana accounts for what is expected of a floodplain manager in order to occupy the moral identity of the character. In Excerpt 6.7 below, Nicole indexes her credibility as a toxicologist by referencing the complexities associated with performing that identity, especially those which stem from superdiversity and contradicting roles. I will analyze the portion of this excerpt concerning "vulnerable populations" in the next section on relating to others. For now, I am concerned with lines 6-14, in which Nicole refers to an earlier presentation and discussion from "The Built Environment" panel about carbon emissions due to air conditioning use, and the recommended guidelines for indoor temperatures in order to minimize emissions without compromising human well-being.

Excerpt 6.7:

1. N: Vulnerable populations, generally speaking, they're the same vulnerable
2 populations that you might imagine for everything else. If you are in a lower
3 socioeconomic group, chances are you are more vulnerable to climate change
4 and the effects of everything that you might expect, so you can see here some of
5 the climate drivers, exposure pathways, and various sensitivities. Um, air
6 pollutants and cardio-respiratory diseases, uh, increased temperatures, we talked
7 about air conditioning in some of the earlier discussions. And, yes, Florida is a

8 wonderful state, it has gorgeous environmental settings, you've got lovely
9 waterfront, lots and lots of things to do outside, and yeah, a lot of mosquitos. And
10 I am not going to say that my air conditioning is set at, uh, 78. I will admit that it
11 is probably lower than that, maybe a lot lower than that ((audience laughter)), not
12 meat locker low, but you know, it's, it's lower than that, and so maybe I'll go
13 home and raise it out of guilt after this, but I'm just gonna say that I may be
14 contributing a little bit to this. Just a little tad…

In lines 6-14 Nicole admits that she "may be contributing a little bit" to climate change with her everyday practices. This excerpt points to an important aspect of establishing enoughness when claiming to be a climate actor — the most advanced, most qualified, and most trustworthy climate change experts are those who can acknowledge that they are complicit in the practices which drive anthropogenic climate change. As Garrard (2012) notes, casual environmentalists often self-aggrandize and overestimate the impact of their conventional environmentalist behaviors such as recycling, using reusable shopping bags, straws, and water bottles, avoiding meat and especially beef, etc. In essence, an environmentalist is someone who is able to maintain the appearance of caring about and protecting the environment without substantially interrogating the fundamental assumptions (namely capitalism, consumerism, and anthropocentrism) which underlie their worldview and do the work of maintaining the status quo.

An authentic environmental expert cannot indulge in such a luxury; an expert in climate change must confront the ways in which s/he is, at any and all times, contributing to the problem. Accepting that climate change is happening on a global scale affecting everyone everywhere necessarily requires me to accept that I, too, am part of that everyone everywhere. Further, accepting that climate change is, at least in part, caused by the emissions which result from the

burning of fossil fuels to generate energy to power our everyday practices requires me to acknowledge that my own everyday practices are implicated as well. A true climate expert, then, is one who is capable of grasping and wrestling with the tensions that arise from contributing to climate change with the very practices used to understand and address it. In Nicole's case, she demonstrates her expertise by acknowledging how her own practices of cooling her home are related to the increasing temperatures which are contributing to the spread of diseases which she studies as a toxicologist.

Compared with the other speakers at the ACCTB conference, Nicole had more moments that acknowledged contradiction and complexity in her own and other's identity performances. For example, in lines 5-7 of Excerpt 6.3, she calls out the people in the room who did not bring their own reusable water bottles while discussing how toxins can leach out of plastic and into water[34]. In this particular moment of the conference, I remember the audience glancing around nervously to see how many disposable water bottles were sitting on the tables in front of each row of audience members; I also remember feeling relieved that my own stainless-steel bottle was perched on the corner of the table in front of me. This was a significant moment, since as many of the experts in the room presumably knew, reusable personal items have enjoyed a boom over the last decade as consumers have taken on the burden of responding to climate change. In recent years, however, critics have warned that replacing or banning single-use plastic products like drinking straws and plastic bags give us the sense that we are doing more to curb emissions, toxicity, and pollution than we really are (Stafford & Jones, 2019). Though often criticized as the proverbial "low-hanging fruit," in Excerpt 6.3 Nicole uses the ease of carrying a reusable water

[34] Given the current pandemic state in which I am writing this dissertation, I feel compelled to reiterate that this conference happened in October 2019, before the global spread of the Covid-19 virus and the subsequent discouragement of refilling personal water bottles in public spaces.

bottle to question participants' enoughness. It seems, then, that experts do not only interrogate the ways in which they themselves are complicit, but also the ways in which those they interact with are also complicit.

It is worth noting that the "Public Health and Social Justice" panel stretched the format of the conference — panels consisting of a scientist expert, an elected policymaker, and a local practitioner — more than any of the other panels. All three speakers on the "Public Health and Social Justice" panel were university professors, though one had served as a state health commissioner in a different Eastern state before moving to Tampa. Public health and social justice are not as normatively associated with climate change as, say, a floodplain manager or someone who can claim another scientific discipline such as meteorology, climatology, or geology. Because of this, participants had to do more positioning to establish themselves as *climate change* content experts. Ellen, the final speaker of the "Public Health and Social Justice" panel, accounted for her role in the conference since she belongs to a disciplinary field not normatively associated with climate change:

Excerpt 6.8:

E: Um, one of the, the sort of key insights that I feel like uh, my field of anthropology um, as well as social science, brings to this discussion is, um, acknowledging that climate change is at its core, a fundamentally social problem. And it requires restructuring of economies and ecologies in more equitable and sustainable ways. And, um, this is really the, the social justice aspect of what, uh, the, the focus, I think our, a recurring theme in this panel is. Um, and so I think for that reason social sciences and also humanities really needs to be an integral part of the conversation about, um, not just thinking about impacts, but how do

9 people experience, uh, cli-, climate change now in their everyday lives, what are
10 the stories that they wanna tell, and also thinking about uh, the sorts of futures we
11 want to envision. So, uh, I, I think one of the things we've learned today is that
12 there are many possible futures that we, um, and our children and grandchildren
13 may experience as a result of the changes that are already taking place. Uh, so
14 what can we do about that?

The first thing which immediately strikes me is how Ellen does not explicitly claim a category as an identity; that is, she does not say "I'm an anthropologist" in the same way that Diana says "I'm floodplain manager." Instead, she refers to her "field of anthropology," which implies she is an anthropologist but with somewhat less accountability. Given the predominance of the so-called "natural sciences" in the discourse of climate change (Hulme, 2017), "anthropologist" is perhaps not an immediately recognizable category of climate scientist, so in line 2 Ellen positions her field of anthropology as related to "social science." In the second half of line 2 she reinforces her moral worth by claiming she is contributing to "this discussion."

In line 3, the meaning of "climate change" is filled in according to anthropology and social science. Here, climate change is "a fundamentally social problem," which stands in contrast to many of the other meanings (i.e., "flood," "sea level rise," "extreme heat," etc.) assigned to climate change throughout the conference. Ellen seems aware that her characterization of herself and of climate change stands in contrast to her fellow scientists, which is evident in her choice of words in line 3. She does not say "climate change is a fundamentally social problem," which would have been consistent with the MCD she implies in line 2. Instead, she says "climate change is <u>at its core</u>, a <u>fundamentally</u> social problem," doubling the importance of the social aspect of climate change while simultaneously leaving room for other resulting or peripheral climate change concerns.

Climate change involves things like flooding and extreme heat, but these phenomena are not what climate change *is.*

The rest of her comment sets out to prove that climate change is, first and foremost, a social problem, and that she and her fellow experts in the social sciences and humanities are not only relevant but "integral" to the climate change discourse. One way she demonstrates that she is enough of a climate change expert is by using professional language in lines 4-5: "restructuring," "economies," "ecologies," "equitable," "sustainable." Aside from lending a certain prosody to the statement since each of these terms is heard in four syllables, these terms are buzz words, jargon which index Ellen's education and professionalism. In other words, this sentence tells the audience how to interpret the credibility of Ellen's claims, rather than how to interpret the meaning of her claims. The audience does not need much help interpreting the meaning of her claims, as her argument is quite simple — people experience climate change, therefore climate change is a social problem.

Of course, Ellen's positioning of herself as a climate change expert is more about acknowledging the departure of her presentation from the norm in order to ease the audience's tension over not being able to place her within the provided format of the conference, rather than actually convincing her audience that she belongs. Just as the conference format compels her to account for her presence, it also establishes her credibility since she was invited by the conference organizers to participate in it. While to my memory she was the only speaker to explicitly call for the integration of social sciences and humanities in climate change research, the fact that the conference was structured to include a "Public Health and Social Justice" panel that featured a social scientist suggests that, at a minimum, the members of the USF STEM Collaborative who

hosted the conference already agree that climate change is (at least to some extent) a social problem.

Relating to Others

So far, I have provided examples of how participants categorized themselves as climate actors in order to relate themselves and their work to climate change and demonstrate their moral value. However, the moral universe cannot solely be populated by climate actors — if this were the case there would be no need for identification as such. Therefore, there must be other collections of categories which the presence of climate actors makes relevant. Though not explicitly named at the conference, a few participants alluded to a category which we might call climate dissenters — those that provide an obstacle for the morally superior climate actors. Take, for instance, this excerpt from David's closing keynote address:

Excerpt 6.9:

1 D: And, um, there was a, a moment there where I thought, wow there's going to be
2 some real political leadership at the state level! And then of course, um, there was
3 a change in the administration, uh, Rick Scott got in as part of the Tea Party wave,
4 and um, there was just this dramatic shift, I mean we really felt it, away from any
5 type of leadership or public discussion on this issue.

This excerpt constitutes a sort of us-against-them moral universe. Rick Scott is assigned as belonging to the "Tea Party wave," and with this categorization comes common-sense knowledge about the membership category "Tea Party." David establishes Rick Scott and the Tea Party as oppositional to him and his fellow climate actors through a linear sequence of events which allows the audience to infer causality. In line 4, the us-against-them arrangement is reinforced with the statement "we really felt it." Here, "we" is used to generate affiliation and interpellate a group of

sympathetic colleagues, many of whom were even present at the conference, as was evident from the many anecdotes shared throughout the day's presentations and discussions. Like characters in a drama, the climate actors are given a proper nemesis with whom they can engage in heroic struggle.

An obstacle or nemesis is not all that is needed to populate the moral universe of climate actors — some group(s) must be established who will benefit from the climate actors' heroic actions. For the participants at the conference, this group is "vulnerable populations." Let us return to Nicole's comments in lines 1-5 of Excerpt 6.7. Lines 1 and 2 reify the "vulnerable populations" category as relevant both to and beyond climate change. "Vulnerable populations" are routinely on the receiving end of concern and assistance, since vulnerability, as a relational concept (Turner, 2016), places people and things on a spectrum of risk. What is more, this spectrum is morally laden — those least at risk and most well-positioned to act (i.e., climate actors) have an obligation to help those who are most at risk and are not well-positioned to act on their own behalf (i.e., vulnerable populations). The rules of applying the "vulnerable population" membership category are given in line 3 — to be considered part of the vulnerable population, one must be a member of a "lower socioeconomic group." The risks to which their lack of socioeconomic capital makes them vulnerable are given in lines 6 and 7.

Importantly, the relationship between climate actors and vulnerable populations is highly imbalanced — vulnerable populations do not speak, but rather are spoken for. They are the "indecorous voices" which Cox (1999) identifies as being silenced in environmental discourses by those with greater institutional status and access. In this way, vulnerable populations are not so much collections of people as they are objects — objects of study, of governance, of concern. This becomes more obvious once we consider that humans are not the only groups that can be

vulnerable — spaces can also be vulnerable, as Steve, the university professor and landscape architect, demonstrated in his presentation during "The Built Environment" panel:

Excerpt 6.10:

1 S: We've made fixed systems in vulnerable areas, and we're not, you can't just lift
2 those out of the zone, right? So we are vulnerable in certain spots. So, I think
3 what we need to do is, uh, think about the system overall and how we can adapt,
4 uh, that as a system.

From this we can infer that vulnerable populations are not only those "in a lower socioeconomic group" as Nicole told us in Excerpt 6.7, but those who occupy vulnerable areas. This is significant because it lays the foundation for actions which would seek to control "vulnerable areas" and the bodies which occupy them. As Steve says in lines 1-2, "fixed systems" are those aspects of the built environment which we rely on for day-to-day functioning, and which are materially bound to their location — they cannot simply be lifted out of the "vulnerable areas." Actions which would control the vulnerability of an area, then, might instead be directed to the bodies which occupy that space since bodies are much more mobile than power grids, bridges, and floodplains. Actions, such as that described by Brenda in her presentation on the regional "Resiliency Coalition":

Excerpt 6.11:

1 B: And finally, in Pasco County, a community on the Anclote River has experienced
2 extensive repetitive flooding. The County obtained a HUD grant to support a
3 voluntary buy-out program for the low and mod-, moderate income homeowners.
4 And they are converting the land to green space.

Here, we can infer that the "community on the Anclote River" occupies a vulnerable area, since flooding is a description of climate change given by the participants, and that the flooding has been

"extensive" and "repetitive" indicates that the area is especially at risk. We are given additional characterizing details in line 3 that the occupants of this community are "low and moderate income homeowners," which would seem to fit the description of vulnerable populations given by Nicole. In Brenda's account, qualifying as a vulnerable area and a vulnerable population justifies control of that area and population: a "buy-out program" which has led to the converting of what was previously an inhabited community to "green space." We are told this buy-out program was "voluntary," but the implied vulnerability of the community and the space suggests that being bought-out is the only reasonable course of action. To put this another way, that we are told it was "voluntary" does not negate the way in which vulnerability was used to justify control. Rather, it suggests that vulnerability is so accepted as a justification for government control that there are even grants available from the U.S. Department of Housing and Urban Development for doing so.

The top-down, compulsory aspect of this program becomes more obvious if we imagine the choice behind the voluntary participation; as a homeowner in an area that experiences extreme and repetitive flooding, you are putting both yourself and the county at risk; the county, aware of this flooding, has deemed the community to be vulnerable, and is both obligated to provide assistance to the vulnerable population and compelled to reduce the vulnerability which is a drain on its resources; in labeling the area as vulnerable, they render the area as being of minimal value, and great potential cost, to the county, and therefore will no longer support residential occupation of the area; faced with either a loss of county resources or a county buy-out of established vulnerable property, residents have more to gain from a financial buy-out than they do from continued occupation. The choice is not so "voluntary," then, when identification as "vulnerable" paradoxically positions bodies as needing assistance, yet as only minimally worthy of that assistance and completely incapable of helping (let alone speaking for) themselves. Just as climate

actors are morally obligated to provide assistance to vulnerable populations, vulnerable populations, by virtue of their dearth of socioeconomic capital, cannot be overly choosy and must take what they get.

The (in)voluntary nature of the buy-out program is further evidenced by the assertion in line 4, "And they are converting the land to green space." We can assume the "they" taking this action are the heroes of our moral universe, the climate actors. Their action is ongoing, given that it is stated in the present continuous tense ("are converting"). That is, regardless of what voluntary decisions were made, the land is being converted. Additionally, they are converting it to "green space," which can only be temporarily occupied by human bodies and not permanently inhabited. Green space is described by the Environmental Protection Agency (n.d.) as a category of open space, which can be "any open piece of land that is undeveloped (has no buildings or other built structures) and is accessible to the public." Specifically, green space is "land that is partly or completely covered with grass, trees shrubs, or other vegetation" such as "parks" and "community gardens." So, without knowing how many residents voluntarily participated in the buy-out program, we are told that the space is already being transformed from a residential space to a green space, a transformation which necessitates the elimination of all human inhabitants and any indication of previous permanent residential occupation. Claiming the presence of "vulnerable populations" and "vulnerable areas" not only justifies, but compels, acts of control by those who are seen to possess greater socioeconomic capital, and therefore greater deontic status.

Relating to Environment

In addition to identifying their environment as "vulnerable areas," participants drew on normative categories of environmental characters, such as "nature" and "wildlife." Returning to Brenda's comments in Appendix E and Excerpt 6.1, it is evident that the traditional human-nature

dichotomy underlies her relationship to environment. I have included selections from the same moment from Brenda's presentation during "The Built Environment" panel in Excerpt 6.12 below:

Excerpt 6.12:

B: Filling wetlands is another sin of the past that we have to deal with now. Filling wetlands, even when we mitigate that, the, uh, those, that filling, which in, in Hillsborough County we're, we're lucky to have that Environmental Protection Commission that looks over our wetlands very closely, but still, um, we have a history of, of being allowed to mitigate wetland impacts, and that's been problematic because our fish, we're learning more and more. Our official wetlands and stormwater retention systems are just never as effective as natural systems in natural wetland systems.

(data omitted)

Um, hardened shorelines, a lot of cor-, coasts of course do not get the protection from flooding and wave damage that natural shorelines give us, and so we're now realizing that we need to work with nature as much as possible, rather than fighting against it.

Though her comments do position "nature" as something apart from humans, drawing upon the nature/culture binary I discussed in detail in Chapter 2, they represent a shift in how Floridians interact with their environment. Up until the mid- to late-twentieth century, environmental interventions were developed to control unwanted environmental impacts with human engineering. As Brenda mentioned, filling wetlands was common, as was building canals, dams, and sea walls, paving surfaces to prevent erosion, and using chemicals to eliminate pests. Importantly, the primary motivation and concern was to improve human comfort — any harmful

effects on the environment were outweighed by the potential to improve human quality of life. Since Rachel Carson's *Silent Spring* brought awareness to chemical pollution and the adoption of environmental protection laws in the 1970s, many of our past "solutions" are no longer an option, as Nicole pointed out with a story about how Florida eliminated malaria in the past:

Excerpt 6.13:

1 Nicole: At one point, we had malaria in Florida. It was, we were, uh,
2 building, railroads and it was sort of, you know, pre-air
3 conditioning days. How did we get rid of malaria in Florida? Does
4 anyone know?
5 Audience: Drain the swamps?
6 N: Well that was one way.
7 A: Vaccination?
8 N: No.
9 A: ((overlapping unintelligible suggestions))
10 N: Poured kerosene in the canals and then lit them on fire.
11 A: ((laughter, shocked gasps))
12 N: We did-, and it was the, that was how they got rid of the mosquito
13 larvae. So it's not something that's gonna pass muster with the
14 EPA, you know, if malaria marches north into Florida again, it's
15 not something that we're gonna be able to do. But, I'm just sayin',
16 it's, you know, that's how they dealt with it before…

In the beginning of this excerpt, Nicole uses the pronoun "we" to collectively refer to the inhabitants of Florida, past and present. It is not Nicole and the other conference goers who are

building railroads, but rather the historic and hypothetical humans occupying Florida during the mid- to late-nineteenth century. Later in the excerpt, in lines 12-16, she uses "they" to refer to those historical actors not constrained by the Environmental Protection Agency (EPA), and "we" to refer to the actors in the present day who are very constrained by the EPA and other national, state, and local regulations and regulating bodies. The "we" doing the action in line 15 includes herself and presumably the other representatives of the three main categories of climate actors at the conference.

Malaria, the disease caused by a parasite and spread by female mosquitos, is anthropomorphized in line 14 with the militaristic phrase "marches north." Nicole presents a scenario where we are facing battle with our hands tied; we know of, and have even implemented, a solution which will work to eradicate malaria, but through various institutionalized efforts, that solution is no longer viable. Lines 15-16, however, suggest that Nicole's orientation is a contradictory one for a toxicologist to take — it seems she is suggesting that pouring a toxic chemical into waterways is acceptable to her if it eliminates malaria.

This appears incommensurable with Brenda's attempt to recruit us to "work with nature…rather than fighting against it" (Excerpt 6.12, lines 23-24), unless we consider that "nature" can further be categorized, and therefore, moralized. We could say, then, that living shorelines represent *good* nature — environmental phenomena, ecologies, and lifeforms which help human lives and interests — whereas malaria represents *bad* nature — environmental phenomena, ecologies, and lifeforms which harm or threaten human lives and interests. In this way, it is possible for Brenda and Nicole's claims to exist coherently in the same moral universe — the environment is something we can learn from, as well as something we must occasionally battle.

A third way of positioning environment, also presented by Nicole during the "Public Health and Social Justice" panel, is similar to the positioning of "vulnerable populations" I discussed in the previous subsection of analysis. Though most speakers talked about the effects of climate change primarily in terms of those felt by humans, in Excerpt 6.14 below, Nicole considers the effects of climate change on "wildlife":

Excerpt 6.14:

1 N: ((sighs)) Everything that affects people, affects wildlife. Uh, the only difference is
2 wildlife doesn't get to go inside and close their door and turn on the air
3 conditioning and say, "okay, so, that was, you know I had a really bad day today,
4 but now I can sit inside in the air conditioning." They don't get to get away from
5 anything, their ecosystems are altered, and they're stuck with it.

In this moment, Nicole attempts to relate the problems faced by humans to the problems faced by wildlife, perhaps in an attempt to make the plight of wildlife *matter* to a human audience. Doing so blurs the division between humans and wildlife, and points toward the central assumption of the Terrestrial project — that species, beings, and materials of all sorts must find ways of inhabiting the habitable areas of the planet *together*. The audible sigh with which Nicole transitions from the topic of allergenicity to the topic of wildlife betrays their dismal circumstances, and the weariness with which she approaches the topic suggests that the future for wildlife is bleak.

In lines 3-4, she speaks for wildlife in a moment of ventriloquism, making wildlife speak to us so that we can speak in response (Cooren, 2014). Of course, this moment of hypothetical reported speech is an illustration of what is *not* said; the implication being that this statement is one which would in fact be said by a human, not wildlife. I would argue that this hypothetical speech is not one that would really be said by anyone — rather, it is a moral account of what is

taken for granted. This moment of speaking for wildlife is reminiscent of the discussions about "vulnerable populations." Like the community along the Anclote River, wildlife does not collaborate in developing the solutions to their problems; given cultural assumptions about the value of human lives compared to that of wildlife, their needs are secondary to ours. Given the many human needs expressed throughout the conference which would therefore take precedence, it seems wildlife are indeed "stuck with it" since they lack the ability to speak or act on their own behalf.

Discussion: Climate Change as a Moral Imperative

In this chapter I have demonstrated how the participants at the "Science, Strategies and Solutions: Addressing Climate Change in Tampa Bay" conference used the semantic emptiness of "climate change" to position themselves and others within a moral universe. Morality is tied to expectations, as Goffman (1956) tells us, about how we should act and how others should respond to our actions. As such, the characters at the climate conference have expectations they must fulfill not only through their actions, but through their accounts of their actions. Characterizations, like "policymaker," "practitioner," and "scientist," are used to serve morality claims (Roulston, 2001). That is, they position actors within a coherent narrative, one in which actions have reasons, meanings, and consequences, characters have goals to achieve or fail at, and moral attributes can be assigned to characters depending on how well they fulfill their purpose and drive the plot, so to speak. It follows, then, that not all actions are equally valued or appropriate.

The urgency of climate change amplifies the need for speakers to account for their actions in order to prove they are not wasting time that could be spent doing something *better*. Of course, what is better is determined through communication, as I will show with a few additional excerpts from the ACCTB conference. First, however, I need to make the argument that in the moral

universe created by the participants, contributing meaningfully to the discourse of climate change is a moral imperative. One way participants alluded to this moral imperative was by sharing anecdotes which illustrated undesirable contributions, such as in Steve's (the state legislator) story about an alleged informal ban on using the term "climate change" in official state business:

Excerpt 6.15:

S: My suspicion is that there was some directive from the governor's office to state agencies not to even use the word climate change in public testimony or in public documents. There was even this little snippet of a committee meeting in Tallahassee where there was, I think was then secretary of the DEP almost said the words climate change and then sort of stopped himself and it briefly went viral in a really bad way. One of those ways that makes you feel bad about Florida, you know, Flori-duh, you know, here we can't even talk about an issue that is obviously going to impact us in so many profound ways.

This anecdote is likely referencing a video of the Florida Emergency Management Chief Bryan Koon testifying before the state Senate's budget subcommittee in 2015, in which he is pressed by senators to use the term "climate change" but repeatedly finds ways to respond without doing so until the chamber dissolves into laughter (Krueger, 2015). However, it is more likely that Steve's anecdote is an amalgamation of moments, since around the same time of the video's viral circulation on social media and news outlets, there was a report from the Florida Center for Investigative Reporting which quoted former employees of the Florida Department of Environmental Protection who claimed internal state communications had instructed the agency not to use the term "climate change" beginning in 2011 when Rick Scott took office as state governor (Korten, 2015). What this suggests is that Steve is not giving this account for the purpose

of informing us about the particular details of an event, but rather to provide a cautionary tale in which Florida ought to be ashamed. Talking openly about climate change, then, is the minimum we should expect of ourselves if we wish to be valuable members of the moral universe.

Talking, however, is not enough to be a valuable climate actor, as Brenda explained in her presentation during "The Built Environment" panel:

Excerpt 6.16:

B: We need to plan, but we need to do. We need to keep start-, doing as we're planning. We can't wait for the plan to be all done. Um, because, at, at the end of the day, the, the plan we're gonna keep learning as we go. We need to iterate on what we do, and that will contribute to the plan, and then we keep planning and then we keep doing. So, it's, it's planning and doing.

Here Brenda reifies two possible meta-categories for climate action: "planning" and "doing." In particular, she attempts to reorient to "planning" — usually talk about collective future action which is a prerequisite of reasonable collective action — as not sequential to doing collective action, but simultaneous and mutually reinforcing. "Planning" is presented as an epistemic activity, and "doing" as an ontological one; the problem with this arrangement is that it rests on the assumption that generating an idea has less material impact than implementing it in practice. Kuhn et al. (2017) refute this assumption, however, demonstrating that even something as ephemeral as an idea can be followed by attending to the ways in which it is materialized in discourse.

The division between planning and doing, then, is a moral creation of Brenda's and the other participants, many of whom expressed similar calls to action. In this way, it seems that Brenda is explaining the relationship between "planning" and "doing" in order to make some other point about the current situation, perhaps positioning climate change as an ongoing crisis. In line

2 Brenda insists “we can’t wait,” lending an air of urgency to her attempt to recruit participants in her moral project with the “we need to x” formula (Zinken & Ogiermann, 2011). Returning to my argument that the climate change discourse functions as a moral imperative, the conclusion I draw from Brenda’s remarks is that a climate actor’s work is never done.

Brenda’s comments in Excerpt 6.16 and Ellen’s question “what can we do about that?” at the end of Excerpt 6.8 gave me the impression that for the participants, talk about climate change is less productive than doing something about climate change. What I have shown in this analysis is that this is absolutely untrue — talk about climate change allowed participants to build and populate a moral universe, position themselves and others within that universe, and carry out actions from their moral positioning. When considering that climate is a cultural abstraction (Hulme, 2017), talk becomes even more consequential — climate does not objectively exist, it is made to matter in communication and only exists in communication. The participant’s apparent belief that talk is less valuable than action rests on the warrant *talk is not doing,* and this reasoning crumbles when approached from a constitutive orientation in which talk is one of the mediational means we have for constituting experience. After all, from a constitutive orientation, talk *is* doing, and so their apparent difference collapses.

It is necessary to mention, however, that the format of the conference itself is a mediating factor in how participants were able, and compelled, to constitute climate change. The conference itself was set up to offer a loose regional agenda for addressing climate change. This is evident in the many, many uses of the “we need to *x*” deontic modality as well as the subtitle of the conference itself, “Addressing Climate Change in Tampa Bay.” In this way, participants are likely orienting to climate change as a moral imperative because the conference itself compels them to do so. Further, participants may have seemed to value doing over talking because they and the conference

participants were participating/had just participated in an entire day full of talking. Clearly, the conference participants are good at talking (and listening) about climate change, and therefore they do not need to be persuaded to engage in such an activity. Applying what is talked about in other settings, what Brenda calls doing and I have called resemiotizing, would require further action outside of the spatiotemporal boundaries of the conference, and therefore participants might require more encouragement or instruction.

Talk makes identities, actions, and relationships material, and as such will always be consequential. As I have demonstrated, participants' identities, as well as the identities they cast upon others, have moral significance. This is especially evident in the "vulnerable populations" identity group. Compared to other identity categories provided by the participants — "elected official," "scientist," "practitioner" — which are all occupationally defined, "vulnerable populations" constitutes members based upon their relationship to risk and gives the impression that their positioning in relation to risk is foundational to their character, somehow inherent to their being. Essentially, "vulnerable populations" constitutes a population along the morally coded continuum of vulnerability/resiliency, where "vulnerability" is less desirable than "resiliency." Labeling an entire group as synonymous with the negative end of this moral continuum renders their very existence problematic; as such, "vulnerable populations" must always be a target of change when designing a "resilient" environment. Therefore, "vulnerable populations" are inherently undesirable. A better practice would be to refer to these groups based on their role (e.g., "residents") or their specific positioning (i.e., neighborhood names) in an environment, so that the identity categories are both more equivalent and more morally just.

Conclusion

In this chapter, I examined how speakers use practices of membership categorization to mediate their relationship to their environment. Next, I consider the implications of the means of mediating environment I have discussed in this chapter as well as the previous analytical chapters on land and weather. I have shown that environment is communicatively constituted — environmental phenomena are sociomaterial and emerge from a relational ontology. The most pragmatic contribution of this chapter is the notion of the shell as a creative resource. As Byers (2011) aptly observes, "The unknown is the matrix out of which creativity is born" (p. 15). Because "climate change" is semantically empty, speakers must supply the substance of the term in the context of their claims, either by offering descriptions or using other discursive resources, such as membership categorization.

While it may seem that calling "climate change" a shell is a cynical stance, I find it rather hopeful — if "climate change" really is semantically empty, then to align with it speakers need only make the case, like Ellen (the anthropologist) does in Excerpt 6.8. It may once have seemed out of place to consult an anthropologist about climate change, but she is able to both establish herself as a climate actor and substantiate climate change with the common-sense knowledges of her field because climate change no longer has a consistent referent. The shell function of "climate change" makes it possible to create novel arrangements of actors and actions related to climate change, especially those which may seem entirely disparate due to organizational and bureaucratic boundaries. In Chapter 6, I conclude this dissertation with a discussion of what it means (to the communication discipline and beyond) to say that environment is communicatively constituted.

CHAPTER SIX:

CONLUSION

Looking back, I cannot think of a more fitting dissertation to write during 2020, the year in which the pandemic laid bare our interdependencies, bringing to light just how entangled and sociomaterial our worlds really are. In many ways, the COVID-19 pandemic has accelerated the public's awakening to what the literature has been saying for nearly two decades — we can no longer ignore the relational ontology which is the nature of being, what Moore (2015) calls the web of life. Consider the following headlines from the beginning of the pandemic last spring:

- "The pandemic is exposing the vulnerabilities of the U.S. service economy" – *The Washington Post* (Kucik & Leister, 2020)
- "Will the coronavirus end globalization as we know it?" – *Foreign Affairs* (Farrell & Newman, 2020)
- "COVID-19 pandemic exposes global 'frailties and inequalities'" – *UN News* (Kaizer, 2020)

The year 2021 has already provided its own wakeup call: a major cold snap and snowfall across Texas and the southern Midwest states led to deadly blackouts, demonstrating how fragile our infrastructure is to the extreme weather brought about by climate change[35] (Freedman, 2021).

[35] Even more disturbing, in 2011 Texas experienced a cold snap that caused issues with the electrical grid that led to an investigation and the subsequent recommendation for improvements to "weatherize" the grid; those recommendations were deemed too expensive and were abandoned (Freedman, 2021). Despite initial media coverage asserting the "unprecedented" winter weather, others were quick to point out that the cold snap, while uncommon, was actually well within the boundaries of what we might consider "normal" for the climate (Titley, 2021).

The boundaries we have worked for centuries to maintain are crumbling, and we can no longer afford to turn away from the tangled mess in which we find ourselves.

Much of this document was written while the world was on lockdown. In between bursts of writing or seemingly endless hours of reading and notetaking, I went walking, usually along the Tampa Riverwalk which runs along the Hillsborough River. I have been walking along the Hillsborough River for a couple of years now, but this year was the first time I saw manatees, dolphins, spotted eagle rays, alligators, and other aquatic life in the river so close to downtown Tampa and Port Tampa Bay, Florida's largest port in both size and cargo freight processed. The normal day-to-day river traffic had stopped (especially in the early days of the pandemic when fear was high and lockdowns strict) and in the absence of river taxis, recreational boaters, and other traffic, aquatic life flourished.

Once, I was so excited about seeing a pair of spotted eagle rays that I pointed them out to a passerby. I said something about how it was amazing seeing all the wildlife come out during the lockdown, and he replied, "They're always there, we just don't always look for them." Reflecting on this, I think we are both a little right. They are always there, if by "there" we mean existence, but our practices push out those who might use the space for other purposes beyond our own; so yes, the rays and manatees and gators are always in the Hillsborough River *somewhere*, but it was not until we got out of the way that they could be *there*, between the Fortune Taylor and Cass Street bridges, just beyond the massive Interstate 275 bridges, and right by tourist destinations that would normally keep the area so busy.

What impresses me about this experience is that we did not have to tear down our infrastructure and "re-wild" the river — we only had to change our practices and make room for other forms of life and existence. There were still cars on the roads and bridges, people on the

sidewalks and multiuse paths, boats on the river and in the channel, planes and helicopters in the sky, and so forth, just in much less quantity than before. Sure enough, as the lockdowns lifted the people of Tampa returned to their lives, or increasingly took to the outdoors to escape the boredom of quarantine living, and as my sightings of boats, cars, and people increased, my sightings of aquatic life became less and less frequent. While I do not offer this anecdote to try and establish causation[36], I cannot help but find it informative and perhaps even a bit hopeful. The anthropause happened "almost overnight, with barely a whimper of political opposition," and, while the primary goal was to stop the transmission of the COVID-19 virus, Jasanoff (2020) points out that "nation states enacted many of the recommendations that climate change activists had been proposing for years" (p. 340). Given enough motivation, we are capable of creating rapid global transformation of our practices.

Our practices have indeed rapidly changed since Joe Biden was sworn in as the 46th president of the United States. Within a matter of months, U.S. environmental policy reverted to an orientation reminiscent of that which characterized the Obama administration. On November 4, 2019, the U.S. formally left the Paris Agreement; on February 19, 2021, under the leadership of the Biden administration, the U.S. formally rejoined the international agreement (Chemnick, 2021). At the beginning of January of this year, Trump's Environmental Protection Agency passed a rule which limited the types of human-subjects research data the agency could use to develop its policies (Timmer, 2021); less than a month later, after the Biden administration requested a review of the rule, a federal judge vacated it (Eilperin, 2021). Under the Trump administration in 2019 alone "the BLM sold over 480,000 acres of land for oil and gas leasing…the most sold in one year

[36] Rutz et al. (2020) note that research on the anthropause is mostly anecdotal, as it will take some time for researchers to sift through and analyze the data collected during the months of lockdown in order to make claims about the relationship between human practices and the practices and health of those other Terrestrial beings trying to inhabit the same spaces.

since 2006" (Will, 2021); on January 27, 2021, President Biden signed Executive Order 14008 on "Tackling the Climate Crisis at Home and Abroad" (86 FR 7619), halting the sale of oil and gas leasing on public lands and offshore waters. Each of these changes has mediated our orientation to and interaction with environment in particular ways, allowing the possibility of some actions while constraining others, and the consequences each time are enormous and far-reaching. In this chapter, I reflect on my analyses and the implications of this project for the communication discipline and related transdisciplinary literature.

Materiality

My initial reflections on whether I have accounted for the agency of the Earth in our constitution of environment were that I have not done so significantly. My next reaction was to realize that I was making this judgment along the human/nature binary by privileging the materiality of "natural" agents over "human-made" materiality. Taking a relational ontology seriously means this dividing line cannot matter — that is, the nature of entanglement is such that the doings of beings cannot be distinguished, let alone morally evaluated, on the basis of humanness. Something I struggled with in analysis was how, over and over, I searched for Earthly agents, and over and over, I found our discursive materializations of those Earthly agents.

Still, entextualized and recontextualized iterations of environment are themselves matter that matters. As Shove (2017) tells us, "things which are mobilized in practice are not merely 'used.' Rather, such things are implicated in defining the practice itself" (p. 159). Maps, satellite images, computer models, legal statute, and other agents of mediation enable us to interact in some ways and not others, shaping what we know and how we come to know it. Schatzki (2002) summarizes this by saying "human coexistence thus transpires as and amid an elaborate, constantly evolving nexus of arranged things and organized activities" (p. xi). Materials acquire and enact

agency in interaction, and the consequences of how this agency is mobilized are no less real whether that action is attributed to a map or a mountain.

Perhaps there is a limit to the discursive participation of Earthly agents since, after all, discourse is primarily conducted for the benefit of humans. As a consequence of our globalized lives and distanced worldviews, we can now be co-present with geological formations thousands of miles away, our interaction mediated through photographs or videos. I can mourn the loss of Cedar Mesa from Bears Ears National Monument without leaving Florida or ever having been to Southern Utah because I have interacted with its multimodal incarnations. The possibilities for relating and interacting across boundaries seem endless when we abandon our moral preference for idealized "authentic" encounters; after all, the continuum of enoughness by which we assign authenticity is slippery, subjective, and highly moralized (Blommaert & Varis, 2013). Perhaps this is the paradigm shift we need in the digital age, to abandon the moral hierarchy of material encounters, taking a multimodal orientation which acknowledges that various modes and means of mediating material encounters offer varying affordances and constraints. While I think paying attention to Earthly agents is important, I think that noticing their absence from our discursive practices is as important as finding it. This tells us something about how we *do* anthropocentrism — we do it by reducing Earthly agents to objects we can manipulate and materialize how we like, and this happens in discourse. If we know certain practices are indicative of an anthropocentric orientation, then we have somewhere to start.

Transdisciplinary Contribution

One of the most rewarding and generative, as well as frustrating and difficult, aspects of this project was the transdisciplinary scope of the research. As I attempted to fill the gaps in communication literature, I discovered handfuls of scholars in various other disciplines and

subdisciplines working toward the same goal and arriving at the same conclusion. Working from a starting premise of relationality and sociomateriality, they attempt to account for ideas of materiality and agency in the subject matter of their discipline and end up with similar conclusions that a paradigm shift is needed because our current one will surely implode imminently. Of course, this is a generalized narration of a diverse body of work, much of which I suspect I have not yet encountered personally.

Each time I was stuck during writing or analysis, I would stumble upon a thread of research from another discipline: critical legal geography, science and technology studies, ecolinguistics, etc. These other disciplines asked similar questions but from a slightly different position, something I found to be incredibly generative and creativity inducing. On the other hand, doing transdisciplinary research can be incredibly slow and especially tedious. I often went days or weeks where I found very little research until I was able to find an entrance into the literature through a key figure or publication — I often felt I only stumbled upon other disciplinary work, since I did not know they existed, not to mention knowing their search terms. Though I found plenty of researchers with similar goals and work, they often call it something different, use the language and practices associated with their discipline, publish in discipline-specific journals, and differ in ways just significant enough as to prevent their being selected by the algorithms which regulate our searches. I say this not to aggrandize my accomplishments, but to comment on how, unless one expressly sets out to be transdisciplinary, it is very possible these materialist clusters of research will remain disciplinarily bound. Not every doctoral candidate has a committee willing to let them stray from the disciplinary literature, and not everyone has the time or resources needed to meaningfully engage across disciplines. The learning curve for transdisciplinary research is enormous — not only does one have to adjust to the jargon, but also at least have a rudimentary

understanding of the assumptions of that position which requires at least a rudimentary understanding of how that discipline, or more commonly subdiscipline, developed. It means taking oneself through the process of getting to know the literature at a level I have not experienced since I was an undergraduate student, and it took time.

This is why I find the transdisciplinary component of this dissertation so valuable — it brings together scholars who might not even know about each other, and puts them in conversation, making them relevant to Communication. By drawing upon the transdisciplinary literatures of performance studies, discourse studies, rhetoric, and practice theory, scholars of Communication can access a rich vocabulary for describing social life; from this rich vocabulary we can define communication as the site-bound performance of social (dis)order. I wonder if Communication should not become a home for this transdisciplinary research — many of the articles in the literature I have reviewed in these pages take a discursive approach, and Communication could benefit the critical disciplines by offering rich literature reviews and empirical exemplars to aid transdisciplinary scholars as they apply a constitutive approach to their own subject matter.

I want to consider the value of practice theory to such an endeavor, particular in light of what Schatzki (2002) calls "site ontologies" (p. xiii). Site ontologies are similar to relational ontologies, in that experience emerges from and is mediated by connections among entities/phenomena, but the phrase strikes me as being more open to unexpected arrangements and interactions, since "relationships" are haunted in a Derridean, interdiscursive sense by their heavy theorizing in interpersonal and psychoanalytic spaces as a cognitive, mostly human experience. Site ontologies reminds me of Scollon's (1998, 1999, 2001) phrase "sites of engagement," which Jones (2005) so aptly applies to our multimodal, computer mediated communicative practices. A site ontology is one which understands sociomaterial life as emergent from and bound to the site

of its becoming — what counts as the "site" (and how we determine this) is therefore a matter for theoretical consideration and analytical interrogation, and a fruitful direction for future research since as Schatzki (2002) points out, the description and critique of what counts as a site "can be extended almost indefinitely" (p. xii).

To be clear, I am not advocating for site ontologies to replace relational ontologies — ultimately, they both seek to call attention to the enmeshment of being and becoming — but rather I am suggesting that it affords a connection to valuable literature while also avoiding confusion with other existing interpersonal communication theories. A site ontology draws attention to practices which order and arrange entities in ways which impart meaning and identity — this is closely related to performance theories and organizational theories which have long portrayed social life as a doing.

In the final post on his research blog, *Ctrl+Alt+Dem*, the late sociolinguist and linguistic anthropologist Jan Blommaert said of academia in its current state, "Little truly valuable intellectual work is going on there." The neoliberal university prizes the enterprising self, valuing the single-authored journal article and fostering competition at the expense of discussion and the exchange and sharing of ideas. Ideas are intellectual property, and they are guarded until they are developed, rather than sharing that process of unfolding and widening the possibilities for creativity to emerge. As Blommaert goes on to say, "Frankly, all this is in its simplest and most elementary form anti-academic and anti-intellectual."

The reason I bring this up is that, in my transdisciplinary wanderings through the literature, despite various differences in theories, vocabulary, disciplinary grounding, etc., scholars around the world and across disciplines are arriving at a similar conclusion: we need a paradigm change. Now, it is worth mentioning that, across disciplines, scholars are citing the same academic "rock

stars," as Blommaert calls them, and those rock stars have declared we need a paradigm change, and so the conclusion is also supplied to transdisciplinary wanderers. But here is the thing, saying we need a paradigm change is an initial step — we cannot allow ourselves to dwell there. It is a risky conclusion to draw, too, since a "paradigm change" implies an enormous shift, some radical transformation that, 50 years from now, we can neatly mark on a timeline of human development. It sounds impossible.

But when I hear we need a new paradigm, I interpret this in two ways: (1) we need some new, creative ideas, and (2) we need to change our practices. Ideas materialize in discourse (Kuhn et al., 2017), and creativity is often described as making connections between two positions and using those connections to generate a new position — a robust transdisciplinary literature would facilitate this. A paradigm is a constellation of practices, made and maintained in interaction. Calling it a paradigm homogenizes it into one huge abstraction that, frankly, is a bit beyond our human faculty to comprehend. Calling it our normative (or some other, more accurate descriptor) practices is not only more correct, but it is also more approachable. Practices are empirical — we can study them, analyze them, critique them, and most importantly, change them. What the rock stars mean when they call for a paradigm shift is that *we need to stop doing things the way we are and start doing them in a way we haven't imagined yet.* If we truly value their guidance, then we better start imagining.

The last thought I will develop here about transdisciplinarity is to acknowledge the conditions which made this transdisciplinary dissertation possible. As an undergraduate, I was taught keep my research within the Communication discipline, and I frequently lost points for citing too much work from outside of the discipline. While it was infuriating at the time, I appreciate that my early training taught me to get to know one discipline first and make it my

home. In my master's program, I worked closely with faculty members who did their own transdisciplinary work; I was fortunate to have a thesis advisor who got as excited about roads as I did and encouraged me to read the work of other disciplines and talk through my ideas with faculty in other departments. For this dissertation, I am fortunate to have a committee who are excited by my transdisciplinary approach, an advisor who has demonstrated through her own scholarship and scholarly relationships the value of discourse analysis across disciplines as well as the importance of interdisciplinarity to "hold our analyses accountable" (Bartesaghi & Pantelides, 2018, p. 173), and to have the financial support of the Office of Graduate Studies at my university. I do not offer my experience as a model, but rather to illustrate how transdisciplinary research is only possible if there are faculty and administrators who support it. Something interesting I noticed while researching was how often I found truly creative transdisciplinary work in master's theses — in this case, supporting transdisciplinary work does not even necessitate organized effort across boundaries, but rather can be fostered from within a department. So, while it takes support, that support does not have to include radical structural change to make a difference.

The Terrestrial Project

I cannot recall the number of times I have deleted "the Terrestrial project" from this manuscript and the myriad drafts which preceded it. The literature is already a jungle of jargon and debates over "-cenes" and "-isms" proliferate. As a communication scholar, this causes me deep discomfort. On the one hand, I truly believe language matters and that terminology reveals and conceals possibilities for relating; on the other hand, I find these debates over terminology rather uninteresting since they rarely offer insight into how to change our practices beyond swapping one term for another, and this often is not enough to generate significant social change

since merely swapping terms allows other practices to continue on relatively unaltered. Admittedly, I like the way it sounds, and it makes me feel like I am contributing something to the literature because trendy terms are commodities in the market of academic publishing — but this is probably the least of my contributions in this dissertation. This is because it is the nature of the work and the ideas the Terrestrial project develops — relationality, sociomateriality, communicative constitution — that matters, not the nickname I have given it. Still, I have found it a helpful orienting point throughout my research. To me, it is a reminder to check my dichotomous tendencies, and to orient to Terrestrials instead of humans and nature. I have decided to leave it in the project because others may find it useful for similar or other reasons, and that possibility makes it worth sharing.

Practical Applications

Having earned a master's degree in communication and *advocacy*, it is important to me that my work be practically applicable in the discipline and beyond. This is one reason why I take a discourse analytic approach — I used to joke that I wanted to write a dissertation that my mom could enjoy, and discourse analysis is accessible without compromising theory. One does not need an understanding of complex statistical models, research design protocol, or theory to read and get the point of a discourse analysis. Though having those resources at one's disposal may open a level of nuanced understanding not available to others without them, discourse analysis shows people what they are doing with their language and this makes it relatable. In some ways, discourse analysis offers people a glimpse at how accomplished they are at interaction — in comparison to popular press claims about poor communication skills in the digital age, discourse analysis affirms the work we are constantly doing to matter and make things matter together.

This is a beautiful place to begin advocating for a change to our environmental practices. Once we know all that we are already doing, the future seems wide open for all we might do instead (or in addition to). It is incredible, this way we have constituted a thing I have been calling "environment." It is incredible, the way we interact with other beings and materials to continually become, resemiotizing practices and ideas across contexts and constantly adapting to the varying affordances and constraints of modes. It is incredible, the way we institutionalize practices and entextualize ideas, so that their mattering is not entirely dependent on us and our everyday encounters need not reinvent the wheel. We do it all in communication, and we will continue to transform it in communication; discourse analysis provides us a means to make claims about what we have done, how we did it, and how we might do better.

Of course, we do not do all this communicating solely with other humans or through language. Discourse analysis, at least the multimodal mediated approach I have adopted here, provides a means for accounting for the hybridity of communication. By attending to action and relationships, it becomes apparent that there are many things *doing many things* in any given interaction (and I am being purposefully vague here). The more of these things we can notice and interrogate, the less fixed our reality becomes. It turns out that materials are doing much of the hard work of making our world appear stable and perpetuating the status quo — legal texts impose a property relationship on our relationship to land, maps and spaghetti models mediate a hurricane to make it knowable, membership categories supply semantic meaning and position actors as characters in a moral drama with the changing climate. If we want to change the status quo, then, we must attend to those materials and beings.

When it comes to legal texts, a central question for researchers moving forward should be how to reconcile the reality of a system of practice which necessitates an enacting clause with the

very real need to create a world in new legal texts that is different from the one(s) those same texts must call upon to legitimate them. This is similar to the existing conversations about making legal language more accessible, but it goes a bit further. It is not just a matter of making legal texts understandable or otherwise more transparent; rather, it is a problem of needing to call upon a text to speak without simultaneously recontextualizing the world from which it is speaking. I admit, I do not have enough legal knowledge or experience to make suggestions of how to do this with much certainty, but I wonder if we might need to develop a new clause to accompany the enacting clause, one which specifies the relational context (and perhaps, contradictions) in which the conference of authority takes place.

Sharpiegate demonstrates the way in which some ways of mediating and constituting environment are given institutional authority at the expense of others and provides us an opportunity to reflect on why this is (and probably ought to be) the case in a crisis situation. Efficient, organized action is critical when responding to a hurricane in order to minimize damage to and loss of property, infrastructure, and lives. However, it is important that we not mistake the *authoritative* account for the *objective* account. A NOAA forecast map may be the authoritative view of a hurricane, but it is not an objective view, and neither is it representational of the actual storm. Every time we observe, entextualize, and recontextualize a hurricane in discursive practice we are re-mediating our relationship to the hurricane, and by extension what that hurricane is and comes to be. Rather than pretending to uphold some boundary between politics and science, let us own to the ways in which these pursuits are entangled.

I will make a final suggestion, this time with a bit more feeling. We should use caution when categorizing people as "vulnerable populations," especially when it comes to environmental matters. When it comes to environmental changes, we are all vulnerable (if unevenly), so the

category “vulnerable populations” is not only misleading, but also not useful or necessary. As carbon-based lifeforms, we are only capable of existing in a very specific set of conditions. Institutionalizing vulnerability with vulnerability indices, coalitions, or studies fixes a moral worth onto bodies with very real consequences and covers over the way in which that moral worth was decided upon and assigned (see also, Bartesaghi & Pantelides, 2018). Who benefits from being a vulnerable population? Certainly not the vulnerable themselves, as their autonomy is entirely lost in the labeling.

Instead of assigning membership to a category which foregrounds moral worth as its primary characteristic, let us instead use the descriptive terms which already exist and apply to these populations. It is not better to refer to “vulnerable populations” instead of persons who are “poor,” “Black,” “Native,” “immigrant,” “uneducated,” “old,” “disabled,” “women,” “gender non-binary,” etc. Descriptive identity terms account for the systemic and institutionalized ways by which we constitute vulnerability — we create vulnerability through the asymmetries of authority we make and maintain in discursive practice. “Poor” people are made vulnerable by the economic systems which leave them with fewer resources for adapting to their environments. “Black” people and other persons of color are made vulnerable by the historical and continued practices of racial oppression which have repeatedly forced them to bear the burdens of environmental change and destruction. Let us be honest about the ways we determine people’s moral worth based on their classed, gendered, and racialized identities and let us not skip the critical step of accounting for how vulnerability is done.

We must be made to reckon with the asymmetries we have materialized and maintained through our discursive practices. I have shown that how we communicate about environment is really a communicating with environment — a relational, hybrid unfolding of social and material

mattering that we experience as discursive practice. There is no unmediated access to environment — it only exists in communication, and therefore environmental research must not only acknowledge its communicative constitution but work to demonstrate in empirical analysis how an environment is realized in discursive practice. If we can account for the many beings and materials interacting in the realization of one world out of many possible worlds, then we can begin to seek a just way of reconfiguring what matters for the benefit of all Terrestrials.

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APPENDIX A:

THE ANTIQUITIES ACT OF 1906

CHAP. 3060.—An Act For the preservation of American antiquities.

June 8, 1906.
[S. 4698.]
[Public, No. 209.]

American antiquities.
Penalty for unauthorized excavations, etc.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That any person who shall appropriate, excavate, injure, or destroy any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, shall, upon conviction, be fined in a sum of not more than five hundred dollars or be imprisoned for a period of not more than ninety days, or shall suffer both fine and imprisonment, in the discretion of the court.

Setting apart of historic, etc., public lands.

SEC. 2. That the President of the United States is hereby authorized, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Government of the United States to be national monuments, and may reserve as a part thereof parcels of land, the limits of which in all cases shall be confined to the smallest area compatible with the proper care and management of the objects to be protected: *Provided*, That when such objects are situated upon a tract covered by a bona fide unperfected claim or held in private ownership, the tract, or so much thereof as may be necessary for the proper care and management of the object, may be relinquished to the Government, and the Secretary of the Interior is hereby authorized to accept the relinquishment of such tracts in behalf of the Government of the United States.

Proviso.
Relinquishment of private claims.

Permits for excavations, etc.

SEC. 3. That permits for the examination of ruins, the excavation of archæological sites, and the gathering of objects of antiquity upon the lands under their respective jurisdictions may be granted by the Secretaries of the Interior, Agriculture, and War to institutions which they may deem properly qualified to conduct such examination, excavation, or gathering, subject to such rules and regulations as they may prescribe: *Provided*, That the examinations, excavations, and gatherings are undertaken for the benefit of reputable museums, universities, colleges, or other recognized scientific or educational institutions, with a view to increasing the knowledge of such objects, and that the gatherings shall be made for permanent preservation in public museums.

Proviso.
Preservation in museums.

Regulations.

SEC. 4. That the Secretaries of the Departments aforesaid shall make and publish from time to time uniform rules and regulations for the purpose of carrying out the provisions of this Act.

Approved, June 8, 1906.

APPENDIX B:

54 U.S. CODE §320301 – NATIONAL MONUMENTS

§320301. National monuments

(a) PRESIDENTIAL DECLARATION.-The President may, in the President's discretion, declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated on land owned or controlled by the Federal Government to be national monuments.

(b) RESERVATION OF LAND.-The President may reserve parcels of land as a part of the national monuments. The limits of the parcels shall be confined to the smallest area compatible with the proper care and management of the objects to be protected.

(c) RELINQUISHMENT TO FEDERAL GOVERNMENT.-When an object is situated on a parcel covered by a bona fide unperfected claim or held in private ownership, the parcel, or so much of the parcel as may be necessary for the proper care and management of the object, may be relinquished to the Federal Government and the Secretary may accept the relinquishment of the parcel on behalf of the Federal Government.

(d) LIMITATION ON EXTENSION OR ESTABLISHMENT OF NATIONAL MONUMENTS IN WYOMING.-No extension or establishment of national monuments in Wyoming may be undertaken except by express authorization of Congress.

(Pub. L. 113–287, §3, Dec. 19, 2014, 128 Stat. 3259 .)

HISTORICAL AND REVISION NOTES

Revised Section	*Source (U.S. Code)*	*Source (Statutes at Large)*
320301(a) through (c)	16 U.S.C. 431.	June 8, 1906, ch. 3060, §2, 34 Stat. 225 .
320301(d)	16 U.S.C. 431a.	Sept. 14, 1950, ch. 950, §1 (proviso relating to national monuments), 64 Stat. 849 .

In subsection (c), the word "parcel" is substituted for "tract" for consistency in this section.

In subsection (d), the word "further" is omitted as obsolete.

APPENDIX C:

PRESIDENT OBAMA'S PROCLAMATION ESTABLISHING BEARS EARS NATIONAL MONUMENT

Federal Register
Vol. 82, No. 3
Thursday, January 5, 2017

Title 3— The President

Proclamation 9558 of December 28, 2016
Establishment of the Bears Ears National Monument

By the President of the United States of America
A Proclamation

Rising from the center of the southeastern Utah landscape and visible from every direction are twin buttes so distinctive that in each of the native languages of the region their name is the same: Hoon'Naqvut, Shash Jáa, Kwiyagatu Nukavachi, Ansh An Lashokdiwe, or "Bears Ears." For hundreds of generations, native peoples lived in the surrounding deep Sandstone canyons, desert mesas, and meadow mountaintops, which constitute one of the densest and most significant cultural landscapes in the United States. Abundant rock art, ancient cliff dwellings, ceremonial sites, and countless other artifacts provide an extraordinary archaeological and cultural record that is important to us all, but most notably the land is profoundly sacred to many Native American tribes, including the Ute Mountain Ute Tribe, Navajo Nation, Ute Indian Tribe of the Uintah Ouray, Hopi Nation, and Zuni Tribe.

The area's human history is as vibrant and diverse as the ruggedly beautiful landscape. From the earliest occupation, native peoples left traces of their presence. Clovis people hunted among the cliffs and canyons of Cedar Mesa as early as 13,000 years ago, leaving behind tools and projectile points in places like the Lime Ridge Clovis Site, one of the oldest known archaeological sites in Utah. Archaeologists believe that these early people hunted mammoths, ground sloths, and other now-extinct megafauna, a narrative echoed by native creation stories.

Hunters and gatherers continued to live in this region in the Archaic Period, with sites dating as far back as 8,500 years ago.

Ancestral Puebloans followed, beginning to occupy the area at least 2,500 years ago, leaving behind items from their daily life such as baskets, pottery, and weapons. These early farmers of Basketmaker II, and III and builders of Pueblo I, II and III left their marks on the land. The remains of single family dwellings, granaries, kivas, towers, and large villages and roads linking them together reveal a complex cultural history. "Moki steps," hand and toe holds carved into steep canyon walls by the Ancestral Puebloans, illustrate the early people's ingenuity and perseverance and are still used today to access dwellings along cliff walls. Other, distinct cultures have thrived here as well -- the Fremont People, Numic- and Athabaskan-speaking hunter-gatherers, and Utes and Navajos. Resources such as the Doll House Ruin in Dark Canyon Wilderness Area and the Moon House Ruin on Cedar Mesa allow visitors to marvel at artistry and architecture that have withstood thousands of seasons in this harsh climate.

The landscape is a milieu of the accessible and observable together with the inaccessible and hidden. The area's petroglyphs and pictographs capture the imagination with images dating back at least 5,000 years and spanning a range of styles and traditions. From life-size ghostlike figures that defy categorization, to the more literal depictions of bighorn sheep, birds, and lizards, these drawings enable us to feel the humanity of these ancient artists. The Indian Creek area contains spectacular rock art, including hundreds of petroglyphs at Newspaper Rock. Visitors to Bears Ears can also discover more recent rock art left by the Ute, Navajo, and Paiute peoples. It is also the less visible sites, however -- those that supported the food gathering, subsistence and ceremony of daily life -- that tell the story of the people who lived here. Historic remnants of Native American sheep-herding and farming are scattered throughout the area, and pottery and Navajo hogans record the lifeways of native peoples in the 19th and 20th centuries.

For thousands of years, humans have occupied and stewarded this land. With respect to most of these people, their contribution to the historical record is unknown, but some have played a more public role. Famed Navajo headman K'aayélii was born around 1800 near the twin Bears Ears buttes. His band used the area's remote canyons to elude capture by the U.S. Army and avoid the fate that befell many other Navajo bands: surrender, the Long Walk, and forced relocation to Bosque Redondo. Another renowned 19th century Navajo leader, "Hastiin Ch'ihaajin" Manuelito, was also born near the Bears Ears.

The area's cultural importance to Native American tribes continues to this day. As they have for generations, these tribes and their members come here for ceremonies and to visit sacred sites. Throughout the region, many landscape features, such as Comb Ridge, the San Juan River, and Cedar Mesa, are closely

tied to native stories of creation, danger, protection, and healing. The towering spires in the Valley of the Gods are sacred to the Navajo, representing ancient Navajo warriors frozen in stone. Traditions of hunting, fishing, gathering, and wood cutting are still practiced by tribal members, as is collection of medicinal and ceremonial plants, edible herbs, and materials for crafting items like baskets and footwear. The traditional ecological knowledge amassed by the Native Americans whose ancestors inhabited this region, passed down from generation to generation, offers critical insight into the historic and scientific significance of the area. Such knowledge is, itself, a resource to be protected and used in understanding and managing this landscape sustainably for generations to come.

Euro-Americans first explored the Bears Ears area during the 18th century, and Mormon settlers followed in the late 19th century. The San Juan Mission expedition traversed this rugged country in 1880 on their journey to establish a new settlement in what is now Bluff, Utah. To ease the passage of wagons over the slick rock slopes and through the canyonlands, the settlers smoothed sections of the rock surface and constructed dugways and other features still visible along their route, known as the Hole-in-the-Rock Trail. Cabins, corrals, trails, and carved inscriptions in the rock reveal the lives of ranchers, prospectors, and early archaeologists. Cattle rustlers and other outlaws created a convoluted trail network known as the Outlaw Trail, said to be used by Butch Cassidy and the Sundance Kid. These outlaws took advantage of the area's network of canyons, including the aptly-named Hideout Canyon, to avoid detection.

The area's stunning geology, from sharp pinnacles to broad mesas, labyrinthine canyons to solitary hoodoos, and verdant hanging gardens to bare stone arches and natural bridges, provides vital insights to geologists. In the east, the Abajo Mountains tower, reaching elevations of more than 11,000 feet. A long geologic history is documented in the colorful rock layers visible in the area's canyons.

For long periods over 300 million years ago, these lands were inundated by tropical seas and hosted thriving coral reefs. These seas infused the area's black rock shale with salts as they receded. Later, the lands were bucked upwards multiple times by the Monument Upwarp, and near-volcanoes punched up through the rock, leaving their marks on the landscape without reaching the surface. In the sandstone of Cedar Mesa, fossil evidence has revealed large, mammal-like reptiles that burrowed into the sand to survive the blistering heat of the end of the Permian Period, when the region was dominated by a seaside desert. Later, in the Late Triassic Period more than 200 million years ago, seasonal monsoons flooded an ancient river system that fed a vast desert here.

The paleontological resources in the Bears Ears area are among the richest and most significant in the United States, and protection of this area will provide important opportunities for further archaeological and paleontological study. Many sites, such as Arch Canyon, are teeming with fossils, and research

conducted in the Bears Ears area is revealing new insights into the transition of vertebrate life from reptiles to mammals and from sea to land. Numerous ray-finned fish fossils from the Permian Period have been discovered, along with other late Paleozoic Era fossils, including giant amphibians, synapsid reptiles, and important plant fossils. Fossilized traces of marine and aquatic creatures such as clams, crayfish, fish, and aquatic reptiles have been found in Indian Creek's Chinle Formation, dating to the Triassic Period, and phytosaur and dinosaur fossils from the same period have been found along Comb Ridge. Paleontologists have identified new species of plant-eating crocodile-like reptiles and mass graves of lumbering sauropods, along with metoposaurus, crocodiles, and other dinosaur fossils. Fossilized trackways of early tetrapods can be seen in the Valley of the Gods and in Indian Creek, where paleontologists have also discovered exceptional examples of fossilized ferns, horsetails, and cycads. The Chinle Formation and the Wingate, Kayenta, and Navajo Formations above it provide one of the best continuous rock records of the Triassic-Jurassic transition in the world, crucial to understanding how dinosaurs dominated terrestrial ecosystems and how our mammalian ancestors evolved. In Pleistocene Epoch sediments, scientists have found traces of mammoths, short-faced bears, ground sloths, primates, and camels.

From earth to sky, the region is unsurpassed in wonders. The star-filled nights and natural quiet of the Bears Ears area transport visitors to an earlier eon. Against an absolutely black night sky, our galaxy and others more distant leap into view. As one of the most intact and least roaded areas in the contiguous United States, Bears Ears has that rare and arresting quality of deafening silence.

Communities have depended on the resources of the region for hundreds of generations. Understanding the important role of the green highlands in providing habitat for subsistence plants and animals, as well as capturing and filtering water from passing storms, the Navajo refer to such places as "Nahodishgish," or places to be left alone. Local communities seeking to protect the mountains for their watershed values have long recognized the importance of the Bears Ears' headwaters. Wildfires, both natural and human-set, have shaped and maintained forests and grasslands of this area for millennia. Ranchers have relied on the forests and grasslands of the region for ages, and hunters come from across the globe for a chance at a bull elk or other big game. Today, ecological restoration through the careful use of wildfire and management of grazing and timber is working to restore and maintain the health of these vital watersheds and grasslands.

The diversity of the soils and microenvironments in the Bears Ears area provide habitat for a wide variety of vegetation. The highest elevations, in the Elk Ridge area of the Manti-La Sal National Forest, contain pockets of ancient Engelmann spruce, ponderosa pine, aspen, and subalpine fir. Mesa tops include pinyon-juniper woodlands along with big sagebrush, low sage, blackbrush, rabbitbrush,

bitterbrush, four-wing saltbush, shadscale, winterfat, Utah serviceberry, western chokecherry, hackberry, barberry, cliff rose, and greasewood. Canyons contain diverse vegetation ranging from yucca and cacti such as prickly pear, claret cup, and Whipple's fishhook to mountain mahogany, ponderosa pine, alder, sagebrush, birch, dogwood, and Gambel's oak, along with occasional stands of aspen. Grasses and herbaceous species such as bluegrass, bluestem, giant ryegrass, ricegrass, needle and thread, yarrow, common mallow, balsamroot, low larkspur, horsetail, and peppergrass also grow here, as well as pinnate spring parsley, Navajo penstemon, Canyonlands lomatium, and the Abajo daisy.

Tucked into winding canyons are vibrant riparian communities characterized by Fremont cottonwood, western sandbar willow, yellow willow, and box elder. Numerous seeps provide year-round water and support delicate hanging gardens, moisture-loving plants, and relict species such as Douglas fir. A few populations of the rare Kachina daisy, endemic to the Colorado Plateau, hide in shaded seeps and alcoves of the area's canyons. A genetically distinct population of Kachina daisy was also found on Elk Ridge. The alcove columbine and cave primrose, also regionally endemic, grow in seeps and hanging gardens in the Bears Ears landscape. Wildflowers such as beardtongue, evening primrose, aster, Indian paintbrush, yellow and purple beeflower, straight bladderpod, Durango tumble mustard, scarlet gilia, globe mallow, sand verbena, sego lily, cliffrose, sacred datura, monkey flower, sunflower, prince's plume, hedgehog cactus, and columbine, bring bursts of color to the landscape.

The diverse vegetation and topography of the Bears Ears area, in turn, support a variety of wildlife species. Mule deer and elk range on the mesas and near canyon heads, which provide crucial habitat for both species. The Cedar Mesa landscape is home to bighorn sheep which were once abundant but still live in Indian Creek, and in the canyons north of the San Juan River. Small mammals such as desert cottontail, black-tailed jackrabbit, prairie dog, Botta's pocket gopher, white-tailed antelope squirrel, Colorado chipmunk, canyon mouse, deer mouse, pinyon mouse, and desert woodrat, as well as Utah's only population of Abert's tassel-eared squirrels, find shelter and sustenance in the landscape's canyons and uplands. Rare shrews, including a variant of Merriam's shrew and the dwarf shrew can be found in this area.

Carnivores, including badger, coyote, striped skunk, ringtail, gray fox, bobcat, and the occasional mountain lion, all hunt here, while porcupines use their sharp quills and climbing abilities to escape these predators. Oral histories from the Ute describe the historic presence of bison, antelope, and abundant bighorn sheep, which are also depicted in ancient rock art. Black bear pass through the area but are rarely seen, though they are common in the oral histories and legends of this region, including those of the Navajo.

Consistent sources of water in a dry landscape draw diverse wildlife species to the

area's riparian habitats, including an array of amphibian species such as tiger salamander, red-spotted toad, Woodhouse's toad, canyon tree frog, Great Basin spadefoot, and northern leopard frog. Even the most sharp-eyed visitors probably will not catch a glimpse of the secretive Utah night lizard. Other reptiles in the area include the sagebrush lizard, eastern fence lizard, tree lizard, side-blotched lizard, plateau striped whiptail, western rattlesnake, night snake, striped whipsnake, and gopher snake.

Raptors such as the golden eagle, peregrine falcon, bald eagle, northern harrier, northern goshawk, red-tailed hawk, ferruginous hawk, American kestrel, flammulated owl, and great horned owl hunt their prey on the mesa tops with deadly speed and accuracy. The largest contiguous critical habitat for the threatened Mexican spotted owl is on the Manti-La Sal National Forest. Other bird species found in the area include Merriam's turkey, Williamson's sapsucker, common nighthawk, white-throated swift, ash-throated flycatcher, violet-green swallow, cliff swallow, mourning dove, pinyon jay, sagebrush sparrow, canyon towhee, rock wren, sage thrasher, and the endangered southwestern willow flycatcher.

As the skies darken in the evenings, visitors may catch a glimpse of some the area's at least 15 species of bats, including the big free-tailed bat, pallid bat, Townsend's big-eared bat, spotted bat, and silver-haired bat. Tinajas, rock depressions filled with rainwater, provide habitat for many specialized aquatic species, including pothole beetles and freshwater shrimp. Eucosma navajoensis, an endemic moth that has only been described near Valley of the Gods, is unique to this area.

Protection of the Bears Ears area will preserve its cultural, prehistoric, and historic legacy and maintain its diverse array of natural and scientific resources, ensuring that the prehistoric, historic, and scientific values of this area remain for the benefit of all Americans. The Bears Ears area has been proposed for protection by members of Congress, Secretaries of the Interior, State and tribal leaders, and local conservationists for at least 80 years. The area contains numerous objects of historic and of scientific interest, and it provides world class outdoor recreation opportunities, including rock climbing, hunting, hiking, backpacking, canyoneering, whitewater rafting, mountain biking, and horseback riding. Because visitors travel from near and far, these lands support a growing travel and tourism sector that is a source of economic opportunity for the region.

WHEREAS, section 320301 of title 54, United States Code (known as the "Antiquities Act"), authorizes the President, in his discretion, to declare by public proclamation historic landmarks, historic and prehistoric structures, and other objects of historic or scientific interest that are situated upon the lands owned or controlled by the Federal Government to be national monuments, and to reserve as a part thereof parcels of land, the limits of which shall be confined to the

smallest area compatible with the proper care and management of the objects to be protected;

WHEREAS, it is in the public interest to preserve the objects of scientific and historic interest on the Bears Ears lands;

NOW, THEREFORE, I, BARACK OBAMA, President of the United States of America, by the authority vested in me by section 320301 of title 54, United States Code, hereby proclaim the objects identified above that are situated upon lands and interests in lands owned or controlled by the Federal Government to be the Bears Ears National Monument (monument) and, for the purpose of protecting those objects, reserve as part thereof all lands and interests in lands owned or controlled by the Federal Government within the boundaries described on the accompanying map, which is attached to and forms a part of this proclamation. These reserved Federal lands and interests in lands encompass approximately 1.35 million acres. The boundaries described on the accompanying map are confined to the smallest area compatible with the proper care and management of the objects to be protected.

All Federal lands and interests in lands within the boundaries of the monument are hereby appropriated and withdrawn from all forms of entry, location, selection, sale, or other disposition under the public land laws or laws applicable to the U.S. Forest Service, from location, entry, and patent under the mining laws, and from disposition under all laws relating to mineral and geothermal leasing, other than by exchange that furthers the protective purposes of the monument.

The establishment of the monument is subject to valid existing rights, including valid existing water rights. If the Federal Government acquires ownership or control of any lands or interests in lands that it did not previously own or control within the boundaries described on the accompanying map, such lands and interests in lands shall be reserved as a part of the monument, and objects identified above that are situated upon those lands and interests in lands shall be part of the monument, upon acquisition of ownership or control by the Federal Government.

The Secretary of Agriculture and the Secretary of the Interior (Secretaries) shall manage the monument through the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM), pursuant to their respective applicable legal authorities, to implement the purposes of this proclamation. The USFS shall manage that portion of the monument within the boundaries of the National Forest System (NFS), and the BLM shall manage the remainder of the monument. The lands administered by the USFS shall be managed as part of the Manti-La Sal National Forest. The lands administered by the BLM shall be managed as a unit of the National Landscape Conservation System, pursuant to applicable legal authorities.

For purposes of protecting and restoring the objects identified above, the Secretaries shall jointly prepare a management plan for the monument and shall promulgate such regulations for its management as they deem appropriate. The Secretaries, through the USFS and the BLM, shall consult with other Federal land management agencies in the local area, including the National Park Service, in developing the management plan. In promulgating any management rules and regulations governing the NFS lands within the monument and developing the management plan, the Secretary of Agriculture, through the USFS, shall consult with the Secretary of the Interior through the BLM. The Secretaries shall provide for maximum public involvement in the development of that plan including, but not limited to, consultation with federally recognized tribes and State and local governments. In the development and implementation of the management plan, the Secretaries shall maximize opportunities, pursuant to applicable legal authorities, for shared resources, operational efficiency, and cooperation.

The Secretaries, through the BLM and USFS, shall establish an advisory committee under the Federal Advisory Committee Act (5 U.S.C. App.) to provide information and advice regarding the development of the management plan and, as appropriate, management of the monument. This advisory committee shall consist of a fair and balanced representation of interested stakeholders, including State and local governments, tribes, recreational users, local business owners, and private landowners.

In recognition of the importance of tribal participation to the care and management of the objects identified above, and to ensure that management decisions affecting the monument reflect tribal expertise and traditional and historical knowledge, a Bears Ears Commission (Commission) is hereby established to provide guidance and recommendations on the development and implementation of management plans and on management of the monument. The Commission shall consist of one elected officer each from the Hopi Nation, Navajo Nation, Ute Mountain Ute Tribe, Ute Indian Tribe of the Uintah Ouray, and Zuni Tribe, designated by the officers' respective tribes. The Commission may adopt such procedures as it deems necessary to govern its activities, so that it may effectively partner with the Federal agencies by making continuing contributions to inform decisions regarding the management of the monument.

The Secretaries shall meaningfully engage the Commission or, should the Commission no longer exist, the tribal governments through some other entity composed of elected tribal government officers (comparable entity), in the development of the management plan and to inform subsequent management of the monument. To that end, in developing or revising the management plan, the Secretaries shall carefully and fully consider integrating the traditional and historical knowledge and special expertise of the Commission or comparable entity. If the Secretaries decide not to incorporate specific recommendations

submitted to them in writing by the Commission or comparable entity, they will provide the Commission or comparable entity with a written explanation of their reasoning. The management plan shall also set forth parameters for continued meaningful engagement with the Commission or comparable entity in implementation of the management plan.

To further the protective purposes of the monument, the Secretary of the Interior shall explore entering into a memorandum of understanding with the State that would set forth terms, pursuant to applicable laws and regulations, for an exchange of land currently owned by the State of Utah and administered by the Utah School and Institutional Trust Lands Administration within the boundary of the monument for land of approximately equal value managed by the BLM outside the boundary of the monument. The Secretary of the Interior shall report to the President by January 19, 2017, regarding the potential for such an exchange.

Nothing in this proclamation shall be construed to interfere with the operation or maintenance, or the replacement or modification within the current authorization boundary, of existing utility, pipeline, or telecommunications facilities located within the monument in a manner consistent with the care and management of the objects identified above.

Nothing in this proclamation shall be deemed to enlarge or diminish the rights or jurisdiction of any Indian tribe. The Secretaries shall, to the maximum extent permitted by law and in consultation with Indian tribes, ensure the protection of Indian sacred sites and traditional cultural properties in the monument and provide access by members of Indian tribes for traditional cultural and customary uses, consistent with the American Indian Religious Freedom Act (42 U.S.C. 1996) and Executive Order 13007 of May 24, 1996 (Indian Sacred Sites), including collection of medicines, berries and other vegetation, forest products, and firewood for personal noncommercial use in a manner consistent with the care and management of the objects identified above.

For purposes of protecting and restoring the objects identified above, the Secretaries shall prepare a transportation plan that designates the roads and trails where motorized and non-motorized mechanized vehicle use will be allowed. Except for emergency or authorized administrative purposes, motorized and non-motorized mechanized vehicle use shall be allowed only on roads and trails designated for such use, consistent with the care and management of such objects. Any additional roads or trails designated for motorized vehicle use must be for the purposes of public safety or protection of such objects.

Laws, regulations, and policies followed by USFS or BLM in issuing and administering grazing permits or leases on lands under their jurisdiction shall continue to apply with regard to the lands in the monument to ensure the ongoing

consistency with the care and management of the objects identified above.

Nothing in this proclamation shall be deemed to enlarge or diminish the jurisdiction of the State of Utah, including its jurisdiction and authority with respect to fish and wildlife management.

Nothing in this proclamation shall preclude low-level overflights of military aircraft, the designation of new units of special use airspace, or the use or establishment of military flight training routes over the lands reserved by this proclamation consistent with the care and management of the objects identified above.

Nothing in this proclamation shall be construed to alter the authority or responsibility of any party with respect to emergency response activities within the monument, including wildland fire response.

Nothing in this proclamation shall be deemed to revoke any existing withdrawal, reservation, or appropriation; however, the monument shall be the dominant reservation.

Warning is hereby given to all unauthorized persons not to appropriate, injure, destroy, or remove any feature of the monument and not to locate or settle upon any of the lands thereof.

IN WITNESS WHEREOF, I have hereunto set my hand this twenty-eighth day of December, in the year of our Lord two thousand sixteen, and of the Independence of the United States of America the two hundred and forty-first.
BARACK OBAMA

APPENDIX D:

PRESIDENT TRUMP'S PROCLAMATION MODIFYING BEARS EARS NATIONAL MONUMENT

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Title 3— The President

Proclamation 9681 of December 4, 2017
Modifying the Bears Ears National Monument

By the President of the United States of America
A Proclamation

In Proclamation 9558 of December 28, 2016, and exercising his authority under section 320301 of title 54, United States Code (the "Antiquities Act"), President Barack Obama established the Bears Ears National Monument in the State of Utah, reserving approximately 1.35 million acres of Federal lands for the care and management of objects of historic and scientific interest identified therein. The monument is managed jointly by the Department of the Interior's Bureau of Land Management (BLM) and the Department of Agriculture's United States Forest Service (USFS). This proclamation makes certain modifications to the monument.

Proclamation 9558 identifies a long list of objects of historic or scientific interest. It describes cultural resources such as ancient cliff dwellings (including the Moon House and Doll House Ruins), Moki Steps, Native American ceremonial sites, tools and projectile points, remains of single-family dwellings, granaries, kivas, towers, large villages, rock shelters, caves, and a prehistoric road system, as well as petroglyphs, pictographs, and recent rock art left by the Ute, Navajo, and Paiute peoples. It also identifies other types of historic objects, such as remnants of Native American sheep-herding and farming operations and early engineering by pioneers and settlers, including smoothed sections of rock, dugways, historic

cabins, corrals, trails, and inscriptions carved into rock, and the Hole-in-the-Rock and Outlaw Trails. It also describes landscape features such as the Bears Ears, Comb Ridge, Cedar Mesa, the Valley of the Gods, the Abajo Mountains, and the San Juan River, and paleontological resources such as the fossil remains of fishes, amphibians, reptiles, and mammals, as well as dinosaur trackways and traces of other terrestrial animals. Finally, it identifies several species, including animals like the porcupine, badger, and coyote; birds like the red-tailed hawk, Mexican spotted owl, American kestrel, and turkey vulture; and plants such as the Fremont cottonwood, Abajo daisy, western sandbar willow, and boxelder.

The Antiquities Act requires that any reservation of land as part of a monument be confined to the smallest area compatible with the proper care and management of the objects of historic or scientific interest to be protected. Determining the appropriate protective area involves examination of a number of factors, including the uniqueness and nature of the objects, the nature of the needed protection, and the protection provided by other laws.

Some of the objects Proclamation 9558 identifies are not unique to the monument, and some of the particular examples of these objects within the monument are not of significant scientific or historic interest. Moreover, many of the objects Proclamation 9558 identifies were not under threat of damage or destruction before designation such that they required a reservation of land to protect them. In fact, objects described in Proclamation 9558 were then — and still are — subject to Federal protections under existing laws and agency management designations. For example, more than 500,000 acres were already being managed to maintain, enhance, or protect their roadless character before they were designated as part of a national monument. Specifically, the BLM manages approximately 380,759 acres of lands within the existing monument as Wilderness Study Areas, which the BLM is required by law to manage so as not to impair their suitability for future congressional designation as Wilderness. On lands managed by the USFS, 46,348 acres are part of the congressionally designated Dark Canyon Wilderness Area, which, under the 1964 Wilderness Act, 16 U.S.C. 1131-1136, and the Utah Wilderness Act of 1984, Public Law 98-428, the USFS must manage so as to maintain or enhance its wilderness character. Approximately 89,396 acres of the USFS lands are also included in 8 inventoried roadless areas, which are managed under the USFS's 2001 Roadless Rule so as to protect their wilderness character.

A host of laws enacted after the Antiquities Act provide specific protection for archaeological, historic, cultural, paleontological, and plant and animal resources and give authority to the BLM and USFS to condition permitted activities on Federal lands, whether within or outside a monument. These laws include the Archaeological Resources Protection Act of 1979, 16 U.S.C. 470aa-470mm, National Historic Preservation Act, 54 U.S.C. 300101 et seq., Bald and Golden Eagle Protection Act, 16 U.S.C. 668-668d, Endangered Species Act of 1973, 16 U.S.C. 1531 et seq., Federal Cave Resources Protection Act of 1988, 16 U.S.C.

4301 et seq., Federal Land Policy and Management Act of 1976, 43 U.S.C. 1701 et seq., Migratory Bird Treaty Act, 16 U.S.C. 703-712, National Forest Management Act, 16 U.S.C. 1600 et seq., Native American Graves Protection and Repatriation Act of 1976, 25 U.S.C. 3001 et seq., and Paleontological Resources Preservation Act, 16 U.S.C. 470aaa-470aaa-11. Of particular note, the Archaeological Resources Protection Act specifically protects archaeological resources from looting or other desecration and imposes criminal penalties for unauthorized excavation, removal, damage, alteration, or defacement of archaeological resources. Federal land management agencies can grant a permit authorizing excavation or removal, but only when undertaken for the purpose of furthering archaeological knowledge. The Paleontological Resources Preservation Act contains very similar provisions protecting paleontological resources. And the Migratory Bird Treaty Act and Endangered Species Act protect migratory birds and listed endangered and threatened species and their habitats. Moreover, the BLM and the USFS were already addressing many of the threats to objects identified in Proclamation 9558 in their governing land-use plans before designation of the monument.

Given the nature of the objects identified on the lands reserved by Proclamation 9558, the lack of a threat of damage or destruction to many of those objects, and the protection for those objects already provided by existing law and governing land-use plans, I find that the area of Federal land reserved in the Bears Ears National Monument established by Proclamation 9558 is not confined to the smallest area compatible with the proper care and management of those objects. The important objects of scientific or historic interest can instead be protected by a smaller and more appropriate reservation of 2 areas: Shash Jáa and Indian Creek. Revising the boundaries of the monument to cover these 2 areas will ensure that, in accordance with the Antiquities Act, it is no larger than necessary for the proper care and management of the objects to be protected within the monument.

The Shash Jáa area contains the heart of the national monument: the iconic twin buttes known as the Bears Ears that tower 2,000 feet above the surrounding landscape and are considered sacred to the Native American tribes that call this area their ancestral home. Many of the significant objects described by Proclamation 9558 can be found throughout the Shash Jáa area. Ancestral Puebloan occupation of the area began during the Basketmaker II period at least 2,500 years ago, and it left behind objects such as pit houses, storage pits, lithic scatters, campsites, rock shelters, pictographs, and baskets, as well as manos and metates for grinding corn. Occupation dating to the Basketmaker III period, from approximately 500 to 750 C.E., left additional evidence of maize- and bean-based agriculture, along with pottery, bows and arrows, pit houses, kivas, storage rooms, and dispersed villages.

New waves of human settlement occurred around 900 C.E., when the Pueblo I period gave rise to large villages near Comb Wash, and 1050 C.E., when

inhabitants from the Pueblo II period built expansive and complex multi-family dwellings. Around 1150 C.E., the dawn of the Pueblo III period, the area's inhabitants increasingly sought shelter in cliff dwellings and left behind evidence of an era of unrest. Several centuries later, the Ute, Paiute, and Navajo came to occupy the area.

East of the Bears Ears is Arch Canyon, within which paleontologists have found numerous fossils from the Permian and Upper Permian eras. Cliff dwellings are hidden throughout the canyon, and the mouth of the canyon holds the fabled Arch Canyon ruin, which spans the Pueblo II and III periods and contains pictographs and petroglyphs ranging from the Archaic to the historic periods.

Just south of Arch Canyon are the north and south forks of Mule Canyon. Five-hundred feet deep, 5 miles long, and decorated with alternating layers of red and white sandstone, these 2 striking canyons contain shelter-cliff dwellings and other archaeological sites, including the scenic and accessible House on Fire Ruin, which includes differing masonry styles that indicate several episodes of construction and use.

Perched high on the open tablelands above the south fork of Mule Canyon are the Mule Canyon ruins, where visitors can see exposed masonry walls of ancient living quarters and a partially restored kiva. The deep canyons and towering mesas of the Shash Jáa area are full of similar sites, including rock art, remains of single-family dwellings, granaries, kivas, towers (including the Cave Towers), and large villages primarily from the Pueblo II and III periods, along with sites from the Basketmaker and Archaic periods.

The Shash Jáa area also includes Comb Ridge, a north-south trending monocline that originates near the boundary of the Manti-La Sal National Forest, ends near the San Juan River, and contains remnants from the region's thousands of years of human habitation, including cliff dwellings, granaries, kivas, ceremonial sites, and the Butler Wash ruin, a world-famous Ancestral Puebloan ruin with multiple rooms and kivas. Comb Ridge also includes world-class examples of ancient rock art, such as the Butler Wash Kachina Panel, a wall-sized mural of San Juan Anthropomorph figures that dates to the Basketmaker period and is considered to be one of the Southwest's most important petroglyph panels for understanding the daily life and rituals of the Basketmaker people. Significant fossil sites have also been discovered in Butler Wash.

Just north of upper Butler Wash, the aspen-filled Whiskers Draw contains a series of alcoves that have sheltered evidence of human habitation for thousands of years, including Cave 7, the site where Richard Wetherill, as part of the Hyde Expedition in 1893, first identified what we know today as the Basketmaker people. The nearby Milk Ranch Point is home to a rich concentration of kivas, granaries, dwellings, and other evidence that Pueblo I farmers used this area to cultivate corn, beans, and squash.

The Shash Jáa area also contains the Comb Ridge Fossil site, which includes a trackway created by a giant arthropod (Diplichnites cuithensis), the first recorded instance of such a trackway in Utah. Also, the diverse landscape of the Shash Jáa area provides habitat for the vast majority of plant and animal species described by Proclamation 9558.

Finally, the Shash Jáa area as described on the accompanying map includes 2 non-contiguous parcels of land that encompass the Moon House Ruin, an example of iconic Pueblo-decorated architecture, which was likely the last occupied site on Cedar Mesa, as well as Doll House Ruin, a fully intact and well-preserved single room granary that is associated with an extensive agricultural area on the mesa top. These significant ruins are important examples of cultural resource objects that should remain within the monument's boundaries.

The Indian Creek area likewise contains objects of significance described in Proclamation 9558. At its center is the broad Indian Creek Canyon, which is characterized by sheer red cliffs and spires of exposed and eroded layers of Navajo, Kayenta, Wingate, and Cedar Mesa sandstone, including the iconic North and South Six-Shooter Peaks.

Also located within the Indian Creek area is the Canyonlands Research Center. Spanning lands managed by the National Park Service, BLM, USFS, and private landowners, this unique partnership works to increase our understanding of the complex natural systems on the landscape, providing their custodians with information they need to adapt to the challenges of a changing Colorado Plateau.

Newspaper Rock, a popular attraction in the Indian Creek area, is a roadside rock art panel that has been listed on the National Register of Historic Places since 1976. This site displays a significant concentration of rock art from multiple periods, etched into Wingate sandstone. The older art is attributed to the Ancestral Puebloan people who inhabited this region for 2,000 years, while the more recent rock art is attributed to the Ute people who still live in the Four Corners area.

In addition to Newspaper Rock, the Indian Creek area contains numerous other significant rock art sites, including the distinctive and well-preserved petroglyphs in Shay Canyon. The area also provides opportunities for cultural and scientific research and paleontological study. Dinosaur tracks in the bottom of the Shay Canyon stream bed are a unique visual reminder of the area's distant past. Additional paleontological resources can be found throughout the Indian Creek area, including vertebrate and invertebrate fossils, primarily in the Chinle Formation. The Indian Creek area also includes 2 prominent mesas, Bridger Jack Mesa and Lavender Mesa, which are home to relict plant communities, predominantly composed of pinyon-juniper woodland, with small, interspersed sagebrush parks, that exist only on these isolated islands in the desert sea and are,

generally, unaltered by humans. These mesas provide the opportunity for comparative studies of pinyon-juniper woodland and sagebrush communities in other parts of the Colorado Plateau. Additionally, the Indian Creek area includes the exposed Chinle Formation, known for abundant fossilized flora and fauna, including pelecypods, gastropods, arthropods, fishes, amphibians, and reptiles (including dinosaurs). Finally, the area is well known for vertebrate trackways, including tetrapod footprints.

Some of the existing monument's objects, or certain examples of those objects, are not within the monument's revised boundaries because they are adequately protected by existing law, designation, agency policy, or governing land-use plans. For example, although the modified boundaries do not include the San Juan River or the Valley of the Gods, both of those areas are protected by existing administratively designated Areas of Critical Environmental Concern. Plant and animal species such as the bighorn sheep, the Kachina daisy, the Utah night lizard, and the Eucosma navojoensis moth are protected by the Endangered Species Act and existing land-use plans and policies protecting special-status species. Additionally, some of the range of these species falls within existing Wilderness Areas and Wilderness Study Areas. Finally, although Hideout Canyon is likewise not included within the modified boundaries, it is generally not threatened and is partially within a Wilderness Study Area.

The areas described above are the smallest compatible with the protection of the important objects identified in Proclamation 9558. The modification of the Bears Ears National Monument will maintain and protect those objects and preserve the area's cultural, scientific, and historic legacy.

WHEREAS, Proclamation 9558 of December 28, 2016, designated the Bears Ears National Monument in the State of Utah and reserved approximately 1.35 million acres of Federal lands for the care and management of the Bears Ears buttes and other objects of historic and scientific interest identified therein; and

WHEREAS, many of the objects identified by Proclamation 9558 are otherwise protected by Federal law; and

WHEREAS, it is in the public interest to modify the boundaries of the monument to exclude from its designation and reservation approximately 1,150,860 acres of land that I find are unnecessary for the care and management of the objects to be protected within the monument; and

WHEREAS, the boundaries of the monument reservation should therefore be reduced to the smallest area compatible with the protection of the objects of scientific or historic interest as described above in this proclamation;

NOW, THEREFORE, I, DONALD J. TRUMP, President of the United States of America, by the authority vested in me by section 320301 of title 54, United

States Code, hereby proclaim that the boundaries of the Bears Ears National Monument are hereby modified and reduced to those lands and interests in land owned or controlled by the Federal Government within the boundaries described on the accompanying map, which is attached to and forms a part of this proclamation. I hereby further proclaim that the modified monument areas identified on the accompanying map shall be known as the Indian Creek and Shash Jáa units of the monument, the latter of which shall include the Moon House and Doll House Ruins. These reserved Federal lands and interests in lands cumulatively encompass approximately 201,876 acres. The boundaries described on the accompanying map are confined to the smallest area compatible with the proper care and management of the objects to be protected. Any lands reserved by Proclamation 9558 not within the boundaries identified on the accompanying map are hereby excluded from the monument.

At 9:00 a.m., eastern standard time, on the date that is 60 days after the date of this proclamation, subject to valid existing rights, the provisions of existing withdrawals, and the requirements of applicable law, the public and National Forest System lands excluded from the monument reservation shall be open to:

(1) entry, location, selection, sale, or other disposition under the public land laws and laws applicable to the U.S. Forest Service;

(2) disposition under all laws relating to mineral and geothermal leasing; and

(3) location, entry, and patent under the mining laws.

Appropriation of lands under the mining laws before the date and time of restoration is unauthorized. Any such attempted appropriation, including attempted adverse possession under 30 U.S.C. 38, shall vest no rights against the United States. Acts required to establish a location and to initiate a right of possession are governed by State law where not in conflict with Federal law.

Nothing in this proclamation shall be construed to remove any lands from the Manti-La Sal National Forest or to otherwise revoke, modify, or affect any withdrawal, reservation, or appropriation, other than the one created by Proclamation 9558.

Nothing in this proclamation shall change the management of the areas designated and reserved by Proclamation 9558 that remain part of the monument in accordance with the terms of this proclamation, except as provided by the following 4 paragraphs:

In recognition of the importance of tribal participation to the care and management of the objects identified above, and to ensure that management decisions affecting the monument reflect tribal expertise and traditional and historical knowledge, Proclamation 9558 established a Commission to provide

guidance and recommendations on the development and implementation of management plans and on management of the monument, and to partner with Federal agencies by making continuing contributions to inform decisions regarding the management of the monument. In order to ensure that the full range of tribal expertise and traditional historical knowledge is included in such guidance and recommendations, paragraph 29 of Proclamation 9558 is hereby revised to provide that the Bears Ears Commission shall be known as the Shash Jáa Commission, shall apply only to the Shash Jáa unit as described herein, and shall also include the elected officer of the San Juan County Commission representing District 3 acting in that officer's official capacity.

Proclamation 9558 is hereby revised to clarify that, pending preparation of the transportation plan required by paragraph 34 thereof, the Secretaries of the Interior and Agriculture may allow motorized and non-mechanized vehicle use on roads and trails designated for such use immediately before the issuance of Proclamation 9558 and maintain roads and trails for such use.

Paragraph 35 of Proclamation 9558 governing livestock grazing in the monument is hereby revised to read as follows: "Nothing in this proclamation shall be deemed to affect authorizations for livestock grazing, or administration thereof, on Federal lands within the monument. Livestock grazing within the monument shall continue to be governed by laws and regulations other than this proclamation."

Proclamation 9558 is amended to clarify that, consistent with the care and management of the objects identified above, the Secretaries of the Interior and Agriculture may authorize ecological restoration and active vegetation management activities in the monument.

If any provision of this proclamation, including its application to a particular parcel of land, is held to be invalid, the remainder of this proclamation and its application to other parcels of land shall not be affected thereby.

IN WITNESS WHEREOF, I have hereunto set my hand this fourth day of December, in the year of our Lord two thousand seventeen, and of the Independence of the United States of America the two hundred and forty-second
DONALD J. TRUMP

APPENDIX E:

EXCERPT FROM BRENDA'S PRESENTATION ON "THE BUILT ENVIRONMENT

B: Filling wetlands is another sin of the past that we have to deal with now. Filling wetlands, even when we mitigate that, the, uh, those, that filling, which in, in Hillsborough County we're, we're lucky to have that Environmental Protection Commission that looks over our wetlands very closely, but still, um, we have a history of, of being allowed to mitigate wetland impacts, and that's been problematic because our fish, we're learning more and more. Our official wetlands and stormwater retention systems are just never as effective as natural systems in natural wetland systems.

We've also done an awful lot, we're still doing it, and you see it a lot, uh, raising development up out of the floodplain, um, is also going to create problems for the development that's not raised up out of the floodplain. And every time new development starts doing this, we have uh, this push-pull politically, between the, you know, the new development is required to come up out of the floodplain, and the neighborhoods are saying, we're gonna, the lower ones that are there already, are saying we're gonna be flooded! The, the rain is gonna come off of them and flood our areas. Um, the new development brings in engineers that say, don't you worry we're going to be, uh, capturing all the rainwater on site. The residents say, we don't believe it, and in a lot of cases, they're right because of what we were hearing earlier today about um, some of the standards are simply outdated. Some of the measurements that need to be taken, um, are, are, uh, be taken into consideration are outdated. Um, hardened shorelines, a lot of cor-, coasts of course do not get the protection from flooding and wave damage that natural shorelines give us, and so we're now realizing that we need to work with nature as much as possible, rather than fighting against it. And that we saw, an interesting, uh, uh, example, I think it was at MOSI[37] we were shown, um, this uh, uh, aquarium, a big aquarium uh, that, a huge aquarium, that was made with, as a little model, and um, they made waves over on this end going through a little mangroves, and at the other end, you wouldn't have any waves at all. And if they, if the, once the waves were going to, through the mangroves, because of the, um, natural attenuation, wave attenuation of the mangroves.

And so, more and more we need to work with natural shorelines, natural wetlands, and our county and our region and our coalition needs to work together to find solutions to live with the challenges of, of climate change, sea level rise, and extreme weather, and other challenges.

[37] Museum of Science and Industry

APPENDIX F:

EXTENDED EXCERPT FROM THE "EXTREME EVENTS" PANEL

HANK: Um, I'm gonna have one more question and then we're going to have a little exercise that I just made up in my head. So the, uh, the next question is a good way to, um, wrap up this panel and also kind of feed into the other panels, is — the thing we're talking about here, this is one aspect of climate change. And the question was, um, which climate change issues are the most urgent for Tampa Bay to address now. Uh, how does this fit into the overall picture, I think is another way of saying that, and how can we prioritize these to um, start taking action now. We need a, not only a list of what's the most important, but a prioritized list. Uh, so we'll hear your thoughts on that, from the different perspectives.

DIANA: Well, I'm floodplain manager, so I'm gonna go flood. Flood, followed by water quality, but they really do go hand in hand, and, and we really do need to address this at, at statewide level there needs to be that, you know, that statewide stormwater rule. We need to reevaluate what these systems are being designed, to using better data in the models just like I said before, because when we have better rainfall, better flooding data, we can design better for whatever the water quality parameters are that we're trying to meet. Um, you know we're only, we're only right now looking at a 25-year event unless you're in a closed basement. And with these, increases in frequency and extreme rainfalls and things like this, I think we need to be looking more at, you know, a critical duration storm, or, or something else that we need to reevaluate how we're looking at things so that we can address the flooding and the water quality. Because without water quality, we don't have the tourism for the beaches, and the kayaking, and all the great things about Tampa Bay, and with flooding people aren't gonna wanna live, you know, where they know that their car's going to be inundated, or somebody's gonna drive down and splash, you know, water at their house from wake on a roadway, so we need to look at both of those hand in hand.

HANK: And the water quality will tie in nicely with our public health panel later in the day. So, that's what I'm looking for, is cross-cutting things.

JOHNNY: Um, yeah, I would add to that, although not part of our extreme panel here, um, the heat index, and the, the heat days. You heard Tim[38] talk this morning about, some of the slides showing how the increase in uh, in hot,

[38] Tim gave the keynote address and is an atmospheric scientist currently working at a large research university.

heat, um, is gonna increase in the future, and how that's gonna impact us. I don't think we can isolate any of those, and certainly what is more important I think they're all intertwined. And I think it's fortunate that we have a group of people. I suspect that if we took a poll of the audience here, we'd find, some people are concerned about flooding, some are concerned about health, some are concerned about work days, which is great because that's what we need to address the whole issue of climate change sea level rise.

MARK: Yeah, and I think we need a new paradigm for resiliency because I think, you know, we, we have this situation where our seas are rising, ground water is also rising, and the rainfall might be increasing. So I call it three whammies coming together. So we need a new paradigm for planning and design, which are not in the, in the books of any of the (company) standards, so, I think, they need to be developing. Now you have the CSAP[39] has created this, uh the, the sea level projection, but, we need rainfall data updated, I mean what is in the building code is like 40-years old in terms of rainfall rates. So we need that science, and I think that's what Tim talked about, how to bring that science so that we can produce those rainfall maps that are useful for, and, come up with new groundwater level that they need to, you know, look at for the future conditions. And the second aspect is that new paradigm, you need to rethink what is resilience, how do you define resilience, and, like two or three principles. One is that you need to think beyond your design events, and also you need to think that you're going to remain functioning even if it is affected by an extreme event, you know, so you need to, that's a new concept for planning and design.

HANK: Thank you. Um, we're gonna finish up with a, the exercise. One of the themes of doing this is we want to get the three groups of elected officials, scientist experts, the people who have to implement the science and the policy, and we want to have this conversation start, and, what are we doing well, what are we not doing so well. So I'm going to end this up with, Johnny, what could Mark do better that would help the elected officials? As Tim said earlier in his talk, you don't just take your papers and throw them over the fence. What could the scientist do that would help you the most?

JOHNNY: Um, (when we're)=

HANK: =And, we're coming up on the end, so-

JOHNNY: Yeah, what would be to be definitive about, uh, sea level rise projections, the amount of rainfall we're going to receive. I know that's pie in the sky, but if you want to ask the question I'll answer it in that fashion because, if we could lock in on the number of sea level rise and say it's going to be two-and-a-half feet in the year 2100, I mean, all our jobs would be a heck of a lot easier. If we do that we could design for a 24-hour rainfall event that's going to occur once every month, um we can incorporate all of that

[39] The Tampa Bay Climate Science Advisory Panel, likely referencing the 2015 report titled "Recommended Projection of Sea Level Rise in the Tampa Bay Region."

into, into policy.

HANK: So, um, smaller error bars.

JOHNNY: Yes- ((audience laughter))

HANK: Um, Diana, as somebody who has to put the policy and the science into action, what is an elected official, a policy maker like Johnny, what could he do to help you the most?

DIANA: I would say whoever is bringing a proposed policy to him, he would look at it not just from that person's perspective, but send it out to all the other departments, all the other entities that could possibly be impacted by it, um, and even ask them if there are other entities that could be impacted by it, because, it's, it's not just that one organization pus-, pushing for a policy, um, that should be looking at that policy and providing input to the elected official to make an educated decision.

HANK: Like you said earlier a holistic view, don't compartmentalize. Very good. Um, Mark, the people that you talk to that need advice and the best science input to make a specific thing happen, what can they do to help you do your job the best?

MARK: Yeah, I think, there are two or three things. One is, um, we're not going to have small error bars for a while. So, th- the decision makers need to under=

HANK: =The implementers. [What-

MARK: [The implementers, ok. So they need to understand this is not your standard design tool, we're gonna have to learn how to deal with this uncertainty, better. And also, put some practices in your codes and, you know, in your general practice. Incorporating that into your planning and design. And also understand that this is a continuous process of science and (inaudible). And I think incorporate that into your planning and thinking.

HANK: Thank you. Diana, I'll answer if it were me. Uh, I'd say the simplest thing is, um, we just, we'd have to meet together, and you have to tell me what you need. Because that's where the disconnect comes in my-, and in, we, I work with the, working with the city of St. Petersburg now, and when I met with (name omitted) to talk about sunny day flooding, he listened very carefully for twenty minutes and then switched the topic to, "what's killing me is extreme rainfall. Can you help me with that?" Sure! But I didn't know that's what he wanted. So that communication I think is what I would ask for more of.

APPENDIX G:

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