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Normalizing Nature: Construction and Defense of Authorized Rhetoric in Environmental Policy Debates

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ABSTRACT: Scientific communication, as argued by Bruno Latour, not only asserts ‘facts’ but also defends progressive ideology by reinforcing a given epistemology. Under this critique, the scientist becomes not a finder of facts but a dictator of normative behavior in policy communication. My paper examines the way scientists create and communicate their findings with an emphasis on how normative scientific behavior gives and takes agency from natural, non-conscious entities and phenomenon in order to redistribute and reify power structures. To show this, I examine the debate over the United States Forest Service’s management plan after Oregon’s 2002 Biscuit Fire.

1. INTRODUCTION

Scientific controversy can often be difficult to understand, especially when the debate spills out of laboratories and the pages of academic journals and into the political arena and local coffee houses for all to view and discuss. Accounts of contemporary scientific disagreement that have played out in the public have been discussed by many rhetoricians, such as the Cold Fusion debate critiqued by Alan Gross (2006) and Thomas Gieryn (1999), but many of these disputes happened in controlled or coordinated environments. For cold fusion, the general public’s interactions with the science was through popular journalistic accounts, the evening news, and other scientific reporting agencies. We now live in a world where the individual, even in the least technologically advanced areas, is linked to a multitude of sources of information. Gone are the days of the fixed forum or the coffee shop meetings, we now live in spaces beyond the physical: cyber space, radio waves, and satellite feeds. Communication is no longer bound by the size of a loudspeaker or the distribution radius of a newspaper, but instead by the communities that an individual chooses, actively or passively, to participate within. While in the past a speaker’s message might be transmitted publicly for private consumption, only to be discussed in a set physical space for consensus, information is now retransmitted, transmuted, and forced to conform to multiple different audiences, genres, and situations before it is ever truly consumed. The message, which was once tailored by an individual speaker or rhetor, is now retailored over and over again, mixing and conflating the concept of a recipient audience and active speaker.

A new methodology is needed in order to deal with the movement of rhetoric through space and between communities and publics. In order to accomplish this, I suggest a melding of Jenny Rice’s (née Edbauer)(2005) methodology of rhetorical ecology with Bruno Latour’s Actor-Network-Theory (2005). I suggest this because while Rice’s methodology enables us to create a network of interlinked and overlapping communities connected by a piece of rhetoric, it stops short of understanding how the rhetoric has been affected by allegiances in order to manipulate different communities. In her example of Austin, we do see how different groups

make a piece of rhetoric (“Keep Austin Weird”) their own, but I am interested in rhetoric that cites the same source but holds contradictory meaning. An example of this would be scientific rhetoric that, once circulated in public, has its meaning changed to fit the desires and needs of a different audience.

It also becomes necessary to understand an audience’s, and the rhetor’s, motives or intentions. For this, Bruno Latour’s (2005) Actor-Network-Theory (ANT) – tracing the connections between actors in order to understand how allegiances and groups are formed and tested for strength – may be useful. The problem with Latour’s methodology, though, is it does not account for the movement of rhetoric; it does not trace how what someone says passes through one situation to another. Furthermore, it does not focus on persuasion itself, but instead focuses on acts that happen after persuasion. By first understanding the ecology of a piece of rhetoric – how it moves, is used, is circulated, and recirculated – we can create a map of rhetors and publics. We can then examine each rhetor using ANT to understand what motivations they might have, or how and why they might transform a piece of rhetoric.

In order to understand this methodology, it is necessary to challenge the traditional view of rhetoric, in which the speaker imparts a message to an audience to affect change. Lloyd Bitzer (1968), in his essay “The Rhetorical Situation,” gave the fields of rhetoric and communication a methodology and language to analyze a given piece of discourse. His goal was to identify what is and is not rhetorical discourse, which he hoped would also explain how writers and speakers create it. Bitzer (1968, p.6) defines the rhetorical situation as “a complex of persons, events, objects, and relations presenting an actual or potential exigence which can be completely or partially removed if discourse, introduced into the situation, can so constrain human decision or action as to bring about the significant modification of the exigence.” His methodology focused on deciphering the exigence, audience, and constraints of a given situation. He defines exigence as “an imperfection marked by urgency...something waiting to be done, a thing which is other than it should be” (Bitzer, 1968, p. 6). The exigence exists prior to the audience and rhetor, and is the thing that causes the rhetoric to come in to being; this is an important point where later authors, most notably Richard Vatz (1973), will disagree with Bitzer. Audience, as defined by Bitzer (1968), must exist in order to make a text or discourse rhetorical, and “must be capable of serving as mediator of the change which the discourse functions to produce” (p. 8). The audience, then, is in a receivership position. They are the subject in a rhetorical situation, but not the actor; this is a problem in Bitzer’s argument—according to Barbara Biesecker (1989)—and needs to be addressed. The last term for Bitzer is constraint, which can broadly be described as ideology, or rules and regulations imposed by the ideology in which a rhetorical discourse is taking place. It should be noted that the rhetor, or actor/speaker/writer, has no role in this model. Instead, the rhetor is simply responding to exigence and “alters reality by bringing into existence a discourse of such a character that the audience, in thought and action, is so engaged that it becomes the mediator of change” (Bitzer, 1968, p. 4).

Bitzer’s essay started a larger discussion about the development of methodology for rhetoric. One of the first people to challenge his model was Richard Vatz. Coming from the post-modern perspective where reality, especially for an individual, is subjective not objective, Vatz challenged Bitzer’s notion of exigence. If, as Bitzer suggests, all rhetoric stems from a source of exigence, then the context exists prior to the speaker. But we can all imagine times where exigence is created, or the context does not exist until the speaker says it does (the need for war with Iraq, for example). For Vatz, “meaning is not discovered in situations, but *created* by rhetors” (1973, p. 157). While Bitzer viewed rhetoric as the effect of a situation, Vatz says

“rhetoric is a *cause*” (1973, p. 160). Vatz clearly places the speaker/writer/actor back in to the model and focuses on the subjectivity of the speaker over the objective nature of the exigence. The problem with Vatz is that he does not clearly adapt and evolve Bitzer’s model but instead rejects it. What he does offer, however, is a valuable critique that suggests the use of Bitzer’s model must somehow account for subjectivity.

A new model to critique the rhetorical situation that allows for the rhetor’s motives to be taken into account needed to be developed. Answering this problem and taking her critique one step further, Barbara Biesecker (1989, p. 110) also calls for a rethinking of Bitzer’s model, albeit twenty-years after the original’s publication, for two reasons: first, the “radically historical character” of discourse had yet to be appropriately explained; and secondly, because the role of the audience, or even an appropriate description of the audience for Bitzer’s model, had yet to be developed. In order to find a new model from which we can analyze a rhetorical situation as a dynamic space of exchange in both directions (speaker to audience *and* audience to speaker), Biesecker uses Jacques Derrida’s thematic of *difference* to move us towards a usable methodology. For her first problem, Biesecker (1989, p. 121) finds that “neither the text’s immediate rhetorical situation nor its author can be taken as simple origin or generative agent since both are underwritten by a series of historically produced displacements.” This suggests that the author is doing more than just “altering reality,” as Bitzer suggests, but instead is creating a reality out of a historical moment. As for audience, Biesecker (1989, p. 111) points out that the audience is too often, if not always, viewed as “a conglomeration of subjects whose identity is fixed to the rhetorical event itself.” The obvious problem is that an audience is not singular or homogenous nor fixed and stable, but instead an individual subject’s identity is constantly shifting and changing dependently and independently of those around him. In rhetoric, too often the subject is acted upon instead of acting for herself. Biesecker (1989, p. 126) argues that the subject is “shifting and unstable” and that the “rhetorical event may be seen as an incident that produces and reproduces the identities of subjects and constructs and reconstructs linkages between them.” This means that rhetorical situations are not static, but instead are dynamic. The text is not fixed, but instead is imbedded in an historical context that produces it and is then interpreted by the historical context of a shifting group of subjects that we call the audience. We have now gone from a situation where a clear articulation of exigence, audience, and constraints can lead to a valuable analysis to a moment where the exigence is subjective, the audience is shifting and squirmy, and the message constantly reinterpreted.

2. RHETORICAL ECOSYSTEMS AND ACTOR-NETWORK-THEORY

Instead of thinking of the rhetorical situation as static, the theorists above have suggested that it is a dynamic interaction between multiple parties and agencies. It can be further suggested that it is not singular or defined with in a given space or time; instead, it spins and grows and multiplies—the message from a rhetor may go beyond the immediate audience, get taken up in new genres, and reused in new ways. To address these problems, a metaphorical model has been purposed by Jenny Edbauer (2005) in her essay “Unframing Models of Public Distribution: From Rhetorical Situation to Rhetorical Ecologies.” Summarizing some of the key arguments against Bitzer, Edbauer (2005, p. 8) concludes that “exigence is more like a complex of various audience/speaker perceptions and institutional or material constraints” than some pure, objective truth. In order to include the dynamic subjectivity of the rhetorical situation, Edbauer (2005, p. 9) suggests that we view them as “*affective ecologies* that recontextualize rhetorics in their

temporal, historical, and lived fluxes.” To fully explain this metaphor, Edbauer (2005, p. 12) borrows from cultural geographers who view cities less as physical space and more as “sites” where there is an “amalgam of processes.” In this view, cities have less to do with actual markers and boundaries and more to do with embodied experiences. In the same way, Edbauer (2005, p. 13) suggests that we view the rhetorical situation less as a physical space and more as “a mixture of process and encounters;” this open system focuses on “distributed emergence” and “an ongoing circulation process.” A piece of rhetoric is no longer contained, but is free to circulate in the social system(s) around it. Edbauer uses the concept of *viral spread*, that a piece of rhetoric can replicate itself in new rhetorical situations for different audiences and publics, to explain how ideas and rhetorics move and transfer.

While her model addresses the static definitions of the rhetorical situation presented by her predecessors and accounts for the movement of rhetoric in our the current hyper-textual world, I believe that expanding ecology system metaphor will give a stronger methodology. From Edbauer, I will take the ecological model, but I will then impose her scientific metaphor more strictly. A rhetorical situation must take place in an *ecosystem*. An ecosystem is a contained network with subjects that are independent of each other in action, but dependent on each other for survival. They act upon each other and are acted upon. There are constraints to their actions – the physical attributes of the ecosystem – which control what can and cannot be done. A balance must be contained in an individual ecosystem in order for it to function. In a given *rhetorical ecosystem* then, there are actors/speakers and subjects/audiences, but the subjects also act on the actor. There are constraints, but even the constraints are dynamic and can be changed to meet the needs of audience or the rhetor – or, in the ecological model, the constraints of the ecosystem are dependent on an individual’s or a population’s needs.

The metaphor of a rhetorical ecosystem is attractive because the scale of a rhetorical ecosystem is particular to every individual subject it contains. As an example from the scientific metaphor, an ant’s natural ecosystem is very small: though it is connected to a world larger than it can detect, the area that effects an ant is smaller than, say, a squirrel, which has a smaller ecosystem than a hawk. The hawk also migrates between multiple contained ecosystems, or networks. If we think of an individual subject in the audience as part of his or her own ecosystem, then we can see that they might travel like a hawk, or they may stay in the given confines like an ant. They might have larger networks that they are connected to, or they might have smaller. Each individual, then, or small subset, has its own network in which they will participate and communicate. This gives us ecosystems on top of ecosystems in one rhetorical situation.

This mapping of ecosystems explains overlapping and tangential rhetorical situations, but it does not explain how rhetoric can transfer from one ecosystem/situation to another. Edbauer (2005) uses a virus as a metaphor to explain how a piece of rhetoric can be (re)circulated and have its meaning change. While the idea that a rhetorician’s goal is to posit an idea in someone else’s mind is nothing new, that the idea is static and unchanged from the rhetor’s intent goes against the arguments made by Biesecker (1989). She points out that the audience actively takes a message in and makes sense of it based of their individual ideology. Thus the message can change, become something new, and be reinterpreted. This is unlike a virus. A virus infects a host/subject, replicates, and leaves. It may or may not produce change in the host. It may or may not kill the host. One thing is certain though: the virus will replicate itself as identically as possible and then leave the host for a new victim. The host does not change the virus. We are back to a one-directional model. We are back to Bitzer.

Instead, I choose to appropriate the work of George Kennedy (1992) and Catherine Chaput (2010), who view rhetoric as something with energy, and add it to my rhetorical ecosystem model. Kennedy (1992, p. 2) says that “Rhetoric in the most general sense may perhaps be identified with the energy inherent in communication: the emotional energy that impels the speaker to speak, the physical energy expended in the utterance, the energy level coded in the message, and the energy experienced by the recipient in decoding the message.” He views rhetoric as the use of energy, transfer of energy, and possibly even the storage of energy. Chaput (2010, p. 13) views it in a similar way and suggests that it “might usefully be theorized as a persuasive power affectively sustaining the overdetermined ecology of our worlds.” I would push this one step further and suggest that it is the energy that flows in the rhetorical ecosystem. It is passed from individual to individual, and is recirculated just as nitrogen, carbon, and water are recirculated in our natural ecosystem. But remember, while we are all part of the world, we also each have our individual rhetorical ecosystem. In the scientific metaphor, not only do animals have subjective scope of their ecosystem, they also have relative use for energy and material. If we give an ant a chicken leg, it will feed its colony for a month, but if we give the same to a coyote, it will be hungry by the next day. In the same way does each individual in a rhetorical ecosystem have a different use and value for a piece of *rhetorical energy*. While Kennedy (1992) goes on to suggest that all rhetoric has some quantifiable value, I suggest that Beisecker’s (1989) theory on audience implies that the energy value is particular to the individual. To some, they will take the rhetorical energy and pass it on with force to others in their ecosystem, but someone else might find the rhetorical energy barely enough to raise them from their seat. Furthermore, if we return to the scientific metaphor, not all materials and energies are created equal. While a plant might desire the nitrogen of a cow patty to live, a Lynx would have nothing to do with it. In the same way, the audience bound in an individual rhetorical ecosystem may or may not accept the rhetorical energy being given. Lastly, just as a plant is capable of changing carbon dioxide into sugar and animals change it back, the individual subject reinterprets the rhetorical energy in to a form that conforms to their ideology and/or become useful to them. The message itself does not dictate meaning as much as the recirculation of the interpreted message by each individual subject – which will interpret the message in a way to make the energy most useful, and will distribute in to their own rhetorical ecosystem. By imagining rhetoric no longer bound by a simple rhetorical situation as Bitzer (1968) envisioned it, we are free to “begin to see that rhetorics do not only exist in the elements of their situation, but also in the radius of their neighboring events” (Edbauer, 2005, p. 20). The movement of rhetoric from one situation to another is not passive, but instead is brought about by different rhetors adopting rhetoric and transporting it to a new situation in order to harness the energy of that rhetoric.

After taking Bitzer’s model of the rhetorical situation, positing back in the subjectivity of the author/speaker/ actor, re-interpreting the role of the audience, and then using ecology as a metaphor in which to capture the dynamics of the situation, we arrive at a model which views rhetoric as energy and the actual occurrence of rhetoric as physically taking place in a multitude of individual networks. This allows us not only to analyze an individual situation, but also how a piece of rhetoric moves through various social systems and is transformed in the process.

What this model does not do, however, is allow us to understand how rhetors in each ecosystem use the energy for their own ends. While we can follow the rhetoric as it moves to new environments and see how it is adapted to that environment, it is not apparent who is using the rhetoric: the environment and its constraints or the rhetor to meet his or her motives. Bruno

Latour's (2005, 1993) Actor-Network-Theory methodology, as outlined in his work *Reassembling the Social* and *We Have Never Been Modern*, is a viable solution. Further researching each rhetor from each rhetorical ecosystem—examining other documents by the same author, citing the author, or cited by the author, as well as other formal and informal communications – will give a more complete understanding of how and why things were said. Links must be explained by the participants in the network and not subscribed to over-riding social forces (like Capitalism, Economics, Religion, Science, etc). The purpose of this is to see the network for what it is, not through a critical interpretation of a presupposed network. Latour and Woolgar (1986, p. 32) warn against going in with preconceptions when analyzing science, saying of their own methodology that they must “avoid a perspective which implicitly adopts a distinction between ‘social’ and ‘technical’ issues ... such a distinction can be dangerous either because it fails critically to examine the substance of technical issues or because the effects of the social are only apparent in the more obvious instances.” This is particularly important in scientific debates because it enables the researcher to move beyond claims of “objectivity” in science. The goal of many of Bruno Latour's (2005) projects is challenging, but not for the purpose of undermining, science's claim of positivism. His primary problem with positivism is that, when it drifts in to the political realm, it can stand unchallenged because of its supposed objectivity: “Positivism – in its natural or social form, in its reactionary or progressive form—is not wrong because it forgets ‘human consciousness’ and decides to stick with ‘cold data’. It is wrong politically. It has reduced matters of concern into matters of fact *too fast, without due process*” (Latour, 2005, p. 256, emphasis in original). For Latour, examining the creation of claims about nature enables us to see how politics are at work behind the veneer of “objective” science.

In this new overlaid methodology, the starting point becomes a piece of rhetoric at a given moment. For a researcher in the rhetoric of science an easy entrance point is a scientific article published in a refereed academic journal. The piece of rhetoric is followed through established, new, and emerging rhetorical ecosystems where the rhetoric of the original article is reused in new forms and for new purposes. Once these rhetorical ecosystems have been catalogued, the rhetor at the center of each ecosystem is then examined using ANT. In the end, this methodology should give a better understanding of not only the conflict that was created over the original paper, but also the social elements that influenced the science prior to publication. To show how this methodology may be fruitful, I will look at Donato, Fontaine, Campbell, Robinson, Kauffman, and Law's article “Post-Wildfire Logging Hinders Regeneration and Increases Fire Risk,” which was published in the January 2006 issue of *Science*.

3. CASE STUDY: THE BISCUIT FIRE

The article will be studied as the epicenter for multiple spreading rhetorical ecosystems. To begin to understand how these ecosystems formed, we will first examine the publication of the article itself, its intended audiences, exigence, and the constraints surrounding it. New rhetorical ecosystems will be examined where the initial rhetoric is either addressed directly or is used in new ways. Each of these rhetorical ecosystems will have their own distinct exigence and audience.

At the time of publication of the article in question, many of the authors were associated with Oregon State University either as professors – Campbell, Fontaine, and Law – or as a

graduate student – the case of Donato. The last author, Kauffman, was a researcher with the United States Forest Service (USFS), which is a subdivision of the United States Department of Agriculture. It should also be noted that Oregon State University is state sponsored and a Land Grant institution, specializing in agriculture and engineering. The article was published in the internationally recognized journal *Science*, which is produced and published by the American Association for the Advancement of Science (AAAS). All articles are peer-reviewed before acceptance.

The initial exigence of the article is clearly stated by the authors in the first sentence: “Recent increases in wildfire activity in the United States have intensified controversies surrounding the management of public forests after large fires” (Donato et al., 2006a, p. 352). The authors imply that more data is needed to resolve the controversy. They go on to explain the two theories of post-fire land management (1: salvage logging after a fire hastens forest regeneration; 2: salvage logging after a fire hurts forest regeneration), only further clarifying their initial exigence. The title also suggests a similar exigence by stating their conclusion. The audience can expect to find the data that supports their initial claim. Bitzer’s model would account this exigence as it is material and found in the real world.

The data that was collected by Donato et al. (2006a, p. 352) was “... from a study of early conifer regeneration and fuel loads after the 2002 Biscuit Fire, Oregon, USA, with and without postfire logging.” The authors go on to explain the scope and size of the fire as well as the contentious nature of the environmental practices and land management regimes of the region. While the area in question is very productive, its Mediterranean-like climate is somewhat unique to Oregon and America and requires special forestry practices and ecological considerations, especially when attempting reforestation (Donato et al., 2006c; Sessions et al., 2003; “The Donato-Law Fiasco,” 2007). Shortly after the fire was put out, a study of regeneration was conducted. The rationale for such a study is opportunistic; the situation enabled an examination of postfire forest dynamics. The research was funded by the US Joint Fire Science Program (Donato et al., 2009). The study took place on United States Bureau of Land Management (BLM) and USFS land and required both agencies’ cooperation and support.

The audience Donato et al. (2006a) were addressing is both scientific and general. Since the article was published in *Science*, and the readers of the journal are generally academics and professional researchers, it is assumed that the scientific community at large was the intended audience. This audience is not generally involved in forestry practices or environmental policy making. Their involvement in the controversy over post-wildfire salvage logging would have been minimal and they would have had no ability to change forestry practices and policies. Instead, Bitzer’s (1968) idea of audience dictates that the intended audience must be policy makers and forest management practitioners, or people who can put pressure on policy makers, meaning the active public. While Edbauer (2005) is less concerned with delineating an audience than Bitzer, and more interested in how rhetoric can be taken from its original exigence and placed in to a new, approaching the article as the original exigence in order to map new rhetorical ecosystems suggests that the audience need not be a group capable of change necessarily, but can be anyone who is willing to create a new situation using the original exigence. From this perspective, the general public, environmental and pro-logging interest groups, politicians, and scientists can all be viewed as the audience of Donato et al. (2006).

The constraints on this situation are defined by the journal and the conventions of scientific writing. Technical reports, like Donato et al.’s (2006), are limited to one page, one figure, and must have significant findings for an individual scientific discipline and science in

general. The limitation on space often means that methodology is not fully described in order to allow for greater contextualization prior to a discussion of conclusions. Donato et al. (2006a, p. 352) have only one sentence on methodology: “We used a spatially nested design of logged and unlogged plots replicated across the fire area and sampled before (2004) and after (2005) logging.” They use the rest of their paper for results. Furthermore, the convention of scientific writing is to tell a narrative of the experiment objectively, which means removing the subject (the researcher) from the narrative. This style choice can be seen through out the short article, where the authors rely on their “data” to make arguments instead of the authors making it themselves. One clear example of this is: “Our study underscores that, after logging, the mitigation of short-term fire risk is not possible without subsequent fuel reduction treatments” (Donato et al., 2006a, p. 352). *Scientists* are also supposed to respect the is/ought line, describing how the world “is” and not how it “ought” to be – “ought” is traditionally reserved for policy makers and politicians. For the majority of the article, the authors express their findings objectively with no value judgments or calls for action until the final paragraph. The last paragraph still follows the style conventions of the journal, but turns towards a suggestion of policy instead of research: “Our data show that postfire logging, by removing naturally seeded conifers and increasing surface fuel loads, can be counterproductive to goals of forest regeneration and fuel reduction” (Donato et al., 2006a, p. 352). While this clearly reads as a statement of fact, or explaining how the world *is*, it also moves into predicting future results to existing practices, thus suggesting that existing practices must change.

The *Science* article was released to the press prior to publication and was quickly spun in to a pro-environment appeal. On January 6th, *The Register Guard* newspaper of Eugene, Oregon ran the front page headline “Study Strikes Salvage Logging Beliefs” and argued that Donato et al.’s results suggested an increase risk of fire after salvage logging operations and that the findings were “challenged by the timber industry” (Bolt, 2006, p. A6). The newspaper’s article created a new ecosystem: the timber industry was causing fires and needs to be stopped became the exigence and the audience also shifted to the general public. Donato et al. (2006a) focuses on forest regrowth and regeneration, but the *Guard*’s article focuses on fire. Similar stories were picked up in other local and regional newspapers such as *The Oregonian* and *The Gazette Times* in Corvallis, Oregon.

The story also went national with coverage on National Public Radio (NPR) reported by John Nielsen. He titled the report, “Study: Salvage Logging Boosts Forest-Fire Threat,” and stated that “Three years ago President Bush asked for legal changes aimed at reducing wildfires. But Oregon State University researchers say ‘salvage’ logging slows the rate of forest recovery and raises the threat of new fires” (Nielsen, 2006). In this rhetorical ecosystem, the exigence that Donato et al. (2006a) are being placed in to is clearly political; the report suggests that either President Bush created the exigence by demanding a control over fire, or we could view the increasing risk of fire as the exigence that President Bush and others are reacting to. The later implies that the President is the intended audience as well as the general public, who should hold President Bush accountable to Donato et al.’s (2006a) findings. The rhetoric of Nielsen’s (2006) passage suggests that President Bush may have been pushing for *more* salvage logging to reduce fire risk, but now that argument is clearly wrong and should be overturned. Donato et al. (2006a) are having their original message taken and spun to be political; the energy of their rhetoric is being used to make a different kind of appeal.

Under pressure from many professionals and academics in the field of forest science, *Science* agreed to allow comments to be written and published in response to Donato et al.’s

(2006a) findings. The first response was published by nine authors, most of who were affiliated with Oregon State University as either professors or researchers (Newton, Fitzgerald, Rose, Adams, Tesch and Sessions), while others worked for the USFS (Powers and Skinner) and one was from a private consulting firm (Atzet). They titled their article simply, “Comment on ‘Post-Wildfire Logging Hinders Regeneration and Increases Fire Risk’” (Newton et al., 2006, p. 615a). They argued that Donato et al.’s (2006a) “paper lacks adequate context and supporting information to be clearly interpreted by scientists, resource managers, policy-makers, and the public” (Newton et al., 2006, p. 615a). Their exigence was Donato et al.’s (2006a) paper, not the fire or the study itself. Newton et al. (2006) believed the problem that needed to be resolved was how to interpret the results found by Donato et al. (2006a). Their goal was to convince the audience that the previous research was incomplete and that the results were not yet significant, which brings any question of policy decision-making based off of the findings in to question. The authors say as much directly: “The research may make a valuable contribution, but the study lacks adequate context and supporting information to be clearly interpreted” (Newton et al., 2006, p. 615a). In this passage, Newton and the other authors define their intended audience as those making policy decisions using Donato et al.’s (2006a) findings for forest management purposes. The audience seems less to do with the general scientific community, or the general public, and instead have a fairly narrow target group in mind. As for their constraints, since they were publishing in the same journal, many of the same constraints apply. They are limited by space, just like Donato et al. (2006a) (something they recognize as a possible reason for the problematic methodology: “If the authors were constrained by print space limitations, we urge them to use alternative mechanisms to disclose details critical to understanding and interpreting their results”) and they use the style of scientific writing (Newton et al., 2006, p. 615a). While Newton et al. (2006) may criticize the findings and methodology of Donato et al. (2006a), they never question the objectivity of Donato and the other authors; they only challenge the data, the analysis, and the conclusions.

Newton et al. (2006) created a new exigence from the original, but it is still traceable back to the original situation and still functions under the same constraints. Unlike the newspaper and radio reports, they do not place Donato et al. (2006a) at political odds with other agencies or interest groups. This is in contrast to Congressman B. Baird’s (2006) response to Donato, which was also published in *Science*. The exigence that Baird is addressing is not the possibility of misinterpretation of the findings, but is a challenge to the objectivity of Donato et al. (2006a). Baird (2006, p. 615b) argues that: “Donato et al. drew their conclusions based on very small data sets assembled over a short period of time and using methodologies that cannot sustain the sorts of causal statements made by the authors.” Instead of challenging the methodology of the researchers and calling for a more complete study before publishing as Newton et al. (2006) do, Baird (2006) says that Donato et al.’s (2006a) conclusions are bad science. The fact that Baird places the authors as actors in the study goes against the constraints of scientific writing, which strives for an objective tone and style. Baird’s audience is those who might believe the findings of Donato et al. (2006a) and his goal is to discredit the researchers. Baird is taking Donato et al.’s (2006a) rhetoric and moving it into a new moment of exigence in an attempt to discredit Donato et al. This seems an interesting technique, but Baird’s (2006) comments seem ill-suited to the journal because they do not follow the normal constraints associated with the publication.

We have a few different rhetorical ecosystems that developed from the initial publication. Some are overlapping, like the articles published in *Science* or the media reports, while others are unique from each other. In each of these rhetorical ecosystems there is a speaker addressing

an audience, but it is not always clear what the speaker's motives are in demanding audience action. In the media reports, the suggestion for audience action is often very clear (stop salvage logging) and the motivation seems evident, but in Donato et al.'s (2006a) initial piece the motivation is obscured by the genre of scientific reports. By analyzing some of the rhetorical ecosystems that have been highlighted, a speaker's motives may be unearthed.

In ANT, the goal is to find alliances and recruitment that lead to group formation. Once the groups have been formed, the debate can begin to be understood in new ways. I will begin by analyzing Donato who recruited the other authors on the paper. This recruitment is outlined in the article in *Evergreen* (a non-profit trade journal) that summarized the debate the Donato et al. (2006a) article created. In 2002, W. D. Robinson and J. B. Kaufman were recruited by Oregon State University Dean Thomas Sensenig to study the recovery of the area burned by the biscuit fire. Sensenig was asked by the BLM to conduct the study and received a federal grant for Joint Fire Science from the Department of Energy ("The Donato-Law Fiasco," 2007). While this funding was not mentioned in the article, other articles authored by Donato and Law, such as "Pyrogenic carbon emission from a large wildfire in Oregon, United States" published in the *Journal of Geophysical Research*, corroborate the claim (Campbell et al., 2007, p. 10). While it first appeared that Donato, as first author, was at the center of the controversy, it becomes clear that the BLM recruited Sensenig, who then recruited Robinson and Kaufman. However it needs to be noted, Sensenig remained the primary investigator in charge of the grant. Robinson and Kaufman then recruited Donato to conduct the experiments. In this situation, the BLM recruited these actors in response to the controversy of forest regrowth in the damaged area.

Law, the last author, was recruited later and advised the study when Sensenig was no longer directly involved. Interestingly, Law was not recruited by the BLM but seemingly by Donato, Kaufman, and Robinson.

At the same time that Donato and his group were conducting their study, under the funding of the BLM and supervision of Sensenig, John Sessions and Mike Newton were drafting a report to propose appropriate forest management practices to the USFS and BLM in order to "addresses three of these considerations: forest regeneration, fire and insect risk reduction, and timber salvage" (Sessions et al., 2003, p. 2). After publishing the report in early 2003, only a few months after the fire, and finding little action taken on their suggestions, Sessions and Newton modeled the effects of the Biscuit Fire and the associated clean up, publishing their finding in 2004 in *The Journal of Forestry* as "The Consequences of Delay." In the article, the authors argue that,

Time is not neutral. If society or land managers choose not to expedite postfire decision making for the roughly 200,000 acres outside the designated wilderness so that restoration action can begin in 2004 and end by 2006 or 2007, then nature alone will determine the future conditions in as much as 400,000 acres of the entire Biscuit area. Regardless of congressional or administrative intent, these forests will likely be dominated by cycles of shrubs, hardwoods, and fires for a long time (Sessions et al., 2004, p. 45).

This was published prior to Donato's article and, at this point, it appears that Sessions et al. were allies with the BLM and Donato's research team. Sessions et al. clearly argue that postfire logging should happen to help with the development and health of the burned area (something nature alone seems incapable of without our help). Nature then becomes a quasi-actor that is capable of changing landscapes, a quasi-object. Furthermore, congress and agency administrations (both within the USDA and USFS, as well as the BLM) are being challenged in an attempt to recruit Donato et al. as allies with Sessions.

Sessions and his colleagues were creating a network in order to cause action. They were trying to recruit agencies to follow appropriate management practices, as they describe them, for the burned area. They were also making a larger claim for general forestry practices throughout the country on all federal lands and were asking the US congress and overseeing agencies to take a stance. For Latour, this is a clear trial of strength: agencies must align with Sessions et al. or resist. A group has now been formed, agents and actors are being recruited, and Sessions has become the spokesperson. This clearly fits Latour's criteria for group identification: 1) there is a spokesperson; 2) Boundaries are traced and other groups are designated; and 3) The scientist is recruiting allies from the social sphere, like politicians (Latour, 2005, p. 31-32). What we have yet to see is Latour's fourth criteria for group identification: the spokesperson must look frantic when forming/reforming the group. We might be able to examine the USFS's lack of response to Session's and Newton's initial 2003 proposal, which can be viewed as a failure to recruit allies and thus showing the author's weakness in the network, as frantic, but the problem is that, in 2003 and 2004, there was not yet to be a credible opposition to allow appropriate testing of the group that would require it to reframe itself.

The initial mapping of the network around Donato led away from the subject himself and instead drew a more complex picture around a different ecosystem: the one started by Newton et al. (2006) in the publication of their rebuttal to Donato. Instead of Donato as the initial exigence, Session became the new center functioning as an actor, recruiting actors to his group, and finally attempting to recruit the landscape left by the Biscuit fire to his group and, in some way, created a trial of strength against the quasi-agency nature. Newton et al. were not trying to convince their audience that Donato et al. were wrong, then, or anything about science, but instead were arguing that they had the best interest of the forest at heart, that they understood the forest better than anyone else, and that everyone should thus manage the forest as they suggested.

Picking up Donato as the newest recruit to help with the BLM sponsored study, we find him working away at his plots in the forest, measuring sapling growth in areas where salvage logging occurred in 2005 and in areas that were left undisturbed (Donato et al., 2006a, p. 352). At this point, Sessions had recruited this landscape, much of it 'pristine' wilderness protected by either an act of congress (Wilderness Areas) or executive order (roadless areas protected by the USFS roadless initiative as created by President Clinton). Donato, Law, Kaufman, Robinson, and others analyzed their data and determine that salvage logging negatively affected the ability of the forest and landscape to regenerate. They did not share this information with the BLM or Sensenig ("The Donato-Law Fiasco," 2007). They also did not tell Sessions or Newton about their findings. Donato et al. submitted their report to the journal *Science*, where it underwent peer-review according to the journal's editor, Donald Kennedy. Later, the review process would be questioned by those who opposed the article's finding, but Kennedy states that, "we do careful review (and) the discipline of that process really demands careful consideration of the validity of the data and the coherence of the arguments made from it" (The Associated Press, 2006). When the paper was accepted into *Science*, Donato successfully recruited multiple allies including the journal itself and its editor. This recruitment was the first time Donato began to form his own group, attempting to recruit allies so that he might test Sessions and his group in a trial of strength.

In his article published in *Science*, Donato explains that there is a lack of information available to fully understand the impact of salvage logging on forest health. Furthermore, he suggests that since there are "intensified controversies surrounding the management of public forests after large fires...we present data from a study of early conifer regeneration and fuel

loads after the 2002 Biscuit Fire, Oregon, USA, with and without postfire logging” (Donato et al., 2006a, p. 352). While in the published version Donato says there is a controversy but fails to identify the interested groups and agencies, in the original draft of the essay – which *Science* published online – Donato states that, “Legislation currently pending in U.S. Congress, HR 4200, would expedite postfire logging projects, citing reforestation and fuel reduction among its goals...Postfire logging can be counterproductive to stated goals of ecosystem restoration” (Donato et al., 2006b, p. 2). Donato identifies HR 4200 as an actor in a controversy over postfire logging. The bill in question was designed to expedite salvage logging in areas affected by forest fire – much like the situation after the Biscuit fire. Donato places ecosystem restoration in opposition to HR 4200, creating a trial of strength between the two.

Salvage logging, as proposed in HR 4200, is the exact kind of action called for by Sessions and Newton at the end of their 2004 article. This implies that Sessions was successful in recruiting politicians into his group as allies and was going forward with a trial of strength. Let’s then take stock of some of the actors and agencies involved in this controversy. The Sierra Club (at least the Oregon chapter) was fighting to keep the bill from passing on the grounds that “the legislation will damage forest ecosystems and is not scientifically credible. It would sweep aside protections for forests and threatened fish and wildlife to rush logging and road building after normal, natural events on national forests” (Vaile, 2006, p. 5). The argument on the other side came from multiple political agents, including the executive office through “The President’s Healthy Forests Initiative of 2002 [which] directed the Department of the Interior agencies and the Forest Service to expedite reductions in hazardous fuels on public lands, restore ecosystems, and protect lives and communities” (“Statement of Lynn Scarlett,” 2005, p. 1). This meant that the BLM, USDA, and department of the interior, all directed by actors who were appointed by President Bush, were allied with Sessions as well. Of course, prior to the publication of Donato et al.’s initial article they would have had to have been allied with Sessions and the BLM because there was no group resisting Sessions and Newton. Donato’s resistance was the beginning of the trial of strength.

4. CONCLUSION

So, was Donato passively breaking with Sessions to objectively posit his findings in a larger discussion as his article suggests? Clearly, no. He allied himself with those against HR 4200 and challenged the work of Sessions and Newton. To test this for group formation, we need to run through Latour’s (2005) criteria again: 1) As we shall soon see, Donato became a spokesperson for those opposed to HR 4200 and Sessions group; 2) Donato created a group with a clear boundary between his allies and Sessions’; and 3) His reference to the political situation showed that he was attempting to recruit allies from the social realm, both activists in the environmental movement and politicians. Donato became the spokesperson for this group, giving lectures in places like Medford, Oregon and interviews for newspapers like the *Eugene Register Guard* (Donato et al., 2006c)(Bolt, 2006, p. A1). At this moment we have yet to see whether Donato would be frantic to reform his group when pushed, but Newton et al.’s (2006) response to Donato clearly shows some franticness from the opposition.

Newton and Sessions rebuttal to Donato, as stated and shown before, questioned the methodology of the researchers. I do not want to rehash the conversation, but I would like to point out where Newton and Sessions article was an attempt to reform their group in preparation for a trial of strength. Also, it should be remembered that the authors avoided the social/policy

implication of their argument and instead turned to the ramifications in the natural world. Newton et al. argue that, “it should be noted that conifer reforestation (planted and natural) and vegetation ecology have been widely studied in the region. Studies show variable responses with plant association, competing vegetation, local climate, soils, and other factors” (Newton et al., 2006, p. 615a). This implies that science, and Sessions and Newton being scientists in this field, understood the ecology of the local region and were prepared to defend it. They also claimed that many studies had already been done, which suggested that they were recruiting those authors as well as those who were familiar with the studies they mention. They were creating a situation where a line could be drawn between what Donato had said and what other authors had said, which reformed Session’s group.

At this point it is clear to see that the ecosystems created by Donato et al.’s (2006a) *Science* publication are more complicated than they appear on the surface. While the exigencies might appear one way upon a Bitzerian analysis of the situation, the ANT account creates a very different understanding of what was at stake. Furthermore, the ANT account allows the researcher to surmise the motive, or intent, of the rhetor’s rhetoric. A traditional ANT analysis would continue to spread, following lines that reach far outside our rhetorical ecosystems of interest: the analysis would continue to look at the funding agencies in question and why and how funding was later cut and then reinstated to Donato, the local environments and people at play, legislative accounts, etc. ANT would also demand the researcher follow the allegiances of the Sierra Club and other interested agencies. One of the benefits to first mapping out the rhetorical ecosystems that a piece of rhetoric moves through is that clear limits can be drawn around the ANT account with methodological justification. Latour himself has said that ANT accounts are sprawling narratives that are difficult to contain, and this methodology constrain the spread.

In this situation, we also see a rhetorical methodology answering the call of Latour (1993) to challenge positivist claims of science. For Donato et al. while their science may be an objective claim based on their findings, it is none-the-less political in nature and should be challenged, appropriately, as such. Baird’s (2006) argument that Donato et al.’s (2006a) findings are erroneous because the science was subjective in nature could easily be applied to Sessions et al. who, as was shown, had a large vested interest in the debate over salvage logging. This is not a new argument, that science is not as objective in claim making, but it is a methodology that gives evidence to support the argument. Furthermore, this methodology can show whether a scientific claim does have a rhetorical meaning or agenda beyond the knowledge claim that it is making. Once we understand the agendas of knowledge claims we can then have meaningful political debates on scientific issues, such as who is interested in a “healthy” forest and why.

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