



You Can't Not Choose: Embracing the Role of Choice in Ecological Restoration

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You Can't Not Choose:
Embracing the Role of Choice in Ecological Restoration

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Abstract

From the moment of its inception, human choice about how to treat the environment is a key part of ecological restoration. Because many, if not most, restoration projects require continual management once established, human choice remains a vital component of restoration projects for their entire life. But ecological restorationists often downplay the role of choice in restoration, partly because we see the choice to restore as obvious and inherently good and partly because we feel the restoration of more natural conditions for a habitat will lessen the impact of human choice over time. Some critics feel the role of human choice in restoration degrades the value of restoration. However, another response to human choice in restoration is to embrace choice, even with the problems it brings, and use choice as a way to more fully engage humans with the environment. If such choices are approached carefully, with recognition of the potential for poor choices, then restorationists can arrive at restorations that are better for both the environment and us.

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Introduction

When I began working in ecological restoration 15 years ago I had recently finished graduate school and wondered whether my research into disturbance ecology would ever be relevant to anyone other than a small cadre of ecologists working on similar problems. My graduate program in ecology was based almost entirely in the understanding that ecology was a hard, objective, pure science. Most people in the program regarded any research done in habitats that were highly modified by human activity as somewhat compromised. I had heard a bit about ecological restoration but it was not until I found myself working in the field that I became well acquainted with it. My initial response to working as a restoration ecologist was something along the lines of “Wow! This field is amazing – I can do real ecological science and do some good for the environment at the same time!” Everything about ecological restoration seemed inherently good.

Thus I was shocked when I stumbled upon articles by Robert Elliot (1982) and Eric Katz (1992) which were highly critical of ecological restoration. I knew that mitigation was problematic in that mitigation may give people license to destroy good habitat in the name of development, but I could not understand how anyone could find problems with restoration of degraded habitat.

However as I gained experience in ecological restoration I began to develop my own questions about restoration. I serve as a director of a field station where some of my duties are to manage and study restored tallgrass prairies where restoration began in 1955 (Allison 2002). My initial questions about ecological restoration grew out of that management – especially my struggles to prevent Black locust (*Robinia pseudoacacia*)

from taking over the prairies. Black locust is a tenacious plant and removing it from the prairies has proven to be a difficult task. I developed a hatred of Black locust. One day I asked myself, "How did I get here?" I'm a plant ecologist who finds all plants to be fascinating and wonderful in some way, so how did I become someone who hates a particular plant?

In the course of my research I found that even the old well established restored prairies I managed were significantly different from remnant prairies in terms of species richness, spatial arrangement and response to drought (Allison 2002; S. Allison 2007, unpublished data). That finding surprised me as I thought that 50 year old restored prairies should be fully mature and should function like truly old remnant prairies. I wondered whether restored ecosystems would ever completely match the remnant ecosystems we use as models when designing our restorations.

As I reflected on my own experiences and the critiques from Elliot and Katz, I started to question the role of human choice in ecological restoration. My predecessors made the choice to plant prairies on former agricultural land in western Illinois and I make choices about how to maintain those prairies. Ecological restorationists say one of their main goals is to produce restored ecosystems that will function with minimal input from humans but how do we reconcile the choices we make in restoration with a goal of minimal human input? That is one of the most critical questions facing us as we proceed with ecological restoration in the 21st century.

The Role of Human Choice in Ecological Restoration

Ecological restoration is a practice in which choosing the best language to describe that practice has been especially problematic. The Society for Ecological

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Restoration has developed several definitions for ecological restoration since the first official Society definition in 1990 (Higgs 2003). The most recent, and probably not final definition, from the Society states that:

“Ecological restoration is the process of assisting the recovery of an ecosystem that has been degraded, damaged, or destroyed.” (Society for Ecological Restoration Science and Policy Working Group 2002)

The definition was purposefully kept broad in order to accommodate all varieties of ecological restoration undertaken by members of the Society (Society for Ecological Restoration Science and Policy Working Group 2002). There are advantages to developing a broad definition, but such a definition is problematic because it provides few guidelines as to what constitutes good restoration practices or goals and how to choose the best practices and goals.

I do not intend to critique the arguments made by Elliott and Katz because many others have already done so in the pages of this and other journals, but I mention their work to help put the problem of choice in restoration into context. One of their main concerns about ecological restoration was centered in the idea that we are better off choosing to preserve whatever wild habitats remain rather than trying to improve already damaged habitat via restoration. I cannot think of anyone working in restoration who would disagree with the need to preserve remaining wild habitat. But what Elliott and Katz fail to acknowledge is that at this stage in human cultural and ecological history the future of all habitats will depend upon human choice whether our choice is to preserve, restore or continue to develop habitat.

While issuing a call for people to embrace ecological restoration Frederick Turner wrote:

“We must take responsibility for nature. That ecological modesty which asserts that we are only one species among many, with no special rights, we may now see as an abdication of a trust. *We are, whether we like it or not, the lords of creation*; true humility consists not in pretending that we aren't, but in living up to the trust it implies by service to the greater glory and beauty of the world we have been given to look after.” (Turner 1985:51-52; emphasis added)

Despite his appeal to our sense of humility, there is an arrogance to his phrase “the lords of creation” and the notion that we have been given the world to oversee that fits in all too well with our history of treating the earth as a resource that is there for us to use as we choose. That arrogant attitude and resource-use mindset have led to many of the problems which restoration aims to correct. Yet Turner hit upon a fundamental truth. It is clear that given the realities of global climate change, the human imprint on the face of the earth is so large that there is no place that has escaped our influence. If we look for nature and the natural in places without the human footprint, then we will never find them because wild nature as a place devoid of human influence has ceased to exist (McKibben 1989; Rees 2000). Daniel Janzen feels that humans have overwhelmed the environment.

“And all this is to say that humans have won the battle against nature. Humanity makes its living by preventing restoration. It is up to us to accept the responsibility of putting the vanquished back on their feet, paws, and roots. We can do it.” (Janzen 1988:244)

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Implicit in Turner's and Janzen's calls for recognition of human domination of nature and thus duty to restore nature, is the notion that humans are uniquely situated to carry out this restoration. As far as we know we are the only species to have developed moral and ethical systems, thus it is imperative for us to choose to repair the damages we have caused. If we are going to live in a world that continues to possess riches of biodiversity, if we are going to live in a world that has room for species and habitats that do not benefit us, then we must restore and preserve as much habitat as possible.

Eric Higgs (2003) sees ecological restoration as a complex discipline in which good restoration must be based on four key points – ecological integrity (the restored ecosystem should function to maintain biodiversity and other key ecological properties), historical fidelity (the restored ecosystem should be based on the ecosystem that was damaged by past human activity), focal practices (restoration should generate meaning for humans through regularly working with nature), and wild design (an acknowledgement that when restoring habitat we are making choices about the future of that habitat but that we must also plan for natural processes taking over and modifying the habitat once our initial efforts at restoration end). Higgs thinks restorationists are key players in determining how nature is defined and used and that restorationists must lead the process of helping restore not just nature but the human relationship to nature (Higgs 2005). Once restorationists fully recognize their role in choosing at least the starting conditions and hoped for end-point of restoration projects, it is vital for them to engage with both the environment and the human community to achieve the restoration of humans and nature.

Restoration As An Active Choice To Work With The Environment

If we heed the call to “accept our responsibility” for repairing the damage we have caused to the non-human world (and I think all restorationists accept that responsibility), we are left with some difficulties. Humans have been choosing how to interact with the environment ever since the first members of *Homo sapiens* walked across the African plains. Our choices are usually made for rational reasons in the short term, reflecting immediate needs and desires, but too often we have not fully considered or understood the long term consequences of our choices (Hardin 1968). Once we realized our actions sometimes have negative consequences for the world, we developed two distinct modes of thought about how to respond to our actions that Evan Eisenberg has termed “Fetishistic” and “Managerial” (Eisenberg 1998). Fetishers are people who think nature knows best and is best left alone by humans as we always muck things up. For a Fetishist the best way to deal with human environmental damage is to set aside preserves where humans never visit or at least leave no trace after visiting. In its most extreme version, a Fetishistic world would be one where all humans return to a hunter-gatherer lifestyle. On the other hand, the Managers (and restorationists are definitely in the management camp), think that the only way to repair a damaged earth is for humans to become involved in restoration and management projects designed to reduce human impact and improve the world for other species. Eisenberg, who tends to be a Fetishist, worries that managers “like managing: they have trouble keeping their hands off” (Eisenberg 1998:287). To a certain extent, he has a point. We restorationists do like working with the environment. It makes us feel better about our relationship with nature if we attempt to correct past human errors. Many restorationists, from Aldo Leopold to

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Eric Higgs and Bill Jordan, see active human involvement with managing and restoring the environment as key to developing a healthy relationship between humans and the environment (Leopold 1939; Higgs 2003; Jordan 2003). How then are we to satisfy our desire to manage and restore nature without mucking it up?

Mark Michael classifies the human impact on nature as interference - some event or action that redirects an ecosystem so that its processes, functioning and structure are different from before the interference (Michael 2001). Because restoration explicitly aims to redirect an ecosystem, restoration is a form of interference with nature.

Restorationists usually intend their restoration of an ecosystem to return the ecosystem to some condition that would be similar to that which existed before an earlier human redirection that we now regard as damaging the ecosystem. Michael concluded that there are degrees of interference and whether interference is ethically permissible or not must be determined on a case by case basis. Michael's conclusion is helpful to us because it allows us room to negotiate whether restoration is proper and identifies that we must make such decisions in light of an examination of our goals and reasons for restoration.

In order for restoration to avoid the problem of being just another managerial interference with nature, for it to really be about repairing the environment and our relationship to the environment, then restoration has to avoid restoring the environment solely to benefit human needs and desires. Restoration must leave room for species that are not beneficial or desirable to humans and to allow the environment to develop along pathways that are not controlled by humans (Gross 2006). Katz continues to see restoration as human domination of nature (Katz 2007) but it need not be so. If restoration is a "co-creative" interaction between humans and the environment, then

restoration is not necessarily human domination of nature (Ladkin 2005). Restoration will be an especially co-creative process if we attempt to learn “from the landscape itself, an assumption that the landscape has its own agency and projects” (Ladkin 2005:204). Although assuming that the environment has its own agency is taboo for Darwinian biologists (Davis & Slobodkin 2004), many restorationists at least informally discuss the environment in similar terms although they may not actually believe in such agency. Aldo Leopold wrote about the land “thinking like a mountain” and discussed the land having particular desires (Leopold 1949). If we think about restoration as a recursive process in which both socio-cultural and ecological concerns are addressed with changes in one influencing the other while progressing towards a goal of mutual benefit for humans and the environment (Gross 2006), it is possible to envision a co-creative restoration without resorting to assumptions about environmental agency.

Models of Implementing Human Choice in Restoration

How then do we approach the task of making wise choices in restoration? We usually start by talking about restoration achieving historical fidelity and ecological integrity (Higgs 2003). But there is considerable debate in the restoration community about what those terms mean. Does historical fidelity mean restoring to some past condition and maintaining the ecosystem in that condition or does it mean restoring to some past condition and then allowing for the inevitable ecological changes that will occur? And what exactly is ecological integrity? Is it having a certain amount of biodiversity and particular ecological functions? Does a restoration have ecological integrity if it is missing entire trophic levels? I manage 19 hectares of restored tallgrass prairie – an area that is far too small to support Bison, the dominant large mammal

herbivores characteristic of tallgrass prairies, let alone the large mammal predators that preyed on Bison. Does a well established prairie plant community that lacks large mammals but supports arthropods, small mammals and nesting by threatened birds like Henslow's Sparrow exhibit ecological integrity? I think it does, but I am biased in this case.

For Eric Higgs and William Jordan the choices in restoration are really about humans choosing to restore both nature and the human relationship to nature. They focus on the process of restoration, seeing the process as an act that reunites humans with nature via regular performance. Higgs describes restoration as a focal practice that generates meaning to humans via a synthesis of mind, body, thing (such as a tool) and the environment. Higgs employs the metaphor of restoration as a conversation, fully cognizant of the fact that nature cannot speak to us in words. He feels that if we approach nature as an equal we should be able to engage in a conversation with nature and decipher the subtle messages nature provides (Higgs 2003). Jordan sees restoration as a ritual in which humans use restoration as a way to address the sense of shame that arises due to our own inadequacies in how we treat nature. Jordan sees communion as the primary metaphor for restoration, using communion in both the sense of sharing and spiritual fellowship (Jordan 2003). Although these metaphors are helpful as we envision how to restore nature, ultimately we need to make specific choices for each restoration project and we must move beyond metaphor to implementation.

Given the realities of global climate change and human use of the earth's resources (Vitousek et al. 1997) many people want to create new ways for humans to coexist with the rest of the world's organisms. Some scientists and restorationists have

developed ideas for creating forms of restoration that they label “win-win ecology”, “reconciliation ecology” and “futuristic restoration” the key features of which are planning for human development so that we share habitat and resources with other species, even those not useful or beneficial to us, and planning for restored sites to undergo dynamic changes as the earth’s climate continues to change (Rosenzweig 2003; Choi 2004). The goals of reconciliation ecology seem to be a bit too optimistic and human centered as the underlying assumption is that humans will continue to develop the earth but will do so in a way that satisfies human needs for resources and beauty while also satisfying the needs of other species. But at this juncture in the relationship of humans to the environment, it is better to be optimistic than not.

The centrality of human choice in restoration forces us to make difficult decisions when choosing our methods and goals in restoration projects. The questions about choice in restoration are almost never black and white, instead they are in a grey area. Environmental historian Kenneth Olwig has argued that if we remove human values from nature, then nature will not mean much to us and we will fail to properly appreciate and love it. He locates the origin of human values for nature in human interactions with nature and sees the need for recognition of cultural landscapes as the source of human value for nature (Olwig 1995). The choices we make about restoration may place value on wild nature, cultural landscapes or both, but we must choose what makes sense for each situation.

In North America there has been a tendency for restorationists to avoid engaging with cultural choices in ecological restoration. This avoidance is at least partly due to a focus on restoring ecosystems to conditions that existed before European arrival and

settlement and a failure to recognize the profound effects First Nations people had on the continent (Denevan 1992). As a result, North American restorationists are far behind their European colleagues in thinking about how to combine the natural and cultural in ecological restoration. Europeans have thought more about these issues partly because in Europe it is harder to define a point in time when there was a drastic change in land use practices and partly because in Europe there is very little land that is not currently in cultural use thus it making it critical for restoration to incorporate human needs and desires. Dartmoor National Park in England was preserved as a national park because of its grassy, windswept open appearance. However, when humans first settled the area around 7000 years ago, the land was covered by an oak forest. It was turned into moors by the use of fire and the presence of domesticated grazing animals. Recent changes in fire regime and grazing have lead to an encroachment of woody vegetation on the moors. Should the moors be restored to their grassy, open condition or restored to the pre-human arrival forests? This is not an easy question to answer but the open grassy moor is highly valued and thus maintenance of that ecosystem has been the goal of restoration there (S. Harding 2005, Schumacher College, Totnes, Devon, UK, personal communication). Similarly in the Netherlands restoration is an extremely complex question because restoration to “wild” conditions often means allowing natural processes to operate in former agricultural lands where the agricultural land itself was created by diking and filling shallow marine habitats –the landscape itself is cultural in origin. The Dutch restoration movement must confront a series of questions about “what kind of nature it really wants, what nature is or could be, and how the relationship between nature, development, and politics should be conceived of” (Van Der Heijden 2005:428). Dutch

restorationists realized that good restoration means local involvement in the decision making and restoration process and that it is critical to provide a mixture of habitats that promote biodiversity, wild nature, and culturally meaningful landscapes (Van Der Heijden 2005). The European experience with restoration indicates that good restoration will only happen when human choice is clearly acknowledged and incorporated into the process along with goals of increasing biodiversity and ecological integrity of the restored habitat.

Conclusion

When I was an undergraduate one of my professors, Francis Cousens, told us over and over again, “You can’t not choose. Failure to make a choice is a choice.” Professor Cousens was talking about moral and political choices we would have to make and meant that if we did not make a carefully considered choice, we were voting for maintenance of the status quo. Restorationists are faced with the same dilemma with respect to ecological restoration. Ecological restoration is similar to conservation biology because both are crisis disciplines – disciplines in which we often have to make decisions and choices before we have enough information to be certain that we are making the best choice but in which we also know that failure to make a choice will result in further degradation to the environment and loss of things we value in nature (Soulé 1986).

In many ways, the fact that we must struggle with making choices and whether we are making the right choices is good for us. Trying to determine the significance of our actions forces us to confront our assumptions and attitudes about how humans should relate to nature and whether our actions fit our beliefs about that relationship. The role of human choice in restorations opens the doors to both human arrogance about our abilities

to pick the right goals and methods for restoration and also human foolishness and error if we make poor choices for our goals and methods. Yet if humans are to work in restoration, we cannot get away from human choice as one of the prime factors in restorations. We know from history that people of good will sometimes make choices that turn out to be mistakes in our interactions with the environment. In the late 1800s a policy of fire suppression made perfect sense to forest ecologists in North America. One hundred years later we realized fire suppression was bad for our forests. We must hope that our choices at the least do not make things worse than they are now.

To move forward we must embrace the role of human choice in ecological restoration, promote the benefits of greater interaction between humans and the rest of the world via restoration, and make sure our restorations preserve as much species and habitat diversity as possible. If we can achieve those things on a larger and larger scale, then we will have done much to promote the survival of many species and habitats that are both ecologically and culturally valuable.

Implications for Practice

- Human choice is central to ecological restoration and an integral part of the process.
- Choices that result in good restoration must recognize both ecological needs such as maintaining biodiversity, ecological integrity, historical fidelity, and long-term dynamics, and human cultural values and needs.
- By combining ecological and human needs in restoration, restorationists can develop restorations that are ecologically valuable and culturally meaningful.

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