

## Rethinking Anthropocentric Politics

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*“She’s not doing science, she’s doing interspecies politics,  
only we don’t know that the other side even has politics...”*  
(Orson Scott Card, *Xenocide*, p. 172)

*“Addressing climate change is about the fossil fuel industry versus young people and animals.  
Except animals don’t vote and don’t talk.”*

Dr. James Hansen, NASA Climatologist, at Ohio State University, May 2008

### *Introduction*

The politics in “international environmental politics” is widely assumed to be a human activity. Although it is very much a politics “about” the environment or “about” particular nonhuman entities, politics is not understood to be something that humans ever engage in “with” nonhumans. It is not, I will argue, reasonable that this anthropocentric assumption about politics should always hold true, particularly when it comes to ecological matters where the well-being of nonhumans are part of what is at stake. For both normative and empirical reasons, I suggest that we should think of the political as an interspecies domain, in which human politics (and other species-specific politics) is only one component.

First, there are some grounds for rethinking anthropocentric politics within IR as a discipline, which since the early 1990s, has been involved in a critical re-evaluation of what politics means. RBJ Walker suggests, for example, that the very enterprise of international relations as scholarship involves “variations on a question about the location and character of what we mean by the political under contemporary conditions.”<sup>1</sup> Given the fact that “contemporary conditions” very much include a serious set of environmental problems at a wide variety of global and international scales, it seems to me that the IR endeavor should involve asking not only about the challenge that transboundary

environmental problems pose to state sovereignty,<sup>2</sup> the particular difficulties involved in getting effective international cooperation over the global commons,<sup>3</sup> and the importance of transnational environmental politics in creating global public spheres,<sup>4</sup> but also the extent to which the anthropocentric character of politics itself is an issue, and whether the “location and character” of politics may be changing in an ecological sense (i.e., across species lines).

A second reason to reconsider this assumption relates to the organizing distinctions between society and nature, or between culture and nature, that underlie a humans-only politics. Environmental political theorists (especially those arguing from biocentric and ecocentric perspectives) have offered a strong, if somewhat oversimplified, challenge to modern anthropocentrism, suggesting that its hyper-emphasis on human uniqueness as a marker of moral difference lies behind a variety of modern environmental ills.<sup>5</sup> On these accounts, a dualistic view of humans/nature has positioned humans (who have culture, politics, reason, abstract thinking, ethics, morality) in a position to dominate nature (as passive, inert object, devoid of meaning and agency) in instrumental terms. While they acknowledge humans do have unique capabilities (as, indeed, do other biotic entities), they argue that these capabilities should not form a foundational point of exclusion from moral or political standing. Instead, biocentrists and ecocentrists have suggested that all living things are morally considerable, not in virtue of whether their capacities are like human capacities, but rather, in virtue of the intrinsic value of self-directed life.<sup>6</sup> This argument leads to a call both for greater environmental protection and for a perspective that takes nonhuman life and ecological webs of relationships more directly into account in human decision-making.

A third, related reason to rethink anthropocentric politics is that the features which we think make humans radically unique from nonhumans, and therefore distinctly capable of politics, seem to be breaking down.<sup>7</sup> Arguably, at least, many nonhumans can be characterized as having some kind of agency, as being sign-interpreters, having forms of subjectivity, and as capable of social life. This too suggests that the barriers to entry in political life are not as high as might have previously seemed. From a second front, the demise of human uniqueness also has resonances with the idea of posthumanism pushed by Michel Foucault, N. Katherine Hayles, Bruno Latour, and others, which celebrates the purported death of the autonomous, rational, and self-contained modern human subject; the breakdown of barriers between humans, nature, and technology; and their replacement by new forms of hybrid entities and assemblages that stretch across those boundaries.<sup>8</sup> Though these two critiques of human uniqueness are ultimately in tension with another, with the former continuing to assume the coherent ability to refer to human and nonhuman entities as such, and the latter pushing a form of relationality that undermines the very idea, they nonetheless suggest that anthropocentric politics may be open for revision.

Part of what is at stake here, then, is how environmental IR understands the boundaries of its subject matter. If my argument is right that it is plausible to think about politics as not limited to human participants, it means that the locations of politics are greater than we currently think and would point us both towards different areas of study and towards taking greater account of nonhuman perspectives in IR work.<sup>9</sup> To the extent that environmental politics has a normative agenda, moreover, part of that goal might be achieved by “looking for progressively less anthropocentric political forms,” as John

Dryzek puts it; it might perhaps ground thin forms of political obligation or appropriate consultation.

The argument here proceeds in three parts. First, I consider in more detail some of the objections to thinking about politics as an activity that crosses species lines, particularly those related to metaphorical use of language and the question of what capacities are necessary for meaningful political interaction. Second, keeping these objections in mind, I address the arguments made by green theorists for extending deliberative democracy to a global ecological context (and nominally crossing species lines). These proposals move a fair way towards a politics with nonhumans, but I think they ultimately fall short of their aspirations, particularly when they resort to proposing forms of proxy representation for nonhumans in international negotiations and national parliaments. Third, I suggest there is a more satisfactory way of thinking about nonanthropocentric politics, which has to do with thinking biosemiosis as an alternative “ether” of political exchange and about the natural sciences as a form of political practice with nonhumans, involving networks of actors that co-produce scientific knowledge. This is a more modest proposal than ecological deliberative democracy in terms of the institutional changes it points towards, but it is perhaps a more radical proposal in terms of the expanded locations of and participants in politics.

### *Section 1 - Objections*

What kinds of objections, then, might be made to justify the continued exclusion of nonhumans from politics? One class of objections is based on questioning the metaphorical use of language – the use of “politics” to characterize human interactions with nonhumans is a nice metaphor, at best, in which speaking of politics with

nonhumans is essentially an “as if” assumption, no different than ascribing rational choice decision-making to plants or honeybees.<sup>10</sup> At worst, it might be seen an anthropomorphic metaphor that mistakenly attributes a political quality to what are fundamentally apolitical interactions.<sup>11</sup>

This objection seems to have more force when it comes to describing relations between species, and not so much within species. We seem to accept, or at least tolerate, the idea of using “politics” to describe behavior in other species: higher-order primates,<sup>12</sup> elephants,<sup>13</sup> dolphins,<sup>14</sup> or even ants.<sup>15</sup> Franz de Waal’s book on “chimpanzee politics” continues to stay in print after 25 years, relying on its basic definition of politics as “who gets what, when, and how,” involving bluffing, collations, and isolation tactics. If we are skeptical about these cases, it is perhaps not so much about the presence of politics in other species, but about the ways in which they are read back onto human politics, as the scientists who write these accounts routinely suggest we should – that there is something human politics can learn or be taught directly from politics in other species. Ant politics, for example, has alternatively been seen to vindicate socialist politics, capitalist political economy, and monarchy.<sup>16</sup> But we nonetheless seem increasingly sympathetic to the use of the term “politics” to describe the internal organization of other species-groups. As de Waal notes, when he first wrote his book 25 years ago, he couldn’t use the words “animal” and “cognition” in the same sentence without being accused of anthropomorphism, whereas now this is a commonplace assertion.<sup>17</sup> Politics in other species, it seems, is starting cross that threshold from anthropomorphic metaphor to functional knowledge-concept as well.

Reasoning by way of metaphor is not without political consequence, of course, which is what I suspect underlies this general objection towards politics between species. There is ultimately less at stake in accepting the idea that elephants or chimps have internal politics of their own than there is in accepting the idea of political interactions between species, since this might create new and unwanted obligations, or be seen to undermine the contrast of modern human politics as a realm of freedom and reason, set against nature as a realm of necessity and unthinking. Which particular metaphor we use to describe nonhumans (and our interactions with them) is, in short, a function of our normative commitments as well as the patterned activity on the part of nonhumans that make the metaphor plausible.

A second set of objections are the ones based in differences in the *capacities* themselves that make political life meaningful. Here, to oversimplify a bit, what makes politics meaningful for humans requires, or itself emerges from, the special capacity of reasoned speech as a substitute for violence, as a means of ordering a community.<sup>18</sup> Since nonhumans lack these capacities, a political life with nonhumans is impossible in any meaningful sense, even if it were normatively desirable.

The first point to make here is that there is a self-affirming circularity to this argument, such that what makes politics meaningful (according to the abstract, reasoning human mind) is precisely abstract, symbolic reason and the speech and language that accompany it. This, I think, simply affirms a truism, namely that human politics requires human capacities. However, I do not think it speaks to the question of whether political life between species might have a different character, requiring different capacities that are not species-specific.

But if we assume that politics could cross species lines, the capacity-related concern still arises, in the sense that asymmetrical capacities might “thin” politics too much for it to be meaningful as a term and a practice. That is, how could politics remain meaningful across species lines if politics to humans is meaningful only in virtue of reasoned speech and this capacity rests only on our side of the political fence? What would the nature of the political interaction be?

This issue might be partly assuaged by the fact that nothing prevents us from having a “thick” kind of human politics, side-by-side with a “thin” politics with nonhumans that may be less binding in some ways. These are different, if overlapping spheres of political life, ultimately. But this objection also overstates the ways in which thick, meaningful interactions necessarily require reasoned speech or human language. The fact that nonhumans do not have human speech capacities, or for that matter, that humans lack the ability to participate as equals in nonhuman political worlds, does not render those worlds completely incomprehensible to one another. Encounters between two species may not involve direct linguistic communication, but each species interprets the interaction through its own semiotic world and in some meaningful way, *understands* it, in ways that bear upon its future decision-making about its habitat, range, safety, and potential well-being. Even in the human context, political communication, for example, involves more than just language – body language, facial expression, symbols, gestures, and pheromones are also communicative. So part of what I want to think about here is whether alternative capacities are a possible grounds for this small corner of nonanthropocentric political life, which might involve thinking about human language as one form of meaning-generating sign-system among many in the biological world, and

thus whether the idea of semiotic competence might be an adequate substitute for communicative competence in politics between entities.

Notwithstanding these objections, some environmental IR scholars have moved to think about politics with nonhumans, through the idea of ecological deliberative democracy, to which I now turn

### *Section 2 – Ecological Deliberative Democracy*

Deliberative democracy offers a number of strengths as a framework for thinking about global environmental politics. It is not necessarily bound to the sovereign state or to territory specifically, which is important given the transnational character of environmental issues. However, it does not try to dispense with the state – indeed, it sees a green state (influenced by transnational green movements) as one of the primary sources of environmental protection.<sup>19</sup> Here, I want to specifically consider the sub-set of debates around deliberative democratic approach to relations between humans and nonhumans, both they make a thoughtful case for non-anthropocentric politics and because of the ways that they fall short when it comes to suggesting proxy political representatives for nonhumans as a substitute for speech.

I will argue that competence, whether communicative or semiotic, should be a foundational point of inclusion/exclusion from politics, in order to prevent the problem of representing/misrepresenting others as an antipolitical move. However, I agree with green theorists that moral considerability of nonhumans based on problems of well-being should loosen the reliance on *human* competences as the relevant criterion of admission to (and mode of interaction in) political life. Finally, against both ecological deliberative

democrats and their critics, I will suggest that no form of ecological politics with nonhumans is plausible if we take human political forums (parliaments, congresses, international negotiations) as the location of that politics.

Upon what basis, then, do ecological deliberative democrats suggest that an ecologically-inclusive politics rests? Why, in other words, should we abandon the long-held assumption that politics is a uniquely human activity, and move towards forms of biocentrally-based deliberative democracy that are inclusive of nonhumans? The most direct spur for rethinking the boundaries of political participation is the rise of intractable environmental problems at national and global scales. Green deliberative democrats have suggested that the slowly accumulating environmental crisis calls into question the credibility of the modern state (and the international state system) as a path towards the good life.<sup>20</sup> Both realism and liberalism, for example, have been critiqued on the grounds that they assist, even if unwittingly, in perpetuating environmental degradation.<sup>21</sup> Laferriere and Stoett point out, for example, that both realism and liberalism tacitly articulate an “ecological problematique” that understands “order and progress in direct relation to our capacity to master the forces of nature.”<sup>22</sup> The politics in realism and liberalism is ethically anthropocentric, in the sense of treating nonhuman nature as a largely instrumental good for human benefit. In the realist case, nonhuman nature is taken exclusively as a resource to fuel the pursuit of national security for the (human) state. Liberalism, while a more optimistic theory of international life, nonetheless holds to the tenets of economic growth and free markets as a way to achieve interdependence, peace, and sustainability. On this line of critique, anthropocentric politics are rooted in, and reproduce, a dualistic conception of humans and nature, which in turn is what drives

environmental degradation. Realism and liberalism do not preclude the possibility of sustainable environmental behavior or policy-making, per se. However, the imperatives identified in their conceptions of politics mean that the orientation of their problem-solving will remain anthropocentric.

By way of alternative, ecological deliberative democrats suggest that there is a stronger, positive argument for an ecocentric orientation to international politics, which might be called *ecological due-process*. In cases where harm is possible or well-being is at stake, inclusion in politics should be based on the community of entities affected, rather than being based on a capacity (speech; reason; self-representation). Robyn Eckersley, for example, suggests that “all those potentially affected by a risk should have some meaningful opportunity to participate or otherwise be represented in the making of the policies or decisions that generate that risk.”<sup>23</sup> Therefore, “when the circle of moral considerability is widened to the maximum to include all potentially affected others, then the very possibility of arbitrarily displacing ecological costs onto human and nonhuman others is foreclosed.”<sup>24</sup> Jane Bennett, via John Dewey, likewise argues that the key criterion that makes associative life political rather than apolitical is that it be a problem of well-being, something causing harm to some entity or set of entities in the collective, and that there is no reason to limit those entities to being human up front. Bruno Latour (though no deliberative democrat) suggests that the goal of politics to be aimed at securing the possibility of common existence among entities. “The entire collective has to ask itself whether it can cohabit with so-and-so, and at what price; the entire collective has to inquire into the trials that will allow it to decide whether it is right or wrong to carry out that addition or subtraction.”<sup>25</sup> On these accounts, the non-species-specific

concepts of harm or well-being should open the doors of politics to be oriented towards temporary communities of entities who are affected by decisions.

In the context of deliberative democracy, Dryzek finds the “silencing” of nonhumans an unacceptable undermining of the communicative imperative. He points out that “the most effective and insidious way to silence others is a refusal to listen... Recognition of agency in nature therefore means that we should listen to signals emanating from the natural world with the same sort of respect we accord communication emanating from human subjects, and as requiring an equally careful interpretation.”<sup>26</sup> Surprisingly, when he gives example of communication, he points to ecological processes like the creation, destruction, or maintenance of species-niches, or “cycles involving oxygen, nitrogen, carbon, and water.”<sup>27</sup> If these are communicative acts, though, he does not suggest how humans can communicate *to* those entities, in a dialogical sense. By communication, then, he seems to mean only communication to humans.

As Eckersley notes, this extension of politics to nonhumans seeks to “extend democratic consideration to a somewhat indeterminate community whose members are not all capable of reciprocal recognition.”<sup>28</sup> Admitting nonhumans to politics, for Eckersley, is first and foremost a moral question of considerability, which is what makes “special discursive procedures” for engaging in politics with them ultimately defensible.<sup>29</sup> Against the anthropocentric idea in liberal politics that treats others (human or nonhumans) in purely instrumental ways, Eckersley extends the Kantian ideal that individuals should be respected as “ends in themselves” as a ground for a modified form of ecological deliberative democracy.<sup>30</sup> This claim to moral considerability claim is well-

situated in green theory more broadly as well, which has argued that biotic nonhumans have a value to themselves that always exceeds their instrumental value to humans.<sup>31</sup>

The constraint on ecological democracy that Dryzek and Eckersley ultimately accept is that nonhumans cannot participate in “rational discourses,” and thus lack the communicative competences necessary for a full-fledged entry into a Habermasian affirmation of just norms or into deliberation at all. Therefore, they resolve this dilemma by resorting to proxy political representation by humans as a means to give morally considerable nonhumans a voice in political life. On Dryzek’s account, for example, humans can “speak for” nonhumans, and represent them in human politics. Dryzek’s suggests that humans engage “a capacity for effective and egalitarian listening,” as in “attention to feedback signals emanating from natural systems,”<sup>32</sup> particularly through science. Eckersley similarly suggests that the solution to lack of communicative competence is for humans to act “as if” nonhumans had communicative competence, and thereby take their presumed reactions into account. Robert Goodin’s idea of “encapsulated interests” similarly suggests that because nonhumans ultimately lack the capacity to represent their own interests in human forums, humans can represent nature’s interests for it.

The idea of proxy representation for nonhuman nature has a surprisingly wide hearing in environmental political theory. Freya Mathews proposes that nonhumans be represented by “ecological selves” – individual humans who are tasked with thinking ecologically, and given a seat at political tables to convey nature’s interests. Andrew Dobson has suggested that both nonhumans and future generations of humans be given proxy representatives in human political structures.<sup>33</sup> Christopher Stone’s famous (1974)

article made a similar case about the legal standing of nonhumans in US court cases, arguing for the right of environmental groups to represent trees in legal procedures. Environmentalists have argued that nature should be given rights within the democratic state.<sup>34</sup> The idea of leaving an empty chair at environmental negotiations for unrepresented (and uncontacted) indigenous peoples can also be applied to nonhumans.<sup>35</sup> In sum, the fact that nonhumans do not have “communicative capacity” in the Habermasian sense, but are nonetheless morally considerable as political subjects, is taken as grounds for finding alternative ways of politically representing nonhumans within democratic processes.

However, because lack of communicative competence on the part of nonhumans is dealt with by means of proxy human representation, the kind of ecological politics that results can function anti-politically. Listening to ecological feedback signals from the nonhuman world, for example, is almost certainly a good idea. Having sustainability representatives at international trade agreement may likewise be a good way to raise the environmental impacts of economic life. Yet in the act of translating non-communicative nonhuman nature into an “as-if” communicative competence, nonhuman interests must be stipulated, judgments about inclusion and exclusion must be made (which part of nonhuman nature? do species at different places in the food chain get different representatives to speak for their interests?), and any bargains or compromises that might be struck are not legitimated by the constituency for whom the proxy representative speaks.

Steven Vogel’s thoughtful critique of the idea that nonhumans can “speak” in any meaningful ways captures the stakes involved with this point succinctly: “nature does talk

with us, it talks at us: we respond to it like silent subjects listening to the commands of a monarch, not like participants in a dialogue who develop mutual understanding and respect through repeatedly and alternately taking up the positions of speaker and listener.”<sup>36</sup> Vogel’s fear, implicitly, is that admitting nonhumans to political process by way of proxy representation heralds another version of reading nature onto human politics, with no dialogical opportunities for deliberation – and with it, give away the emancipatory potential of critical human thought and modern politics. Vogel, in other words, takes the “communicative capacities” (defined in human terms) as the basic point of entry into politics and political participation; he finds nonhumans lacking (not surprisingly), and suggest that “speaking for” nature is ultimately an act of ventriloquism that covers up too much of the human who is doing the speaking.

Reading nature onto politics has, historically, been a pervasive tendency, ultimately acting to circumvent political discussion by constituting an authority outside of human societies.<sup>37</sup> Environmentalists continue to draw on this discourse today, for example, often using science as the medium, to suggest political necessity rather than deliberative consensus.<sup>38</sup> To say that something is “natural” has traditionally been a way of saying that it is outside of political contestation<sup>39</sup> (hence the critical fetish for “denaturalizing”<sup>40</sup>). Latour suggests, rather bombastically, that “not a single line has been written, at least in the Western tradition, in which the terms ‘nature,’ ‘natural order,’ ‘natural law,’ ‘natural right,’ ‘inflexible causality,’ or ‘imprescriptable laws,’ have not been followed a few lines, paragraphs, or pages later, by an affirmation concerning the way to reform public life.<sup>41</sup>” The natural is made as the opposite of the political, yet imported into its heart as a way of putting claims beyond contestation.<sup>42</sup> Moreover,

learning the lessons of nature for human politics is well and good, if one knows what the lessons are. But the problem is that we tend to see what we look for – social Darwinism? Marxism? free market capitalism? – and that what we look for is partly produced from social (human) processes in the first place. Vogel is right, therefore, to suggest that in light of lack of communicative competence, bringing nature into human politics by way of a proxy representation is antipolitical; and in light of the non-dialogical nature of human/nonhuman interaction (in terms of human language), that it is also not ecologically democratic.

I agree with Vogel that nonhumans do not have human communicative capacities, and that resolving this problem by means of a human spokesperson will never result in a transparent communication of nonhuman interests. However, it seems to me that the problem is that Vogel (and other critiques that move along these lines) are unwilling to consider the possibility of interspecies political moments that are at least partly decoupled from human qualities as the criterion for admission. The logical argument as Vogel constructs it makes the outcome a foregone conclusion: nonhumans do not have the same communicative capacities as humans; the definition and importance of politics rests on having communicative capacities that only humans have; therefore politics with nonhumans is impossible and only humans should be thought of as political agents. The possibility of politics with nonhumans is closed from the beginning.

Though they are willing to extend moral considerability (and therefore political inclusion) to nonhumans, the ecological deliberative democracy proposals have a flaw similar to Vogel: nonhumans are morally considerable entities from an ecological perspective; therefore, we should find ways to adapt human political processes to include

them (like special representative adaptations); however, we will not challenge the political process in deliberative democracy in order to meet nonhumans anywhere on their own turf. Rather, we will find representative adaptations to circumvent nonhuman deficiencies. In order for ecological democracy to succeed, it needs in some measure to start from a politics of difference that *holds the location, nature, and processes of political life open themselves*. In both communication and representation, Eckersley and Dryzek choose not to build nonhuman difference itself explicitly and symmetrically into a concept of political process (paradoxically, since this is precisely their aim). Their extension of communicative rationality to nonhumans is a one-way listening, but never asks how (or if) any given nonhumans interpret an interaction or whether lack of speech prevents human access to nonhuman politics or modes of experience.

To a certain extent, my question here is therefore about priors – if humans are to represent nature (as ecological selves, sustainability representatives, etc) in a meaningful way, we should consider the nature of the (political) interaction between human and nonhuman at some point prior to that act of representation. It is on this point that Vogel objects to the epistemological difficulties, and where I want to bring in the idea of biosemiosis as an ecological concept that spans species.

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How, then to proceed, if the aim is to create a nonanthropocentric communicative politics of encounter that takes nonhuman difference explicitly into account in ecological democracy? Rather than starting with communicative competence at the core of democratic politics (as Eckersley and Dryzek do), and the associated affirmation of norms (which necessitates making special representative modifications for nonhumans),

it seems to me to be important to start with ecological competences, and to see how human competences might be understood as embedded in wider field of human/nonhuman interaction. In order for competences to remain meaningful as a criterion of entry into politics, however, it must be shown to have substance above and beyond bare existence. Thus, whereas Bruno Latour wants to extend transformative competence to potentially *any* kind of entity in his “cosmopolitics,” I suggest that this is incapable of generating a meaningful politics. The entity in question must be able to understand its world meaningfully in order to make the political claim stick – for Latour, any entity can participate in politics only because its own, self-aware interpretation of the world is irrelevant (and he makes up for this by reinstating the human subject as the judge of meaningful transformation).

As post-structural analyses of environmental discourses have pointed out, nature is made known to humans through modes of knowing that are culturally specific and mediate our knowledge of nature (which can never be known itself).<sup>43</sup> However politically useful it may be to hold a Natural trump card that comes from outside the human political order, such a position is not tenable once one looks at how knowledge of nature is generated. There is no Nature that can be read onto human politics, only natures, each of which entail different stances on resource use (e.g., nature as recreational salve against the ills of civilization; nature as source of economic livelihood), open different possibilities for human action, and enable different forms of intervention between human groups (e.g., World Bank loans that have environmental conditionality).

Yet, if we accept the post-structural claim that natures are socially constructed, which I do, then we must inquire into the ways that nonhumans actively contribute to that

construction. The idea of social construction assumes a strange asymmetry – nonhumans are assumed to be neutral in the construction, never capable of their own construction of humans, nor contributing anything themselves to the shared meanings involved in discursive production. Nonhumans may well be socially constructed, but I want to suggest that we can do more than study the culturally specific ways in which humans represent them. An ecological kind of social construction, in which humans and nonhumans construct meanings interactively, both allays green fears about the ways in which epistemological concerns end up marginalizing the active role of nonhumans<sup>44</sup> *and* acknowledges that poststructuralists are right to point to the site-specific discursive making of meanings. The promise of ecological democracy, then, rests precisely on acknowledging the joint ways in which humans and nonhumans create subjectivities, shared meanings, and contested differences. However, it complicates matters for poststructuralists and ecologists alike, since the former must acknowledge the role of non-linguistic sign-systems in discursive production, while the latter must acknowledge that there are no transparent nonhuman interests, only mediated ones.

The attentiveness of critical IR to site-specific instances of political life, and its focus on how discursive meanings constitute political life are both useful injunctions for international environmental politics. If poststructural IR work on environment can be decoupled from its insistence on language-use as its sole point of analysis for understanding the politics of environmental meanings, as I argue that biosemiosis helps us to do, then a framework for thinking about international environmental problems in terms of ecological politics can start to emerge.

I therefore make the following suggestion: that biotic nonhumans (but not abiotic nonhumans) are capable of interpreting and creating meaning in virtue of their capacity for semiosis; and that an interspecies conception of politics involves semiotic encounters between biotic entities in which the possibilities – the *meanings* – of sustainable co-existence are contested, negotiated, and interpreted.

### *Section 3 - Biosemiotic Politics - And Say the Biotic Entity Responded?*

In this section, I suggest that rather than consensual agreement on norms (which is an anthropocentric ideal, based on rational deliberation using human language), the “ether” of ecological politics ought to be about contesting *meanings* – all biotic entities, I will contend, are both the authors of and the outcomes of individual and shared meanings, which regulate expectations, create subjectivities, and generate responses.<sup>45</sup>

By politics, then, I mean: *the processes by which shared meanings that pertain to problems of collective well-being are generated, interpreted, and/ or destabilized.* The “collective” in question need not be territorially bounded, per se, nor need it be stable over time – it is a problem-driven collective whose existence is temporary.<sup>46</sup> Moreover, rather than necessarily seeking consensus through deliberation, this conception of politics draws on a more agonistic view of democracy proposed by Bruno Latour, Chantal Mouffe and others, who suggest that “the political” is characterized by the ineradicable presence of conflictual relations, although Mouffe holds out hope of converting antagonism into agonistic pluralism within democracy.<sup>47, 48</sup> Mouffe’s critique of liberal (deliberative) democracy is that it ought to own up to the “impossibility of achieving a fully inclusive rational consensus,”<sup>49</sup> and instead acknowledge that contestation is an

inherent part of both the political process and the outcomes. This critique applies even more strongly, as I have been suggesting, to ecological (deliberative) democracy, in part because nonhumans are constitutionally incapable of participating in rational discourse to achieve consensus. However, as I argued above via Eckersley, this difference in capacity is not grounds for political exclusion, but rather, a call to deal with difference within politics. Therefore, the task for ecological democracy is to come to grips with how an agonistic conception of the political can account not just for human differences on issues, but capacity differences between species.

To suggest how meanings are produced and contested among species and biological entities, I propose to use the idea of biosemiosis, which posits a common field of sign-relations extending across species, but suggests irreducible difference in the species-specific interpretation of those signs. Biosemiosis is both a less glottocentric and a more ecological way of grounding “the political” than the communicative capacities required in the deliberative ecological democracy proposals discussed above.<sup>50</sup> Using this framework also brings dividends for thinking about “the political” in ecological democracy, as it changes how we should think about political representation, suggests new locations of political institutions, and changes the issue-structures that currently motivate human negotiations over international environmental politics.

### **Biosemiosis**

Central to the idea of biosemiotics is Jacob von Uexkull’s idea of the *umwelt*.<sup>51</sup> The *umwelt* of a particular organism is defined as its semiotic world, the “limited and partial aspect of the environment of which an organism becomes aware.”<sup>52</sup> An organism’s *umwelt* is the way in which it weaves the aspects of which it is aware

(through senses) together into intelligible experience. If political science, anthropology, and sociology have largely been concerned with human *umwelts* – the semiotic worlds of humans – biosemiotics makes a further move to think about the *umwelts* of other life forms. Here, meaning exists in the relationship of bio-entities, in circles of perception and effects and the temporary stabilizations of these circles into intelligibility.

Translated into C.S. Peirce’s terms, an *umwelt* is the set of sign relations as experienced by a particular organism as interpretant. It involves the constitution of semiotic objects and their relation to something other than themselves (signifieds and signifiers), in the experience of a biological interpretant. From the point of view of a given organism (including humans), the *umwelt* is the actual, real world. Although humans, have the unique ability to have a sign for “sign” (and therefore to veer into questions like philosophical idealism and realism, or to engage in textual play), they nonetheless spend much of their time taking their *umwelts* as the real world as well.

In a biosemiotic perspective, human language is one sign-system among many, and anthroposemiosis is one modality of interpreting signs among many. Limiting the discussion here to bio-sign-systems,<sup>53</sup> other sign-systems include languages used by other species (birdsong; whale languages); other forms of signaling (like pheromones used by ants); or nonlinguistic sign-systems like the interpretive interactions between trees and their surrounding environment. Anthroposemiosis, which is unique in its ability to have a sign for “sign,” is joined by phytosemiosis (plants semiosis) and zoosemiosis (animal semiosis), each of which can be broken down further by species, and ultimately, by individual entity.<sup>54</sup> Though they clearly differ in their particulars (and this fact remains important), what unites these sign-systems is the common structure of sign-relations – a

sign, in its most basic triadic form, is something that stands for something else in relation to some living entity.

The simplest example of biosemiosis involves just one biotic entity and one moment in time, as in the relationship between rain, clouds, and the experience of being rained upon.<sup>55</sup> For the organism being rained upon, the meaning of “clouds” becomes established as “rain, via the experience of being rained on. Further experience, however, might make the signifier (clouds) somewhat more indeterminate, as not every instance of clouds produces rain. The meaning of “clouds” therefore changes to indicate that it may rain.

Multiplying the number of biotic entities, von Uexkull gives a more complicated example of a stem of a flowering plant, with meaning-relations created between the plant and a human picking flowers, an ant crawling up the stem, the cicada extracting the sap of the stem, or a cow chewing on it. In each of those four *umwelts*, different relations of meaning are played out through the different ways that the plant is made intelligible. The plant, in turn, forges its own *umwelt*, making these interactions intelligible through the ways it attracts pollinating insects, creates or evolves defenses, transforms sunlight into chlorophyll, and reproduces through seed dispersal (if it has not been eaten first!).

What defines the context and process of biosemiosis for von Uexkull, then, is an ecological idea analogous to human culture.<sup>56</sup> In long-running relationships, temporary instances of meaning can evolve into ecological “meaning-rules,” as in the symbiotic relationship of fungus and certain species of ants, where the domesticated fungus is tended by ants underground (and can no longer grow without their help) but also provides sustenance for the ants. The process of creating a semiotic world, in other words, is the

process of making the world intelligible in relation to others, with the same kinds of partialness, hesitations, ambiguities, and constancies that mark culture.

Shared meanings include human norms, but are not limited to them. Analyses of eco-political life therefore involve understanding how different meanings are made, erased, and transformed through semiotic discourse. Shared meanings, like norms, can never be definitively established, however – as Sederberg puts it, “insofar as shared meaning is definitively established, politics ceases. The ultimate goal of politics, in one sense is to end politics.”<sup>57</sup> Meanings are partial, hesitant, and provisional. Though shared meanings can thus be stabilized, semiosis is an ongoing, neverending spiral of sign-activity - “each ‘sign’ make us aware not merely of something other than itself but of something more than we were previously aware, and becomes in turn an object generating a new interpretant requiring yet a further sign, and so on, as Peirce says, ad infinitum, at least from the standpoint of finite consciousness.”<sup>58</sup>

Semiosis is not necessarily directly dialogical, though it can be, and it differs from communication in that it does not require the intentional emission of messages to another entity, though communication is one form of semiosis. However, because signs constantly circulate among biological entities (the “action of signs”), biosemiosis is not monological, nor is it a one-way flow of meaning from abiotic things incapable of interpreting meaning themselves (as in Dryzek’s ecological feedback). Rather, it involves the constant production, reproduction, and disassembly of meanings, driven by interactions and experiences among living things capable of semiosis.

Given that meaning is relative to a given *umwelt* and that which it encounters, meanings are nearly infinite, as many as there are living entities, and therefore their

contents are entirely context bound. By consequence, “not one single property of matter remains constant when examine the full range of *umwelts*. Each object we observe not only changes its meaning quality from one *umwelt* to another, but the structure of all its material and formal properties also changes... The constancy of subjects is substantiated far better than the constancy of objects.”<sup>59</sup> Even the “materiality” of the bio-world is highly relative to the entities experiencing it.

However, meaning is not only relative to a subject, but relational between them. The interpretant of one organism can be a signifier for another. In a domesticated interaction, a command given to a pet, for example, involves a series of sign-interpretations – the command issued is an intentionally issued message (or perhaps a speech act); as received by the dog, however, its intentionality is not important per se. The dog understands the sound “sit” as signifier that correlates to sitting down, and the experience of sitting down is its meaning. When the dog barks in response to the command, it may intend something (we remain unsure), but we take the bark as a signifier meaning something else (disobedience? Squirrel?). The dog’s bark has an interpretant in the human experience, which is often labeled by a word “disobedient dog”). At this point, the word may circulate in a relatively self-contained spiral of human thought, quickly moving from an interpretant to a signified or object in human thought; stretching laterally into conversations about animal rights the next day, or discussions about how to train the dog. It also might results in a second, insisted command – “sit!”.

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In various ways, skeptics would point out that the semiotic worlds of plants or animals cannot be “accessed directly,” and ask, therefore, in what way can we speak

meaningfully of them?<sup>60</sup> Can humans account for the *umwelts* of nonhumans in an ecological democracy based in biosemiosis? It seems to me this is no more but also no less of a problem than it is when we ask whether any one human individual can access the mind, experience, or semiotic world of another human directly (the “problem of other minds”).

What makes any knowledge enterprise about nonhumans coherent is the same thing that makes the attempt to learn about other humans reasonably coherent, if eternally imperfect – there are observable actions, communications, and sign-relations and representations that we try to make intelligible through processes of interaction. In the nonhuman case, it simply takes more engagement and a willingness to accept the possibility that ecological knowledge can be gleaned from non-linguistic sources – in short, that the ecological world is, as Dryzek says, pervaded with meanings. One way to do this is to employ a sympathetic imagination. If “in our imagination, we can picture a future oak tree struggling with future rain, storms, and sunshine... if we, as human observers contemplate the effects of the outside world upon the oak from its perspective,” we can make its *umwelt* partially intelligible to us as a component of our *umwelt*.<sup>61</sup> Unless it strives to be purely behavioral (external), the activity of science, on the ground, entails just these kinds of imaginings about interior worlds of nonhumans, and their testing out.

Deely, following von Uexkull, also suggests that this problem of “other minds” can be addressed not just by subjective imaginings, or by iterated semiotic encounters, but also analytically by a kind of subtraction.<sup>62</sup> If we begin with what makes a human *umwelt*, including our ability to understand other biological entities through sign-

relations, and then compare this with other animals and living organisms, Deely suggests that we can arrive at a decent understanding of their *umwelts*. The idea that we share a common kind of experience with other living entities (itself a function of sign relations), and that we differ only in the specifics of how experience is semiotically made, suggests that we can understand other *umwelts* reasonably well by looking at our own *umwelts*, even if we never access other *umwelts* directly. Indeed, part of what makes any account of human semiotic uniqueness possible is an implied comparison with the *umwelts* of others. We have no way of knowing whether and how human semiosis is special or different unless we assume that other entities are also semiotic entities.

Ecological politics taking biosemiosis as its communicative ground, and meanings as its currency, must navigate two opposing dangers. On one side, it must try to avoid anthropomorphism, in which other entities are projected as having human-style qualities that they do not actually have. On the other hand, it must also avoid what Elliott Sober calls “anthropodenial,” in which commonalities between humans and other biological entities are systematically underestimated.<sup>63</sup>

Analytically, it suggests that at a minimum, we should be cognizant of the way that writing about nonhumans (or excluding their participation from written narrative entirely) will encounter the same problems of representation as histories or analyses of humans and requires equal attentiveness to the particulars of the conditions under which nonhuman agency is exerted.<sup>64</sup> Cultural difference already creates substantial hurdles in writing about Others; species difference creates even bigger obstacles. Yet they are not insurmountable. An honest attempt to write about the experiences of nonhuman others

can use existing modes of human relation to nonhumans (e.g., science) and can try, within the limits of representation, to consider the experiences of biological nonhumans.

### **Representation, revisited**

Environmental political theorists often argue for a “politics of place” as a way to ground sustainability in sustained ecological relationships.<sup>65</sup> The biosemiotic conception of ecological democracy that I have been pointing towards likewise would seem to advocate for greater opportunities for interspecies encounters, tied to a specific place. Yet international environmental politics is, for better and worse, not tied to place— it scale involves the human use of abstractions to capture the patterns of ecological degradation, and as noted above, it therefore necessarily involves problems of political representation. While politics based on interspecies encounters can occur “in place,” they do not seem possible in “international environmental politics,” because of the dimensions in which it is conceptualized. How, in light of what I have argued thus far, should political representation in ecological politics work, if proxy representation as proposed by deliberative democrats as is problematic as I have made it out to be?

Iris Marion Young has argued that it is not sufficient for political representation to simply represent diverse ideas or viewpoints as such; it must also involve the presence of the groups being represented.<sup>66</sup> Since deliberative democracy cannot, in practice, involve all the members of a potential community in deliberation, it must resort to institutional arrangements of representation. Whereas Young and others use this argument to make a case for group representation, Eckersley and others use this idea as a springboard to advocate for special representation for nonhumans. Because nonhumans are incapable of

representing themselves in institutional politics, however, Eckersley argues that they must be represented by human representatives.

While the humorous image of a representative of another species sitting down at the table with human politicians is self-evidently impossible on practical grounds, this assumes that representative politics can only take place in a human political forum. Yet if we are thinking about ecological politics, there is no reason why the only forum available should be so species-specific. The location of political negotiations is itself a major part of any political interaction, as any pre-negotiation over international negotiation can attest to – should Palestinian-Israeli negotiations take place in Jerusalem, Cairo, or Camp David? The location of the political forum has significant impacts on the outcome and even the structure of negotiation. In ecological politics, therefore, this suggests that we ought to look for forums that are not species-specific (like Congress or the Bali climate negotiations), but take place in other locations.

One kind of political forum where ecological democracy might take place is on common ground, shared by the species in question. Here, Latour's argument for seeing field sciences as a form of political activity is useful – scientific studies on the impact of the Arctic oil pipeline on caribou herds take place on the grounds that are themselves under contestation, for example. Likewise, the activities of conservation biologists who aim to catalogue biodiversity in Costa Rica take place in the political forum of the rainforest – the terminology of a “representative species” in biodiversity sciences is an evocative way of gesturing to the way that one specimen of a species stands in for the rest of its species. Part of IR's scholarly enterprise in thinking about environmental politics then, involves understanding how local practices between entities generate abstract

concepts (for humans) like “global,” but also in acknowledging that not all relevant entities will carry that concept.

Though the methods of representation are not the same as electoral democracy, humans are represented in the experiences of nonhumans as well. The shift in perspective to thinking about how this occurs is regularly part of writing about nonhuman nature by biologists (though it usually gets dismissed by the time that knowledge is translated into the objective voice of science). But if Mathews’ “ecological self” is to be taken seriously as a possible way to represent nonhumans in political life, then it seems worth inquiring into how an ecologically-informed human is able to become informed about the web of ecological relationships, before translating it into scientific language. The “enlarged imaginary” that is critical to deliberative democracy necessarily entails this thinking-as-Other; coupled with the insights of cognitive science about nonhumans, it offers us the best possible perspective on how humans are represented in nonhuman worlds – here, I mean representative in the sense that they stand for something other than themselves to the organism in question.

In sum, if political representation needs to account not just for the “politics of ideas” but also the “politics of presence,” then ecological politics must be seen as taking place in forums other than human political ones. Field scientists engage in precisely this kind of interaction, and I am arguing that science should be seen as a form of politics with nonhumans, to the extent that it engages in these forays. As a principle of inter-species ecological politics, therefore, I want to suggest the principle of symmetrical representation – biological entities all represent one another in species-specific ways (as well as in ways internal to their species), but those representations are bound by the

common thread that any interaction between two individual biological entities involves the idea that the Other species stands for something other than itself. What is at stake is the meaning of that sign – what does the Other stand for? For humans engaging with nonhumans, green theorists argue that the interpretation should take place within an ecological frame – that part of what the Other should stand for is its ecological relationships as well as how it represents its own interests and the interests of others in its own species. For any given biological nonhuman, biologists and ecologists suggest that the interpretation depends on the species on question (which highlights the limitations to the place-holding term “nonhuman”), but that it will involve a concrete crystallization of meaning in the umwelt of the nonhuman entity - this in turn is often passed onto other members of the species community (e.g., the individual ant encountering the scientist, who may or may not interpret the politics of presence as a threat, an irrelevancy, something to keep an antennae out for, using a complex set of pheromonic communication signals).

### *Conclusion*

[TO BE WRITTEN].

## NOTES

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<sup>1</sup> Walker, p. 214.

<sup>2</sup> Conca; Litfin; Eckersley on ecology/sov'ty debate.

<sup>3</sup> The literature is vast, and growing. See among many: Mithcell; Levy/Haas/Keohane

<sup>4</sup> Torgerson; Wapner; Lipschutz

<sup>5</sup> Plumwood especially. This critique can be characterized as a dualistic critique; as John Meyer's thoughtful assessment of environmental political theory suggests, there is a second strand of environmental critique that can be characterized as "derivative" – here, our understanding of human politics is derived from our view of nature (e.g., Aristotle's teleological view of nature informs his view of humans as naturally political animals, in a teleological sense; Hobbes' mechanistic view of nature informs his transformation of human politics from an organic perspective to mechanistic one). Combining these two, Majid argues that modern human politics effects a kind of double-movement, in which we start with a dualistic view of humans and nature, but then nonetheless import nature as an authority into human politics through ideas like "natural law" and "natural right," or in contemporary instances, through the "natural" basis of gender, sexual orientation, racial difference. As Meyer notes, neither dualistic nor derivative critiques propose solutions that are adequately political, however, in the sense of accounting for the political nature of nature in specific places and historical moments. However, the post-structural alternative of "natures, in which it is supposed that nature is culturally constituted, itself presupposes a singular nature which is culturally mediated in different ways, and this, as Latour argues, ends up girding cultural difference by a monolithic nature, or what I call "nature as bluescreen." Here I take the Latourian perspective that "nature" itself (and "natures") ought to be dispensed with altogether as a category of thought – it is politics, agency, and meaning that we should see as a wider field than we currently do. In this way, we do not draw on a dualistic view of nature, nor do we derive human politics from nature, nor do we assume multiple cultures of a singular nature.

<sup>6</sup> Eckersley 1992; Callicott; Rolston

<sup>7</sup> See esp Haraway

<sup>8</sup> See Carey Wolfe 1995, In Search of Posthumanist Theory for a useful summary of posthumanism in political theory (esp Foucault) and the posthumanist science studies agenda.

<sup>9</sup> See Roerstorff as an example of what this might look like.

<sup>10</sup> Though rational choice theory *is* used to study nonhuman life - see, eg, Shafir et al, on Rational Choice in Honeybees..

<sup>11</sup> Though on the productive power of anthropomorphism in science, see Daston volume.

<sup>12</sup> Eg, deWaal book – Chimpanzee Politics;

<sup>13</sup> Cite from NYT article – Political Animals

<sup>14</sup> Ibid

<sup>15</sup> Wilson; Hoyt; Holdeobler

<sup>16</sup> Eg, Wheeler on ant politics and socialism; in Hoyt?

<sup>17</sup> DeWaal, CP, introduction

<sup>18</sup> Aristotle, Politics and Constitution of Athens – in an oft-cited passage: "Man is by nature a political animal... Nature, as we often say, make nothing in vain, and man is the only animal with the gift of speech. And whereas mere voice is but an indication of pleasure and pain, and is thereby found in other animals.... The power of speech is intended to set forth the expedient and inexpedient, and therefore likewise the just and the unjust" p. 13. (However, in the same passage, he also says that "man is more of a political animal than bees or any other gregarious animal," which suggests that human politics is not in radically exceptional, but only relatively so... Hannah Arendt, in a brief discussion of Aristotle, points out that "to be political, to live in a *polis*, meant that everything was decided through words and persuasion, and not through force and violence.... To force people by violence, to command rather than persuade, were prepolitical ways to deal with people characteristic of life outside the *polis*, of home and family life..." However, the capacity of speech here is not contrasted against nonhuman nature, but against pre-political or non-political realms of human life. As Arendt notes, "Aristotle's definition of *zoon politikon* [i.e., as a naturally political animal]... can be fully understood only if one adds his second famous definition of man as a *zoon logon ekhon* ("a living being capable of speech")... Aristotle only formulated the current opinion of the polis about man and the political way of life - ... everybody outside the *polis* – slaves and barbarians – was *aneu logou*, deprived, of course, not of the faculty of speech, but of a way of life in which speech and

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only speech made sense and where the central concern of all citizens was to talk with each other.” (Arendt, HC, p. 27). As John Meyer argues (90-91), environmental thinkers have seen Aristotle as both derivative (drawing on teleology for his claim that man is *zoon politikon*), and dualist (which follows Arendt’s interpretation that the polis is an artifice outside the realm of nature (and relegating slaves/barbarians to the nonpolitical realm along with nonhumans). The central point I wish to raise here is a simpler one – that reasoned speech constitutes the main criteria of the (human) political.

<sup>19</sup> Eckersley, *The Green State*

<sup>20</sup> Patterson, chapter 2; Eckersley book. Both draw on Beck (1992; xx) makes this case relative to the modern state.

<sup>21</sup> Patterson, chap 2; Eckersley

<sup>22</sup> L/S – p. 4. Patterson makes a similar critique in chap 2

<sup>23</sup> Eck, p. 111

<sup>24</sup> Eck, p. 120C

<sup>25</sup> Latour, p. 196.

<sup>26</sup> Ibid, p. 149.

<sup>27</sup> Ibid.

<sup>28</sup> Eck, 113.

<sup>29</sup> Eck 1999 makes this case.

<sup>30</sup> Eck, p. 112.

<sup>31</sup> Cites

<sup>32</sup> Ibid, p. 154.

<sup>33</sup> Eck, p. 134 has the cite.

<sup>34</sup> Should Nature Have Rights? Orion article

<sup>35</sup> Find my cites on this idea

<sup>36</sup> Vogel, 148-9/

<sup>37</sup> Nature as Politics (Rogin); other cites from Northwestern conference???

<sup>38</sup> Schell/Nord book.

<sup>39</sup> E.g., gender and sexuality (Warner; Butler); see Latour’s critique of this in PoN

<sup>40</sup> Eg Barthes, *Mythologies*.

<sup>41</sup> Latour 2004, p. 28.

<sup>42</sup> See also Yar 2002. Meyer 2001 characterizes these two versions of nature in Western philosophy as dualist and derivative.

<sup>43</sup> Soper 1994, Escobar 1998, Escobar 1999.

<sup>44</sup> Wapner, ISQ piece.

<sup>45</sup> Sederberg, writing on the politics of human meaning, defines human politics as “all deliberate efforts to create, maintain, or abandon shared meanings in the attempt to overcome the alienation produced by the loss of a sense of organic unity” (7). In the ecological case, however, the “deliberate” criterion clearly does not apply, though as Eckersley argues, the self-directedness of all life might be a plausible alternative. Similarly, the alienation that Sederberg describes clearly does not apply to nonhumans. And indeed, as Jane Bennett argues in somewhat different terms, perhaps we have never been alienated – we cannot escape from a world of meanings (contra Baudrillard). We may have exchanged meanings generated with biotic nonhumans to an increasingly urban, technologically generated set of meanings, but we have never escaped from the ether of meaning-relations as such.

<sup>46</sup> This closely mirror’s Latour’s idea of “collectives,” and substitutes the more stable idea of “community” to which politics traditionally refers (eg., Wolin’s discussion on this).

<sup>47</sup> Mouffe, *On the Political*. Mouffe article – *Deliberative Democracy or Agonistic Pluralism*. Bonnie Honig 1993 (*Pol Theory and the Displacement of Politics*) as well. Kapoor, Ilan. 2002. *Deliberative Democracy or Agonistic Pluralism? The Relevance of the Habermas-Mouffe Debate for Third World Politics*. *Alternatives*, 27: 459-87.

Dryzek’s reply in defense of deliberative democracy notes the key point: “Agonists such as Mouffe believe democracy cannot deal with divisive issues because it is too constraining in the kind of communication it allows.” (Dryzek reply, p. 8)

<sup>48</sup> This movement from antagonism requires, for Mouffe and Connolly, a “spirit of democracy” among the participants, and I acknowledge that such a spirit would seem to be lacking in the nonhuman instance.

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However, the point of their critique of deliberative democracy still stands, and given the need for ecological democrats to adapt democracy to an ecological context in which nonhumans do not think in terms of “politics” or “democracy” *as such*, this problem should be suspended.

<sup>49</sup> Mouffe DD/AP, p. 16

<sup>50</sup> See Deely on glottocentrism, indicating the privileging of linguistic signs over signs per se.

<sup>51</sup> Uexkull 1982.

<sup>52</sup> Deely 2001.

<sup>53</sup> Uexkull 1982, Sebeok and Umiker-Sebeok 1992, Hoffmeyer 1996, Deely 2001, Noth 2001, Roepstorff 2001. Whereas biology (and sciences more generally) seek to explain the exterior or outer parts of life-processes – that is to say, behavior – they generally do not deal with their interior, qualitative dimensions, which is the specific aim of biosemiotics.

<sup>54</sup> Deely especially

<sup>55</sup> Deely book, p. 89

<sup>56</sup> Uexkull 1982, p. 31.

<sup>57</sup> Sederberg, p. 7

<sup>58</sup> Deely 2001b, pp. 32-33.

<sup>59</sup> Ibid, p. 71.

<sup>60</sup> Nagel 1974 is the key piece that frames the question this way.

<sup>61</sup> Uexkull 1982, p. 50.

<sup>62</sup> Deely 1990, pp. 19-20, note 5.

<sup>63</sup> On the balance between anthropocentrism and anthropodenial, see Sober 2005. The phrase “anthropodenial” is actually Franz de Waal’s, who is a primate ethologist. I am not sure that the phrase quite captures its intended meaning – I would prefer “biodenial,” since it is not humanity that is being denied, but a commonality with other living things. Here, I will stick with existing usage however. Sober makes the additional point that sciences have persistently moved to avoid anthropomorphism (through the principle that no nonhuman behavior should be attributed a “higher” mental faculty if it can be interpreted as the outcome of a “lower” one), but have done little to avoid anthropodenial.

<sup>64</sup> For example, commodity histories and natural histories sometimes try to combine the semiotic frames of human and nonhuman participants in the service of a better (if always incomplete) attempt to represent historical experience. Anderson 2004’s history of early colonial America weaves an excellent account of how the semiotic worlds of livestock played an active role in notions of domestication, civilization, private property, wildness, and boundaries. Lockwood 2004 likewise researches the history of the Rocky Mountain locust, an agricultural pest that swept the Plains in massive infestations in the 1800s and then promptly disappeared. In both accounts, the semiotic worlds of the relevant nonhumans play a serious role. In situations where the entity is not living, as in Mintz 1985’s look at the role of sugar in history, a reasonable proxy for the *umwelt* is the affect that the entity creates in entities who do have *umwelts*, and the way it is woven into culture and society.

<sup>65</sup> Meyer, Cannavo; Berry; bioregionalists

<sup>66</sup> Young, XX