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Abstract and Keywords

In the film *Beasts of the Southern Wild*, the main character, Hushpuppy, lays out the dilemma of environmental management in the Anthropocene: "For the animals that didn't have a dad to put them in the boat, the end of the world already happened." The Anthropocene will not recede, and the central question of environmental management will be whether we can develop ways to reflexively and sustainably manage ecosystems, habitats, and human needs. This chapter examines four possible normative underpinnings for such management: traditional notions of preservation and restoration, the idea of ecological limits and boundaries, the continued hubris of promethean technological intervention, and a conception of ecological receptivity or a "politics of sight" that makes visible human immersion in natural systems. As sight is a particular characteristic of the Anthropocene, this form of receptivity may hold some promise for environmental management.

Keywords: Anthropocene, environmental management, preservation, limits, promethean, ecological receptivity

IN the film *Beasts of the Southern Wild*, a Katrina-like storm is headed for the Louisiana bayou, where the main characters, six-year-old Hushpuppy and her father, live. As the storm approaches, the father doesn't flee like many others, but instead hunkers down in their small shack. Inside, he puts Hushpuppy in a "boat" (actually, more like a trunk), and puts water wings on her arms, explaining that if the waters come up, they'll just float away. After the storm passes, they venture out on their boat, looking at the decimation, including animals that have drowned. And Hushpuppy laments, "For the animals that didn't have a dad to put them in the boat, the end of the world already happened. They're all down below, trying to breathe through water."

The dad can be seen as a metaphor for environmental management—how we protect what we see as most important in the world from various storms, increasingly of our own making. This is the dilemma of environmental management in the Anthropocene—we've created the storm, so now can we also build the boats and protect the animals, human and non-human? The argument of this chapter is that this new era of human-induced environmental change challenges all of the old justifications and approaches to environmental management. The point is to take a closer look at how we might rethink the normative and ethical underpinning of our attempts to manage and protect environments, in an age when human beings impact the very way the planet works. Ultimately, the issue is not simply recognizing the reality of the Anthropocene, but coming to understand how we can become more receptive to, and manage human immersion in, radically changed environmental systems.

After laying out the definition of this new era we are coming to realize and address, I will take a brief look at four possible responses, with a specific focus on how the idea of a human-shaped Anthropocene impacts the normative underpinning for various types of human management of a climate-changing environment. Four different (p. 194) normative approaches to environmental management will be examined. I will note key limitations of two key approaches—classic preservation and conservation ethics, and the limits and boundaries discourse. And I will explore two very different paths that are potentially supercharged by the Anthropocene—the hubris of a new generation of prometheans, and the potential of an ecological receptivity embodied in a politics of sight. The goal is to explore and critique a number of potential ways to ground ecologically sound and politically pragmatic environmental policies in response to, and within, the Anthropocene.

The Anthropo-scenery

There has been much written lately on the Anthropocene,[1] though the idea has been around for at least 150 years; Steffan et al.'s history (2011) lays out how authors since George Perkins Marsh have been examining this relationship between *Man and Nature* (1864).[2] More recently, McKibben (1989), in his first foray into writing on climate change, argued that while human beings were once "a species tossed about by larger forces, now we *are* those larger forces" (xviii, emphasis in the original); *The End of Nature* meant the beginning of the Anthropocene. Crutzen and Stoermer (2000) put forth the original scientific argument for a new human-influenced geological age. But from its origins in empricial studies in the natural sciences, the Anthropocene is now a growing conceptual issue in the humanities and social sciences. As Chakrabarty (2009) observes, human beings now act with the power of a geophysical force, like tectonic plates or volcanoes. We are the *Earthmasters*, as Hamilton argues (2013)—we've already geoengineered our way into this problem. The question, of course, is what the empirical reality of human-impacted global systems means in normative terms.

Here, there are a number of challenging arguments surrounding the meaning of the Anthropocene. Some critics insist we focus too much on the universal nature of the idea— that the age is really not just about "human" impacts, but the impacts of *certain* humans or social practices. Maybe a better term is the Capitalcene, or the Manthropocene. Similarly, we might explore the vulnerability created by the concept—for example, the relationship between the big acceleration of environmental impacts and the great divergence in terms of inequality. Here, the issue is less "human" impacts, and more the effects on different communities (see Di Chiro, this volume, for more on these issues).

One key controversy arose out of Revkin's (2014) suggestion of the possibility of what he called a "good" Anthropocene. Revkin accepts the empirical reality of the new era, but insists that there is a way to more positively engage with (and in) this new reality. It's not that the reality of the Anthropocene is "good,"[3] but that we can approach our response either by continuing to focus on the catastrophe or on the development of more positive human traits that can engage our current condition. This approach (which I will address more fully in the final section) has been thoroughly attacked by Hamilton (p. 195) (2014), who argues that a simplistic "positive" outlook ignores the worst impacts on the most vulnerable—that for most living beings there is and will be no good at all in the Anthropocene. Worse, Hamilton sees this focus on a positive attitude as maladaptive, as it "impedes appropriate action"—though Revkin responds that all of the efforts of "shouting catastrophe" have not brought satisfactory action either. The question is one of focusing on the specific powers and processes behind the reality of the Anthropocene and its obvious realization in climatic change, or on the ethical and normative design of what Revkin calls "soft landings" for the vulnerable.

Of course, one need not choose one side in that false dichotomy. Both agree that the Anthropocene is a real and significant shift, and that any future will consist of a constant exposure to new environmental realities, an ongoing fight against the worst offenders, and an attempt to rethink human–non-human relations in this new era. The difference is in the political and ethical response.

Crist (2013) goes further than Hamilton, however, insisting that even the acceptance of the term "Anthropocene" is simply a surrender—that the current discourse around the idea refuses to challenge human domination, champions human centeredness, and proposes technological and managerial approaches to a human imposed era of the subjugation of the rest of nature. For Crist, the Anthropocene simply *submits and affirms* human centrality and domination. Worse, it shrinks the discursive space for challenging this domination of the biosphere, and blocks discussion of alternative forms of human life on earth. Similarly, Hettinger insists that the Anthropocene is "an arrogant overvaluation of humans' role and authority," that it undermines "the importance of nature preservation, restoration, and rewilding," and it will have us simply become managers of the earth we have created, promoting ecosystem invention and geoengineering (2014: 4) —a point I will return to later.

Significantly, none of these critics disagrees on the empirical nature of our problem—the reality of the Anthropocene; none disagree that the era is also an illustration of human hubris, self-centeredness, and interference in ecological systems (or, the hubris of those with the power to implement . . .). All also agree on the necessity of a constructive ethical way forward as well—a more engaged understanding of the human relationship with the environment in which we are immersed. But whereas some critics see the term itself as symptomatic of the problem, I see immense normative potential in the very *idea* of the Anthropocene. As I argue in this chapter, the fact that visibility is key to the Anthropocene—the realization that future geologists will see a distinct impact on the planet that begins in the industrial age—holds promise.

Simply put, the Anthropocene will not recede until human beings do. Given this, can we figure out what it means to be the parent that puts the animals on the boat—or will we remain the source of the storm that ends their worlds and decimates ours? So for this exercise, the focus is on how particular existing normative frames for environmental management are impacted by the empirical reality of the Anthropocene. The central question is about how we can develop ways to think about and manage ecosystems, animal habitats, and human needs as we impact the very nature of those systems. (p. 196)

Response One: Environmental Management and the Past

Environmental Management in the Anthropocene

The first approach to environmental management I want to address goes right to the essence of the dilemma. In the Anthropocene, one of the major groundings of our approach is simply taken away from us.

Much environmental management is based on a classic enlightenment framework: we break down problems into parts, and apply expertise to them via bureaucracies and administration. Dryzek (2013) calls this kind of old school approach administrative rationalism. But what kind of expertise is normally applied? Management of environmental systems has traditionally depended on knowledge of the past: the historical rate of snowmelt and flow of rivers, the range and migrations of various flora and fauna, the history of take, size, and species in fisheries. Environmental management has long taken the past as a standard around which to design conservation and restoration. This connection to history and reference to past, stable conditions is deeply embedded in standard terms like "preservation," "conservation" biology, and "restoration" ecology.

We often manage environments based in a range of preservationist or conservationist environmental ethics or values—setting aside "wilderness areas," nature reserves, or iconic places in order to keep them ever thus. But the combined impact of both climate change and the Anthropocene make our knowledge of, and valuing of, the historical status of environments irrelevant. To put it bluntly, this preservation norm is passé—past environments can no longer function in newly climate-changed space. Our move into the Anthropocene, out of the relative stability of the Holocene, undermines this traditional knowledge base of environmental management.

An example comes with the field of ecological restoration. The field originally defined itself as focused on moving ecological systems back to "indigenous, historic ecosystem" conditions (Higgs 2012). In this incarnation, ecological restoration aimed to repair human damage to the natural world and ecosystems by taking those systems back to a time before such damage began. One example is the proposed restoration of ponderosa pine forests in Northern Arizona. Crudely put, the prescription is simple: look for very old tree stumps from before European settlement, plant new trees there, cut down all the remaining overgrowth, and bring back a fire regime to allow grasslands to come back along with the pine forests (Mast et al. 1999). The problem is that, under the Anthropocene and climate change in particular, the high altitude region of northern Arizona will no longer be able to support ponderosa pines. The days of this particular species in that particular place are truly numbered; it is estimated that the ponderosa pine forests will not last.

It's getting hotter, fish are moving down (or up) the coast, spring is coming early, fires are more frequent and intense. Ecosystems are stressed—which only makes them even more vulnerable. Nothing is like it was, and it will only be more so in the future. Even insurance companies are dropping the past as a basis of expertise and management. On

(p. 197) things like flood insurance, they are switching from actuary tables based on past experience to those based on future predictions.

The use of the past as a baseline natural world to be restored or mimicked is no longer possible, and, to put it bluntly, the era of preservation as the basis of environmental management is over. And this is certainly recognized in the field; it is quite amazing to see major figures in the Nature Conservatory arguing that "Conservation's continuing focus upon preserving islands of Holocene ecosystems in the age of the Anthropocene is both anachronistic and counterproductive" (Kareiva, Lalasz, and Marvier 2012).

But old-school conservation biologists continue to fear the spread of the acceptance of the idea of the Anthropocene, as it "will undermine both conservation and restoration objectives" (Caro et al. 2011). Such critics (aligned with those of Crist and Nettinger noted earlier) suggest conservationists simply stop talking about the Anthropocene, and focus on pristine ecosystems unaffected by human activity. Unfortunately, of course, there is no such thing; the world these critics imagine no longer exists (and we would be surprised, no doubt, if such ecologists wanted people to stop talking about climate change—another empirical reality). Overall, a historical approach focused on preserving the now, or putting things back to the way they were, is a normative basis for environmental management that is untenable and indefensible in the physical reality of the Anthropocene.

This does not mean that we cannot restore or protect ecosystems in some way. Such a classic approach may still be possible in small pockets of localized ecosystem management in regions where the impacts of climate change will not undermine the conditions of the Holocene right away.

But there is another way of thinking about, and grounding, restoration. The Society for Ecological Restoration did something extraordinary a few years back; it officially redefined restoration away from its traditional focus on the past, to "the process of assisting in the recovery of an ecosystem that has been damaged, degraded, or destroyed." So the focus is on functioning ecosystems, on resilience, on relationships and sustainability in new conditions—and, crucially, on learning about these new ecosystems that we are creating. History may still be important—it may serve to provide examples, both natural and cultural, of collaborative human–non-human functioning. But we can no longer simply model future restoration on past empirical knowledge of a particular place.

Still, the nostalgic historic restoration idea remains. The newly popular notion of rewilding focuses on bringing megafauna (or closely related surviving relatives) back into environments where they have been eliminated (Monbiot 2013). Rewilding means reintroducing missing plants and animals and then stepping back and letting nature get on with it. The problem, of course, is that sometimes rewilding is seen as a return to the past—a way to let nature get back to the way it was. Monbiot, for example, seems to use both the idea of the past and the value of a functioning system in his argument. A climate-changed environment, however, simply cannot support the old systems rewilders want to restore, and reliance on a notion of the past is just another variation on the conservation

ideal that has become moot in the Anthropocene. Should we really let old (p. 198) megafauna loose in an environment that has changed to the point that it can no longer sustain them?

To be fair, unlike some others, Monbiot does discuss focusing on functioning ecosystems rather than the past alone. He discusses the ecological value of species reintroduction and the value of trophic cascades; for example, bringing wolves back into Yellowstone not only cut deer population and changed their behavior, but this allowed trees and grasses to grow back, which attracted birds and small critters, protected riverbanks, and brought a range of additional benefits. So my point is not that we can't do restoration or rewilding, but that the normative underpinning of those efforts has to be clear—not based on some now unattainable historical ideal, and certainly not on a traditional conception of the 'wild' as a past, or apart from human influence. The normative grounding has to pay attention to the physical impacts of the Anthropocene on place.

Response Two: Limits and Boundaries

The second approach to environmental management I want to address has a different sort of problem—it's not realistic, but more for political than ecological reasons.

One of the currently favored discourses of the Anthropocene is actually a very old approach, long in the environmental literature—that of boundaries and limits. For example, Rockström and colleagues, in an influential piece for *Nature*, argued that there are a number of "planetary boundaries that must not be transgressed" (Rockström et al. 2009: 472). These limits denote a "safe operating space for humanity with respect to the Earth system;" and a keen attention to them is the only way to keep us from pushing "the Earth outside the stable environmental state of the Holocene, with consequences that are detrimental or even catastrophic for large parts of the world" (472). Rockström and his colleagues identify nine key ecological processes, and set such boundaries or limits for each. The very fact that we have exceeded the boundaries on at least three of these indicators illustrates that we are, indeed, in the Anthropocene, where human activity changes global ecological systems.

The point to be made here is not about the particular boundaries, but the boundary approach itself. This clearly follows the earlier discourse of limits, specifically the limits to growth (Meadows et al. 1972), which has been part of the environmentalist and conservationist discourse for decades. We have had many years (now past) to prevent overshoot, or capacity reached, or limits transgressed. The political problem is that four decades of an environmental discourse of limits to growth has really come to nothing.

Actually, it's worse than that, and the problem is a political–structural one. Limits discourse immediately faces opposition. However justifiable it may be in both economic and ecological terms, dominant actors in political and economic systems cannot buy

(p. 199) into such talk of boundaries. Any environmental advocate can attest to the standard response to any limits proposal: you greenies are out to kill jobs and the economy. Those committed to this status quo often paint environmentalists as anti-growth in order to dismiss them.[4]

As Dryzek et al. (2003) have written previously, states have an imperative *for* growth, and while we have seen innumerable examples of environmental discourse couched against that imperative in the last few decades, these campaigns tend to fail. It may seem obvious to use 350.org's success as a counter example—and there is no more clear environmental organization based on the concept of boundaries as one that takes a limit as its very name. But it is important to note that while the group appeals to environmentalists tied to the limits discourse and the particular boundary of carbon emissions, the brilliance of the group's divestment campaign is that, for business, investment in carbon-based fuels—especially coal—is a growth risk, while renewables are the far more tenable long-term growth investment. In other words, 350.org appeals to the growth language of the business community and the state, not limits alone.

While the argument is sensible, and while the boundaries approach is a representation of mainstream ecological discourse, these metaphors simply do not often work in the political arena. So it should not be surprising that at the 2012 United Nations Conference on Sustainable Development in Rio de Janeiro, planetary boundaries were mentioned in the draft conference declaration—but deleted from the final version as too controversial.

Ecological boundaries are quite a reasonable concept for and from environmental science, but highly problematic as a political discourse. And so a strict and politically unsophisticated focus on limits leaves us without a pragmatic language to address environmental management in the Anthropocene. We may argue that we should get politics to listen to the real world and adopt a limits or boundaries or de-growth discourse, and use that as a normative grounding for environmental management based in science. Maybe so, but 30 years of sustainable development negotiations, and over 20 on CO_2, clearly illustrate the problem with that kind of normative grounding of the problem.

As with the traditional conservationist response, the limits response is evolving, however, and may re-emerge as a potential grounding to action in the Anthropocene. We continue to see arguments against growth—slow growth, anti-growth, de-growth—and many are increasingly coming not only from left environmentalists and the scientific community, but some progressive and mainstream economists as well. One key argument here is that a major shift to address a boundary concern such as carbon will not actually be a limit to growth—in fact, there may be economic benefits. That could certainly change things, but note the shift—the language moves clearly away from limits and boundaries, to benefits. So my critique remains: a strict and politically unsophisticated focus on limits, or limits to growth, leaves us without a pragmatic language to address environmental management in the Anthropocene. (p. 200)

Response Three: Double Down on Hubris

The managerial approaches above take a defensive posture of some kind—they look to the damage caused by Anthropocene and hope to reverse or protect ecological systems from the worst of its impacts. But there is another way to look at the Anthropocene, and at human ability to affect global systems and the workings of the natural and ecological systems and individuals. Maybe the current result of our hubris is simply an opportunity to apply more hubris—in the form of new technologies.

Geoengineering, of course, is a key idea getting a lot of play as a potential response to the Anthropocene—one that embraces the basis of the age by expanding human power to engineer the planet. But while we hear a lot about geoengineering to slow the impacts of climate change, this more purposeful approach need not stop there. Another response to the Anthropocene could include the engineering and redesign of various qualities of the human species itself, and or those of other animals, to enable us all to adapt to new environments.

Keith (2000) was one of the first to advocate the prospects of geoengineering the climate system to avoid the worst impacts of climate change. The idea covers a range of potential techniques, from seeding the oceans with iron to capturing carbon dioxide. But the most often discussed tactic is that suggested by Crutzen (2006), of injecting sulfate aerosols into the atmosphere to block solar radiation and, so, the heating of oceans, ice caps, and land. One reason this tactic is most discussed is because we actually have examples of it working in the way we would want—the very real and measured cooling effect of volcanic eruptions. The *Economist* (2011) proposes to use geoengineering in order to maintain or artificially recreate the best of Holocene conditions. "Embrace" the Anthropocene, they argue, and shape the desired environmental conditions, rather than "retreat onto a low-impact path" of boundaries. This is old fashioned, technological-fix, prometheanism. And yet it is an oft-discussed model of environmental management for the Anthropocene—more management and techo-optimism to fix past mismanagement and misplaced techno-optimism.

Geoengineering has been critically discussed at length, and it is not really possible to add more to the caution laid out by skeptics such as Gardiner (2010) or Hamilton (2013). Gardiner has attacked the idea that we can "arm the future" with preparation for geoengineering; he is particularly concerned with the potential moral corruption of current generations as we appear to diminish our own responsibility for creating a climate-changed world. Hamilton argues quite directly that it is a faith in human hubris that seems to be the litmus test for support or dismay with the idea of geoengineering.

But given our lack of moral responsibility combined with this kind of hubris—key components of the Anthropocene—why stop with *geo*engineering? Liao and colleagues (2012) argue that human engineering, or "the biomedical modification of humans to make them better at mitigating climate change" (207), could include things like taking (p. 201)

pills to develop an aversion to meat, or to enhance altruism and empathy. We could manipulate human DNA so we develop cat-like eyes (so we'll need less energy), or, more directly, shrink the size of human beings to decrease both their physical and ecological footprint. Maybe we use genetic engineering to develop resistance to the world we've made; Di Chiro (2004: 142) has written critically of a potential "future of genetically resistant 'Roundup Ready® communities' living, working, and playing happily alongside the toxic effluent of American industry."

Rather than manage the entire global ecological system to provide an environment fit for human beings in their current form, human beings could potentially manipulate our own evolutionary path in order to better fit with the environment we have produced. Thinking about Hushpuppy again, maybe we can engineer biological water wings for people who live along a rising coastline—genetic implants of pufferfish cells right into human biceps. If one response to the Anthropocene is to take a stronger grip on the steering wheel and geoengineer the climate, why should we not apply the same treatment to ourselves as well?[5]

This combination of hubristic human knowledge and (belated) ethical responsibility could be applied not only to planetary climate systems and our own bodies, but to the bioengineering of non-human animals as well. The Anthropocene is already forcing some species to adapt in unique ways; species are moving and changing in response to human impacts on the planet. If human activity is impacting the direction of the evolution of the non-human, why not push them in certain directions—for their own preservation and survival? One recent art project by photographer Vincent Fournier (2012)—aptly entitled *Post-Natural History* and undertaken with the assistance of a geneticist—imagines the use of synthetic biology and genetic engineering to assist animals to survive climate change. Ideas include the basic—like making a rabbit much more intelligent. But it also includes the more fanciful: fungi that grow in arid environments, or armored mammals with metallic scales that help maintain body temperature in a warming climate. After the storm, Hushpuppy says that the animals down below are trying to breathe through the water. Maybe we can make that possible for them—reintroduce gills, and engineer a sort of devolution to an earlier state.

These are not just art projects or fanciful thinking; human beings already do such things. American researchers are developing "new breeds of animals that can stand up to the hazards of global warming"—one idea is to insert the genes of heat-hearty African chickens into current stocks. Of course, this engineering is not new; the Center for PostNatural History, in Pittsburgh, maintains a full catalog of living, preserved, and documented specimens of postnatural origin—from Dolly the sheep to transgenic mosquitoes. Engineering nature is already an environmental management strategy, and in an Anthropocene we might justify these practices for both the good of other species, as well as for human desires or needs.

In addition to a focus on individual animals, we might combine the ideas of geo- and bio-engineering to enable entire ecosystems to remain viable—for example, adjust a number of species in a reef ecosystem to withstand increasing temperatures, higher (p. 202) acidity levels, and rising ocean levels. Again, this isn't just fanciful—it's a profession. There is already an American Ecological Engineering Society, complete with its own *Journal of Ecological Engineering*. It started more focused on sustainability, but seems to be moving in the direction of biotech and synthetic ecologies.

Another quite active research project—an interesting collaboration between theorists, designers, and the sci-fi author Bruce Sterling—is *Next Nature*. The premise is that we have always designed human culture out of nature; human life has always been artificial —we just have good and bad examples to work from. Holland, artificial but aware of the natural world, is the ideal (not coincidentally, most of the theorists are Dutch). But at least the next nature idea is fully aware of our destructive capabilities.

Similarly, in his essay entitled "Love Your Monsters"—a reference to the lesson of Mary Shelley's *Frankenstein*—Latour makes the argument that the "environment is exactly what should be even more managed, taken up, cared for, stewarded, in brief, integrated and internalized in the very fabric of the polity" (Latour 2011: 20). With modernization and technology comes the responsibility, as he says, to care for the monsters we have created—and not fear the continued refinement of technologies. So is assisting animals to survive by changing their very genetic makeup an added unethical act, or is speeding up and influencing the evolutionary process the most ethical thing we can do for all of the species we are currently forcing into extinction?

The point here is that some *embrace* the technological hubris that brought us to this point, and encourage the expansion of the Anthropocene in order to address its impacts. "For nature to survive, it may have to become artificial," says one commentary on Fournier's project (Walsh 2012). While Liao's intention was to point out the absurdity of geoengineering by contrasting it with other forms of bioengineering to which many of us have more of an inbuilt resistance, there is no doubt that what seems a step too far now will become a much more regular topic of conversation and actual management proposals. This is environmental governance with a reflexive hubris.

Response Four: A Politics of Sight

To recap, the idea of historical grounding is moot, limits has political limits, and hubris hasn't exactly worked for us or the environment. So how might we rethink a normative grounding for our relationship with, and management of, the non-human realm we now impact on a global scale? The argument here is that another way to think about environmental management seeks a basis in more receptive, reflexive, and co-evolutionary relationship encompassing humans and ecosystems—a combined ecological and political efficacy. Such an approach is not only theoretical, but also a growing

practice, what I am calling a politics of sight for the Anthropocene. The point is to bring attention to the previously hidden, and visualize the ongoing human relationship with the non-human. Helpfully, the idea of the Anthropocene gives us an opportunity to both see and reflect on the human impact on the environment. (p. 203)

A politics of sight is closely aligned to much work that has been done on the politics of receptivity, both in political theory generally, and in environmental theory in particular. Receptivity, however, has been almost entirely focused on *listening* rather than sight. As Kompridis argues, reflexivity is about moving beyond our current passiveness or learned invisibility—the process of receiving information, but then disposing of it, and learning not to see (2011: 263). But Kompridis falls back to a focus on listening: "Becoming receptive to such a call means facilitating its voicing, letting it become a voice that we did not allow ourselves to hear before, and responding to it in a way that demands something of us that we could not have recognized before."

Dobson (2010) notes that receptivity in the form of listening has been present in environmental political theory for some time—the call to listen to the non-human realm. Dryzek (1990) argued that we should extend a conception of communicative rationality to include "signals" from the non-human world in political decision-making. Similarly, Plumwood (1998) insisted that environmental politics demands we listen to "the remote," in terms of both vulnerable human and non-human populations left out of political conversations. And Latour's (2004) extension of the idea of "actants" to the non-human exemplifies such a call to listen to a broader array of utterances and inputs to political processes.[6] As Dobson notes, these types of approaches "implicitly or explicitly suggest that 'giving voice to nature' is less a matter of finding ways of literally making nature speak, and more a question of listening harder to what it already has to say" (Dobson 2010: 764).

But Dobson also understands receptivity in a broader sense; it "is something akin to 'listening'—but also more than listening. It involves the development of *all* the receptive capacities—a category that includes listening, but is not exhausted by it" (760). It is that opening that I want to explore—receptivity beyond listening alone. Let me illustrate the idea with a few examples and illustrations.

David Foster Wallace's famous graduation speech to Kenyon College, published as *This Is Water* (2009), actually discusses a type of receptivity—what he calls "simple awareness." He begins with an apt parable:

> There are these two young fish swimming along, and they happen to meet an older fish swimming the other way, who nods at them and says, "Morning, boys, how's the water?" And the two young fish swim on for a bit, and then eventually one of them looks over at the other and goes, "What the hell is water?"

While the essay covers much ground, the focus is on mindfulness—to pay attention and always see the water. It is an argument for a multi-sensory critical receptivity.

Wallace, however, did not get to the core of *how* it is we come to forget about the water, to be in it without seeing it—the creation of what I call an "immersive ignorance." Miéville's *The City and The City* (2009) illustrates exactly that. The setting of the book is two cities that actually share the same physical, geographical space; they can only exist as distinct from one another if the citizens of each learn to make the other city and its citizens invisible, even as they pass them on the street. Learning in these (p. 204) two cities is aimed at making what we are immersed in our everyday lives—the very people, buildings, and streets we pass every day—invisible. That invisibility is taught, expected, and enforced. While Miéville's work is often used to illustrate the way we make the poor, homeless, or "others" in our own cities invisible, the learned disappearance of things right in front of our faces is also applicable to our relationship with the non-human world. The acceleration of the industrial age, key to the Anthropocene, has been, in part, about obscuring the reality of the environment in which our everyday lives are immersed. The development of the Anthropocene has depended on a taught blindness to that other city, the natural systems we walk through, and that provide the context for our basic needs.

And yet visibility itself is key to the concept of the Anthropocene; it is based on the idea that future geologists will see a distinct impact on the planet that begins in the industrial age. The effort to recognize this new geologic era of human influence is one of *making visible* what we have previously refused to recognize. The Anthropocene *enables* sight, and, so, reflection. Such a vision requires heightened critical reflexivity about our ecological selves, a life with constant awareness of the environmental systems in which human life is immersed. It opens us to a *receptivity* to our impacts on the planet and, so, a potential reconstruction of the relationship between human and non-human.

There are two different aspects to a kind of politics of sight in the environmental arena. First is the classic uncovering or exposure of the treatment of individual animals that we've seen since Greenpeace starting videotaping the slaughter of whales. These images had not been part of the public conception of whaling, and yet now they are quite common. This politics of sight is the essence of a reality TV show, *Whale Wars*, and movies like *The Cove*. The strategy continues with the various attempts to expose the practices and treatment of animals in abattoirs, or their abuse in live transport.[7]

But beyond these illustrations, there is another side to a politics of sight, in particular about exposing not just practice and treatment, but the very construction of learned invisibility or immersive ignorance. Pachirot's *Every Twelve Seconds* (2011), for example, is about the intentional production of invisibility among the workers in industrialized slaughterhouses. The point is not simply to show the abuse of cows in abattoirs, but about exposing a whole uncomfortable and destructive system that we have learned to make invisible, even when its products are in plain sight every day in the supermarket. As Pachirot notes, the hope of his book is "that its detailed account of industrialized killing will invite readers to seek a more thoughtful relationship with the nonhuman creatures with whom we share the planet and a more critical stance toward the mechanisms of distance and concealment that currently operate . . ." (ix). This kind of politics of sight—

which is what Pachirot calls his task—is about using such sight to encourage a receptivity to the understanding of the human role in living in and affecting environments. For me, this is about *seeing* the Anthropocene in the everyday.

This is not necessarily about stopping meat-eating, but understanding our relationship with non-human animals, even as they feed us. In Sydney, a local café has a pet (p. 205) pig, aptly named Kevin Bacon, which customers pass on the way in to eat their bacon sandwiches and pork pies. Some have attacked the café for its hypocrisy in caring for animals as pets when they serve their kind; this was actually the justification used for the kidnapping of poor Kevin. Defenders of the café argued that this is exactly the point, and having him right there enforces that visibility. Just seeing Kevin Bacon makes us see the water, it pushes us beyond an immersive ignorance of the basic use of other animals for food.

One of the most famous cases of what I would categorize as this kind of politics of sight has come from the Copenhagen Zoo. In February 2014, the zoo euthanized a young giraffe, Marius, it said could not viably participate in a captive breeding program to preserve and strengthen the species. While zoos frequently put down animals for this reason, the difference in this case is that the Copenhagen Zoo chose to make the process very public and visible. Zookeepers killed and dissected the giraffe in front of a crowd of visitors, including children. Large chunks of Marius were then fed to the lions in the zoo —again, in front of a crowd of spectators, seen in photos released by the zoo itself. There is an obvious argument to be made about whether or not the zoo could have found a safe home for Marius to live out his (non-breeding) life—but that's a separate argument. Once they decided to kill him, the very public visualization of the killing, the dissection, and, especially, the consumption was an active politics of sight on the part of the Copenhagen Zoo. And they were wildly successful; the event was shown globally and stirred debate specifically on the environmental management of endangered species in captive breeding programs.

In another example, and obviously on a larger scale, we are starting to see an insistence on the visibility of the impacts of climate change, and a politics of sight by either activists or governments. In adaptation planning, we are increasingly seeing downscaled impact studies that often visually illustrate drought range, sea level rise, urban heat islands, etc. Scientists and local governments are using these visualizations to prompt reflection and action on climate vulnerability, and to develop governance strategies for adaptation. From the Louisiana coastline to post-Sandy planning in New York, and to floods in Great Britain and adaptation planning in Sydney, the visibility of impacts are being used to bring about reflexivity—an understanding of the impacts of climate change and the vulnerability of local populations.

The point here is that this kind of visualization pushes us to look upon and reflect on the source of our food, on captive breeding to preserve species, on climate change, and on the broad relationship between human and non-human. This practice of a politics of sight can bring us face to face with the Anthropocene, and out of the immersive ignorance of

our inattention. This is not to claim that making visible the violence and vulnerability of our current impacts on the non-human will lead directly to a more ethical and sustainable relationship, but it is difficult to imagine how we can create an opening for such a relationship without a politics of sight making the consequences of our current actions that much more perceptible. The first step in environmental management of this age is exactly this kind of recognition, receptivity, and vision. (p. 206)

Concluding Thoughts

The ultimate argument here is that there is a value to, and an immense opportunity in, a recognition and visualization of the Anthropocene. This kind of sight and receptivity is key to any shift to a more sustainable environmental management of the ecological systems of the planet. Such an ecologically receptive and reflexive perspective requires us to live with a constant awareness of the environmental systems in which human life is immersed in an ever changing, and ever challenging, Anthropocene. This receptivity and reflexivity can be prompted and fed by a deliberate politics of sight—exposing the abattoirs, the hidden cities, the internal ecosystems, the impacts of climate change. It is possible to use a very visible Anthropocene to move from an immersive ignorance to an ecological receptivity.

Certainly, such a grounding for environmental management seems more ecologically viable than a grasping for the past, more politically viable than a limits approach, and ethically less problematic than continued technological hubris—a politics of sight insists upon an ecological efficacy as a response. One way or another we will find out if human beings are capable of putting an ecological reflexivity into practice—whether we can put ourselves and the rest of the planet in the boats and visualize, evolve, and manage a more functioning Anthropocene.

Acknowledgments

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Notes:

(1.) Thanks to Tim Luke for the concept of anthropo-scenery from which this section takes its title.

(2.) Tellingly, Marsh's book was reprinted a decade later as *The Earth as Modified by Human Action*.

(3.) Though the "good Anthropocene" was the title of the talk in question, and the impetus for the negative response.

(4.) This political efficacy critique is different from other common flaws in the use of the limits discourse—e.g. those that use the reality of *global* limits as a normative justification for *local* policies such as limiting immigration or population growth. Such mistaken, political uses of the empirical reality of ecological boundaries is a different issue than the efficacy problem discussed here.

(5.) The combination of geoengineering and human engineering is at the center of the plot of Stanley Kim Robinson's climate fiction opus *2312*.

(6.) There are key exceptions; Bennett (2004), e.g., notes the impact that the *sight* has on us as a crucial part of "thing power."

(7.) There has been a huge crackdown on these practices—but I think it's unfortunate that they're being called 'ag-gag' laws by the opposition. There are some limits on reporting and speech, but the main focus of these anti-whistleblower laws are on film and video—they are a direct attempt to keep sight from the public.

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