Further Adventures in the Case against Restoration

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Ecological restoration has been a topic for philosophical criticism for three decades. In this essay, I present a discussion of the arguments against ecological restoration and the objections raised against my position. I have two purposes in mind: (1) to defend my views against my critics, and (2) to demonstrate that the debate over restoration reveals fundamental ideas about the meaning of nature, ideas that are necessary for the existence of any substantive environmentalism. I discuss the possibility of positive restorations, the idea that nature can restore itself, the meaning of artifacts, and the significance of the distinction between humanity and nature.

I. INTRODUCTION

Why is the project of ecological restoration a problem for philosophical analysis and debate? What is really at stake in the arguments over the normative value of ecological restoration? Twenty years ago I argued that the policy of restoration was an example of the human domination of nature. More pragmatically, I claimed that a belief in the validity of restoration would subvert, and render meaningless, the environmentalist goals of the protection and preservation of natural systems and entities. I remain committed to these basic ideas, despite the appearance of numerous critiques of my original arguments.[1]

In this essay, I present a discussion of the arguments against ecological restoration

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[1] My critique of restoration appears in the following works: Eric Katz, "The Big Lie: Human Restoration of Nature," *Research in Philosophy and Technology* 12 (1992): 231–41; "The Call of the Wild: The Struggle against Domination and the Technological Fix of Nature," *Environmental Ethics* 14 (1992): 265–73; "Artefacts and Functions: A Note on the Value of Nature," *Environmental Values* 2 (1993): 223–32; "Imperialism and Environmentalism," *Social Theory and Practice* 21, no.2 (Summer 1995): 271–85. These first four essays are reprinted in Eric Katz, *Nature as Subject: Human Obligation and Natural Community* (Lanham, Md.: Rowman and Littlefield, 1997), pp. 93–146. See also "The Problem of Ecological Restoration," *Environmental Ethics* 18 (1996): 222–24; "Another Look at Restoration: Technology and Artificial Nature," in *Restoring Nature*, ed. Paul Gobster and Bruce Hall (Covelo: Island Press, 2000), pp. 37–48; "Convergence and Ecological Restoration: A Counterexample," in *Nature in Common? Environmental Ethics and the Contested Foundations of Environmental Policy*, ed. Ben A. Minteer (Philadelphia: Temple University Press, 2009), pp. 185–95; "Preserving the Distinction between Nature and Artifact," in *The Ideal Of Nature: Debates about Biotechnology and the Environment*, ed. Gregory E. Kaebnick (Baltimore: Johns Hopkins University Press, 2011), pp. 71–83. A slightly different version of "The Big Lie" appeared as "Restoration and Redesign: The Ethical Significance of Human Intervention in Nature," *Restoration and Management Notes* 9, no. 2 (Winter 1991): 90–96. Although the version in this journal has an earlier publication date, "The Big Lie" was actually published first in 1992 in *Research in Philosophy and Technology*.

and the objections raised against my position. I have two purposes in mind: (1) to defend my views against my critics, and (2) to demonstrate that the debate over restoration reveals fundamental ideas about the meaning of nature, ideas that are necessary for the existence of any substantive environmentalism.

II. THE CRITIQUE OF ECOLOGICAL RESTORATION

First, we need to review the basic criticisms of ecological restoration. The process of ecological restoration became a philosophical issue with the publication of Robert Elliot's essay "Faking Nature" in 1982. Elliot presented an argument against a hypothetical position that he called "the restoration thesis," the idea that a damaged or degraded natural environment could be restored to its prior status with no significant loss of value. Elliot was concerned that the acceptance of the restoration thesis would lead to an increase in environmental policy decisions that had a negative impact on ecological and natural systems because it would provide the developers of land with arguments that could be used against conservationists and preservationists. If the natural area or ecosystem could be restored after it has been used—for mining, logging, or agriculture, for example—then why not use the land, reap the economic and social benefits, and then return the area to a prior natural state?[2]

Elliot's seminal argument used as its basis an analogy with art forgery to introduce the robust normative elements of the restoration thesis. A perfect art forgery—if possible—would still lack the value of the original artwork because of its genesis and history. Part of what gives an artwork its value is the process by which it came to be. A painting may look exactly like a Rembrandt, but if it were not actually painted by Rembrandt it would have less value.[3] But it is not just the forgery or fakery that is determinative of the value: deception is not the central issue. Elliot also presents a case where a person admires a sculpture only to discover that it has been made from a human bone, and indeed that the human being was murdered precisely so that the bone could be used for the sculpture. The value of the artwork now radically changes.[4] This shows the importance of the causal genesis and history of the artwork for the determination of its value.

For Elliot, the connection to the preservation of undisturbed natural areas or wilderness was clear. What many people value in undeveloped nature is its natural history separate from human causation and activity. In an area that has been modified by human action there is a different causal history. Thus, even a perfect ecological restoration lacks the value of the original natural system it is re-creating, for the

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[2] Robert Elliot, "Faking Nature," *Inquiry: An Interdisciplinary Journal of Philosophy* 25 (1982): 81–93.

[3] Ibid., pp. 84–85.

[4] Ibid., pp. 85–86.

restoration was the product of human action.[5] It does not have an origin in strictly natural processes unmodified by humans; it lacks a historical continuity with an unmodified natural system. Elliot concludes that the restoration thesis is unsupportable, and thus it cannot be used to justify the development (and subsequent restoration) of natural ecosystems and areas. The restored area will have less value than the original system.

Over the last three decades this basic normative critique of ecological restoration has grown more complex in part because the conversation between restorationists and their philosophical critics (and defenders!) has shown that the process of ecological restoration is itself complex, with a multitude of forms and purposes. The original case of sand mining followed by a restoration of the dune system that inspired Elliot to question the "restoration thesis" can be seen to be a limiting case at one extreme of the entire array of policies that can be called ecological restoration. The mere clean up of trash from a meadow or stream can also be considered to be a restoration, perhaps as a limiting case at the other end of the spectrum. Between these two extremes is a wide variety of restoration activities, such as the elimination of exotic plant and animal species, the removal of dams so as to return stream and river courses to their original states, the replanting of blighted areas, and the re-introduction of original species to re-create historical landscapes. Many of the restoration activities within this broad middle of the spectrum basically use the processes of nature itself to bring about desired ends; the human activity in these cases is limited, as much as possible, to the mere elimination of obstacles to natural development or the initial re-introduction of natural processes (such as a controlled burn). Indeed, it is these kinds of cases—in which the restoration is accomplished by nature working to restore itself, rather than a massive human management of natural processes—that are primarily used by ecological restorationists to defend the practice against critics such as Elliot. A natural area restored by natural development will exhibit historical continuity with the original natural system.[6]

So the question arises: does ecological restoration remain a philosophical problem? I believe that it does. Although it is clear that a wide variety of restoration projects exist, they all share a common feature that lies at the heart of the normative issue: the presence of human intentionality and design. This common feature calls into question the idea of the replacement of natural entities as a morally justified human policy of action.

Over the last two decades, I have made a series of arguments regarding the normative problem of ecological restoration based on the presence of human intentionality and design. In part, I have simply continued and expanded Elliot's original

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[5] Ibid., pp. 85–89.

[6] This is the chief argument in Richard Sylvan's criticism of my argument. See Sylvan, "Mucking with Nature," in *Against the Mainstream: Critical Environmental Essays* (Canberra: Australian National University, 1994), pp. 48–78. Elliot modified his position to consider these kinds of natural restorations in his book-length treatment of the subject: Robert Elliot, *Faking Nature* (London and New York: Routledge, 1997). I discuss Sylvan's arguments below.

criticism of the restoration thesis based on the analogy with artworks. Origin and historical continuity—what we might call authenticity—are the crucial elements in the determination of the value of an artwork. When we examine and evaluate a work of art, we want to know who the artist was (or is), and under what conditions and historical circumstances the work was created. With pre-historic or ancient art, where the specific human artist is unknown, we at least want to know the specific time period and geographical region in which the art was produced. A work of art that appeared similar to a work by a specific artist or from a specific time period or place of origin that was not actually created by that artist or from that time period or place would be valued differently. Moreover, as Elliot's human-bone sculpture example shows, the origin of an artwork also concerns the manner and means by which the work was created. There will be disvalue associated with art created by processes that we deem immoral. Historical continuity is similarly important. We want to know that a work of art has had a continuous existence throughout time without any damage and without any changes. Combining these elements of origin and historical continuity yields the condition of authenticity: the work of art we see today really is the same work of art created by a specific artist (or at a specific time and place) in the past, unmodified by subsequent events.

One way in which I extended Elliot's argument was to consider the authenticity of dynamic works of art, such as ballet, opera, or other dramatic works of performance art, since these are more similar to the dynamic processes of natural systems. Origin, historical continuity, and authenticity are still crucial factors in the evaluation of performance art. Consider the recent controversy in New York theater circles concerning a new revival of the American classic opera *Porgy and Bess*. The creative team of the revival discussed adding a "backstory" for the character of Bess and of changing the ending of the opera, as well as other changes to the plot, dialogue, and physical movements of the actors. Although these changes may make the opera more accessible to a general audience, more profitable to the producers, and even more enjoyable, the critical factor is that the new production will lack the authenticity of the original: it is no longer the *Porgy and Bess* created by George and Ira Gershwin and DuBose Heyward. New and different elements have been added and original material has been deleted: origin, historical continuity, and authenticity have all been violated.[7]

Shifting back to the restoration of natural systems, the elements of origin, historical continuity, and authenticity continue to play a decisive role in the determination of value. Here, however, we add the new elements of human intentionality and design as relevant to the determination of value. In the case of artworks, problems arise because the original artist or artists are no longer the creator of the work we see,

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[7] The public controversy began with a letter sent to *The New York Times* by the famous Broadway composer Stephen Sondheim. See "Stephen Sondheim Takes Issue with Plan for Revamped 'Porgy and Bess,'" Arts Beat, *The New York Times*, 10 August 2011. Also see a follow-up article, Patrick Healy, "'Porgy': No New Scene, Some Hard Feelings." *The New York Times*, 15 November 2011.

but in the case of the restoration of natural systems, there is no original artist or designer. With restored natural systems the problems with authenticity—the break in historical continuity and the change in the causal origin—come about because we add human intentionality and design. We humans interrupt the natural development of an area and modify it to meet human goals and ideals. We attempt to mold the natural system to meet our needs—needs that may be economic, political, scientific, cultural, or aesthetic. We turn nature into an artifact created for human purposes. There is a fundamental ontological difference between artifacts and natural entities; they are different kinds of things. Artifacts are created for a purpose. They are the products of intentionality and design. Indeed, artifacts only exist because they fulfill some purpose. They would not be created and produced unless some goal was envisioned for them. This is true even when we consider certain creations by nonhuman animals—such as beaver dams—to be artifacts. Now the characterization of the products of nonhumans as artifacts may be problematic, for it raises a host of issues concerning reason and purpose in the animal kingdom, but I believe we can bracket off these questions without any serious impact on my arguments concerning human artifacts. It is the existence and meaning of humanly created artifacts that is the issue here, and how these human artifacts differ from natural entities. Ecological restorations, after all, are projects that are conceived by human beings. And it is clearly true that human artifacts are created for a purpose, and that they are the products of human intentionality and human-conceived designs. This is completely unlike the origin of natural entities. Natural entities do not exist because of any process of design or purpose, unless one wants to posit a theological design and purpose. Given the truth of Darwinian science, we can safely reject that alternative conception of the origin of natural entities. But note that even if a theological interpretation of the origin of natural entities were accepted, there would still be a difference—a fundamental ontological difference—between human artifacts and the natural entities created by God. Human artifacts would be the result of human intentionality and design, and that would be completely unlike the intentionality and design of a divine being.

The value of natural entities and artifacts is different because of this ontological difference. Unlike artifacts, a large part of what makes natural entities valuable is their freedom from human control. Nature is mostly that wild other realm separate from human plans and projects. There is a sense in which we can say that nature is autonomous, analogous to a human subject in its ability to develop by means of its own internal logic. It is this autonomous development that is modified when we interfere to control the processes of nature. If this autonomous development is replaced with human intention and design, we have a system with a different origin and a different history: we no longer have an authentic natural system or entity. A natural entity or system modified or controlled by human intentionality and design has a different value than a natural entity or system that follows its autonomous development.

Artifacts, on the other hand, are the physical manifestations of human intention

and design. They are the physical manifestations of human purpose imposed on the world of nature. The value of artifacts derives from the fulfillment of the purposes for which they were created. This means that a project of ecological restoration is not really the restoration of a natural system; it is the creation of an artifact, an artifactual system. Within this system there will be natural entities—so we may be able to call it a hybrid system—but the system as a whole will be the artifactual product of human intentionality and design, created for a human purpose. Now the purpose of a restoration project may be extremely positive, it may be significant and important. Perhaps we are mitigating the damage caused by pollution, or repairing the damage caused by a natural disaster such as a flood or a hurricane. We might be re-creating a historical landscape that has both cultural and ecological importance, or redeveloping wetlands that had been destroyed by a housing project. These purposes would tend to justify policies of ecological restoration. But these activities should not be characterized as the restoration of nature: they are not. These activities are the creation of artifactual systems—or at best, hybrid systems composed of natural entities and artifacts. To call the product of an ecological restoration project the restoration of nature is, as I provocatively proclaimed twenty years ago, a "big lie."

The issue here is not the possible benefits that can be derived from restoration projects, but rather the fundamental meaning of the policy of ecological restoration. If we misunderstand the meaning of restoration, we fail to understand the extent of the human impact on the natural environment. We fail to see the ever-increasing humanization of the natural world, the limitless expansion of human power to mold and manipulate our entire environment, for restoration, despite its good intentions and its support from environmentalists and environmental scientists, is a continuation of the human project of the domination of the natural world. It is a continuation of the paradigm of human scientific and technological mastery over natural processes. This grand human project to control the natural world is an attempt to destroy the autonomy of nature, a chief element of its value as that wild other separate from humanity. The underlying assumption of this scientific and technological project is that humanity can control and direct natural processes to better effect than nature can. This viewpoint changes the goals of environmental policy, replacing the ideals of preservation, conservation, and protection with manipulation, modification, and control. *Preservation* and *protection* will lose all substantive content; they will be meaningless terms in a world of the unlimited modification of natural processes, a world in which the human domination of nature will be complete.

III. THE POSSIBILITY OF POSITIVE RESTORATIONS: AUTONOMY AND DUALITY

Consider some objections. Return briefly to a point touched upon in the above argument: the possibility of positive restorations. Andrew Light has criticized

my emphasis on the human domination of natural entities and processes—the subversion of natural autonomous development—by highlighting the difference between benevolent and malicious restoration projects. A benevolent restoration is one "undertaken to remedy a past harm done to nature although not offered as a justification for harming nature."[8] Light argues that benevolent restorations can work to restore the autonomy of nature, by eliminating prior human interference. If we simply remove the obstacles for a natural regeneration of an area or ecosystem, then autonomous natural processes will take over and re-create the area or system. In addition, Light argues, "the relationship between humans and nature imbues restoration with a positive value even if it cannot replicate natural value in its products."[9] Restoration activities, for Light, serve as a bridge between humans and nature by creating for humans the opportunities for positive experiences working with natural entities. What is restored then is "the human connection to nature" or "the part of culture that has historically contained a connection to nature,"[10] or "what could be termed our culture of nature."[11]

Eric Higgs has made a similar argument, although his position is based on a distinction between purely technical restorations and those that are similar to the "focal practices" championed by philosopher of technology Albert Borgmann. According to Higgs, "technological restorations" are those that are mainly concerned with the perfection of technique; they feed into the dominant technological culture and lead to the commodification of nature. So-called "focal restorations" on the other hand are "shaped by engaged relationships between people and ecosystems."[12] Within a focal restoration project, the human actors will deeply value the ecosystem being restored and also honor the social relations that are formed through the restoration practice; if they fail to value nature then the end result will be the commodification of the natural system.[13] The key element here, for Higgs, is the authentic engagement with the natural area under restoration; without authentic engagement we run the risk of a merely "denatured" technological fix.[14]

Both Light and Higgs are thus claiming that restorations can be good based on the kinds of relations that are developed between the human restorers and the natural area under restoration. In a sympathetic consideration of this argument, Ned Hettinger casts doubt on the conclusion. He claims "restoration's positive vision for the human/nature relationship fails as it rests on a prior destructive relationship with nature." Even more strongly, he writes, "the restoration paradigm suggests that

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[8] Andrew Light, "Ecological Restoration and the Culture of Nature: A Pragmatic Perspective," in Gobster and Hull, *Restoring Nature*, p. 54.

[9] Ibid., p. 62.

[10] Ibid., pp. 64–65.

[11] Ibid., p. 67.

[12] Eric Higgs, *Nature by Design: People, Natural Process, and Ecological Restoration* (Cambridge: MIT Press, 2003), p. 186.

[13] Ibid., pp. 194–95.

[14] Ibid., p. 214.

the proper role for humans in nature is first to degrade nature, then to attempt to fix it."[15] Obviously, such a relationship of harm-then-heal is not the intentional goal of restoration practices; however, Hettinger seems correct that there is something odd about claiming that the attempt to heal anthropogenic harms to nature somehow represents a positive or authentic experience with natural processes. Surely a better positive experience with nature involves no harm at all; and so I have argued that the best policy humans can have with nature is to "leave it alone."[16] Hettinger, however, like Higgs and Light, wants to find some positive involvement that humans can have with nature. His conclusion is that we must learn "to distinguish between respectful human *use* of nature and human *abuse* of nature"—and only then will we avoid the destructive domination of nature.[17]

My rejection of the argument that restoration can produce a positive experience for humanity is more fundamental. I reject this claim based on the simple idea—developed in section two above—that restored ecosystems or entities are no longer natural beings but rather artifacts. In doing so, I am calling into question the entire notion that humans can have an authentic experience with nature when they are dealing with a restoration project. Working in a garden—feeling the soil in one's fingers, planting the seeds, pulling weeds, and watering the plants—may produce positive human experiences but these are not the experiences of working with natural entities. A garden is not a natural area. Perhaps this is the reason why Higgs spends so much time discussing what he calls "ecocultural restoration"—not the mere replacement of ecological integrity but the building (and rebuilding) of human community and culture.[18] The idea of restoring nature through human technology and science is simply a non-starter: to justify the process, Higgs and Light need to introduce the benefits that these artifactual reconstructions have for human community and culture. These benefits may be considerable, but they are not the restoration of natural processes. As Higgs notes, "In setting goals for restoration . . . it is unlikely that human agency will follow history."[19] The historical continuity of a natural area is not an element of the restoration process. We are dealing here with the creation of an artifact.

Indeed, I claim even more radically that working in a garden, rather than teaching us about the authentic experience of natural processes, actually furthers the human worldview of domination. Working in a garden teaches us how to control natural processes; it teaches us how to convert natural processes into an artifactual human project designed to serve human purposes. Gardening is a subset of the discipline

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[15] Ned Hettinger, "Nature Restoration as a Paradigm for the Human Relationship with Nature," in *Ethical Adaptation to Climate Change: Human Virtues in the Future*, ed. Allen Thompson and Jeremy Bendik-Keymer (Cambridge: MIT Press, 2012), p. 39.

[16] See Eric Katz, "The Liberation of Humanity and Nature," *Environmental Values* 11 (2002): 397–405.

[17] Hettinger, "Nature Restoration," p. 40 (emphasis in the original).

[18] See Higgs, *Nature by Design*, pp. 236–37.

[19] Ibid., p. 239.

of agriculture. The name is telling: we do not call the control of plant life to meet human needs "agrinature." It is a cultural process; it is the creation of an artifactual system. And so with all restoration projects, the underlying lesson is that human science and technology can control natural forces and processes. The underlying lesson is the glory of the human domination of nature.

It is thus a mistake to think that there exist "positive restorations" that somehow create a beneficial experience for humans as they relate to natural entities and processes. If we remove the possibility of positive human experiences as an argument against my criticism of the restoration project, what remains at the heart of this objection is the possibility of a continual autonomous unfolding of natural processes. As I briefly noted above, this is the objection of Richard Sylvan, who argued that not all restorations are artifactual because nature can heal itself.[20] Given enough time, nature can wash out any human influence. Consider a garden plot that has been created by the clearing of a bit of forest. The garden can only be maintained if there is continuous human action, for example, tending to the weeds. If the human maintenance activity ceases, the natural processes of the forest will reassert themselves, and the area of the garden will become overgrown and wild again. It is true that without continuous human intervention, the future development of environmental and biological systems will be natural, i.e., nature will be autonomous. But we cannot overlook the fact that the progress of the system will be different after the initial human intervention. The resulting system will be different from what would have been the case had no intervention taken place at all. The forest plants that grow over the garden plot will be different from the plants that were removed to create the garden. Following Sylvan, we might not want to call the new forest an artifact, since it is no longer guided by human intentionality and purpose; yet, the new system is not equivalent to undisturbed nature. And this garden-forest case is perhaps the most benign example. In a case where we are dealing with the cleansing of pollutants or the construction and then removal of human structures (such as a dam or roadway) it is even more obvious that the resulting area, after the reemergence of natural processes, will not be equivalent to what might have been.

The defense of ecological restoration based on the power of nature to heal itself is merely a perverse continuation of the idea that humanity can and should dominate nature. The belief that nature is so powerful and beyond human control that it can heal itself no matter what humans do to it is the mirror image of the belief that humanity can control, heal, and restore the natural processes and entities of the world. The belief in an omnipotent nature correcting our mistakes is simply a moral rationalization of the human desire to control natural processes for the furtherance of human ends. This objection to my critical arguments against the restoration project must be rejected. Although nature can develop autonomously

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[20] See Sylvan, "Mucking with Nature."

after a human intervention into the system, the resulting system will always be different from a natural progression without human interference.

A second objection thus arises: my critique of ecological restoration rests on a dualism between humanity and nature, or more precisely, between culture and nature. This characterization of my position is valid, but I do not believe that the dualism is pernicious or that the acknowledgement of this dualism undermines my analysis. Indeed, the dualism of artifacts and natural entities is the heart of the argument. Humans have lived for at least the last ten thousand years (since the birth of agriculture) in a cultural world, essentially constructed and controlled by human technology and science. Although we are biological beings, we do not live in nature; we live in an artifactual environment. Although we human beings are the products of an evolutionary process, the things that humans do—what we create, build, imagine—these are all artifactual, with a source outside the realm of naturally occurring entities, processes, and systems. Our artifacts, our culture, our world would not exist if we humans had not intentionally interfered with and molded nature.

The intentional interference and modification of nature is the source of the culture/nature dualism. Nature alone could not produce the world in which we find ourselves. Nature cannot produce a chair. Nature can produce many entities on which I can sit—a rock, a ledge, a fallen tree, a grassy meadow—but without the imposition of human intention and design we will never see nature produce a chair. So it is the presence of human intention and design that separates the world of human construction from the natural world. Nevertheless, this culture/nature or artifact/natural entity dualism is not absolute. The duality exists along a spectrum. Entities can be more or less artifactual and more or less natural. Judgments can be made based on the closeness of the entity to the original natural source, so that a wooden chair is more natural than a plastic one. Or judgments can be made based on the amount or kind of human intentionality or design that goes into the productive process. Thus, placing snow fencing on a dune to catch wind-blown sand is more natural than using a bulldozer to create large sand dunes. But both processes (the fence and the bulldozer) are in some sense artifactual; one is just more so than the other.

So an objection to my dualistic perspective is really an objection about the meaning of artifacts and their relation to humanity and nature. In the next section, I turn to a consideration of these kinds of arguments.

IV. THE MEANING OF ARTIFACTS

Both Yeuk-Sze Lo and Steven Vogel have presented detailed criticisms of my conception of artifacts and the use of this idea in the debate over restoration ecology. Although their arguments are quite different, they share a basic criticism that my position relies too much on the dualism of artifacts and natural entities, and

this dualism, in turn, rests on an unclear or even incorrect meaning of the concept of artifacts.[21]

Lo raises a number of objections arguing for the need for clarification. First is the connection between human purpose and the concept of artifacts in the restoration project. Lo claims that some restoration activities can be undertaken for the purpose of aiding nonhuman species or entities, such as restoring bamboo for the benefit of pandas. This fact undermines my claim that restorations (and the creations of artifacts) are necessarily anthropocentric. "Whether human technology is involved in a nature restoration project is simply irrelevant to whether the purpose behind the project is anthropocentric."[22] Thus, artifacts are not necessarily anthropocentric, and the ontological dualism that I use as the basis of my criticism of restoration cannot be sustained.

To answer this objection, note two points. First, let me reemphasize that the dualism of artifacts and natural entities resides along a spectrum, and that things can be more or less natural or more or less artifactual. So the purpose behind the creation of an artifact—in this case, the restoration of a natural area—can be more or less directed to human or nonhuman interests. It is important to determine the intentional plan of the restoration project. But doing so just means—and this is the second point—that the intention that guides the restoration can be a direct human interest or an indirect one: it is always some kind of human interest or purpose. Lo's example of the bamboo restoration for the benefit of pandas is telling, for pandas are those cuddly looking charismatic mega-fauna that human beings love to watch, especially on television. It is a complete mischaracterization of the purpose of the restoration project to say that we humans restore the bamboo for the benefit of the pandas; although the pandas benefit from the restoration of the bamboo, the real reason we undergo the restoration is for the benefit of those human beings who like to see pandas. On my view then, all restorations and all artifacts are necessarily created for some human purpose, even if that purpose is indirect. The existence of a spectrum of purpose does not change the essential meaning of artifacts as things tied to human purposes and goals.[23]

Lo also makes an interesting objection regarding the concept of artifact as it applies to the modification and control of human beings. She notes that the dependency of a human being on medical technology does not make the person into an

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[21] Yeuk-Sze Lo, "Natural and Artifactual: Restored Nature as Subject," *Environmental Ethics* 21 (1999): 247–66; Steven Vogel, "Environmental Philosophy after the End of Nature," *Environmental Ethics* 24 (2002): 23–39; and Vogel, "The Nature of Artifacts," *Environmental Ethics* 25 (2003): 149–68.

[22] Lo, "Natural and Artifactual," p. 253.

[23] What this objection and response demonstrates, however, is that the notion of "intention" needs to be clarified. See, for example, Mark A. Michael, "How to Interfere with Nature," *Environmental Ethics* 23 (2001): 150–154. Michael, while broadly sympathetic to my account of the "artifactual" regarding human interference with natural systems, notes that an intention will have different normative values depending on how it is described.

artifact. The fact that John is the product of in vitro fertilization, or that Mary has a pacemaker, does not make them into artifacts. "If, as Katz declares, the technological fix of nature merely produces artifacts, don't the medical treatments given to humanity mainly produce artifacts too? . . . The absurdity of regarding a human patient as a mere artifact appears to be a *reductio* of Katz's assimilation of restored nature to an artifact."[24] Moreover, the reason why we do not regard the human heart patient or technologically fertilized infant as an artifact is that their ontological dependence on human technology and intentionality is only partial; they are essentially biological beings that operate through autonomous natural processes once the technological intervention has done its work. Similarly, then, with restored nonhuman natural systems, after the human intervention into the natural system, after the restoration project, the natural entities that comprise the ecological system will function as autonomous beings, not as artifacts. Lo uses the example of the restored gray wolf in Idaho and Yellowstone Park, some of whom were captured in the Canadian wilderness and some of whom were bred in captivity before being released into their new habitats, as examples of autonomous natural entities that are only partially determined by the intervention of human technology. Once the wolves are released into the wild they will continue to survive only so far as they use their natural biological capacities.[25] Technological intervention by itself does not make a biological being—human or nonhuman—into an artifact because the technology only partially determines the existence of the entity.

I have also used the case of the reintroduction of the gray wolves, but in a way that subverts Lo's conclusion. I will not repeat the entire argument here.[26] The key point is that we can imagine a range of cases that lead to the reintroduction of gray wolf populations into a healthy and functioning ecosystem: wild Canadian wolves wander into the United States and establish themselves there; captured Canadian wolves are relocated; captured wolves are bred in captivity and introduced into a new habitat; various wolves from zoological parks are selectively bred and their offspring released into the wild; even the cloning of wild wolves that are then released into the wild. Let us assume that all of these cases result in the reestablishment of a healthy wolf population in areas where wolves had been eliminated. All of the cases, in Lo's terms, would demonstrate autonomous natural entities using their natural and biological capacities to survive and flourish, a result that all environmentalists would applaud. Nevertheless, the cases are different in their value and meaning. They exist along a spectrum of human technological intervention. The cases have different value because of the amount and type of human intervention. Quite simply, wolves that have been bred in captivity are different than wolves that have always been wild. So there is a sense in which we can say that even autonomous biological entities that have been modified are partially (at

[24] Lo, "Natural and Artifactual," p. 254.
[25] Ibid.
[26] See Katz, "Another Look at Restoration," pp. 41–42.

least) artifacts; they are clearly different from entities that have not been modified. To return to Lo's examples of humans modified by medical technology, then, we can say that these humans are at least partly artifactual: Mary with her pacemaker is more artifactual than Sally with her original completely biological heart. Surely this is one of the lessons from Donna Haraway's discussion of the emergence of the cyborg human: with the increased development of technology as it modifies human bodies, we are becoming less natural and more artifactual.[27] From tweezing eyebrows to plastic surgery, from pilates to liposuction, we turn our physical selves into artifactual projects. Thus, human beings can be considered to be artifacts: it all depends on where the modifications fall on the spectrum.

So it is clear that biological beings can be artifactual: wolves bred or cloned are different than wolves born in the wild. But if one wants to insist that humans are different than nonhuman natural entities and that their modification by medical technologies does not make them artifacts, this insistence does not undermine the claim that nonhuman entities altered by technology are artifacts. To claim that humans are different from nonhuman natural entities is just to reassert the dualism that is at the heart of my criticism of ecological restoration. I argue that humans and their activities and products are different from the processes of the natural world; that is what dualism means. Thus, Lo's attempt to reduce my argument to absurdity by claiming that humans modified by technology are not generally thought of as artifacts is a non-starter. The key point is to recognize that natural entities modified by human technology are artifacts; the status of modified human beings is actually irrelevant to the discussion. The serious dualism that I advocate precludes Lo's use of the human medical modifications as counterexamples. Humanity is different from nature. Ultimately, I believe that this conceptual dualism is necessary for an understanding of what nature means. The dualism is embedded in our use of language. I return to this argument in the next section of this essay.

Because of the focus on the autonomy of natural entities, even after they have been modified, Lo also claims the restoration of natural areas does not involve the process of design. Because a restoration seeks to re-create a prior state of a system—what she calls a "reference state"—it is merely a copy of a prior natural system, and thus not the product of a human design. "The crucial distinction between a copy and a design is that a copy always presupposes a template, whereas a design does not, in that novelty is a necessary aspect of a design."[28] In the case of an ecological restoration, "the template is something naturally evolved rather than designed by humans, therefore the copy of it (a restored natural entity) is not

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[27] See Donna J. Haraway, "A Cyborg Manifesto: Science, Technology and Socialist-Feminism in the Late Twentieth Century," in *Simians, Cyborgs, and Woman: The Reinvention of Nature* (New York: Routledge, 1991), p. 150: "By the late twentieth century, our time, a mythic time, we are all chimeras, theorized and fabricated hybrids of machine and organism; in short, we are cyborgs." But note that Haraway uses the image of the cyborg to break apart the dualisms of dominance; her goal is different than mine in this particular argument.

[28] Lo, "Natural and Artifactual," p. 257.

designed by humans either."[29] But if restored natural entities are not the products of human design, then they are not artifacts. Thus, Lo can claim that the dualism that lies at the heart of my critique of restoration is without foundation, for restorations should not be treated as different from naturally occurring entities.

But Lo's argument rests on peculiar claims about the essence of design. Why is novelty a necessary condition of design? Although the patent office may require some novelty in a design or invention in order to award a patent, this is not true of the design of almost all artifactual creations. Surely when I plan to create an artifact that is an ordinary object of everyday life—say, a bookcase for my study—I have a design in mind. My bookcase will be no different than countless other bookcases, except that it will be comprised of a unique collection of wood, screws, and braces. If I bought the bookcase from a furniture manufacturer with the sales condition that I assemble the bookcase myself, the design will be printed out in a set of instructions that I will meticulously follow. So design does not require novelty: the *nth* iterative copy of any artifact will have a design. Even more importantly, when we turn back to restoration projects, design is clearly evident. When restorationists attempt to make a copy of an original "reference state," they need to have a design, a plan, to accomplish the restoration project. Even if the goal is a copy of a naturally occurring entity or system that was not designed, the copy itself must be designed or planned. Are the actions of ecological restorationists simply random and unplanned? No: they work according to a design. Restoration projects are intentionally planned human activities that follow a design in order to reach a goal, the production of a specific entity or system. This product is an artifact.

In sum, I do not find that Lo's objections to my conception of artifacts are compelling. Restoration projects are always guided by human interests and purposes; like artifacts they would not exist if not for a desired human end, even if we need to introduce a spectrum of direct and indirect anthropocentric interests to account for actions that seek to benefit natural entities. Moreover, there is a spectrum of artifactuality when we consider modified natural entities or even modified humans; there is no absurdity in calling a human with a pacemaker (or an artificial heart!) an artifactual being. So too with modified natural entities or systems: even though they are autonomous beings, once they embody human intentionality and design, they become artifactual. And finally, restoration projects are always guided by an intentional design, even if the design is meant to replicate an original state of nature that occurred without a design.

But Steven Vogel, from a different perspective, has also raised a series of objections to the dualism of artifacts and nature. Vogel rejects dualism for two basic reasons. First, given the pervasive influence of humans on the natural environment, there is virtually nothing that exists in the world that is separate from human civilization. If what we mean by natural is that part of the world that exists outside of human interference or modification, there is almost no nature left. The second reason is that

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[29] Ibid., p. 258.

humans are entities that have evolved through the biological processes of nature. This means that what humans do is natural, so the creation of artifacts is a natural process. Thus, there is no dualism.[30] Everything in the world is, in one sense, artifactual, for it has all been subjected to human interference, and everything that humans do, in a sense is natural, since humans are biologically evolved entities.

This basic argument is supplemented by more specific criticisms. Vogel considers it important—and problematic—that my dualism treats the human species as different from all other biological species and natural entities. "Why, after Darwin, do we treat *this* particular species [i.e., humans], which after all evolved naturally in the same unplanned way as any other, as something outside of nature?"[31] And he cites my use of an argument by Andrew Brennan where I argue that humans act naturally when they act within their biological and evolutionary capacities and that they act unnaturally (or artificially) when they act to supplement or modify these natural capacities in order to manipulate or control them.[32] Vogel finds this distinction meaningless or circular: "how could we [i.e., humans] engage in activities that go beyond our biological capacities?" The carbon dioxide we exhale is produced naturally; so too is the carbon dioxide produced when we use fossil fuels to power internal combustion engines because "the building and operation of an engine [is] an expression of humans' natural capacities" unless we have made an arbitrary and stipulative claim that all of technology is unnatural.[33] So humans and human technology are entirely natural.

Vogel then turns his attention to the meaning and nature of artifacts. Although he admits that human creations are artifacts, at least so far as they are intentionally planned and produced,[34] he does not see this fact as a problem for ecological restoration projects. The central idea in Vogel's criticism is that the idea of purpose in the creation of artifacts is problematic, and cannot bear the normative weight needed to reject ecological restoration. The intention and purpose of artifacts is not clear and precise. Many artifacts that are designed for one purpose are used for an altogether different purpose. Often the purpose or the intention of the creator of the artifact is ignored and the artifact is used for some other goal. Thus, Vogel argues, "the 'nature' of an artifact is not determined so much by what its builder intended as it is by the way in which it is *used*."[35] This use may be the creation of autonomous systems that lack a specific human purpose. Following the argument of Lo (discussed above), Vogel claims that the intention behind a restoration project might be the creation of a system that would be allowed to develop "without

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[30] Vogel, "The Nature of Artifacts," pp. 150–51.

[31] Ibid., p. 152.

[32] Brennan's original argument is in Andrew Brennan, *Thinking About Nature: An Investigation of Nature, Value, and Ecology* (Athens: University of Georgia Press, 1988), pp. 88–91. I used Brennan's argument first in "The Big Lie," p. 239; reprinted in Katz, *Nature as Subject*, p. 104.

[33] Vogel, "The Nature of Artifacts," p. 153.

[34] Ibid., p. 157.

[35] Ibid., p. 155 (emphasis in the original).

hindrance." The intention here, according to Vogel, is to "transcend intentionality. . . . humans might intentionally produce a situation that is *out of human control*,"[36] an ecological system guided by its own internal natural processes. Although Vogel agrees that the product of this restoration project would be an artifact, since it is something that has been intentionally planned by humans, it would be a system that developed without regard to human purpose, for once created it would follow its own internal nature.[37]

Here Vogel offers a provocative comparison with the procreation of human children. Building on a comment that I made that not all intentional creations are artifacts—I used the examples of planned pregnancies and human friendships to show that intentionality is a necessary condition of artifacts but not a sufficient one[38]—Vogel emphasizes that one of the primary purposes of having a child is to create an autonomous being with a nature of its own. Even though the child is the result of intentional human activity, it does not exist merely for the purposes of the parents; it is its own autonomous being.[39] Vogel then compares the procreation of a human child with the work of Steve Packard, the restorer of the oak-savannah plains of the American mid-west (and an example that I used in my critical essays on restoration.[40]) Packard is quoted as stating that the whole point of restoration is "to set in motion processes we neither fully control nor fully understand, " and Packard himself makes the child/restoration analogy that the goal of our activity (as either parents or restorationists) is to make the created being "more truly itself."[41] Thus, Vogel claims that based on my own admission that not all human creations are artifacts (e.g., children) restoration projects can be grouped into this category of entities that are created in order to follow their own inner direction. Restorations are not artifacts created for the fulfillment of a specific human purpose and thus their normative value can be asserted without reference to anthropocentric interests.

My response is that the comparison of procreated human children and the restored ecological system is at the very least, disingenuous, and more likely, flat out incorrect. Vogel and Packard and other advocates of restoration may talk a good game about their goal of creating a self-directing system outside of human control, but the fact is that Packard (for example) has a very precise idea of what type of ecosystem he is trying to create through his design. Packard is trying to re-create the oak-savannah of the American mid-west before the arrival of European settlers.

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[36] Ibid., p. 157 (emphasis in the original).

[37] Ibid., p. 158.

[38] See Katz, "Artefacts and Function," pp. 223–24; reprinted in Katz, *Nature as Subject*, p. 122.

[39] It is possible that part of the reason for the child's existence might be the purposes of the parents: another hand on the farm; a royal heir; to "save a marriage." Neither Vogel nor I consider these cases to be significant with regard to the argument.

[40] I first used the work of Packard in my version of "The Big Lie" that appeared in *Restoration and Management Notes*; see Katz, "Restoration and Redesign," p. 93; reprinted in Katz, *Nature as Subject*, pp. 100–01. See also Steve Packard, "Just a Few Oddball Species: Restoration and the Rediscovery of the Tallgrass Savanna, "*Restoration and Management Notes* 6:1 (Summer 1988): 13–22. Vogel is not citing this article by Packard.

[41] Quoted in Vogel, "The Nature of Artifacts," p. 159.

Similarly, other restoration projects attempt to re-create a specific ecosystem or natural area that existed before anthropogenic changes were introduced. All of this is very unlike what parents do when they "plan" to have a child. With a human child, we really do wish to create a self-directing autonomous subject, and if we have any goals for our progeny, they are quite general and rather vague: may they be healthy, happy, and productive, perhaps. Parents who have more specific goals for their children—such as those who want their child to be a classical pianist, or a major league baseball player, or a physician—and who carefully structure the lives of their children to meet those goals are seen as somewhat dysfunctional. These parents who overly plan or design the lives of their children are treating the children as objects—as artifacts—to fulfill their own (i.e., the parents') needs and interests. So if there is any analogy between restoration projects and the procreation of children, it is all on the negative side. Restoration projects appear to be similar to the actions of dysfunctional parents who attempt to over manage and over direct the lives of their children in order to create specifically designed entities (a specific ecosystem or a specifically talented child). The idea that in either case we are designing and creating a self-directing entity free of external control is simply incorrect.[42]

But the comparison does raise the fundamental issue of the normative limits of intervention. We can return briefly to arguments offered by Lo: she argues that intervention in nature is not always destructive, nor is it always disrespectful of the autonomy of nature, and thus it is not always a mode of domination.[43] Humans by necessity have to intervene in nature in order to survive and flourish. Lo argues that we can do so in a constructive way, just as we intervene in the lives of other human beings. Here the parallels with children arise again. How much intervention in a child's life is appropriate? Obviously, part of the task of a parent is to raise a child that will be a mature and autonomous adult. We need to intervene in positive ways even though we limit the freedom of the child. When exactly does good parenting become exploitation or domination? There is no clear answer, of course, and this ambiguity is what provides the fuel for the production of countless "how-to" books on parenting and endless advice from other parents, friends, and relations. Is the same problem evident in the intervention in nature?

It is clearly the focus and purpose of Vogel's analysis and criticism of my views on restoration. Going beyond the specific objections that Vogel raises about dualism and the meaning of artifacts in my arguments, he suggests a more positive approach to understanding the human moral obligation to act within and through nature. This approach is based on Vogel's notion of wildness, which is not freedom from all human intervention, but rather the existence of unpredictable events beyond our design and control. This is why, then, Vogel believes that restoration projects can

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[42] Indeed, recent technological developments seem to suggest that in the not-too-distant future, human offspring will be more and more designed, as are artifacts. Parents may be able to choose the sex, eye-color, and other physical characteristics.

[43] Lo, "Natural and Artifactual," pp. 265–66.

"be consistent with . . . ongoing wildness" and indeed "to see that the wildness we're after *is there all the time*, throughout the restoration process; it's not something that comes in at the end, not something we *produce*, but rather something that we *use*."[44] The restorers of natural systems use the wildness because the processes they begin by controlled burns, planting, moving soil, or introducing animal species are all uncontrollable by human technology and science. We can begin the process but then we have to let natural forces and processes take over future development.

As I have shown above—in arguments by Light, Sylvan, and Lo—this is a claim often repeated by advocates of restoration: wild nature is actually restoring itself. But Vogel takes the point to a new level by arguing that artifacts also contain a degree of wildness, that is, a sense of the unpredictable. "To build an object—*any* object—is to build something that always exceeds one's intentions, that always possesses something of the unpredictable and unknown about it."[45] A building may crumble; a bridge may collapse; a flowerbed may fail to bloom; an essay may lose its conclusion. There is a wild nature in artifacts, and Vogel attributes this to a "*gap*" between "the intention with which the builders act and the consequences of their acts."[46] Whatever humans create they use the processes of nature, which cannot be completely controlled, and so all their activities are wild and ultimately unpredictable.

Vogel is quite correct here in the idea of the gap between intention and final product. He is merely putting into a philosophical essay some of the most chilling lines of verse ever written by T. S. Eliot:

> Between the idea
> And the reality
> Between the motion
> And the act
> Falls the Shadow.[47]

Here is a conclusion I contemplate every time I try to write a philosophical essay, prepare a lecture, cook dinner, or hit a tennis ball: there is indeed a wild and uncontrollable gap between the intention and the completed product, between the product and the goal. But what is the normative conclusion that we can derive from this gap? And how does it reflect on the philosophical issue of ecological restoration?

For Vogel the point is that we need to accept the responsibility for our actions in the environment—here meaning a world that is both natural and artifactual coextensively—and to recognize with humility that much of what happens as a result of our actions is beyond our control.[48] Accepting our responsibility and humility

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[44] Vogel, "The Nature of Artifacts," p. 162 (emphasis in the original).

[45] Ibid., p. 163 (emphasis in the original).

[46] Ibid. (emphasis in the original).

[47] T. S. Eliot, "The Hollow Men" (1925), in T. S. Eliot, *Collected Poems* (New York: Harcourt Brace Jovanovich, 1961), p. 82.

[48] Vogel, "The Nature of Artifacts," pp. 167–68.

will lead to a better world because we will understand our human nature, and our limitations to control this world in which we exist. But for Vogel it is important that we understand our human selves and this world as deeply connected. Humans act in and through nature. The normative problem for Vogel is not human intervention in a pure nature, the transformation of nature into an artifact, but rather an evaluation of human activity in the environments and landscapes that we inhabit. For Vogel, we need to act in regard to the environment so that the "activity is engaged in in the right sort of way."[49]

This much is certainly true: we do need to act in the right way. As I have stated in the past: "To be morally justified, all human activity, even that between humans, requires a standard of appropriate intervention. The determination of that standard is the central question of moral philosophy."[50] But where is Vogel's criterion or standard of appropriate action and intervention? To act responsibly and with humility are criteria that fail to provide concrete moral guidance. What is the right way to act? What constitutes a good intervention? The problem for Vogel's argument is that natural entities and artifacts are indistinguishable. Humans and their actions are natural; artifacts contain within them a wild nature. Everything is natural and everything is artifactual. Thus, all human activity is simultaneously natural and artificial and we have no way to make distinctions as to what is good and bad for nature or humanity. Vogel does wish to avoid those actions that have made the world "ugly" or that have been "ecologically harmful,"[51] but given the seamlessness of the natural and artifactual worlds, under what criteria or standards do we determine ugliness and beauty or ecological benefit and harm?[52] The fact is that humans can use their technological prowess to make artificial entities immensely beautiful—a polluted lake, devoid of all life, can be crystal clear and aesthetically pleasing. And the concept of "ecological harm" loses all meaning in a world where human technology and science can re-create, restore, and manage natural processes.

Now Vogel has claimed that the proper method for determining appropriate actions regarding the environment would be through a process of democratic consensus. We cannot rely on "nature" to offer us a normative guide because the natural and the human are co-extensive: "the human and the putatively 'natural' worlds are inextricably intertwined to a degree that makes it pointless and indeed conceptually incoherent to try to distinguish them, because the relation of humans to the environment is fundamentally active and transformative."[53] Thus, "we cannot find a criterion for environmental judgment in *nature*—because our only access to nature is one mediated by practices through which the environment has already

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[49] Ibid., p. 150.

[50] Katz, "Imperialism and Environmentalism," p. 284; reprinted in Katz, *Nature as Subject*, p. 145.

[51] Vogel, "The Nature of Artifacts," p. 167.

[52] Compare an argument by Mark A. Michael, "Is It Natural to Drive Species to Extinction?" *Ethics and the Environment* 10 (2005): 49–66. Michael shows how the idea that "humans are natural" leads to anti-preservationist environmental policies, unless we add normative content to the concept of "natural."

[53] Vogel, "Environmental Philosophy after the End of Nature," p. 32.

been transformed by us."[54] So Vogel claims that we must evaluate these practices by which we transform and come to know the natural world. But how do we evaluate the practices? How do we make a beautiful and sustainable world? Doing so, for Vogel, is "irreducibly a *social* and *political* question"[55] that requires an answer in democratic decision making.

There are two critical problems, however, with the idea that the proper criterion for human action in the natural environment should be the result of the democratic process. First, as Vogel has framed the issue, the considerations that we humans use to determine the appropriate activity will necessarily be anthropocentric interests. How could there be any other interests, for on Vogel's view of the world there is no nature—it has been entirely transformed by human activity? But second, if we only consider what humans want in the active transformative interaction with the environment, there is no reason to think that political choices will lead to a better, more beautiful, or sustainable world. The social and political consensus could very well be a world that environmentalists find abhorrent; indeed, such seems to be the case, if we open our eyes and survey the world around us.

The prospect of ecological restoration projects is a prime example of these problems, for the process of restoration exhibits the technological mastery of the natural world as it creates landscapes pleasing to the human community. In restoration policy the preservation and protection of nature is not the goal. The entire world must be conceived of as an artifactual system, the result of human transformations and action. To resist this thoroughgoing humanization of the world, we require a principle or ideal that can stand in opposition to human power and human interest. We need the ideal of a nature that exists independently from human culture. The conclusion then is that we must preserve the distinctions between humanity and nature, between artifact and natural entity, so that we have a normative principle to check the power of human domination.

V. DUALISM AND THE USE OF LANGUAGE

Up to this point, I have defended my original criticism of the project of ecological restoration from several fundamental objections. These objections have been wide-ranging and have included many specific claims and counterexamples, but they mostly converge on a distinct theme: I have overemphasized the distinction between humanity and nature. I have misrepresented the meaning of artifacts as distinct from natural entities; and I have misjudged the normative value of the distinction. As a consequence, I have failed to see the value of autonomous nature acting on its own throughout the restoration process.

In the preceding sections of this essay (three and four), I believe that I have answered these objections. Here I would like to add another argument for the

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[54] Ibid., p. 35.
[55] Ibid., p. 38 (emphasis in the original).

importance of maintaining the distinction between artifact and natural entity, an argument based on the conceptual apparatus we require for understanding the world. In short, this is an argument about the use of language.

The linguistic use of the term *nature* is obviously ambiguous, and countless authors since the time of J. S. Mill (at least) have noted that we use the term in two basic senses: first as all that exists in the universe, and second as all that is nonhuman. It is clearly the latter sense that is important for environmentalism because nature in the first sense, as all that exists, cannot be destroyed or even harmed. But it is the existence of nature in the sense of all that is nonhuman that is questioned by Vogel, for example, in his double-sided claim that nonhuman nature no longer exists and that all human artifacts possess a degree of wild nature. So it is the existence of nature in this second sense that is the crucial issue.

Recently Helena Siipi has analyzed in more detail the meaning of *natural* and *unnatural* as it relates to this issue as well as to normative problems in medical ethics and biotechnologies. The result of her analysis is a complex taxonomy of the meanings of *natural* and *unnatural* used in a variety of contexts. She notes that *natural* can be applied to various kinds of entities: objects, beings, traits, events (including actions), and states of affairs.[56] There are also different reasons why we attribute naturalness or unnaturalness to these kinds of entities: based on history, or the properties, or the relations between entities.[57] Moreover, we determine naturalness or unnaturalness through two conceptual frameworks of modal degree: whether naturalness is conceived as a "continuous gradient or an all-or-nothing affair" and whether naturalness is conceived as all-inclusive.[58] These different categories of understanding naturalness or unnaturalness are combined to yield the various and manifold cases where naturalness is a problem or issue. For example, a history based reason for considering an entity natural, in that it is totally independent from human activity, if conceived as an all-or-nothing affair, will yield Vogel's position regarding the end of nature: no such entities exist because of the pervasiveness of human transformative activity. Siipi thus concludes: "in practice, it is not useful to adopt *naturalness* in [this] sense . . . as an ideal of biological conservation" for *naturalness* in this sense is "unattainable."[59]

I do not review here all the applications of Siipi's taxonomy, but simply note two consequences that are relevant to the argument I am proposing in this essay. First is the idea that general discussions about the meaning of *naturalness* or *nature* are inappropriate, and probably meaningless, because there are a manifold of ways in which we can understand natural and unnatural. When discussing *naturalness* or *unnaturalness* we need to discuss the specific form of the term being used.[60] And second, we need to stress the idea that in most cases, *natural* and *unnatural* must

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[56] Helena Siipi, "Dimensions of Naturalness," *Ethics and the Environment* 13 (2008): 74.
[57] Ibid., pp. 75–76.
[58] Ibid., pp. 77–78.
[59] Ibid., p. 79.
[60] Ibid., p. 95.

be understood along a gradient or spectrum. Judgments about natural value must be based on specific concrete cases, which can differ in degree, not abstract and universal categories.

This methodology works to positive effect in Siipi's further analysis of the meaning of *artifact* as this term is applied to the debate over ecological restoration policy. Siipi begins with the intentional modification of entities, since this seems to be a necessary condition for an entity to be considered an artifact: "the properties of any artifact have been intentionally modified by a human being or by a group of humans."[61] But especially when considering biotic entities, not all modifications are sufficient to make an entity into an artifact: adding one sunflower to a field does not make the field into an artifact, nor does adding a ski track through a snow-covered forest.[62] What is needed to make a modified entity an artifact is that the intentional action of the human being brings the artifact into existence by causing it to have certain properties.[63] For Siipi, this will distinguish the problematic case of the human infant from a typical case of the manufacture of a chair. It will also eliminate some cases that have been cited as counterexamples to my general argument against restoration projects. For example, a stream polluted by human industrial activity is not an artifact in terms of Siipi's account. Although the pollution is the result of intentional human activity, the stream did not come into existence because of the human modification of natural processes.[64] This analysis forces me and my critics to focus the debate over the artifactuality of ecological restoration on specific restoration projects themselves, not on the general modification of natural entities.

Siipi makes a further distinction between artifacts and side effects. Sawdust or pollution, for example, can be the foreseen consequences of intentional modification and the creation of artifacts; yet, they themselves should not be considered to be artifacts, for the purpose of the intentional action was not to create the side effect. Siipi notes an essential element of artifacts that is substantively equivalent to my view: "artifacts are never just expected and foreseen, but always the goals of the activities by which they are produced."[65] An artifact, as I have argued, is always the result of some intentional human purpose; the artifact would not exist without the desired end. Side effects exist because of human activity, but they are not the purpose of the activity; they are not natural entities, but they are not artifacts either. Siipi argues that this analysis of artifacts based on intentionality and purpose means that the important distinction we should consider is between artifacts and non-artifacts, not between artifacts and natural entities. Non-modified entities, whether living or not, fall into the class of non-artifacts. Siipi gives the examples of zebras, dandelions, waterfalls, and boulders. But more importantly, focusing on this distinction can explain why damaged ecosystems are not artifacts:

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[61] Helena Siipi, "Artefacts and Living Artefacts," *Environmental Values* 12 (2003): 415.
[62] Ibid., pp. 415–16.
[63] Ibid., p. 417.
[64] Ibid., p. 418.
[65] Ibid., pp. 419–20.

although humans modified the natural state of the polluted stream by intentional activity, the pollution was not intentional; the human purpose was not to create a polluted stream.[66]

In addition to the intentional creation of an entity, Siipi cites the role of function as a second condition in the meaning of artifacts. It is not enough for a new entity to be created by human intentional activity, but the new properties that are caused by the human modification must result in a new function. The combination of the bringing-into-existence condition and the new function condition are, for Siipi, sufficient to make any entity an artifact.[67] However, I believe that this combination of conditions is too narrow, for I have different intuitions about several of the examples that Siipi cites, such as a beautiful stone that one uses as a paperweight or genetically modified corn that is more resistant to pests.[68] Siipi considers neither of these cases to be artifacts: in the first case of the stone there is no creation or modification (unless we broaden the idea of modification to extend beyond the physical) and in the second case of the genetically modified corn there is no new function created; the modification "only makes it more suitable for the functions for which it is currently used." For Siipi, only if the modified corn was given a new function—say, it was genetically altered so that eating it would reduce cholesterol—would the new corn be an artifact.[69]

Although I have doubts about some of these examples, I think it is clear that the distinctions noted by Siipi help to clarify issues in the analysis of ecological restoration. Indeed, Siipi concludes her analysis of the meaning of artifacts by generally supporting my use of the concept in the description of restoration projects. Her conditions work to justify my claim that most intentional restoration projects are the creation of artifactual systems. If an industrial developer destroys a forest but then replants and rebuilds the ruined area to create a new forest, we have an artifact: an intentionally created new entity with a new function. The function is new because the re-created forest has a different function than the ruined area that existed prior to its restoration. It also has a different function than the original forest, since part of the reason why the re-created forest was produced was to atone, in some sense, for the damage to the original forest. Thus, the new system is an artifact. But not all intentional modifications of an ecosystem would be artifacts, for if the damaged system still retained its original function, then modifications—such as the remediation of pollution—would not be enough to consider the restored entity an artifact.[70] This analysis of the artifactuality of restoration projects supports my claim that we need to analyze restoration by means of a spectrum. Restoration projects may be more or less artifactual because of the kind and amount of new functions that result from the restoration activity.

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[66] Ibid., p. 420.
[67] Ibid., p. 424.
[68] Ibid., pp. 424–25.
[69] Ibid., p. 425.
[70] Ibid., pp. 425–26.

In sum, Siipi has developed a linguistic analysis of the meanings of *naturalness* and *artifact* that tends to support my critique of ecological restoration. By emphasizing intentionality, purpose, and function as part of the essential meaning of *artifacts*, her analysis places most restoration projects in the realm of artifactual systems. By noting that there are different kinds of natural and artifactual systems, her analysis makes explicit the importance of viewing this categorization along a spectrum, or a gradient, of naturalness and artifactuality. Thus, her analysis permits me to avoid criticisms of my view that claim that my characterization of restoration projects as artifacts is too broad; I can, for example, claim that restoration projects are artifacts while at the same time permitting the simple remediation of damaged ecosystems. Nonetheless, even on Siipi's narrow view of artifacts (a view with which I do not necessarily agree), most restoration projects will be artifactual because they involve more than remediation—the involve the intentional modification of systems and areas.

The success of Siipi's linguistic analysis as a means for understanding the philosophical issues in restoration policy suggests that we can use arguments about language to address even more fundamental questions in this debate, most notably the problematic status of the dualism between humanity and nature. I claim that the conceptual dualism of humanity and nature is a necessary condition for any meaningful philosophical or policy analysis of the ethics of environmentalism. In making this claim I am following the seminal argument of Kate Soper: ". . . the *a priori* discrimination between humanity and 'nature' is implicit in all discussions of the relations between the two."[71] Soper sees this conceptual distinction historically: ". . . an opposition . . . between the natural and the human has been axiomatic to Western thought, and remains a presupposition of all its philosophical, scientific, moral, and aesthetic discourse."[72] Whether we take a social constructivist (or anti-realist) view of the meaning of *nature* as something that humans create, or we adopt a view that sees humanity as "part" of nature, we assume the background of the conceptual distinction, if only to argue against its existence.[73] The distinction also remains as the foundation of all discourse about environmental policy. According to Soper, "all ecological injunctions"—i.e., whether to pursue nonanthropocentric goods at the cost of sacrificing human interests, to leave nature alone, to develop sustainable policies to conserve natural systems, to safeguard future resources—all these policies are "clearly rooted in the idea of human distinctiveness."[74] There can be no denial that this distinction exists and forms the basis of our thoughts regarding the environment. "What is then at issue in the humanity-nature division is not the positing of the distinction in itself, but the way in which it is to be drawn, and importantly whether it is conceptualized as one of kind or degree."[75]

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[71] Kate Soper, *What is Nature? Culture, Politics and the Non-Human* (Oxford: Blackwell, 1995), p. 15.

[72] Ibid., p. 38.

[73] Ibid., p. 39.

[74] Ibid., p. 40.

[75] Ibid., p. 41.

The dualism of humanity and nature—the conceptual distinction between them—is a question of grammar, the fundamental use and meaning of the terms. Paul Keeling makes a convincing argument for this point in an essay defending the preservation of wilderness. Critics of the wilderness idea, claims Keeling, cite the mistake of positing a human-nature dualism as the central philosophical objection. A belief in the existence of wilderness is based on an "idealization of pristine, untrammeled nature [that] enshrines an untenable human/nature dualism."[76] This is the same objection, it must be noted, that has been lodged against my criticism of ecological restoration, particularly my use of the distinction between *artifact* and *natural entity*. Keeling claims that "the objection is a red herring,"[77] relying on a poor analysis of the meaning of nature and an avoidance of the real normative issue of the value of wilderness areas.

Keeling begins his argument by a criticism of the strategy of attempting to find an essential meaning to the term *nature*—a criticism leveled at both my views and Vogel's rejection of my views. The attempt to determine one essential meaning of *nature* (and its supposed opposite, *artifact*) leads to either questionable ontological problems if one follows my argument or to Vogel's "unhelpful generalization that all artifacts are natural."[78] Instead of attempting to find one essential meaning, we should consider the performative aspect of speech about nature and artifacts, so that we see that what is involved here is a "certain kind of rule-guided practice" about the *use* of the words *nature* and *artifact* rather than an analysis of meaning. This Wittgensteinian approach recognizes the obvious "multi-faceted and complex usage of the term 'nature,'" but unlike the abstract criticism of dualism, it places the use of the terms *nature* and *artifact* in context. When a person claims that he or she loves nature, he or she "is ordinarily not specifying a special fondness of the human-built environment."[79] We understand this, without any significant problems, even without determining an essential meaning of the term *nature*. Indeed, it is the use of the term in contexts such as this—I stand outside, gesture to the trees surrounding my house, and say "I love nature"—that creates the meaning of the term.

Keeling contrasts this use with several "odd" uses of the term *nature*, as if a person showed us a photograph of Times Square while stating that "I do nature photography" or if a person pointed to a computer while stating "it is amazing what nature can do."[80] Although the words in these sentences make sense, we would be unsure what the speaker meant, for the speaker appears to be using the word *nature* incorrectly. "Cases like this demonstrate that there is an internal grammatical relation between human artifacts and nature or natural objects that cannot be

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[76] Paul M. Keeling, "Does the Idea of Wilderness Need a Defence?" *Environmental Values* 17 (2008): 506.

[77] Ibid., p. 507.

[78] Ibid., p. 508.

[79] Ibid., p. 509.

[80] Ibid., p. 510.

genuinely doubted."[81] And the key purpose behind the use of the words *nature* and *artifact* in our "language-game" is to make a distinction between human agency and nonhuman agency.[82]

Because the terms *nature* and *artifact* have an internal grammatical relation, we cannot define them in some pure way independently of each other: "differentiating artifacts from natural objects is partly constitutive of the meaning of the two terms."[83] The distinction, and the use of the distinction to label some objects as artifacts and some as natural, is not open to empirical investigation. Here Keeling criticizes Vogel's question about human actions being different from nonhuman actions—"why are *those* processes called natural ones while the ones *we* initiate are not?"—as akin to asking why is black darker than white? For Keeling, "there is no justification beyond simply saying, 'we play this language-game, and *this* is how we play it.' There is no way to justify empirically the fact that human artifacts are not natural objects. It is true *a priori*."[84] The dualism of *nature* and *artifact* thus does not need to be defended; it is pre-supposed in any discussion of the value of the natural environment.

So the critics of the wilderness idea—those that deny the existence of a nature free of human interference—are making an empirical and ontological claim about terms that are fundamental to our grammar, our language for describing the world. To say that empirically there is no place on Earth that is not untouched by human activity may be factually correct, but saying this does nothing to change our use of the terms *nature* and *artifact*. It does not demonstrate the truth of an anti-dualist position regarding humanity and nature. Nor can one reject dualism by changing the context of the word *wild* as Vogel does, in his use of the term to apply to human action. As Keeling argues against Vogel, "to extend the concept of wildness to the unpredictability of human artifacts . . . is not to make any new empirical observations about human artifacts or to discover any hitherto unnoticed facts about them. It is . . . simply to invent a new context for the world 'wild' where there are no established rules for its use."[85] This new use of the term *wild* makes no sense within our established grammar. We cannot dismiss the dualism of nature and humanly created artifacts by linguistic fiat.

This focus on the language we use in developing a normative theory about the value of natural entities is given additional support by a similar argument about the use of metaphors in debates over environmental policy. Willis Jenkins has argued that various descriptions of nature are really proxies for ideas about human behavior and action regarding the natural environment, so that we need "to pay evaluative attention to metaphors of agency."[86] To cite some obvious examples mentioned

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[81] Ibid.
[82] Ibid., p. 511.
[83] Ibid.
[84] Ibid.
[85] Ibid., p. 512.
[86] Willis Jenkins, "Assessing Metaphors of Agency: Intervention, Perfection, and Care as Models of Environmental Practice," *Environmental Ethics* 27 (2005): 136.

by Jenkins, if we use a metaphor of "raping nature" through human action we will have different ideas about environmental policy than if we use the metaphor of the "management" of natural processes. Thus, "we cannot suppose to begin ethics apart from the way roles and practices are already imagined."[87] Jenkins uses this focus on metaphors of human agency to relocate the dualism of nature and artifact that permeates my critique of restoration. According to Jenkins, the dualism is not in my ontological "classifications of reality" but in my approval of just two extreme metaphors of agency—either we can preserve the integrity of nature by letting it be, or we violate it by acting and interfering with natural systems. It is the "limited conception of environmental practices" found in my arguments that "reinforces" the dualism.[88] Jenkins' solution, at least in part, is to develop a richer and more inclusive metaphor of human agency, for the restricted senses of agency that he claims to find in my argument actually interfere with the more complex of view of nature and artifact that is necessary for a meaningful environmental ethic. The first condition for a proper metaphor of human agency is that "the concept must be able to accommodate various forms of the 'natural' and complex gradations of 'artificial,' which is to say that it must be able to account for a rich variation of environmental particularity."[89]

So despite Jenkins' criticism of my too restrictive dualism of human agency regarding the natural environment, his conclusion is that we must develop language appropriate to a complex and nuanced view of artifacts and nature. This conclusion supports the analysis and argument of Keeling concerning the grammar of nature and artifact. In short, there is nothing incorrect about the dualism of nature and humanity that lies at the heart of my criticism of ecological restoration. On the contrary, this dualism is a necessary requirement for any meaningful discussion of environmental policy and ethics. As Val Plumwood explains, "without some distinction between nature and culture, or between humans and nature, it becomes very difficult to present any defense against the total humanization of the world."[90]

Nevertheless, there is a danger in relying too much on arguments concerning the analysis of language. As Soper succinctly comments: "it is not language that has a hole in its ozone layer."[91] There is a reason that we need to make an ontological commitment, and ontological distinctions, to a nature that exists outside the realm of human activity. That reason is the actual existence of a real other world, the world of nonhuman natural processes. This is the world that we, as environmentalists, wish to preserve and protect. Soper again: ". . . it is true that we can make no distinction between the 'reality' of nature and its cultural representation that is not

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[87] Ibid., p. 143.

[88] Ibid., p. 146.

[89] Ibid., p. 147 (emphasis removed).

[90] Val Plumwood, "Wilderness Skepticism and Wilderness Dualism," in *The Great New Wilderness Debate*, ed. J. Baird Callicott and Michael P. Nelson (Athens: University of Georgia Press, 1998), p. 676.

[91] Soper, *What is Nature*? p. 151.

itself conceptual, but this does not justify the conclusion that there is no ontological distinction between the ideas we have of nature and that which the ideas are about."[92] Our language signifies a real thing, nature, which is actually distinct from human cultural activity.

What we need then is a critical realism that accepts the ontological existence of a nature that is distinct from human activity while at the same time acknowledges the influence of our language and cultural constructions on our understanding of this other realm. One component of this critical realism might be a naturalistic account of the nature/culture dualism. Paul Moriarty has presented such an account, by defining *culture* (following J. T. Bonner) as "information transmitted non-genetically (or as the transfer of information by non-genetic means)." This account permits a negative definition of *nature* as "that which is not a product of human culture."[93] With these definitions, we have a naturalized account of both *culture* and *nature* that incorporates a dualism without denying naturalism. Why is this important? As Moriarty argues, a dualism of nature and culture that in itself is naturalistic is necessary for a coherent understanding of Darwinian science. After all, Darwin's concept of natural selection as the process by which evolution occurs is meant to be distinguished from artificial (or human-induced) selection, as in the breeding process of domestic animals and plants. Moriarty concludes: ". . . the denial of the nature/culture distinction is truly anti-Darwinian because it fails to understand the meaning of *natural selection*."[94] Moreover, Moriarty can use this naturalized definition of *culture* to distinguish human artifactual creations from those of the animal world: although it is true that animals also pass on information through non-genetic means, "human culture is unique in terms of the amount and kind of information we are able to accumulate and pass on from generation to generation and in the ways we are able to use that information to restructure the environment."[95] This naturalized account of the dualism thus avoids the main critical objections raised against the use of the human/nature or artifact/natural entity distinction.

But these arguments concerning the language of the human/nature distinction also point in a positive direction toward what is really at stake in debates over dualism and the critique of ecological restoration. As with Soper's warning about the hole in the ozone layer, the importance of recognizing the dualism is that it presents us with the ontological reality of a nature we wish to protect. Remember that Keeling claimed that the critics of wilderness preservation who based their objections on the existence of a pernicious and meaningless dualism were pursuing a red herring. The real issue, for Keeling, and for Soper and Moriarity—and for myself—is determining the value of a realm that is "other" than humanity. To deny

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[92] Ibid.

[93] Paul Veatch Moriarty, "Nature Naturalized: A Darwinian Defense of the Nature/Culture Distinction," *Environmental Ethics* 29 (2007): 237.

[94] Ibid., p. 242 (emphasis in the original).

[95] Ibid., p. 239.

the existence of this realm distinct from human action is to play havoc with our language, science, and conceptual framework for the world. But more importantly, it is to deny the existence of values recognized by all environmentalists, the values of the natural world.

A critique of the dualism of humanity and nature is, quite simply, a waste of time and effort. As Soper's broad survey of ideas about nature demonstrates, it is the political consequences and policies that are derived from our views of nature that are the main issue. "Nature," she writes, "does not enforce a politics."[96] There are good reasons for believing in the distinctiveness of humans and human culture. "The human predicament is sufficiently different from that of any other living creature to make it implausible to suppose that metaphysical naturalism is the automatic ally of ecology, dualism . . . its obvious enemy."[97] What matters is not dualism or non-dualism per se, for "the commitment to either may be said to be less critical to the practices of the Green Movement than the evaluative interpretations that are brought to these different perspectives on the nature-culture, nature-humanity divides."[98] In short, it is how we use the distinction between humanity and nature—a distinction that our language and conceptual frameworks of the world will not permit us to ignore—that will determine appropriate environmental policies.

VI. CONCLUDING UN-PRAGMATIC POSTSCRIPT

I have argued that the recognition of the human-nature dualism provides a solid reason for rejecting the project of ecological restoration, a policy that encourages the total humanization of the natural world. Understanding the significance of the dualism of humanity and nature reveals the essential artifactuality of the products of the restoration process. A critique of the restoration project maintains the environmentalist value in the "otherness" of nature, a realm that remains conceptually distinct from the human world even as it undergoes more and more anthropogenic modifications. A belief in the dualism of humanity and nature is thus not the problem; it is, rather, the solution, the means to preserve the value of the natural environment.

Let me conclude with some brief thoughts on the implications of this conclusion for actual and potential restoration activities—and indeed for some preservationist activities that intersect with ecological restoration. Consider the fact that the maintenance of preserved areas requires human action. Although a strict preservationist attitude will prohibit the direct management of natural processes in a preserved area, banning the use of controlled burns or the culling of certain animals, even a total hands-off policy requires the creation of a boundary area, a borderline, a barrier

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[96] Soper, *What is Nature?* p. 141.
[97] Ibid., p. 174.
[98] Ibid., p. 176.

to prevent intrusion from humans who may want to use the area. For this reason, Thomas Birch argued that to a certain extent even a "pure" wilderness area is an artifact of human production and power.[99] National monuments that are wilderness areas, such as the Giant Sequoias would be, according to Birch, artifactual, for their continued existence requires the protection of human institutions. But note that if we employ the analysis of Siipi, discussed above, the evaluation becomes more complex. Using the first of Siipi's criteria, the Giant Sequoias, or any other natural wilderness entity or area, would not be an artifact, since the human action involved did not create the entity; but using the second criterion, one could argue that the human activity of setting up a boundary or a protective system, changed the function of the entity, at least in part, for now the protected entity has the additional function of being a symbol of a wild nature. Clearly this is where the emphasis on the spectrum of naturalness and artifactuality becomes extremely important. The artifactuality of protected wilderness areas or preserved national monuments is extremely small, falling at the end of the spectrum closest to "completely natural," as long as there is no direct activity that tends to preserve the natural entity. If the U.S. Forest Service, for example, chooses to allow controlled burns—or takes the opposite position of doing everything it can to prevent all forest fires in the area—then this human activity increases the artifactuality of the area. This artifactuality does not mean that the policy is evil, and it does not mean that the actions should be prohibited: the point is simply that we recognize the human influence in the continued existence of the natural area.

What does this mean for the policy of ecological restoration? I make no blanket condemnation of restoration. Even in "The Big Lie" I compared it to the cleaning or covering up of a stain on a carpet, an action that might be necessary to make one's living room presentable—but I claimed that far better would be the policy of preventing the stain in the first place.[100] So restoration projects are often better than nothing, but what we must always remember is that these activities are generally on the far side of the spectrum, near the extreme of artifactuality. Consider the restoration of abandoned farms in the American prairie. Is the controlled burn of these farmlands justifiable, so that the seeds of original prairie grasses can be reactivated? Or should the abandoned farmland just remain as it is, waiting centuries perhaps for nature to take its course? As a philosophical pragmatist, I must admit that any decision will depend on the specific piece of land, the actual situation at hand. Whatever we do, controlled-burn restoration or letting be, we will, in a sense, be imposing a human intention on the landscape as it now exists. This case fits precisely into the criteria of artifactuality developed by Siipi: restoration of the farmland to return to a prairie landscape will bring into existence a new entity or ecosystem with a new and different function. The prairie environment will result in

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[99] Thomas Birch, "The Incarceration of Wildness: Wilderness Areas as Prisons," *Environmental Ethics* 12 (1990): 3–26.

[100] Katz, "The Big Lie," p. 240; reprinted in Katz, *Nature as Subject*, p. 106.

different outcomes than the abandoned farmland. We will be creating a landscape that we humans wish to see in the world. Thus, the end result of restoration projects might be a more pleasing world, and even a better world, but it will be a world that reveals the imprint of human intentionality and design.

The fundamental philosophical issue in the critique of ecological restoration does not concern policy. Ecological restorations will continue no matter what philosophical critics say in academic journals. We can hope—as Light and Higgs suggest—that the restoration projects will be done in the proper spirit of co-operation and respect for nature and human community. Ultimately, however, I believe that how restoration projects are done, and for what purpose, and under what conditions, is irrelevant to the fundamental question. The issue is not what we do. It is what our actions mean. Ecological restoration will always be an expression of the human project of the domination of nature, the attempt to control the world that is distinct and separate from humanity.