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Narrativizing Science: The Ecocritical Imagination and Ecophobia

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Abstract

This essay argues that narrativizations of science are important to ecocriticism, because they increasingly imply a latent affective ethics of activist engagement. Increasingly, ecocriticism is coming to realize that it needs science; it needs the findings, the authority, the reach, and the materialist grounding of science. It also needs to theorize the blurring of boundaries between science and narrative, to examine how both biophilic and ecophobic matters determine our perceptions of and interactions with nature; how personal, local interests intersect with global environmental issues; and how seeing connections between global threats and individual lives can lead to broad changes in our behaviors.

For ecocriticism, a false opposition between scientific and non-scientific narrative will be stultifying and counter-productive in activist terms. The urge to find positions of productive mediation between the often-binarized positions of “science” and “culture” is, of course, by no means a new one. What is new is the popular scientific literacy generated by contemporary filmic and literary media. The importance of narrativizations of science to the ecocritical project is potentially immense, because these narratives increasingly imply a latent affective ethics of activist engagement through the designs they articulate. Increasingly, ecocriticism is coming to realize that it needs science; it needs the findings, the authority, the

reach, and the materialist grounding of science. Importantly, it also needs to theorize the blurring of boundaries between science and narrative: theorizing about this blurring and showing in detail how both biophilic and ecophobic matters determine our perceptions of and interactions with nature; how personal, local interests intersect with global environmental issues; and how seeing connections between global threats and individual lives can potentially lead to broad changes in our behaviors. These are very necessary parts of the future of ecocriticism and the ecocritical imagination, and we may rest assured that without such or similar theorizing, our ecocritical future will be as ineffective (in terms of praxis) as our ecocritical tradition has been thus far.

Bringing “the obscure biological discipline of ecology out of the field and the science lab and into public consciousness”¹ is difficult but indeed important work. Narrative is well suited to do this work for several reasons, primarily though because its principal purpose is to convey information. Science and literature, simply put, are genetically similar. Many scholars (too many to cite here) have noted this, rejecting the mutual opposition between scientific and nonscientific narrative. Tim Radford, for instance, has compellingly explained in the most lucidly abstract of terms the familial relationship and similarity between narrative and science: “Science is a story, we’re story-telling animals, we tell each other stories to explain why we’re here, and since we don’t know the outcome of our narrative, we conduct these things in the form of a story-so-far. This is what science does for us.”²

Even more evocatively, Rachel Carson, in her 1952 Nonfiction Award acceptance speech for *The Sea Around Us*, claimed—and it is worth quoting in full here—that the opposition between science and nonscience narrative is ridiculous:

[The] notion that “science” is something that belongs in a separate compartment of its own, apart from everyday life, is one that I should like to challenge. We live in a scientific age; yet we assume that knowledge of science is the prerogative of only a small number of human beings, isolated and priest-like in their laboratories. This is not true. The materials of science are the materials of life itself. Science is part of the reality of living; it is the what, the how, and the why of everything in our experience. The aim of science is to discover and illuminate truth. And that, I take it, is the aim of literature,

1. Glen Love, *Practical Ecocriticism: Literature, Biology, and the Environment* (Charlottesville: University of Virginia Press, 2003), p. 54.

2. Tim Radford, “Is Science Killing the Soul?” *EDGE* 53 (1999). http://www.edge.org/3rd_culture/dawkins_pinker/debate_p1.html.

whether biography or history or fiction. It seems to me, then, that there can be no separate literature of science. If there is poetry in my book about the sea, it is not because I deliberately put it there, but because no one could write truthfully about the sea and leave out the poetry.³

Narrative science is fascinating for what it “translates.”⁴ It translates both the findings and the authority of science to scholars who, like Glen Love (and myself!), “are usually deficient in scientific aptitude and interests.”⁵ This blurring between scientific and nonscientific narrative is important work. It implies neither a universal sanctioning of science (as Love is careful to explain in regard to scientists enlisted to support corporate interests) nor a gleeful indifference to methodological issues (such as the matters of reductionism and universalizing raised by the scientist Vandana Shiva). Indeed, literary narrativizations of science offer quite the opposite. A book such as Ruth Ozeki’s *My Year of Meats*, for instance (subtle in its analysis of how food and animals are related with globalization, nation, and cultural imperialism), foregrounds a critique both of science and of anti-science and requires an ecocriticism that resists becoming a purely academic concern.

Narrative science also, however, translates values and ideologies. Marketing environmental concerns has become big business, and this marketing and the affective ethics that it creates within the context of an age of what Linda Stone has termed “continuous partial attention”⁶ is both potentially exciting and disturbingly dull. Narrative science carries and generates both an affective ethics of engagement and a kind of narrative desire and forgetting. These two are mutually incompatible, and what is troubling is that the latter seems ascendant. To be clear, science sells; to be equally clear, science sells things. Narrativized, it sells books and films—and it does so to audiences with, it seems, increasingly short attention spans. It sells the ideologies that limit those books and films. While potentially a call to arms, therefore, it can also, in terms of activism, result (and seems to be resulting) in virtually nothing. Such is perhaps clear in the stunning example of films such as *An Inconvenient Truth* and *The Eleventh Hour*, neither of which says a single word about

3. Rachel Carson, “Acceptance Speech for the 1952 Nonfiction Award,” in National Book Foundation—National Book Awards Acceptance Speeches, 2007. http://www.nationalbook.org/nbaacceptspeech_rcarson.html.

4. I use this word in its fundamental Latin meaning of “to carry across.”

5. Love, *Practical Ecocriticism* (above, n. 1), p. 39.

6. Linda Stone, “Linda Stone’s Thoughts on Attention and Specifically, Continuous Partial Attention,” 2005–07. <http://www.lindastone.net/>.

meat.⁷ If it is dubious whether or not the spate of climate-change narratives based in science that have bombarded the public over the past several years have had a measurable immediate effect, then it seems incumbent upon us to figure out why.⁸

Arguably, the ethical assumptions we wittingly and unwittingly carry as we produce and consume environmentalist narratives are as consequential as the latent affective ethics of engagement and activism that are clearly central to such narratives. Ecophobia is a subtle thing, involved both in the production and reception of these narratives. We may define ecophobia as an irrational and groundless hatred of the natural world, as present and subtle in our daily lives and literature as homophobia, racism, and sexism.⁹ It seems, in many

7. There is, as is very well documented, enormous waste and inefficiency in meat, milk, and egg production in terms of the energy input to protein output ratio, compared with the energy required to produce protein directly from vegetables. There is also an enormous and similarly well-documented waste of water in such processes. The impact of meat on climate change, however, has only recently caught the attention of the United Nations, which has singled out beef production as a key contributor to greenhouse gases. An online report posted by the BBC mentions that a cow produces more greenhouse gases (methane in particular) per day than a sport utility vehicle, and that "methane is a greenhouse gas more than 20 times worse for climate change than CO₂ emissions." There is indeed a growing consensus that a vegetarian (or, better yet, a vegan) diet is good for the environment. See "Avoid Food from Animals That Burp," February 2009. <http://www.bbc.co.uk/bloom/actions/eatinglessbeef.shtml>.

8. The urgency of the problems we have created obviously requires immediate action. This is not, however, to devalue the importance of the longer time-scale changes, the extensive intellectual shifts that must occur at a popular level before we can produce any meaningful and lasting changes in our relationships to the world around us.

9. I first used the term "ecophobia" in my doctoral dissertation in 1996. In the same year, and apparently independently, David Sobel used the term to define what he calls "a fear of ecological problems and the natural world. Fear of oil spills, rainforest destruction, whale hunting, acid rain, the ozone hole, and Lyme disease" (Sobel, *Beyond Ecophobia: Reclaiming the Heart in Nature Education* [Great Barrington, MA: Orion, 1996], p. 5), though Sobel does not go much further than this in defining the term. Clearly, he uses it differently than I do; for instance, whereas for him the fear of whale hunting is (by his definition) ecophobia, I would argue that whale hunting is a result of ecophobia, of a generalized fear or contempt for the natural world and its inhabitants. Clinical psychology uses the same term to designate an irrational fear of home; in ecocriticism, the term is independent of and in no way derived from the manner in which it is used in psychology and psychiatry. In 1999, Robin van Tine proposed a similar term, "gaeaphobia" (independently, it seems, since there are no references to his source for it), which he defines as "a form of insanity characterized by extreme destructive behavior towards the natural environment and a pathological denial of the effects of that destructive behavior" (see van Tine, "Gaeaphobia: Ecophobia, Ecomania and 'Otherness' in the Late 20th Century," in *From Method to Madness: Five Years of Qualitative Enquiry*, ed. Derek Hook, Kathryn Smith, Brett Bowman, and Martin Terre Blanche [Johannesburg, South Africa: History of the Present Press, University of the Witwatersrand/De-

ways, as silly to theorize ecocriticism without discussion of ecophobia as to articulate feminist theory without discussing sexism. And it is worth repeating that ecophobia (no less than sexism) is a subtle and ubiquitous thing, one very relevant to our topic here.

The topic of climate change and environment generally has become an increasingly marketable one, with the Animal Planet/Discovery Channel's joint production of the CGI series *The Future Is Wild* (2003), Alan Weisman's 2007 book *The World without Us*, the History Channel's *Life after People* (January 2008), and the National Geographic Channel's *Aftermath: Population Zero* (March 2008). Each, in their own way, tacitly presents an implicitly ecophobic vision of a nature that will finally conquer humanity, reclaim all of the world, and remain long after we are gone. It is odd indeed to see narrative science purportedly about "saving the environment" carrying across such ecophobia.

Edward Wilson, who claims in his very well-received book *Consilience* that "[many] academic sociologists [and other social scientists] are . . . biophobic—fearful of biology and determined to avoid it,"¹⁰ is surely on to something, but the problem goes much further than biophobia and rests on a broader base of contempt and fear. While this base of contempt and fear, which I call ecophobia, does not

partment of Psychology, 1999]. <http://www.ecopsychology.org/journal/gatherings2/robin.htm>). Potentially useful though it is for its identification (sometimes quite mechanical) of attitudes toward the natural environment in terms of pathologies laid out in the *Diagnostic and Statistical Manual of Mental Disorders (DSM IV)*, van Tine's article has not been referenced in any scholarship anywhere that I can find. While this is a bit distressing, van Tine's scholarship is important nevertheless, because it shows that the kind of theoretical articulation I am seeking in defining ecophobia has been recognized as being necessary in the field of ecopsychology. My approach (see Simon C. Estok, "Theorizing in a Space of Ambivalent Openness: Ecocriticism and Ecophobia," *ISLE: Interdisciplinary Studies in Literature and Environment* 16:2 [2009]: 203–225), wherein I lay out an extended definition of the term, then, while it does not reject ecopsychological analyses of the pathologies behind contempt for the natural environment, is more interested in the confluent approach that examines philosophical underpinnings. This article is at the center of a growing debate about the place of theory in ecocriticism, as the responses in *ISLE* (16:4) attest. In turn, the responses to *ISLE* (16:4) itself had been so intense that by December 2009, Scott Slovic had felt compelled to issue "a call for submissions to a special forum on the broader topic of 'Ecocriticism and Theory' that would appear in one of the 2010 issues of *ISLE*" (Slovic, "Further Reflections," personal communication [e-mail] with author, 6 December 2009). The call—although it makes no mention of the two articles (Estok's and S. K. Robisch's ["The Woodshed: A Response to 'Ecocriticism and Ecophobia,'" *ISLE* 16:4 (2009): 697–708], effectively silencing debate about both) that motivated it—appeared in the journal's first issue (17:1) of 2010.

10. Edward O. Wilson, *Consilience: The Unity of Knowledge* (New York: Knopf, 1998), p. 203.

represent the sole trait that characterizes our relationship with the natural world, it is as yet a remarkably unattended one. Its opposite would, to some extent, be the biophilia that Wilson himself defines as “the innately emotional affiliation of human beings to other living organisms.”¹¹ Certainly Scott Slovic is correct to note that “ecocriticism is actually motivated by biophilia.”¹² Admittedly, biophilia often seems to be the motivation, but not the *object* of ecocritical inquiry; still less is ecophobia the object of such inquiry, despite the fact that it patterns our relationship with nature. In fact, ecophobia is winning out over biophilia. The “rapid disappearance”¹³ of species of which Wilson speaks so eloquently and persuasively has many causes, but among these ecophobia is dominant.

There are important parallels between ecophobia on the one hand, and things such as sexism, racism, and homophobia on the other. We continue to see blockbuster movies about heroic heterosexual men with docile and often stupid women trotting after them; we continue to see inadequate representations of Asian Americans in film; we continue to see homophobia, racism, and sexism in filmic narratives that confirm what the mainstream audiences want to think. No less is true of the role and function of ecophobia than of homophobia, racism, and sexism in much of the media being ostensibly about “saving the planet.” The narrative object remains distant, and the audience does not want to hear about how personal all this “environmental crisis” stuff is—that it might, for instance, require us to change what we put into our bodies. When Peter Brooks thus explains narrative desire as a “desire for the end,”¹⁴ we know that “the retrospective knowledge that it seeks”¹⁵ is one of confirmation. Al Gore’s *An Inconvenient Truth*, Franny Armstrong’s *The Age of Stupid*, and Leonardo DiCaprio’s *The Eleventh Hour* are part of this docu-drama genre, this narrative science spewing out a lot of very good information yet also being “confirmational” in the sense that Brooks describes; I do not personally know anyone who has stopped eating meat or stopped driving or flying to conferences because of

11. Edward O. Wilson, “Biophilia and the Conservation Ethic,” in *The Biophilia Hypothesis*, ed. Stephen R. Kellert and Edward O. Wilson (Washington, DC: Island Press), p. 31.

12. Scott Slovic, “Re: LIKELY SPAM I’m not sure if you are receiving,” personal communication (e-mail) with author, 16 September 2008.

13. Wilson, “Biophilia” (above, n. 11), p. 40.

14. Peter Brooks, *Reading for the Plot: Design and Intention in Narrative* (New York: Vintage, 1984), p. 104.

15. *Ibid.*, p. 94.

these movies—yet, by the same token, nor do I know anyone who has committed murders because of watching *CSI Miami*.

The problem with this kind of logic, clearly, is that it frames the issue within a binary wherein measurability becomes the sole source of knowledge-making, and this is surely invalid. It seems that this is the same kind of logic that we encounter in “Ecocriticism as Praxis,” where David Mazel, apparently doubting the relationship that learning and knowledge have with activism, asks for evidence from “empirical research” to prove that “students who read and write about green texts turn into more thoughtful and effective environmentalists than they might have been otherwise.”¹⁶ He is disturbed at not finding such evidence, which seems reminiscent of Harry Harlow’s need for empirical proof that babies require parental love. Yet, whatever kind of empirical evidence we lack, we can certainly say this much: praxis will *not* happen *without* education. Whether it is possible to quantify and measure how education affects praxis is a different question, one perhaps worthy of investigation, but not the concern of this essay.

Praxis—real praxis—starts with theoretical connections that allow us to see how we participate in the systems we critique. Until now, ecocriticism has been a bit weak on theory. Timothy Morton has recently expressed concern that “conventional ecocriticism is heavily thematic.”¹⁷ Thematicism, we should know by now, does not take us toward praxis, does not allow us to see how, as individuals, we are necessarily complicit in the systems of which we are part. While early ecocriticism largely shunned what was viewed as obfuscating poststructuralist theories of narrative knowledge, it is inevitable that some degree of theorizing should, by its nature, be dense. Some of it is seemingly the very kind of thing other ecocritics have warned about: the “obscurity and inaccessibility” Love fears,¹⁸ a “spinning off into obscurantism or idiosyncrasy” that John Tallmadge and the late Henry Harrington caution against,¹⁹ a “mesmerization by liter-

16. David Mazel, “Ecocriticism as Praxis,” in *Teaching North American Environmental Literature*, ed. Laird Christensen, Mark C. Long, and Fred Waage (New York: MLA, 2008), p. 42.

17. Timothy Morton, *Ecology without Nature: Rethinking Environmental Aesthetics* (Cambridge, MA: Harvard University Press, 2007), p. 2.

18. Glen Love, “Revaluing Nature: Toward an Ecological Criticism,” in *The Ecocriticism Reader: Landmarks in Literary Ecology*, ed. Cheryl Glotfelty and Harold Fromm (Athens: University of Georgia Press, 1996), p. 236.

19. John Tallmadge and Henry Harrington, eds., “Introduction,” in *Reading under the Sign of Nature: New Essays in Ecocriticism* (Salt Lake City: University of Utah Press, 2000), p. xv.

ary theory” that has had Lawrence Buell worried from the start.²⁰ Recently, I suggested that a viable ecocriticism has little future unless it begins theorizing its central matter of concern—namely, ecophobia—just as feminist criticism would have faced dim prospects without theorization of sexism and misogyny. Resistance to theory has hurt ecocriticism by hindering the articulation of a viable terminology.²¹ So, then, how do we begin to identify the strengths and weaknesses of narrative science as a vehicle for the expressions both of value and of an affective ethics of activist engagement or praxis, and precisely why is reading ecophobia important in this context?

One of the immediate things to do is to recognize the play of ecophobia in narrative science itself and examine how this bias against nature hinders the potential affect of the ethical positions within such narratives. In a recent collection of interviews titled *What's Nature Worth?*, Terre Satterfield and Scott Slovic—seeking to address questions about narrative and its relationship with practical engagements in the realms of policy and activism “to find a way to bring the concept of ‘narrative expressions of value’ into the realm of stakeholder discussions of value and policy”²²—excavate the layers of this problem. This remarkable book of “consilience” is a reminder that science, narrative, and business have three very separate and different interests. Admittedly, these categories are rough and the interests sometimes intersect, but people who do cost-benefit analyses walk and talk in totally different circles than those of “everyday people.” At least one of the questions for ecocriticism is how to bridge this gap. It is a strength of narrative to take nonnarrative technical science and make it compelling: “presenting technical information in narrative form,”²³ as William Kittredge explains during his interview, “helps readers [and listeners] to internalize values, making them their own, emotionally, as necessary to life, rather than simply interesting or distracting, as platforms from which to act.”²⁴ Certainly, there is no doubt that the interviews in this collection

20. Lawrence Buell, *The Environmental Imagination: Thoreau, Nature Writing, and the Formation of American Culture* (Cambridge, MA: Harvard University Press, 1995), p. 111.

21. Dana Phillips has made a similar point in noting that ecocriticism seems singular within the humanities in failing to theorize; see Phillips, “Ecocriticism, Eco-poetics, and a Creed Outworn,” in “Earthographies: Ecocriticism and Culture” special issue, *New Formations: A Journal of Culture/Theory/Politics* 64 (2008): 38.

22. Terre Satterfield and Scott Slovic, *What's Nature Worth? Narrative Expressions of Environmental Values* (Salt Lake City: University of Utah Press, 2004), pp. 2–3.

23. *Ibid.*, p. 22.

24. *Ibid.*, p. 25.

demonstrate “that cost-benefit analyses lack the kind of voice and meaning that are central to how everyday people talk about those values,”²⁵ and that narrative can become that voice (or one of those voices). There are problems, however, in making that happen.

Narrative as form is ethically uncommitted to environmentalist praxis and seeks simply the retention of an audience; it is the content, of course, that expresses ethical commitment. Within a system of business built on selling as much as possible to as many as possible, however, form and content must, it seems, often come together if the narrative is to sell. It would not do for Gore to advocate for and succeed in *stopping the use* of fossil fuels—the system would grind to a halt; perhaps it would not do for him to use his voice to shut down the meat industry either. At any rate, capitalism and environmental ethics seem in many ways incommensurable. The system needs varieties of ecophobia (fear of bugs or loathing of bodily odors or ethical disregard for animals, for instance) in order to continue functioning, and it is probably this that explains why, in spite of the enormous investments in ecologically progressive narratives, not much is changing.

While we may note a grudging recognition of how little things are changing, we are nevertheless failing to offer strategies to fix this problem. The Satterfield/Slovic book, despite the very good work it provides, does not really offer a satisfying strategy for a plan of action to compel change, to point the way for narrative to guide policy. As I have shown elsewhere,²⁶ Satterfield rightly argues that the goal is not “to convert the language of policy: we’re simply interested in allowing narrative to be the language of the public talking to the policy community or even the research community. As it stands, you don’t even get heard as an average person unless you can talk the official language, which may hide more than it reveals.”²⁷

At the same time, though, as Deming points out, “legislation, information, and instruction cannot effect change at [the] emotional level—though they can play a significant role. Art is necessary because it gives us a new way of thinking and speaking, shows us what we are and what we have been blind to, and gives us new knowledge and forms in which to see ourselves.”²⁸ Indeed, as Slovic explains, “some people argue that it would be beneficial to reform

25. *Ibid.*, p. 64.

26. See Simon C. Estok, “Bridging the Great Divide: Ecocritical Theory and the Great Unwashed,” *ESC: English Studies in Canada* 31:4 (2005): 205–206. The remainder of the paragraph is drawn from that article.

27. Satterfield and Slovic, *What’s Nature Worth?* (above, n. 22), p. 73.

28. *Ibid.*, p. 122.

the very language of law and policy, to introduce narrative writing, nature writing, into the professional language of law and policy."²⁹ However, such invasive involvement risks "'killing' . . . stories by converting them into policy statements,"³⁰ and, anyway, it seems unlikely that such a reform could ever possibly be implemented.

The issue here, then, is not only with the general population, but with the politics and politicians themselves. Literary narratives with scientific content do not seem to make much of a difference in the world of people such as George W. Bush (perhaps because he doesn't read very much of anything, let alone the sorts of things about which we are talking here). Saying that narrative translates science does not mean ignoring the fact that we cannot really quantify what narrative does in terms of how value translates into policy or praxis. There are key economic reasons why governments fail in their task of performing the swift and radical action needed to prevent the continued degradation and collapse of ecosystems.

By playing into those reasons, we run the risk of compromising our project and perpetuating the very structures that have caused the problems in the first place. It is nice to see President Bill Clinton brandishing a copy of *Testimony* with the announcement that "This made a difference,"³¹ but we need to recognize that this is *certainly* an exception, that most narrative does not work quite so directly, and that many writers and storytellers who are serious about making a difference probably cannot help but feeling some of the "eco-despair" that Slovic mentions in his foreword to *The Greening of Literary Scholarship*. Perhaps we cannot also help but wonder, as Alison Deming does in *What's Nature Worth?: "[W]hat good is a poem or an essay when nature is dying and we are to blame?"*³²

Even so, if there is anything that is going to cause real changes, it is going to be the narrativization of science; if there is anything that is going to make tangible the seriousness of the problems we have created, it is narrative. As Gioia Woods comments in a recent article discussing Deming's attempts to show similarities between science and poetry, "perhaps the more specialized and complex science is, the more poets are needed to vivify and embody the data. Facts mean nothing without the context of experience, sensuality, and valuation."³³

29. *Ibid.*, p. 192.

30. *Ibid.*, p. 67.

31. *Ibid.*, p. 62.

32. *Ibid.*, p. 117.

33. Gioia Woods, "Sci-Animism: American Poetry and Science," *ISLE: Interdisciplinary Studies in Literature and Environment* 15:2 (2008): 202.

Of course, it is language that poses the most obvious problem in any kind of relationship between literary ecocritical scholars on the one hand, and policy makers (and researchers in the sciences) on the other. The literary and the technical certainly do not hang out in the same places, study the same things, pursue the same goals, nor use the same language. No question about it: what *we* do and what *they* do is radically at odds, and calculating the terms of a relationship between the two groups means selling the idea of such a relationship to policy makers, rather than waiting for them to court us. And they won't. Still, there is a case to be made for the value of having such a relationship, and *What's Nature Worth?* makes precisely such a case.

Although narrative uses a different language and vocabulary than the language of policy or policy makers or scientists, it can be useful to those groups for many reasons. One of the effects, Satterfield and Slovic argue, of narrative is that it can have "the potential power to define how audiences think of themselves, or society as a whole, and of the very planet";³⁴ it allows people to participate "emotionally in the events and processes they're learning about";³⁵ narrative "offers a way to imagine value with its full emotional valence."³⁶ This is, in turn, significant, because it means that narrative is "a vital phenomenon even in a society that has, in some ways, attempted to remove itself from the narrative structure of information in favor of quantitative, decontextualized modes of presenting ideas and information."³⁷

Narrative is vital to how we live in and process the natural world. If the false dichotomy between science and the humanities lies, as Stephen Jay Gould surmises, "deep within our neurological wiring as an evolved property of mental functioning, once adaptive in distant ancestors with far more limited brain power, but now inherited as cognitive baggage,"³⁸ no less, perhaps, does a *consciousness* of this

34. Satterfield and Slovic, *What's Nature Worth?* (above, n. 22), p. 19.

35. *Ibid.*, p. 20.

36. *Ibid.*

37. *Ibid.* This and the previous paragraph appear in slightly different form in Estok, "Bridging the Great Divide" (above, n. 26), p. 206.

38. Stephen Jay Gould, *The Hedgehog, the Fox, and the Magister's Pox: Mending the Gap between Science and the Humanities* (New York: Three Rivers Press, 2004), p. 107. Wilson advocates a similar point, claiming—with circular logic—that "culture helps to select the mutating and recombining genes that underlie culture (Wilson, *Consilience* [above, n. 10], p. 179). He also maintains that "complexes of gene-based epigenetic rules predispose people to invent and adopt such conventions" (*ibid.*, p. 181). But while Wilson may very well be correct in maintaining that "even the greatest works of art . . . might be understood fundamentally with knowledge of the biologically evolved epigenetic

false dichotomy reside in our DNA. It is such a consciousness that guides so many of the attempts, past and present, to find a middle ground and reconcile these ancient foes. Woods has usefully pointed out that

[e]cocriticism acknowledges two phenomena: the nature of relatedness and interdependency made clear through ecology, and the signifying practice of language and images in producing meaning. How do we meaning-making animals produce meaning about the natural world, about our place in it, about our relationship to it? Among humanists, ecocritics are in a unique position to become interdisciplinary thinkers, to reach out to science, in order to better address these questions.³⁹

Yet—and this is not to disparage ecocriticism, which has done an exceptional job of marketing itself—Susie O’Brien has a valid point in claiming “that while ecocriticism has been gaining greater legitimacy, spawning readers, conferences, associations and academic positions—even quasi-recognition by the MLA—environmental problems have been getting worse.”⁴⁰

Ecocriticism has failed to market with itself the latent affective ethics of engagement and activism it carries, an ethics of praxis. If we are to continue what has truly been remarkable growth and development in this area that has—sometimes with reservations—come to be known as “ecocriticism,” then there has to be (it increasingly seems) some sort of agreement (definitional, terminological, procedural, methodological) if our work in literary and cultural studies is to function as effective responses to the political urgency that motivates our analyses. One of these will invariably have to do with terminologies, with refining our abilities to be clear about the problems we seek to remedy and the methods (one of which, I have been arguing, begins with analyses of ecophobia) by which we seek to do so.

rules that guided them” (ibid., p. 233), the question in this literary Darwinism must surely be in the *how*. Surely it cannot be in the way that Joseph Meeker does it in his rather slipshod argument about how, to use his words, “comedy grows from the biological circumstances of life. It is unconcerned with the cultural systems of morality” (Meeker, *The Comedy of Survival: Literary Ecology and a Play Ethic*, 3rd ed. [Tucson: University of Arizona Press, 1997], p. 15), unlike tragedy, which, he maintains, is entirely cultural. The project facing Gould and Wilson is immense, and no doubt very expensive: How can we prove specifics of gene-culture coevolution?

39. Woods, “Sci-Animism” (above, n. 33), p. 207.

40. Susie O’Brien, “‘Back to the World’: Reading Ecocriticism in a Postcolonial Context,” in *Five Emus to the King of Siam: Environment and Empire*, ed. Helen Tiffin (Amsterdam: Rodopi, 2007), p. 186.

Narrative science is exciting for the information it translates and the boundaries it ignores and erases. As “a scientific voice that can experience nature tangibly and translate it into other realms of human consciousness,”⁴¹ narrative science implodes the possibilities for a clean, clear-cut opposition between scientific and nonscientific narrative. It does so less by promoting an affective ethics of engagement than by kindling a desire that is first and obviously a narrative desire, a desire generated by and for plot, a desire for story that is always a voice-over. This voice-over translates into unidimensional linearity what is, in fact, a multidimensional, often contrapuntal mesh, a web, a network. As a voice-over it is necessarily fiction; producing the measurable, it becomes “fact.” Science—or at least “what is allowed to be named, counted, accepted, canonized, and financed” as science, to borrow a phrase from Rosi Braidotti and colleagues⁴²—produces and then (very importantly) authorizes these facts through popular media like narrative, primarily literary and filmic narrative. Neither the narrative nor the science stands alone; it is a relationship of mutual interdependence, a symbiotic relationship where each needs the other. As Meriläinen and colleagues argue, paraphrasing J. A. Hannigan’s *Environmental Sociology*, “a successful construction of an environmental problem seems to need scientific authority for validation of its claims . . . [yet] environmental issues are [also] a matter of a social construction and politics of knowledge production.”⁴³ Narrativized science produces fact cerebrally, emotionally, and tangibly, but not necessarily in measurable ways—and anyone who has ever loved knows that *facts* are not always measurable.

Indeed, the scientific method’s rigorous and demanding tests for authenticity are fundamental to the production only of *certain kinds* of knowledge, but to locate science as the sole source of all practical knowledge, as many people have argued, is a dangerous little dance that too often sweeps us off of our epistemological feet. Yet, at the same time, it would be naïve for those of us in the social sciences to flatter ourselves into thinking that our less reproducible experiments, our less verifiable results possess quite the authority of science. Perhaps Love is right to claim that “without the scientific

41. Catriona Sandilands, “From Natural Identity to Radical Democracy,” *Environmental Ethics* 17:1 (1995): 76.

42. Rosi Braidotti, Ewa Charkiewicz, Sabine Häusler, and Saskia Wieringa, *Women, the Environment and Sustainable Development: Towards a Theoretical Synthesis* (London: Zed, 1994), p. 32.

43. Susan Meriläinen, Johanna Moisander, and Sinikka Pesonen, “The Masculine Mindset of Environmental Management and Green Marketing,” *Business Strategy and the Environment* 9:3 (2000): 156.

method, science is indeed nothing but the hopelessly culture-bound activity that its detractors portray,"⁴⁴ but science itself is culture-bound, and the relationship between "the scientific method" on the one hand and "culture-bound activity" on the other is far more intimate and less dialectical and oppositional than it seems.

Years ago, in an entertaining foreshadow to Alan Sokal, Arthur C. Clarke poked fun at us and what we do in a short story called "History Lesson,"⁴⁵ remarking that if alien lizards (a bunch of scaly social scientists) from a future visited the remains of earth and found a bit of film with Disney characters as the only surviving piece of the past, they would no doubt make grand (but wrong) theories about the importance of those characters in the world now dead.⁴⁶ If scaly social scientists misread because of a lack of adequate data, no less do physical scientists, thalidomide being but one instance. What is important in the current discussion is less matters of facticity (important though they obviously are) and more the *presentation* of facts and data. If Clarke's "History Lesson" spins the laughs on the self-importance of social science and how hopelessly uncertain such culture-bound stuff really is, Franny Armstrong's *The Age of Stupid* takes much more seriously the theme of social scientists trying to get it right. This film portrays humanity's lone survivor similarly looking back on media artifacts of our current world and asking similar questions. Notwithstanding the intentions of Clarke or Armstrong, clearly both assume and promote a narrative that is first a narrative desire (we want to know "what happened?"), rather than the affective ethics of activist engagement that they, on the surface, appear to promote. To question what it is that is being marketed in these apocalyptic narratives is perhaps on a par with questioning what affective ethics we are marketing as ecocritics. Both sets of questions are colossal and unsettling.

While we may certainly agree with Love that "[e]cological thinking about literature requires us to take the nonhuman world as seriously as previous modes of criticism have taken the human realm of society and culture,"⁴⁷ this is not to say that it is accurate or even desirable to insist that ecocriticism does have or should have an "allegiance to the scientific study of nature," to borrow a phrase from

44. Love, *Practical Ecocriticism* (above, n. 1), pp. 43–44.

45. See Arthur C. Clarke, "History Lesson," in *Expedition to Earth* (New York: Ballantine, 1949), pp. 34–39.

46. I am indebted to biomedical laboratory technologist Vincent J. Lee of St. Paul's Hospital in Vancouver, British Columbia for this reference.

47. Love, *Practical Ecocriticism* (above, n. 1), p. 47.

Ursula Heise.⁴⁸ Validating ecocriticism through, or seeking validation from, sciences is tantamount to locating sciences as the sole sources of all knowledge, surely something we do not want to keep doing. Yet, nor do we want to ignore the fact that for all of our words, we are not having much of an effect.

Institutionalization has, to some degree, watered down the radicalism that defined the embryonic moments of both environmentalism in general and ecocriticism in particular to a compromise of willfully forgetting about how big our carbon footprints are for a twenty-minute talk and of forgetting the trees that become paper for our talks—a nonchalance that comes with no longer having to fight tooth and nail for a readership, legitimacy, and so on. One does not want to be churlish, but it is clear that marketing concerns with lowest common denominators in mind often will result in lowest common-denominator effects. At the same time, we have yet to—and we must—cross the great divides between the sciences and the humanities, between the intellectuals and the laity, between those who care and those who do not, and a more equal footing between science and narrative is a key to this.

Bridging this great divide is a concern of Wilson in his phenomenal *Consilience*, though there are considerable problems with this book. He seems to misapprehend what literary people do; his 2008 claim in a speech at the University of California that literary works “are not crafted to report empirical facts” suggests that he has not changed his stance on “the arts” much since *Consilience*. Joseph Carroll is accurate though perhaps a bit understated in claiming that “Wilson’s chapter on the arts is not among the strongest chapters in *Consilience*.”⁴⁹ A full decade after his 1998 *Consilience*, Wilson still misconceives what it is that literature does; he essentializes a monolithic notion of literature by claiming that its only purpose is to entertain. According to him, “the central role of *pure* literature is the transmission of the details of human experience by artifice that directs aesthetic response—originality and power of metaphor, not new fact.”⁵⁰ Using the phrase “pure literature” illustrates his distance from the kinds of theoretical work that people in the humanities do. Wilson, it seems, takes us back rather than forward.

48. Ursula K. Heise, “The Hitchiker’s Guide to Ecocriticism,” *PMLA* 121:2 (2006): 506.

49. Joseph Carroll, *Literary Darwinism: Evolution, Human Nature, and Literature* (New York: Routledge, 2004), p. 80.

50. Edward O. Wilson, “Synergism between Science and the Humanities,” University of California Television. 2008. <http://www.youtube.com/watch?v=J3jF19wtDQE> (emphasis added).

Moreover, for Wilson, “facts” may only be derived from and validated by sciences. He claims that the source⁵¹ of literature “is an intuitive understanding of human nature as opposed to an accurate knowledge—at least in the literal, quantifiable form required for science [and, again, Wilson uses the singular]. Metaphor—in the best writing—strikes the mind in an idiosyncratic manner.”⁵²

Wilson does not appear to be familiar with the very basics of literary writing, does not seem to be aware that the *reason* for creativity, for individuality, for novel linguistic constructions, for new metaphors, similes, and so on is precisely to help convey information, details, and facts so as to avoid the dullness and lack of thinking delivered by dead metaphors and hackneyed writing. These basics of literary writing are certainly something very elementary (see George Orwell’s “six rules of good writing”).⁵³ It is troubling that he does not get this.

Wilson is not alone by far in his work as a science and humanities conciliator (Stephen Jay Gould and Albert Einstein spring most immediately to mind), but he is unquestionably the most influential at present. His notion of “consilience”—which he defines as “literally a ‘jumping together’ of knowledge by the linking of facts and fact-based theory across disciplines to create a common groundwork for explanation”⁵⁴—is, admittedly, a profoundly exciting one; his *Consilience* on the whole, however, is often far too simplistic and pithy to be of much use. To say, for instance, that “[s]cience explains feeling, while art transmits it”⁵⁵ seems fatuously reductive. Moreover, while *Consilience* posits a key goal (one shared by this essay) of seeing more dialogue between the arts and sciences, it seems very unlikely indeed to expect a plausible methodology for sustaining a consilience from a person who is under the kinds of misapprehensions about what literary people and others who compose narratives actually *do*. It seems indeed little more than bare-faced epistemological bigotry to slough off the work of postmodernists, claiming that they are under “the black flag of anarchy,” are people who “believe we can know nothing.”⁵⁶

51. *Ibid.* Wilson uses the singular as though there is only one source of literature.

52. *Ibid.*

53. Mentioning Orwell’s 1946 essay “Politics and the English Language,” in which he sets out his six rules, does not, of course, mean unilaterally endorsing all that Orwell has to say. The essay, clearly a product of its time, is tinged with nationalist sentiment and xenophobia; nevertheless, it is a valuable essay, one with which Wilson seems unfamiliar.

54. Wilson, *Consilience* (above, n. 10), p. 8.

55. *Ibid.*, p. 127.

56. *Ibid.*, p. 44.

In this sense, some might argue that Wilson's *Consilience* is less an example of provocative writing than of ignorance in print; one might even go so far as to say that he is a front-person for the biological sciences, one who lacks the basic knowledge about the people who make narratives to be credible in any sense, claiming at one point that "only madmen and a scattering of constructivist philosophers doubt" the existence of reality.⁵⁷ To have to respond to this kind of comment at this stage is distressing; to have to tell Wilson that every living person constitutes reality differently and that this is an important area of study is disheartening. It is not cause for celebration to have to explain that postmodernism, in general, does not deny Katrina, but shows rather *how* Katrina is written to endorse and bolster one ideology or another (and Wilson is obviously blind to these ideological determinants). Worse, Wilson lacks the very methodology and framework to achieve the consilience he seeks. Giving a list of examples of consilience is not the same as offering plausible ways by which to lessen or bridge the gap about which he speaks, goals to which the narrativizing of science goes a long way.

In 1998, nature writer David Quammen sent a note to Slovic, a part of which read as follows:

[A] writer who wants to influence how humans interact with landscape and nature should strive to reach as large an audience as possible and NOT preach to the converted. That means, for me, flavoring my work with entertainment-value, wrapping my convictions subversively within packages that might amuse and engage a large unconverted audience, and placing my work whenever possible in publications that reach the great unwashed.⁵⁸

This, surely, is the promise of the spate of films and best-selling books on climate change and environmental crisis that have appeared over the past several years; however, without using the paradigm that ecophobia offers, it seems unlikely that these narratives will cause much change. Analyses of ecophobia are necessary, since the ethical assumptions in both the production and consumption of environmentalist narratives determine the affective ethics of these narratives. Scholars have looked at how gender, culture, class, and sexual biases have influenced or shaped these kinds of narratives, but it is startling how little work has been done with the various ways that narratives carry ecophobia, not least of all in their failing to acknowledge the most basic of issues (consumption of meat, for instance) and in failing to advocate for legislative changes.

57. *Ibid.*, p. 66.

58. David Quammen, quoted in Scott Slovic, "Foreword," in *The Greening of Literary Scholarship*, ed. Steven Rosendale (Iowa City: University of Iowa Press, 2002), p. viii.

Laws have been established in response to sustained discussions about sexism, misogyny, homophobia, and racism, and it is time that sustained discussions about ecophobia started pointing toward legislative, constitutional protections—not just on the level of what our cars will be permitted to emit or of what Royal Dutch Shell can or cannot do or of what kinds of renewable-energy sources must be used, but on a conceptual level where ecophobic actions might, perhaps, fall under the category of hate crimes and be subject to similar punitive responses. Yes, it is vital to hit a broad constituency and we are definitely on what could become the right track, but we need to be very focused on what the problems are.

This means being very open but also very wary; it means paying 100 percent attention; it means rejecting the professional bigotry of someone like Gary Nabhan, who scorns boiled-down, pop versions of complex theories. As he states in his interview in *What's Nature Worth?*, “the best-selling environmental book in the twentieth century is *50 Things You Can Do to Save the Earth*. I mean, I would never look at it.”⁵⁹ I have to wonder: “Not even a look?” Nabhan could learn something about reaching a broader audience. Of course, we are probably all familiar with pop-psychology books and other commonplace materials that water-down, vulgarize, and inadvertently mock their respective disciplines, and thus popularizing “the environmental crisis” could easily do the same—no less a scholar than Einstein had noted as much. In the foreword to a popularized version of his own theories by Lincoln Barnett, Einstein noted that popularizing theory

succeeds in being intelligible [to nonspecialists either] by concealing the core of the problem and by offering to the reader only superficial aspects or vague allusions, thus deceiving the reader by arousing . . . the deceptive illusion of comprehension; or else [it fails and] . . . gives an expert account of the problem, but in such a fashion that the untrained reader is unable to follow the exposition and becomes discouraged from reading any further.⁶⁰

Narrativized science isn't science: it lacks the depth of complexity of the lab; nevertheless, it has a profound value. Einstein goes on to say that though little of substance is actually communicated in pop versions of theory, what is communicated is enormously important. What our green filmic narratives and various other media are com-

59. Gary Nabhan, quoted in Satterfield and Slovic, *What's Nature Worth?* (above, n. 22), p. 252.

60. Albert Einstein, “Foreword,” in Lincoln Barnett, *The Universe and Dr. Einstein* (New York: William Morrow, 1948), p. 9.

municating, the tacit ecophobia and call to inaction, desperately need our attention.⁶¹

“The environmental story,” as H. Stocking and J. P. Leonard put it, is one of the most complicated and pressing stories of our time. It involves abstract and probabilistic science, labyrinthine laws, grandstanding politicians, speculative economics and the complex interplay of individuals and societies. Most agree it concerns the very future of life as we know it on the planet. Perhaps more than most stories it needs careful, longer-than-bite-sized [*sic*] reporting and analysis now.⁶²

This article has sought that longer-than-byte-sized analysis in an age if not of stupid then certainly of “continuous partial attention.”

Acknowledgment

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61. Parts of this and the previous paragraph appear in slightly different form in Estok, “Bridging the Great Divide” (above, n. 24), pp. 207–208.

62. H. Stocking and J. P. Leonard, “The Greening of the Press,” *Columbia Journalism Review* 29 (1990): 42.